EFIC 30
EUROPEAN PAIN FEDERATION
Celebrating 1993-2023

13th CONGRESS OF THE EUROPEAN PAIN FEDERATION EFIC®

20-22 SEPTEMBER 2023
BUDAPEST, HUNGARY

PAIN IN EUROPE XIII

PERSONALISED PAIN MANAGEMENT: THE FUTURE IS NOW

EFIC-CONGRESS.ORG #EFIC2023

ABSTRACT BOOK

TABLE OF CONTENTS

ORAL POSTER COMMUNICATIONS

310

ADVERSE LIFE EXPERIENCES AND THE COMORBIDITY OF PAIN, DEPRESSION AND ANXIETY: A LONGITUDINAL COHORT STUDY FROM ADOLESCENCE TO YOUNG ADULTHOOD

G. Sperandio[1], V. Moliadze[1], N. Attal[2], D. Bouhassira[2], F. Nees[1]

[1]Institute of Medical Psychology and Medical Sociology, University Medical Center Schleswig Holstein, Kiel University, Kiel, Germany, [2]Inserm U987, APHP, CHU Ambroise Paré, UVSQ, Paris-Saclay, Boulogne-Billancourt, France, Paris, France

Methods: We used data from a large European longitudinal cohort (IMAGEN;https://imagen-project.org/) spanning from 14-25 years. The analyses were performed with data from 1700 individuals. To operationalize ALEs, single items were selected from prospective and retrospective questionnaires, sorted into categories, and factors through Principal-Component-Analysis. A Latent-Class-Growth-Analysis was conducted for symptom levels of pain, anxiety, depression and comorbidity, followed by linear regressions for prediction analyses of ALEs' impact on symptom classes. Finally, the additional role of developmental changes in brain structure was evaluated applying mediation analysis.

Results: We found similar ALEs to impact anxiety and pain, while for depression and pain a more divergent pattern exists. For comorbidity (pain-anxiety, pain-depression), these impacts of ALEs on symptom levels became stronger. Finally, the hippocampus, thalamus and frontal volumes served as significant mediator of the association between ALEs and comorbidities, specifically in adolescence rather than early adulthood.

Conclusions: Our data suggest ALEs related common mechanistic pathways between anxiety and pain and with a role of developmental changes in cortical and subcortical brain structures. These data may inform individual early prevention and intervention initiatives.

354

BRAIN VOLUME IN WOMEN WITH ENDOMETRIOSIS-ASSOCIATED PAIN CHANGES IN ASSOCIATION WITH POST-SURGICAL SYMPTOM IMPROVEMENT

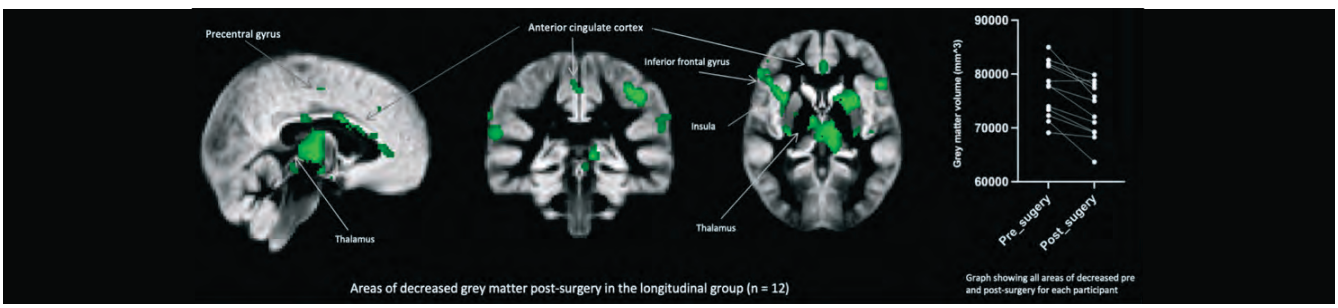
M. Szabo[1,2], L. Buck[2], G. Douaud[3], K. Vincent[2]

[1]University of Oxford, Oxford, United Kingdom, [2]Nuffield Department of Women's & Reproductive Health, University of Oxford, Oxford, United Kingdom, [3]Wellcome Centre for Integrated Neuroimaging, Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford, United Kingdom

Methods: Women with known/presumed endometriosis underwent 3T MRI scans (Siemens Prisma) and completed validated questionnaires before surgery. A cross-sectional patient cohort (n = 25) was compared with healthy controls (n = 14). A subset of these women (n = 12) underwent a second scan at after surgery and were used for a longitudinal analysis comparing pre-and post-surgery. Voxel-based morphology was carried out with FSL, and results corrected for multiple comparisons ($p<0.05$). Clinical scores were compared pre- and post-surgery in SPSS.

Results: Compared with healthy controls, women with EAP had increased grey matter (GM) in the thalamus, putamen and caudate nucleus, anterior cingulate cortex, paracingulate gyrus, precentral gyrus, and the superior frontal gyrus, and decreased in the cerebellum. There was an improvement on average in all pain scores post-surgery; this was significant for strongest pain ($p=0.011$), average pain ($p=0.010$), and dysmenorrhea ($p=0.011$). Anxiety scores also improved significantly (trait: $p=0.002$; state: $p=0.012$), whilst the improvement in depression was not significant ($p=0.211$). GM decreased post-surgery in a number of regions, including many where increases had been identified in comparison with healthy controls (fig 1).

Conclusions: Our findings suggest that changes in GM volume in women with EAP may be dynamic, normalising with symptom relief after surgery.



450

DEMOGRAPHICAL, SOCIO-PROFESSIONAL FACTORS AND HABITS ASSOCIATED WITH CHRONIC WIDESPREAD PAIN IN A LARGE GENERAL POPULATION COHORT

F. Bailly[1,2], A. Pettit[3], S. Kab[4], V. Foltz[5], M. Badard[5], B. Fautrel[1,5]

[1]Pierre Louis Institute of Epidemiology and Public Health, INSERM UMRS 1136, Paris, France, [2]Assistance Publique - Hôpitaux de Paris - Pain Center, Paris, France, [3]CHU Angers - Centre de consultations de pathologie professionnelle, Angers, France, [4]Constances, INSERM UMS011, Villejuif, France, [5]Assistance Publique - Hôpitaux de Paris - Rheumatology center, Paris, France

Methods: The Constances cohort consisting of randomly selected volunteers aged 18 to 69 years, between 2013 and 2020 in France (Zins M et al. 2015 *Eur J Epidemiol*). An ancillary study from this cohort aim to identify musculoskeletal pain using the Nordic Questionnaire. Chronic pain was defined as pain in at least 4 of the 6 areas, during at least 30 days during the previous year. Individuals diagnosed with a cancer were excluded. Demographic, clinical, social, and occupational data at inclusion were collected. Missing data were imputed. Multivariate analysis was performed.

Results: 193,436 people were included, of whom 7% (13,447 people) suffered from CWP. Female gender, age, higher BMI, depression, medium or high physical activity at work, current or past smoking, less sleep duration, and low socioprofessional category were associated with CWP. Diploma was a protective factor, as well as leisure physical activity, while job search, household income, alcohol or cannabis were not or poorly associated with CWP.

	Odds Ratio - Confidence interval 95%
Female sex	**1.91 [1.82 - 1.99]**
Age (reference 18-30 years)	30 to 40 years : **1.55 [1.40 - 1.72]** 40 to 50 years : **2.35 [2.13 - 2..60]** 50 to 60 years : **3.40 [3.07 - 3,76]** 60 to 69 years : **2,92 [2.60 - 3.29]**
BMI (reference 18.5 - 25).	< 18.5 : **0.83 [0.73 - 0.95]** 25 to 29.9 : **1.19 [1.14 - 1.24]** 30 to 34.9 : **1.40 [1.32 - 1.49]** 35 to 39.9 : **1.48 [1.34 - 1.63]**
Depression (CESD score)	**2.19 [2.10 - 2.28]**
Sleep duration (Odds ratio for one hour)	**0.92 [0.91 - 0.93]**
Alcohol (reference : no misuse or dependance - Audit Score)	Misuse **0.93 [0.89 - 0.97]** Dependance 1.04 [0.95 - 1.13]
Smoking (reference : no smoking)	Previous smoking : **1.30 [1.24 - 1.36]** Actual smoking : **1.25 [1.18 - 1.32]**
Cannabis (reference : never use)	cannabis used more than a year ago 0.96 [0.91 - 1.01] Used in the 12 last months 0.99 [0.87 - 1.11] Used in the 30 last days **1.16 [1.04 - 1.28]**
Physical activity at leisure (reference : no activity)	Very low activity : 0.96 [0.85 - 1.09] low activity 1.01 [0.91 - 1.13] moderately activity 0.90 [0.81 - 1.01] Activity 0.92 [0.83 - 1.03] Quite activity **0.80 [0.71 - 0.89]** Important activity **0.84 [0.75 - 0.95]**
Physical activity at work (reference : sedentary)	slightly active (walking / handling < 10 kg) : **1.09 [1.03 - 1.16]** moderately active (handling objects between 10 and 25 kg) **1.58 [1.47 - 1.70]** highly active (heavy handling > 25 kg) **2.39 [2.19 - 2.62]**
Socio-professional category (reference : intermediate profession)	Farmer 1.23 [0.72 - 2.01] Craftsman, merchant or business owner 1.08 [0.94 - 1.23] Executive and higher intellectual profession **0.93 [0.87 - 1.00]** Employee **1.08 [1.02 - 1.14]** Worker **1.21 [1.12 - 1.30]** Never work 0.88 [0.71 - 1.08] Missing data 1.01 [0.93 - 1.09]

Diploma (reference : without diploma)	general certificate of secondary education 0.98 [0.88 - 1.09] Certificate of professional competence 0.98 [0.89 - 1.08] High school diploma 0.88 [0.80 - 0.97] 2 years after high school diploma **0.76 [0.68 - 0.84]** Bachelor's degree **0.65 [0.57 - 0.73]** Master's degree **0.58 [0.51 - 0.65]**
Profefssional situation (reference : employed)	In formation **0.79 [0.66 - 0.95]** Job seeker 1.04 [0.95 - 1.14] Without job 0.90 [0.78 - 1.04] No job due to medical disease **2.46 [2.16 - 2.80]** Pensioner 0.94 [0.85 - 1.03] Missing data 0.91 [0.81 - 1.02]
Household income (reference : 1000 to 1500 euros)	Less than 45 euros : 0.89 [0.69 - 1.12] 450 to less than 1000 euros 1.04 0.93 - 1.16] 1500 to less than 2100 euros 0.96 [0.89 - 1.04] 2100 to less than 2800 euros 1.05 [0.97 - 1.13] 2800 to less than 4200 euros 1.02 [0.95 - 1.10] More than 4200 euros **0.89 [0.82 - 0.97]** Cannot answer 0.88 [0.71 - 1.09] Do not want answer 0.89 [0.69 - 1.12]

Conclusions: CWP remains frequent in the French general population and is clearly associated with specific socioeconomic factors.

451

META-ANALYSIS OF OPIOID ANTAGONIST STUDIES INDICATES MODEST ROLE OF ENDOGENOUS OPIOIDS FOR PAIN REGULATION IN HUMANS

I. Meier[1], M. Trøstheim[1], E. Jensen[2], G. Løseth[2], S. Leknes[2,1]

[1]Oslo University Hospital, Oslo, Norway, [2]University of Oslo, Oslo, Norway

Methods: We conducted a systematic review and meta-analysis of experimental pain studies using an opioid antagonist in healthy humans, searching Web of Science, Scopus, PubMed and EMBASE. Eligible studies were at least double-blind, randomized, and placebo-controlled, used physiological pain interventions, and administered a centrally active antagonist (unspecific or μ-opioid receptor specific). Quality assessment and funnel plots were used to evaluate risk of bias. To compare drug effects on pain, we calculated Hedges' g for individual outcomes and estimated the summary effect with a three-level random effects meta-analysis.

Results: A total of 60 studies (n = 2011) were included. Overall, experimental pain responses were significantly higher with full μ-opioid blockade compared to conditions where participants received a pharmacologically inert substance (Hedges' g [95% CI] = 0.23 [0.10, 0.36]), but the main effect was small and with considerable heterogeneity (I^2 = 77.2%). Initial investigation of variance indicated a null effect in studies where the antagonist dose was insufficient for full (>90%) μ-opioid receptor blockade. No significant effect was found for pain unpleasantness.

Conclusions: The small increase in pain sensitivity during experimental pain in healthy humans after full endogenous opioid blockade is consistent with endogenous opioid fine-tuning rather than full regulation of the subjective experience of pain.

455

A MULTIVARIATE ANALYSIS OF PRESURGICAL INFLAMMATORY MARKERS IN PATIENTS WITH PAINFUL KNEE OSTEOARTHRITIS: CAN POSTOPERATIVE PAIN BE PREDICTED?

R. Giordano[1], B. Ghafouri[2], L. Arendt-Nielsen[1,3,4], K. Kjær-Staal Petersen[1,3]

[1]Center for Neuroplasticity and Pain (CNAP), SMI, Department of Health Science and Technology, Faculty of Medicine, Aalborg University, Aalborg, Denmark, [2]Pain and Rehabilitation Centre, and Department of Health, Medicine and Caring Sciences, Linköping University, SE 581 83, Linköping, Sweden, [3]Center for Mathematical Modeling of Knee Osteoarthritis (MathKOA), Department of Material and Production, Faculty of Engineering and Science, Aalborg University, Aalborg, Denmark, [4]Department of Gastroenterology & Hepatology, MechSense, Aalborg University Hospital, Aalborg, Denmark

Methods: Blood samples from preoperative KOA patients (n=200) and healthy participants (n=39) were collected and analyzed using OLINK inflammatory panel. Clinical pain intensity and the Knee injury and Osteoarthritis Outcome Score (KOOS) questionnaire were assessed before and 12-months after TKR. Multivariate data analysis was performed to identify differences between patients and controls. Hierarchical cluster analysis and orthogonal partial least squares-discriminant analysis (OPLS-DA) was used to identify subgroups within patients with KOA and t-tests were used to evaluate differences in clinical pain intensity and KOOS scores between the groups.

Results: Multivariate analysis showed 12 proteins differentially expressed between patients and controls. Hierarchical cluster and OPLS-DA analysis identified two patient subgroups with 23 proteins being significantly ($p<0.01$) up- or downregulated in the subgroups. Postoperative clinical pain and KOOS were significantly different between patients' subgroup 1 and subgroup 2 ($p<0.05$).

Conclusions: This study identified differences in 23 preoperative inflammatory markers comparing patients with KOA and controls. Furthermore, 2 specific subgroups within the patient cohort could be established using 23 inflammatory markers and these subgroups demonstrate different clinical pain and function scores when assessed 12-months after TKR.

464

BRAIN AND SPINAL CORD INTERACTIONS UNDERLYING CONDITIONED PAIN MODULATION WITH PRESSURE PAIN

K.E. Ojala[1], Y. Chu[1], J. Finsterbusch[1], C. Büchel[1]

[1]Institute of Systems Neuroscience, University Medical Center Hamburg-Eppendorf & University of Hamburg, Hamburg, Germany

Methods: 42 volunteers participated in an fMRI study with near-simultaneous imaging from somatosensory cortices down to the cervical spinal cord. Deep tissue pressure pain was applied in a within-subjects design with simultaneously experienced conditioning pressure (painful or non-painful; left bicep) and test pressure (painful; right bicep). Pain ratings, fMRI BOLD signals, skin conductance responses as well as pulse and respiration were measured.

Results: Pain ratings to the test stimuli showed behavioral CPM developing over time, with lower ratings during painful than non-painful conditioning pressure toward the end of the experiment (Fig. 1). Phasic test pressure was associated with neural activity in primary and secondary somatosensory cortices (Fig. 2A). Moreover, primary somatosensory cortices, motor and premotor cortices and anterior insula showed higher neural activity during painful conditioning pressure than during non-painful conditioning pressure (Fig. 2B).

Figure 1.

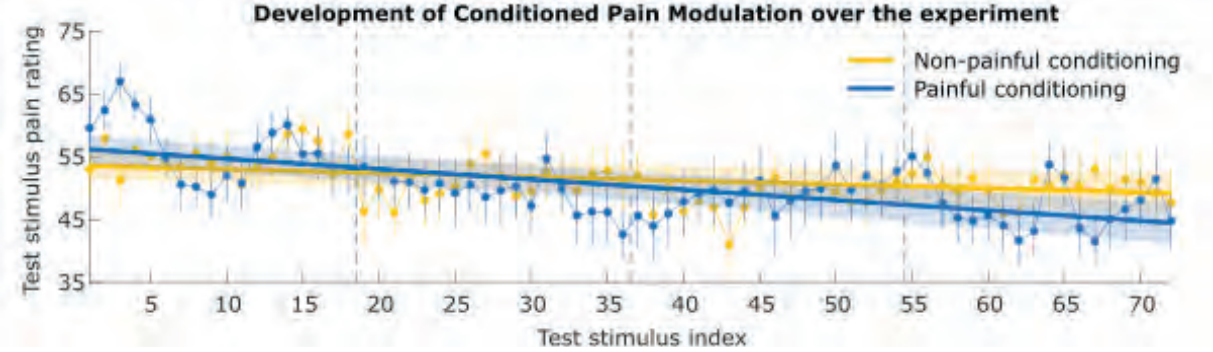
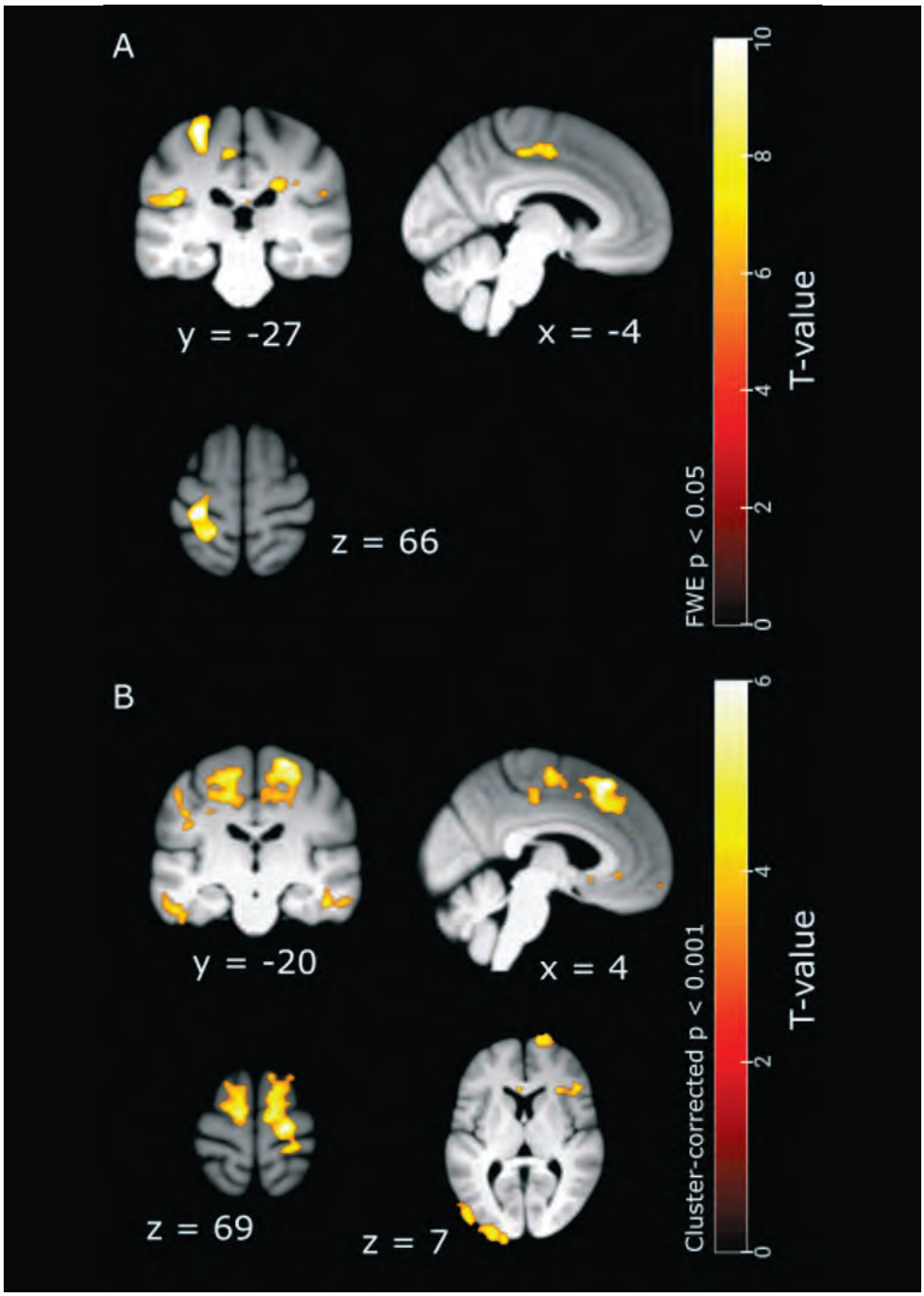


Figure 2.



Conclusions: We found CPM in healthy volunteers using simultaneous conditioning pressure and repeated painful test stimuli in a paradigm optimized for measuring neural responses to the test stimuli. We found expected neural responses in sensory and pain regions to the conditioning and test pressure. The final brain and spinal cord results will be presented at the conference.

587

USE OF HEALTHCARE SERVICES FOR PEOPLE WITH CHRONIC PAIN

S. Mose[1,2], P. Kent[3], A. Smith[3], J. Hviid Andersen[2], D. Høyrup Christiansen[4]

[1]VIA University College, Holstebro, Denmark, [2]Department of Occupational Medicin, Herning, Denmark, [3]Curtin University, School of Allied Health, Perth, Australia, [4]Research, Regional Hospital Central Jutland, Viborg, Denmark

Methods: This is a sequential mixed method study based on 3 studies (2 quantitative and 1 qualitative) from a population-based Danish cohort with 5068 individuals of whom 2929 reported chronic pain. Results presented are based on a joint interpretation and syntheses of all 3 studies.

Results: In this sample, 39% cope without seeking care (Low), 8% have consistent high use of pain-related healthcare services (High) and 53% have a medium use of pain-related healthcare service (Medium). Individuals with chronic pain explain that recommendations, beliefs and expectations, pain and functional limitations and need for reassurance often initiate pain-related healthcare seeking.

We found that healthcare contacts and costs increased with each incremental increase in number of pain sights and levels of health anxiety but. We found significant differences in individual, sociodemographic, health, belief, and work-related profiles between the low, medium and high healthcare-user groups. We also found differences between these groups in terms of understanding of pain, trust in healthcare, and expectations for the healthcare provider. Last, we found that pain-related healthcare services use seem to be modified by needs, expectations, and beliefs and previous healthcare experience.

Conclusions: Individuals with chronic pain use the healthcare system differently. Healthcare behavior is influenced by modifiable factors which should be considered by the healthcare provider.

588

PERIPHERAL BLOOD MONONUCLEAR CELL TRANSCRIPTOMIC ALTERATIONS IN DIFFICULT-TO-TREAT RHEUMATOID ARTHRITIS PATIENTS

L. Gunkl-Tóth[1,2], G. Sütő[3], G. Kumánovics[4], J. Kun[1,5], P. Urbán[5], A. Gyenesei[5], G. Nagy[6,7,8], Z. Helyes[1,2,9]

[1]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [2]Eötvös Loránd Research Network, University of Pécs, Chronic Pain Research Group, Pécs, Hungary, [3]Second Department of Medicine and Nephrology-Diabetes Centre, University of Pécs, Pécs, Hungary, [4]Department of Rheumatology and Immunology, Medical School, University of Pécs, Pécs, Hungary, [5]Bioinformatics Research Group, Genomics and Bioinformatics Core Facility, Szentágothai Research Centre, University of Pécs, Pécs, Hungary, [6]Department of Rheumatology and Clinical Immunology, Department of Internal Medicine and Oncology, Semmelweis University, Budapest, Hungary, [7]Department of Genetics, Cell and Immunobiology, Semmelweis University, Budapest, Hungary, [8]Heart and Vascular Centre, Semmelweis University, Budapest, Hungary, [9]National Laboratory for Drug Research and Development, Magyar tudósok krt. 2. H-1117, Budapest, Hungary

Methods: Patient recruitment is still ongoing, but 14 D2T RA patients and 11 HCs have been included in the study so far. Transcriptomic analysis was performed from the total RNA isolated from PBMC by next generation sequencing, the results were evaluated by bioinformatics tools.

Results: D2T RA patients showed several differentially expressed genes compared to HCs, mainly involved in immune cell migration and activation, cytokine- and chemokine-mediated signaling and neuronal regulation. There were 35 upregulated genes e.g. interleukin 15 (IL-15) and chemokine receptor 2 (CCR2) playing roles in maintaining inflammation, and Sortilin1 contributing to neuropathic pain. Meanwhile, 28 genes were downregulated such as tumour necrosis factor alpha-induced protein 3 controlling inflammatory responses. D2T RA subgroup with high pain and low inflammatory parameters revealed potential pain-related genes like the cholesterol-phospholipid efflux protein ABCA1 and EIF2AK2 encoding a serine/threonine kinase.

Conclusions: PBMC transcriptomics is a useful tool to reveal differentially expressed genes connected to pathophysiological mechanisms involved in inflammatory processes and pain sensitization in D2T RA patients. Confirming hypotheses generated with this unbiased omics approach can promote novel therapeutic developments.

Acknowledgements

ELKH, OTKA K138046, National Brain Research Program 3.0, TKP2021-EGA-16, RRF-2.3.1-21-2022-00015

590

MODALITY AND SEX DIFFERENCES IN INCISION-INDUCED PAIN USING MOUSE FUNCTIONAL MRI

H.-f. Chen[1,2], B. Pradier[1,2], D. Segelcke[2], M. Sandbrink[2,3], H.A. Bhatti[1], N. Nagelmann[1], M. Augustin[2], C. Faber[1], E. Pogatzki-Zahn[2]

[1]Translational Research Imaging Center, Department of Clinical Radiology, University Hospital Münster, Münster, Germany, [2]Department of Anesthesiology Intensive Care and Pain Medicine of the University Hospital Münster, Münster, Germany, [3]Department of Radiology and Neuroradiology, University Hospital Schleswig-Holstein (UKSH), Christian-Albrechts-Universität zu Kiel, Kiel, Germany

Methods: One day after INC or SHAM procedure on the right hind paw of male and female C57BL/6J mice (Segelcke et al. 2021), we performed task fMRI on a 9.4T MRI scanner by delivering mechanical vF and pp stimuli to the animal's hind paw using an MR-compatible rotating mechanical stimulator. The technical equipment and protocols were used as recently published (Pradier et al. 2021).

Results: Following mechanical hind paw stimulation, we detected BOLD activation in sensorimotor and sensory input regions in all experimental groups. We observed significant effects of INC and modality in all sexes (3-way ANOVA, $p<0.01$). In male and female mice, vF-stimulation consistently increased BOLD-signal in retrosplenial and sensorimotor cortices after INC compared to SHAM, while pp-stimulation resulted in a few significant changes in the sensory cortex. Additionally, we found an increased BOLD signal in female vs male mice in the superior colliculus and sensory cortex following INC.

Conclusions: Mechanisms of incision-induced pain in the brain highlight increased descending pain modulation. Further, the sex and modality differences one day after INC indicate different mechanosensory processing and neurophysiological adaptations in male and female mice.

601

THE ROLE OF STIGMA IN HEALTH AND FUNCTIONING IN CHRONIC PAIN: NOT JUST CATASTROPHIZING

A. Lavefjord[1], F. Sundström[1], M. Buhrman[1], L. McCracken[1]

[1]Uppsala University, Uppsala, Sweden

Methods: Adult participants (N=404) with endometriosis, low back pain, fibromyalgia, and other chronic pain conditions recruited online completed measures of pain, stigma, catastrophizing, pain interference, work and social adjustment, and depression.

Results: Stigma was found to significantly predict pain interference, work and social adjustment, and depression in all pain conditions, uniquely adding to the explained variance in these outcomes even after accounting for pain catastrophizing. Participants with endometriosis scored higher on stigma compared to those with low back pain, although stigma for the low back pain participants correlated more strongly with pain interference compared to for those with endometriosis.

Conclusions: Stigma is uniquely associated with pain related outcomes and should be further considered in pain research and clinical practice in the future. While correlations between stigma and the pain related outcomes were consistently significant for all pain types, indicating a generality of the importance of stigma as a predictor across pain conditions, the degree to which stigma impacts certain pain related outcomes may not be uniform across pain types.

617

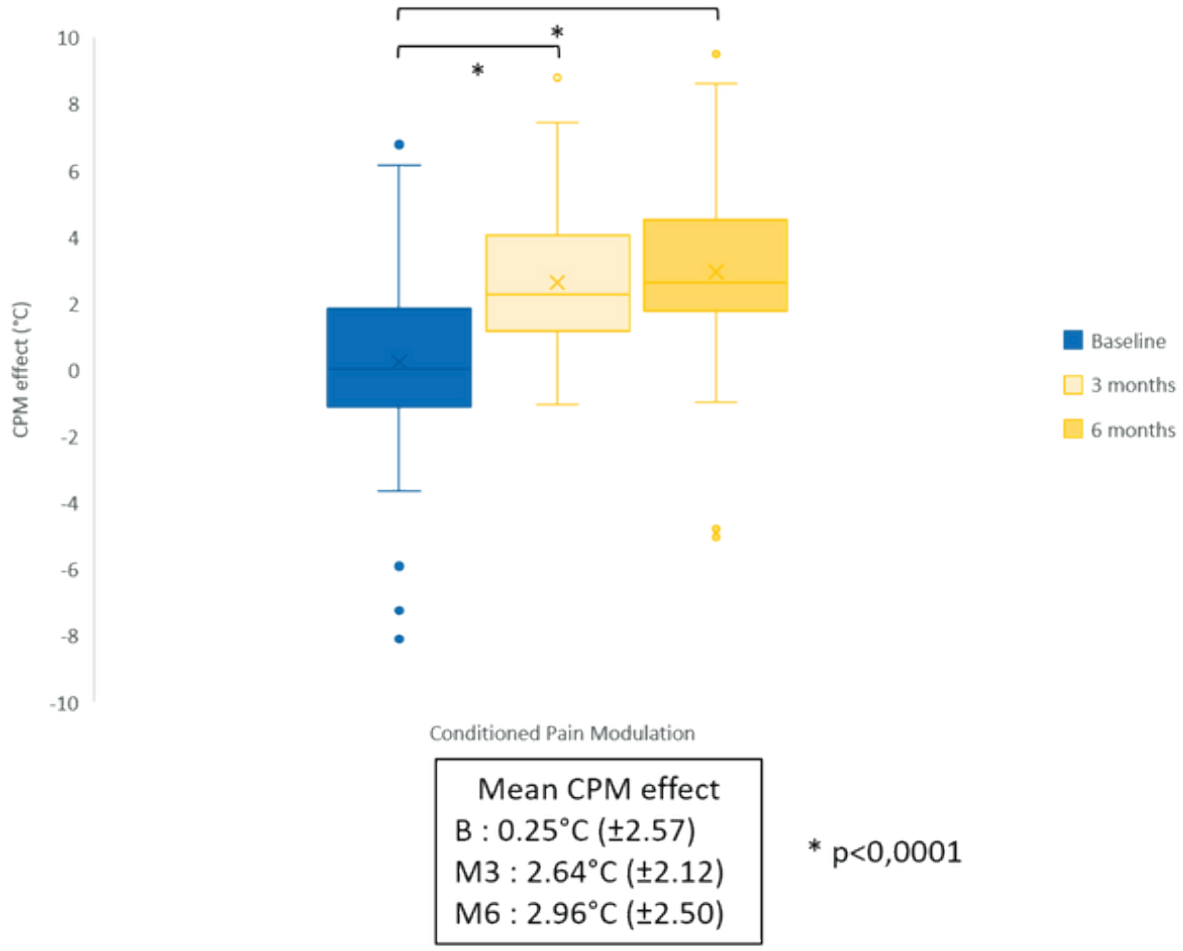
ANTI-TNF TREATMENT MODIFIES PAIN MODULATION DESCENDING PATHWAYS. A PROSPECTIVE, 6 MONTHS STUDY IN ACTIVE CHRONIC INFLAMMATORY RHEUMATISM PATIENTS NAÏVE OF BDMARD

A.-P. Trouvin[1,2], A. Simunek[3], J. Coste[1,4], T. Medkour[1,2], A. Combier[5], L. Poiroux[5], F. Vidal[6], S. Carves[3], D. Bouhassira[2,7], S. Perrot[1,2]

[1]Paris Cité University / Cochin University Hospital - Pain Medicine Department, Paris, France, [2]INSERM U 987, Boulogne Billancourt, France, [3]Cochin University Hospital - Pain Medicine Department, Paris, France, [4]Cochin University Hospital - Biostatistics and Epidemiology Unit, Paris, France, [5]Cochin University Hospital - Rheumatology Department, Paris, France, [6]Ambroise Paré University Hospital - Rheumatology Department, Boulogne Billancourt, France, [7]Ambroise Paré University Hospital - Pain Medicine Department, Boulogne Billancourt, France

Methods: The RAPID study was a multicentre study including patients with active RA or Spa before the administration of their first biologic Disease Modifying Anti-Rheumatic Drug recruited from two French university hospital rheumatology departments. Patients were included if "about" to start a TNF inhibitor for active articular disease and were followed for six months (visits at 3 and 6 months). In addition to clinical monitoring of the rheumatism, patients had thermal QST and CPM at both follow-up visits.

Results: One hundred patients were included and 87 patients intiated the anti-TNF. After 3 and 6 months of treatment, there was no significant modification of heat and cold pain threshold but a significant improvement of the CPM effect($p<0.001$) (Figure). At the end of the 6 months follow-up, mean CPM effect was significantly higher in patients with residual mean pain intensity <4/10 compared to patients with persisting pain ≥ 4/10: 3,25°C (± 2,68) vs 2,47 (± 2,11) ($p=0.04$).



Conclusions: After TNF inhibitor initiation, impaired diffuse noxious inhibitory controls are significantly improved. Apart from their articular efficacy, TNF inhibitor have an action on the central nervous system and pain modulation pathways.

624

REDUCED GLOBAL CONNECTIVITY IN SENSORY REGIONS IS ASSOCIATED WITH AUGMENTED MULTISENSORY HYPERSENSITIVITIES IN JUVENILE FIBROMYALGIA

L. Martín Herrero[1], M. Suñol Rodrigo[1], T.V. Ting[2], J.A. Dudley[2], C. Jackson[2], S. Kashikar-Zuck[2], R.C. Coghill[2,3], M. Lopez-Sola[1,2]

[1]University of Barcelona, Barcelona, Spain, [2]Cincinnati Children's Hospital Medical Center, Cincinnati, United States, [3]University of Cincinnati College of Medicine, Cincinnati, United States

Methods: Thirty-seven adolescent girls (16.26 ± 1.07 years) diagnosed with JFM and forty-three healthy adolescent girls (15.88 ± 1.32 years) completed validated measures of core JFM symptoms, multisensory hypersensitivities in daily life and a resting-state functional magnetic resonance imaging examination.

Results: Compared to healthy participants, JFM patients reported higher levels of multisensory and auditory hypersensitivities, which positively correlated with core JFM symptoms in patients. JFM patients with higher levels of sensory hypersensitivities had reduced global connectivity in visual-processing areas, concurring with findings in adult fibromyalgia. Reduced global connectivity in visual-processing areas mediated the association between auditory hypersensitivity and core JFM symptoms in patients.

Conclusions: The findings strengthen the association between reduced signal integration in visual systems during the resting state, augmented non-painful multisensory hypersensitivities and core clinical features in JFM. This study highlights the potential role of sensory processing alterations when studying, diagnosing, and treating JFM.

664

MULTIMODAL PROGNOSTIC MARKER OF SECONDARY HYPERALGESIA CAUSED BY BURN INJURY: AN EXPLORATORY STUDY

D. Rosenberger[1], D. Segelcke[1], F. Xian[2], M. Hermeling[1], K. Mund[1], M. Pereira[1], D. Görlich[1], D. Gomez-Varela[2], J. Sondermann[2], M. Schmidt[2], E. Pogatzki-Zahn[1]

[1]University Hospital Muenster, Muenster, Germany, [2]University of Vienna, Vienna, Austria

Methods: We profiled 21 females in the follicle and luteal phase at baseline (BL), induced a cutaneous BI at the lower leg and determined the extent of SHA. BL characterization included psychological questionnaires, quantitative sensory testing (QST), and quantitative mass spectrometry of blood plasma samples. Volunteers were stratified on the extent of SHA 1h after incision (high- and low-responder phenotypes) in each cycle phase. Logistic regression analysis scripts were used to identify prognostic marker and combinations.

Results: Upon BI, SHA developed time-dependently and individually but independently of the cycle phase. In high-responders, reactome pathway analysis at BL demonstrated a prominent activation of immune system components, including neutrophil degranulation and cytokine signalling. We identified bio-psycho-social predictive combinations, each consisting of one parameter from each category that yielded a >90% specificity for high-responders.

Conclusions: We show an unprecedented framework of integrative multi-dimensional data from psychophysical and proteome analysis of BI-pain, which provides a valuable resource for in-depth patient stratification and for identifying prognostic markers that are presumably relevant for pain chronification and as treatment targets.

720

LOW BACK PAIN AND MODIC CHANGE: EVIDENCE FOR SYSTEMIC INFLAMMATION

R. Compte Boixader[1], M. Freidin[1,2], G. Lachance[1], G. Akdag[1], D. Vaitkute[1], J. Honey[1], F.M. Williams[1]

[1]King's College London, London, United Kingdom, [2]Queen Mary University College, London, United Kingdom

Methods: TwinsUK volunteers (n=230) having MC volume and DD coded on T2-weighted sagittal spine MRI, demographic information and Olink assay performed within 5 years of imaging were included. Mixed effect linear regression models were examined with adjustment of the models for relatedness, age, BMI and smoking status.

Results: Subjects included females only. The sample had mean age = 63 (43-79) years and mean BMI = 26.04 (17.84-43.75) kg/m2. Unadjusted analysis showed significant associations between all 5 cytokines (Table 1) and both MC and DD. Adjustment for covariates showed the observed association to be lost, partly due to the influence of age (all cytokines) and BMI (all but IL-6).

Table 1. Association between the 5 cytokines and MC and DD in TwinsUK

		Unadjusted		Adjusted	
	Predictors	*Estimate*	*P-value*	*Estimate*	*P-value*
IL6	MC	-3.43E-03	8.02E-04	-6.03E-04	0.405
	DD	1.74E-02	<2E-016	6.44E-04	0.574
IL8	MC	-1.67E-03	3.34E-04	-2.26E-04	0.239
	DD	8.50E-03	<2E-016	-4.65E-04	0.099
IL10	MC	-1.90E-03	1.93E-03	5.78E-05	0.850
	DD	1.17E-02	<2E-016	-1.61E-04	0.734
TNF	MC	-3.00E-03	1.89E-04	-4.78E-04	0.288
	DD	1.50E-02	<2E-016	-2.16E-04	0.755
CX3CL1	MC	-1.63E-03	2.97E-04	-1.33E-04	0.465
	DD	9.10E-03	<2E-016	-3.57E-04	0.221

Legend to Table 1. Mixed effect linear regression models – both univariable and multivariable were adjusted for relatedness. Adjusted analysis also included age, BMI and smoking. Significant P-value threshold set to 0.01 after Bonferroni correction

Conclusions: In women from TwinsUK, a population sample unselected for back pain, the associations between MC and DD and circulating levels of IL-6, IL-8, IL-10, TNFα and CX3CL1 were highly statistically significant but in all cases became non-significant once risk factors for DD and MC were included in the model. This is the largest study to date to investigate systemic inflammation in MC >80% power to detect large and medium effect sizes. We suggest systemic adiposity most likely accounts for the associations reported in case-control studies published previously where age and BMI have not been taken into account.

724

RESILIENCE MODULATES AFFECTIVE SYMPTOMS AND BRAIN FUNCTIONAL CONNECTIVITY IN ADOLESCENTS WITH JUVENILE FIBROMYALGIA

M. Suñol[1], M. Payne[2], H. Tong[2], S. Pascual-Diaz[1], L. Martín-Herrero[1], T. Ting[2], S. Kashikar-Zuck[2], R. Coghill[2], M. López-Solà[1]

[1]University of Barcelona, Barcelona, Spain, [2]Cincinnati Children's Hospital Medical Center, Cincinnati, United States

Methods: Forty-one female adolescents with JFM underwent a resting-state fMRI examination and completed questionnaires on core JFM and affective symptoms. Hierarchical cluster analysis grouped participants based on their scores in the "shift-and-persist" scale, which assesses response styles to stressful situations (proxy of resilience). Then, we estimated whole-brain, voxel-based resting-state functional connectivity and assessed symptoms and connectivity differences between the resulting clusters with two-sample *t*-tests. The statistical threshold was false discovery rate (FDR)-corrected p<.05.

Results: The cluster analysis divided our JFM sample into two groups of higher vs. lower "shift-and-persist" scores. The groups did not differ in core JFM symptoms, but the lower "shift-and persist" group had more depressive symptoms and less self-compassion. Regarding connectivity, the lower "shift-and persist" group had connectivity reductions in the medial posterior cingulate, medial prefrontal, and bilateral inferior temporal cortices, left temporoparietal junction, and right angular gyrus (pFDR<.05).

Conclusions: Our findings provide the first evidence of symptom and brain connectivity differences between adolescents with JFM with higher vs. lower resilience. The lower resilience group had more affective symptoms and connectivity alterations in areas of the default-mode network involved in self-processing and mentalizing.

738

TOP-DOWN ATTENTIONAL MODULATION DOES NOT AFFECT THE DEVELOPMENT OF SECONDARY HYPERALGESIA: AN EXPERIMENTAL INVESTIGATION

D. Della Porta[1,2], V. Legrain[2,1,3], E. Scheirman[1]

[1]Institute of Neuroscience, IONS, Université catholique de Louvain, Brussels, Belgium, [2]Psychological Sciences Research Institute, Université catholique de Louvain, Louvain-la- Neuve, Belgium, [3]Louvain Bionics, Université catholique de Louvain, Louvain-la-Neuve, Belgium

Methods: Eighty-five healthy volunteers, randomly assigned to one of the two conditions, performed a working memory task with a different cognitive load (high vs low) while secondary hyperalgesia was induced on their non-dominant forearm using high-frequency stimulation (HFS). To assess the development of secondary hyperalgesia, sensitivity to mechanical stimuli was measured three times: T0, for baseline, 20(T1) and 40(T2) minutes after the procedure.

Results: In line with recent findings, our results show no significant difference in the development of secondary hyperalgesia between the high-load vs the low-load group, neither in terms of intensity of mechanical sensitivity or in terms of spatial extent.

Conclusions: This suggests that a top-down modulation through attention might not be sufficient to affect the development of secondary hyperalgesia.

742

EFFECT OF PERIOPERATIVE PAIN NEUROSCIENCE EDUCATION IN PEOPLE UNDERGOING SURGERY FOR LUMBAR RADICULOPATHY: A MULTICENTER RANDOMIZED CONTROLLED TRIAL

E. Huysmans[1,2], L. Goudman[1,3,2], I. Coppieters[1,4,2], W. Van Bogaert[1,3,2], M. Moens[1,2], R. Buyl[1], J. Nijs[1,5,2], A. Louw[6], T. Logghe[7], K. Putman[1], K. Ickmans[1,2]

[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]UZ Brussel, Brussels, Belgium, [3]Fonds Wetenschappelijk Onderzoek, Brussels, Belgium, [4]Katholieke Universiteit Leuven, Leuven, Belgium, [5]University of Gothenburg, Gothenburg, Sweden, [6]University of Nevada, Las Vegas, United States, [7]Ziekenhuis Geel, Geel, Belgium

Methods: In this multicenter randomized controlled trial (ClinicalTrials.gov (NCT02630732)) patients undergoing surgery for lumbar radiculopathy in 3 Belgian hospitals were randomized to receive PPNE or PBE. Both groups received 1 pre- and 1 post-operative one-to-one education session and a booklet (balanced interventions), with an essentially different content (PPNE: biopsychosocial; PBE: biomedical). Pain was the primary outcome (Visual Analogue Scales + Quantitative Sensory Testing). Assessments were at 3 days, 6 weeks, 6 months and 12 months post-surgery.

Results: Between March 2016 and April 2020 participants were randomly assigned to PPNE (n=58) or PBE (n=62). At 12 months, PPNE did not lead to significantly better pain outcomes, but did result in more favorable SF-36 Physical component (additional increase: 46.94; 95%CI: 14.16-79.73; medium effect), Tampa Scale for Kinesiophobia (additional decrease: 3.147; 95%CI: 0.25-6.04; small effect) and Pain Catastrophizing Scale (additional decrease: 6.18; 95%CI: 1.97-10.39; medium effect) scores. Additionally, females of the PPNE group showed higher probability for work resumption (95% versus 60% in PBE group).

Conclusions: PPNE showed superior clinical effectiveness than PBE and should be considered in the care trajectory of people undergoing surgery for lumbar radiculopathy.

Funding: Applied Biomedical Research Program, Agency for Innovation by Science and Technology, Belgium (150180).

755

SEX- AND AGE-DEPENDENT PROTEOME DYNAMICS OF NEUROPATHIC PAIN IN MICE

S. Grundtner[1], J. Sondermann[1], F. Xian[1], D. Gomez Varela[1], M. Schmidt[1]

[1]University of Vienna, Department of Pharmaceutical Sciences, Vienna, Austria

Methods: NP was induced in adolescent (4W) and adult (12W) mice of both sexes by the spared nerve injury (SNI) model, creating tactile hypersensitivity. Sham-operated mice served as control. To investigate the pain behavior, mechanical hypersensitivity and non-evoked pain were measured. The proteome of lumbar dorsal root ganglia (lDRG) was investigated on a timsTOF Pro mass spectrometer (Bruker, Germany) at different time points after surgery, i.e. post-operative day 7, 10 and 14, followed by in-depth biological pathway analysis.

Results: As expected, SNI mice developed pain behavior compared to Sham-operated mice. Interestingly, comparison of adolescent versus adult and male versus female mice showed different proteome dynamics in lDRG upon induction of NP. Furthermore, we were able to identify differentially regulated pathways in dependence on age and sex, e.g. inflammatory and immune response associated processes. Interestingly, these differences were most pronounced at early time points after surgery.

Conclusions: Our results reveal hitherto unknown sex- and age-specific molecular signatures of NP. This knowledge provides new avenues for investigating mechanisms contributing to NP in male versus female mice at different ages.

765

DEXAMETHASONE TREATMENT RESULTS IN LONG-TERM HYPERALGESIA IN A MOUSE MODEL OF POSTOPERATIVE PAIN

A. Oveisi[1], L.V. Lima[2], M. Karaky[3], J.S. Mogil[2], L. Diatchenko[4]

[1]Department of Neuroscience, Faculty of Science, Alan Edwards Centre for Research on Pain, McGill University, Montreal, Canada, [2]Departments of Psychology and Anesthesia, Alan Edwards Centre for Research on Pain, McGill University, Montreal, Quebec, Canada, [3]Department of Human Genetics, Faculty of Medicine and Health Sciences, McGill University, Montreal, Quebec, Canada, [4]Faculty of Dental Medicine and Oral Health Sciences and Department of Anesthesia, Faculty of Medicine and Health Sciences, Alan Edwards Centre for Research on Pain, McGill University, Montreal, Quebec, Canada

Methods: Following hind paw incision surgery, 0.5 mg/kg/day of the corticosteroid, dexamethasone, or 1% DMSO was administered subcutaneously for six consecutive days in 6-8 week old CD-1 mice of both sexes. Before and at different time points after the surgery, the mechanical paw-withdrawal threshold was measured with von Frey filaments using the up-down staircase method of Dixon.

Results: We found that dexamethasone produced robust inhibition of allodynia on day six after incisional paw surgery ($t6 = 10.5$, $p = 0.01$). However, dexamethasone substantially delayed recovery to baseline such that the duration of the overall pain episode was significantly prolonged after steroid treatment. ($t6 = 2.4$, $p = 0.03$). Thus, dexamethasone-induced long-term pain hyperalgesia in the incisional paw surgery assay can represent a model for chronic post-operative pain, to be used for testing various interventions preventing the post-surgical acute-to-chronic pain transition.

Conclusions: Our results confirm, in a new and commonly used mouse model, that active biological processes protect from transitioning to chronic pain. Inhibiting the immediate inflammatory response, although effectively reducing pain behaviour after administration, greatly prolongs the resolution of pain.

768

HIGH-FREQUENCY STIMULATION AS A TREATMENT OPTION FOR COMPLEX REGIONAL PAIN SYNDROME (CRPS)

L.V. Rehm[1], M. Sendel[1], K. Knutzen[1], D. Sammler[2], H. Dinse[3], R. Baron[1], J. Gierthmühlen[1]

[1]University Hospital Schleswig-Holstein, Campus Kiel, Kiel, Germany, [2]Max-Planck-Institut für epirische Ästhetik, Frankfurt am Main, Germany, [3]BG-Universitätsklinikum Bergmannsheil, Bochum, Germany

Methods: 43 patients with CRPS according to Budapest criteria were included. All participated in a 12-week verum-phase with the instruction to use the tipstim® for one hour daily. Some also completed a prior 4-6 week sham-period to account for placebo effects, anti-edematous effects and spontaneous improvement. The effects of stimulation were assessed by detailed examinations of sensory, autonomic and motor (maximum hand span, angular measurements, fist closure) symptoms and signs. Furthermore, the CRPS severity score, a motor function impairment score and questionnaires assessing pain intensity (NRS), functionality (QuickDASH), quality of life (VR-12) and psychiatric comorbidities (Depression Anxiety Stress Scale) were evaluated.

Results: After verum-phase, there was an improvement in CRPS severity score, functionality, maximum pain intensity, motor score and a reduction in the difference sof the angular dimensions between both hands. These changes could not be observed after the sham-phase.

The distance to complete fist closure as well as the maximum hand span already showed improvement after the sham-phase, but improved further in the verum-phase . After the sham-phase, there was a decrease in stress and anxiety. Quality of life did not change significantly in any study phase.

Conclusions: tipstim® has a positive effect on pain, functionality and motor function of patients with CRPS and could therefore be promising in a multimodal therapy concept.

773

THE USE OF VIRTUAL REALITY IN INTERDISCIPLINARY MULTIMODAL PAIN TREATMENT: EXPERIENCES OF HEALTHCARE PROFESSIONALS AND PATIENTS

D. Ummels[1], R. Smeets[1,2,3], R. Brouwer[4]

[1]Department of Rehabilitation Medicine, Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, Netherlands, [2]Centre of Integral Rehabilitation, Eindhoven, Netherlands, [3]Pain in Motion International Research Group (PiM), Maastricht, Netherlands, [4]SyncVR Medical, Utrecht, Netherlands

Methods: An action research design was used to let healthcare professionals and patients learn about how and when they can use VR. Data collection was performed in two specialized centers with reflection sessions with the healthcare professionals and semi-structured interviews with the patients. Analyses were performed by directed content analyses.

Results: Four physiotherapists, one occupational therapist, three psychologists, and twenty patients participated in this research. Three iteration cycles were performed within a total of nine reflection sessions and eight semi-structured interviews. Both healthcare professionals and patients experienced VR as useful in therapy. The VR was used as a diagnostic and intervention tool either at the rehabilitation center or at home. As a diagnostic tool, the VR was used to gain insight into pain beliefs, cognitions, and physical abilities of the patients. As an intervention tool, the healthcare professionals had roughly three goals: creating a balance between relaxation and competition, graded activity, or exposure in vivo.

Conclusions: VR could be a useful addition to IMPT for both healthcare professionals and patients with chronic pain. Further research should be performed regarding the effects of VR within IMPT.

842

EVALUATION OF THE FEELING BETTER ASD PAIN MANAGEMENT PROGRAMME FOR CHILDREN WITH AUTISM SPECTRUM DISORDER: PILOT AND FEASIBILITY STUDY

R. Fitzpatrick[1], B. McGuire[1], H. Lydon[1]

[1]*University of Galway, Galway, Ireland*

Methods: Pilot and Feasibility study to examine the effectiveness of the Feeling Better ASD programme as a pain management intervention for children with a diagnosis of ASD.

Results: Feeling Better ASD provides inclusive education for children with ASD and their parents by teaching the skill of communicating pain (location and severity) and also learning skills and techniques such as relaxation, activity pacing, distraction skills to help them cope with pain. (Study still on-going).

Conclusions: Feeling Better ASD provides inclusive education for children with ASD and their parents by teaching the skill of communicating pain and also learning skills and techniques such as relaxation, activity pacing, distraction skills to help them cope with pain.

895

DELINEATION OF A CONNECTION BETWEEN THE TRIGEMINAL NERVE AND CENTRAL AMYGDALA VIA LATERAL PARABRACHIAL NUCLEUS IN HUMANS: AN ULTRA-HIGH FIELD DIFFUSION MRI STUDY

B. Kaya[1], I. Cioffi[1], M. Moayedi[1]

[1]*University of Toronto, Toronto, Canada*

Methods: All procedures were approved by the University of Toronto›s Human Research Ethics board. The data are openly from the HCP S1200 Release (February 2017). We performed tractography on 80 subjects to resolve the CNV REZ-LPB-CeA circuit. The periaqueductal gray (PAG) was used as an exclusion mask. The basolateral amygdala (BLAT) was used as a negative control. Bidirectional probabilistic tractography was performed between each amygdalar nucleus (CeA and BLAT) and CNV with LPB as a waypoint, within each hemisphere. Connectivity strength was compared using repeated measures ANOVA.

Results: Only the ‹target› factor was significant with F=69.378, p<.001. A post-hoc test with Tukey›s correction for target (CeA versus BLAT) was significant (pTukey<.001).

Conclusions: For the first time, we report the presence of the CNV-PBL-CeA in a large sample of healthy individuals scanned at 7T. This circuit provides a neuroanatomical substrate for the affective dimensions of orofacial pain. Future functional MRI studies should confirm this putative role.

935

CORTICOMOTOR EXCITABILITY IS ALTERED IN CENTRAL NEUROPATHIC PAIN COMPARED WITH NON-NEUROPATHIC PAIN OR PAIN-FREE PATIENTS

L. Barbosa[1], F. Valerio[1], V.A. da Silva[1], A. Rodrigues[1], R. Galhardoni[1], L. Yeng[1], J. Rosi Junior[1], A. Conforto[1], L. Lucato[1], M. Teixeira[1], D. Ciampi de Andrade[2], G.T. Kubota[3]

[1]*University of São Paulo, Sao Paulo, Brazil,* [2]*Aalborg University, Aalborg, Denmark,* [3]*University of São Paulo, São Paulo, Brazil*

Methods: We evaluated CNP associated with brain injury after stroke or spinal cord injury (SCI) due to neuromyelitis optica through a battery of CE measurements and comprehensive pain, neurological, functional, and quality of life assessments. CNP was compared to two groups of patients with the same disease: i. with non-neuropathic pain and ii. without chronic pain, matched by sex and lesion location.

Results: We included 163 patients (stroke=93; SCI=70: 74 had CNP, 43 had non-neuropathic pain, and 46 were pain-free). Stroke patients with CNP had lower motor evoked potential (MEP) in both hemispheres compared to non- neuropathic pain and no-pain patients. Patients with CNP had lower amplitudes of MEPs (366 μV ±464 μV) than non-neuropathic (478 ±489) and no-pain (765 μV ± 880 μV) patients, p<0.001. Short-interval intracortical inhibition (SICI) was defective in patients with CNP (2.6±11.6) compared to no-pain (0.8±0.7), p=0.021. MEPs negatively correlated with allodynia.

Conclusions: CNP is associated with decreased MEPs and SICI compared to non-neuropathic pain and no-pain patients. Corticomotor excitability changes may be helpful as neurophysiological markers of the development and persistence of pain after CNS injury, and to provide insights into global CE plasticity changes occurring after CNS lesions associated with CNP.

1016

WHITE MATTER STRUCTURAL INTEGRITY IN THE RIGHT SUPERIOR LONGITUDINAL FASCICULUS PREDICTS CHRONIC BACK PAIN

M. Kandić[1], F. Zidda[1], K. Usai[1], M. Löffler[1,2], M. Ruttorf[3,4], F. Nees[1,5], H. Flor[1]

[1]Institute of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [2]Integrative Spinal Research Group, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [3]Computer Assisted Clinical Medicine, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [4]Mannheim Institute for Intelligent Systems in Medicine, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [5]Institute of Medical Psychology and Medical Sociology, University Medical Center Schleswig Holstein, Kiel University, Kiel, Germany

Methods: We used tract-based spatial statistics to derive white-matter indices of structural integrity. In a longitudinal approach, we used multiple linear regression to predict the severity of chronicity as well as receiver operating characteristic curves to classify patients who recovered (SBPr) and those whose pain persisted (SBPp). Additionally, we examined white-matter differences between HC and patients with CBP in a cross-sectional manner.

Results: Whole-brain analysis revealed that a cluster in the right superior longitudinal fasciculus (SLF) tract was significantly different between SBPp and SBPr. Fractional anisotropy (FA) baseline values in this cluster were predictive of chronicity at the 6-month follow-up and predicted pain severity change from baseline to follow-up. Healthy controls had significantly higher FA values versus CBP patients across several brain regions.

Conclusions: We observed significantly lower FA values across several brain regions in patients with CBP compared to HC, partially confirming the previous findings on structural alterations in CBP. In the SBP sample, we identified a white-matter brain biomarker of resilience to CBP. The right SLF, linked to visuospatial attention and proprioception, could serve as an important predictor in the early stage of the development of CBP.

1177

THE ASSOCIATION BETWEEN CIRCULATING PAIN MEDICATION METABOLITES AND THE RISK OF MYOCARDIAL INFARCTION IN THE MARKERS OF IMMINENT MYOCARDIAL INFARCTION STUDY (MIMI)

A.-S. Rönnegård[1], E. Lampa[2], B. Äng[3], J. Sundström[2,4], J. Ärnlöv[3]

[1]Dalarna University, Falun, Sweden, [2]Uppsala University, Uppsala, Sweden, [3]Karolinska Institutet, Stockholm, Sweden, [4]The George Institute for Global Health, Sydney, Australia

Methods: The case-cohort study MIMI includes cardiovascular disease-free individuals from six European cohorts. Cases were individuals that developed a first MI within 6 months after baseline. High throughput metabolomics was performed in plasma samples at baseline. Metabolites of common pain medications were divided into three classes, non-steroidal anti-inflammatory drugs (NSAID), paracetamol and opioids (tramadol).

Results:

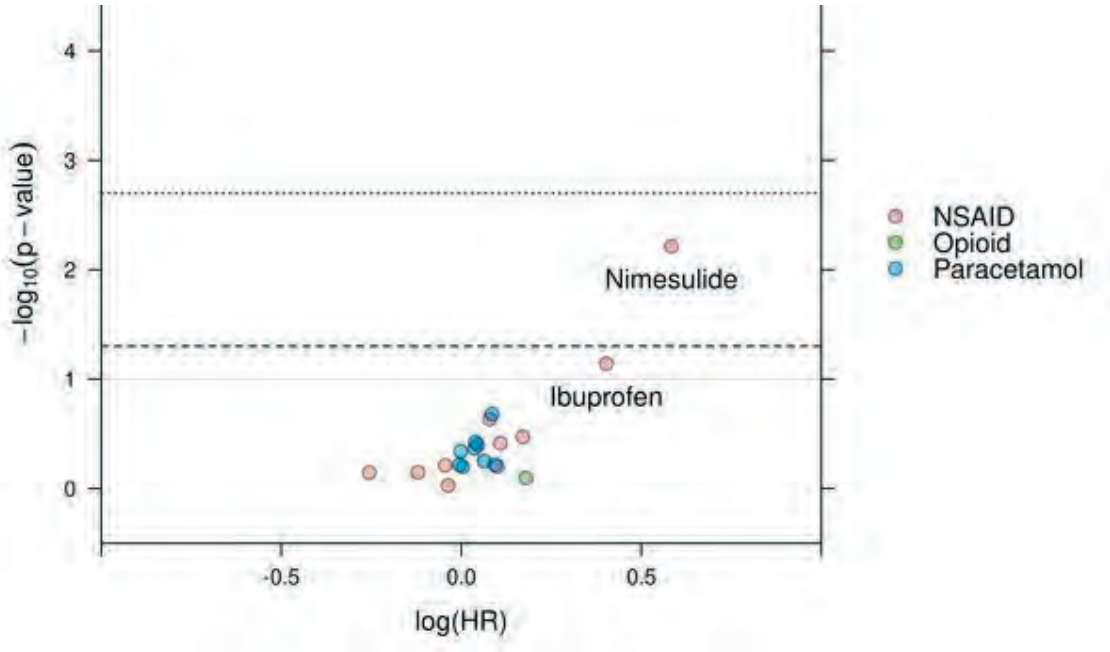


Figure Associations between specific pain metabolites and MI.

Metabolomics data were available in 2149 individuals (mean age 63.3 years, 36% women), of which 89.8% had paracetamol metabolites, 11% NSAID metabolites and 0.8% opioid metabolites at baseline. There were no robust associations of pain medication classes with risk of an imminent MI in Cox regression adjusted for age, sex, education and established CVD factors; paracetamol HR per doubling of metabolite levels 0.77 (95% CI 0.55 – 1.07, p = 0.12); NSAID HR 0.99 (95% CI 0.73 – 1.33, p = 0.93), and opioid HR 0.68 (95% CI 0.21 – 2.14, p = 0.51). Associations of Ibuprofen and Nimesulide with risk of an imminent MI, see figure, should be interpreted with caution due to few events.

Conclusions: In our metabolomics-based pharmacoepidemiological study, we did not find metabolites of common pain medications to be important signifiers of the interplay between chronic pain and the development of MI.

1194

WHAT A SHAM(E): NO EFFECT OF SHAM-CONTROLLED CONDITIONED PAIN MODULATION ON HEAT PAIN THRESHOLD

M. Hau[1,2], L. Sirucek[1,2], I. De Schoenmacker[2,3], R. Lütolf[3], L. Gorrell[1], M. Hubli[2,3], P. Schweinhardt[1,2]

[1]Integrative Spinal Research Group, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [2]Neuroscience Center Zurich, University of Zurich, Zurich, Switzerland, [3]Spinal Cord Injury Center, Balgrist University Hospital, University of Zurich, Zurich, Switzerland

Methods: Forty-nine healthy participants underwent a combined parallel (i.e. TS before and during CS) and sequential (i.e. TS before and after CS) CPM paradigm including a cold water bath as CS and a lukewarm water bath as sham CS. TS were pressure pain threshold (PPT) and heat pain threshold (HPT) (parallel and sequential), and temporal summation of pain (TSP) using heat and pressure stimuli (sequential). Statistical analysis was performed using linear mixed models, with the interaction between timepoint and condition being of primary interest.

Results: PPT increases were significantly higher during cold compared to sham water bath (0.85kg/cm^2±1.14kg/cm^2 vs. 0.23kg/cm^2±0.79kg/cm^2, interaction timepoint*condition p=0.009). HPT was significantly increased during and after cold *and* sham water bath compared to before (main effect of timepoint p<0.001) but the increases did not significantly differ between the conditions (p=0.19).

Conclusions: Only PPT in the parallel design indicated a true CPM effect with larger threshold increases in the cold compared to the sham water bath. The HPT increase during both water baths is likely due to adaptation and habituation. Thus, CPM paradigms using HPT without a sham condition might produce false-positive findings.

1201

EXPLORING PAIN AND ITCH PATHWAYS: CHEMOGENETIC STIMULATION OF TRPV1-EXPRESSING PRIMARY SOMATOSENSORY NEURONS

Q. Devaux[1], P. Séguéla[1]

[1]McGill, Montreal, Canada

Methods: We investigated the effects of broad stimulation of adult TRPV1-expressing DRG neurons through exogenous expression of hM3Dq in a TRPV1-Cre mouse line, using postnatal AAV-mediated delivery.

Results: We found that metabotropic stimulation of TRPV1+ neurons did not elicit direct pain responses, but rather sensitized these primary afferents. Specifically, hM3Dq activation with CNO enhanced sensitivity to thermal stimuli. Our electrophysiological data suggest that this sensitization is achieved through potentiation of the TRPV1 channels, a mechanism further validated in calcium imaging. Interestingly, we observed no inflammation when the TRPV1+ hM3Dq-expressing neurons were stimulated with the DREADD agonist CNO. In another surprising discovery, we observed that CNO can directly induce itch in the cheek assay.

Conclusions: TRPV1+ neurons function appears more complex than previously thought and these new findings furthermore challenge the labeled line theory. They also pinpoint mechanistic commonalities between metabotropic sensitization and itch.

1355

HIGH CONTENT SCREENING MICROSCOPY OF VENOMS FOR IDENTIFICATION OF PAIN MODULATING COMPOUNDS

E. Alirahimi[1], J. Isensee[1], P.B. Oparin[2], V.O. Zambelli[3], G. Picolo[3], Q. Apuque Alcantara[3], A.C. Morandini[4,5], A.C. Marques[4], J. Sciani[6], A.A. Vassilevski[2], T. Hucho[1]

[1]Department of Anesthesiology and Intensive Care Medicine, University Hospital of Cologne, University of Cologne, Cologne, Germany, [2]Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Moscow, Russian Federation, [3]Laboratório de Dor e Sinalização, Instituto Butantan, Avenida Vital Brasil, 1500, 05503-900, São Paulo, Brazil, [4]Departamentode Zoologia, Instituto de Biociências, Universidade de São Paulo, 05508-220, São Paulo, Brazil, [5]Centrode Biologia Marinha, Universidade de São Paulo, 11600-000, São Sebastião, Brazil, [6]Multidisciplinary Research Laboratory, São Francisco University (USF), Avenida São Francisco de Assis, 218, Jardim São José, 12916-900, Bragança Paulista, SP, Bragança Paulista, Brazil

Methods: Dorsal root ganglia were prepared from rats, dissociated, and the cells were cultured overnight. Then, venoms were added one per well, cells were fixed with PFA, and immunocytochemically stained for activation of Protein Kinase AII (PKAII) and/or extracellular signal-regulated kinase 1/2 (ERK1/2). Immunocytochemical intensities were acquired based on the images that were taken by high content screening microscopy. Single cell intensities were statistically analysed with R.

Results: We tested more than 120 venoms. Venoms were considered as potentially sensitizing, if they activated PKA-II and/or ERK1/2. Thirty four percent of the tested venoms showed pain-initiating signalling. Among the tested venoms, *Latrodectus tadzhicus* (black widow spider) activated ERK1/2 independent of CaV1.2 channels. By testing the most famous toxin from *Latrodectus*, alpha-latrotoxin, as well as applying several pharmacological inhibitors of the Erk1/2 pathway, we found that this toxin is potentially inducing pain through receptor-mediated rather than pore formation mechanism.

Conclusions: Our results indicate that our signalling based high content screening microscopy approach may be a potent screening method to identify pain modulating toxins as well as understanding their mechanism of action.

1463

ON THE IMPORTANCE OF CALCULATION METHODS FOR STUDIES ON TEMPORAL SUMMATION AND CONDITIONED PAIN MODULATION

M. Vincenot[1,2], L. Gendron[1,3], S. Marchand[1], G. Léonard[1,2]

[1]Université de Sherbrooke, Sherbrooke, Canada, [2]Research Center on Aging, Sherbrooke, Canada, [3]Centre de Recherche du CHUS, Sherbrooke, Canada

Methods: We applied a heat pain stimulus before and after a cold pressor test on 460 pain and pain-free participants. TS was interpreted as the change in pain perception during the heat pain stimulus, and CPM as the change in pain scores before and after the cold pressor test. Both TS and CPM were computed using different calculation methods (e.g., delta score, percentage) and different time intervals. Pearson correlations were performed to assess the strength of the associations.

Results: Results showed that some variables were correlated with TS and CPM, with a strength of association varying according to the calculation methods ($0.09 \leq r \leq 0.34$). Interestingly, the association between TS and certain markers (such as heat pain threshold and serotonin levels) stood out systematically, regardless of the calculation method; a situation that could not be observed for CPM.

Conclusions: These observations confirm that TS and CPM calculation methods can influence the conclusions of a study, reminding the importance of considering these factors when reporting and interpreting results. Despite this variability, the association between these pain modulation mechanisms and certain markers appears to hold more consistently, suggesting more robust relationships.

1468

STABILITY OF PREVALENCE AND PATTERNS OF CO-OCCURRING MUSCULOSKELETAL PAIN AMONG PEOPLE WITH PERSISTENT LOW BACK PAIN IN THE GENERAL POPULATION: THE HUNT STUDY, 1995-2019

C.K. Øverås[1], T.I.L. Nilsen[1], K. Søgaard[2], P.J. Mork[1], J. Hartvigsen[2]

[1]Norwegian University of Science and Technology - NTNU, Trondheim, Norway, [2]University of Southern Denmark, Odense, Denmark

Methods: The data material contains three consecutive cross-sectional studies over three decades, including 15,375 participants in HUNT2 (1995-1997), 10,024 in HUNT3 (2006-2008) and 10,647 in HUNT4 (2017-2019) reporting persistent LBP. Prevalence was age-adjusted by direct standardisation, and latent class analysis (LCA) was used to examine co-occurring MSK pain patterns for people with persistent LBP.

Results: About 9 of 10 adults with persistent LBP in each of the three HUNT surveys reported co-occurring persistent MSK pain, most commonly in the neck, shoulders and hips/thighs. We identified four distinct patterns of persistent LBP phenotypes that were consistent across the three surveys: 1) 'LBP only', 2) 'LBP with neck/shoulder pain', 3) 'LBP with lower extremity/wrist/hand pain', and 4) 'LBP with multisite pain'.

Conclusions: Co-occurring MSK pain alongside persistent LBP is more common than having LBP alone. At a population level, its prevalence and the four distinct LCA-derived MSK pain site phenotypes appear stable over time in the past three decades.

1469

THE PREVALENCE OF CHRONIC PAIN AND OTHER ADVERSE HEALTH OUTCOMES ACROSS RACIAL AND ETHNIC GROUPS IN THE UK BIOBANK

J. Norman[1], G. Guglietti[1], A. Zare[1], C. Tanguay Sabourin[1,2], M. Fillingim[1], E. Vachon-Presseau[1], R. Da-ano[1]

[1]McGill University, Montreal, Canada, [2]Université de Montréal, Montreal, Canada

Methods: This study used baseline anthropometric, metabolic, cardiovascular, and immune system measures and self-reported sociodemographic data from the UK Biobank. The prevalence of chronic pain and chronic widespread pain were calculated for each demographic group and chi-squared tests were used to determine the significance of group differences in prevalence.

Results: We found that the prevalence of chronic pain was significantly higher in Black or Asian females (52.3% and 54.3%, respectively) than in White females (45.5%; $p < 0.001$). Additionally, chronic widespread pain was more prevalent in Black and Asian participants (Females: 4.0% and 4.5%, respectively; Males: 1.7% and 2.5%, respectively) than White participants of the same sex (Females: 1.4%, $p < 0.001$; Males: 1.0%, $p < 0.05$).

Conclusions: We observed that the prevalence of widespread chronic pain was lower in White participants than in Black and Asian participants and the prevalence of chronic pain more generally was lower in White female participants than in Black or Asian female participants. Further analyses will establish whether other conditions demonstrate differences in prevalence across racial and ethnic groups and potentially determine factors associated with these differences in prevalence.

GUIDED POSTER WALKS

210

REBOOT ONLINE - AN EFFECTIVE AND SCALABLE DIGITAL MULTIDISCIPLINARY PAIN MANAGEMENT PROGRAM. DOES TELEPHONE SUPPORT IMPROVE ADHERENCE AND EFFECTIVENESS?

T. Gardner[1,2,3], R. Schultz[4], H. Haskelberg[2], J. Wheatley[3], M. Millard[2], S. Faux[3,5], C. Shiner[3,2,5]

[1]University of Sydney, Sydney, Australia, [2]Clinical Research Unit for Anxiety and Depression, Sydney, Australia, [3]Department of Pain Medicine, St Vincent's Hospital, Sydney, Australia, [4]Royal Ryde Rehabilitation Hospital, Sydney, Australia, [5]University of New South Wales, Sydney, Australia

Methods: A 2-armed, CONSORT compliant, RCT was conducted. It compared a digital multidisciplinary pain management program, Reboot Online, combined with telephone support (n=44) with Reboot Online alone (n=45) as the control group. The primary outcome for this study was adherence to the program. Adherence was quantified through three metrics: completion of the program, the number of participants who enrolled into the program, and the number of participants who commenced the program. Secondary measures of clinical effectiveness were also collected.

Results: Telephone support had a positive effect on enrollment ($\chi^2$1=4.2; P=.04) and commencement ($\chi^2$1=11.4; P=.001) compared with nil telephone support. 43% of the intervention group completed the course compared to 31% of the control group. Of the subgroup of participants enrolled, there was no significant difference between the proportions of participants who complete all 8 lessons in the intervention group (19/40), and those in the control group ($\chi^2$1=1.3; P=.24). Clinical outcome measures did not differ between the groups.

Conclusions: Telephone support improves participants' enrollment, commencement, and engagement in the early phase of the internet intervention; however, it did not have an impact on effectiveness.

229

ALTERED C-FIBER FUNCTION IN PATIENTS WITH CHRONIC HEPATIC PRURITUS

M.M. Düll[1,2], H. Kleinlein[1,2], M. Strupf[1,2], V. Leibl[2], A. Fiebig[2,3], A.E. Kremer[1,4], B. Namer[2,3]

[1]Department of Medicine 1 (Gastroenterology, Pneumology, Endocrinology), University Hospital Erlangen, Erlangen, Germany, [2]Institute of Physiology and Pathophysiology, Erlangen, Germany, [3]Research group Neuroscience, Interdisciplinary Centre for Clinical Research within the faculty of Medicine at the RWTH Aachen University, Aachen, Germany, [4]Department of Gastroenterology and Hepatology, University Hospital Zürich, Zürich, Switzerland

Methods: Patients with cholestatic liver disorders with and without chronic pruritus underwent extensive laboratory testing, liver sonography, and a clinical assessment including validated itch questionnaires. All patients took part in non-invasive testing of C-fiber function via transcutaneous electrical sine- and half-sine-wave stimulation, which selectively activates C-fibers. We also assessed thermal and mechanical detection and pain thresholds, pain summation and vibration thresholds according to the QST protocol. In a subset of patients, we recorded action potentials of single C-fibers via microneurography.

Results: Applying transcutaneous electrical sine- and half-sine-wave stimulation, we observed that patients with chronic hepatic pruritus reported significantly higher itch ratings than patients without pruritus, who mainly experienced a pure painful, burning sensation to the stimulation. Patients with chronic pruritus also displayed a diminished adaption of the pain component during a longer-lasting sine-wave stimulus over 1 min.

In microneurography recordings of C-fibers, we detected pathological properties i.e. spontaneous activity in patients with chronic pruritus but not in the non-pruritic group.

Conclusions: Patients with chronic hepatic pruritus show altered C-fiber profiles during non-invasive and invasive assessments, demonstrating a functional change of C-fiber function in a systemic condition associated with chronic pruritus.

240

DISTRIBUTION OF PAIN WITHIN A MENTAL HEALTH PATIENT RECORDS DATABASE

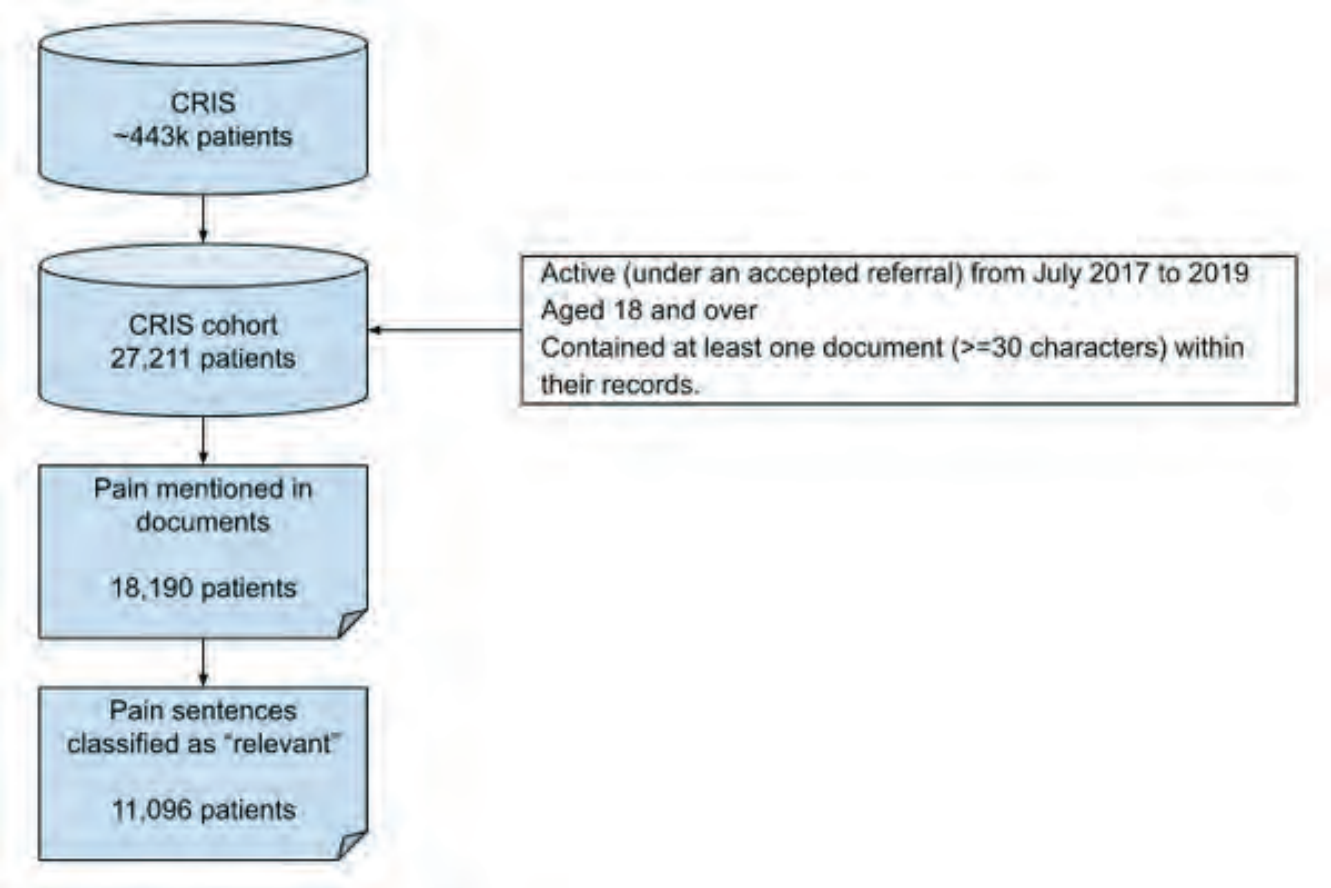
J. Chaturvedi[1], S. Velupillai[1], R. Stewart[1,2], A. Roberts[1,2]

[1]King's College London, London, United Kingdom, [2]South London and Maudsley Biomedical Research Center, London, United Kingdom

Methods:

The CRIS database consists of anonymised records from the South London and Maudsley NHS Foundation Trust. CRIS follows a robust, patient-led governance model with ethical approval for secondary analysis (Reference 18/SC/0372).

A Natural Language Processing (NLP) based application was used to identify patients within a CRIS cohort who had EHR text mentioning physical pain experienced by the patient.



Results: 61% of the cohort had mentions of physical pain, and 56% were female, with a mean age of 47. Minority ethnicities and F20-29 diagnoses appear to be over-represented within the pain cohort.

Ethnicity	% of patients with pain mentions	% within the full CRIS database
White (British, Irish, Other)	52%	68%
Black (British, African, Caribbean, Other)	32%	22%
Asian (British, Chinese, Indian, Pakistani, Bangladeshi, Other)	6%	4%
Other ethnic groups/ Mixed ethnicity	7%	6%

Table 1. Ethnicity distribution for patients with pain mentions compared to the entire CRIS population

Diagnosis Chapter (ICD-10)	% of patients with pain mentions	% within the full CRIS database	% of patients with pain mentions	% within the full CRIS database
F20-29: Schizophrenia, schizotypal and delusional disorders	36%	10%	36%	10%
F30-39: Mood [affective] disorders	17%	16%	17%	16%
F40-48: Neurotic, stress-related, and somatoform disorders	8%	9%	8%	9%
F10-19: Mental and behavioral disorders due to psychoactive substance use	7%	10%	7%	10%
F00-09: Organic, including symptomatic, mental disorders	6%	8%	6%	8%

Top 5 diagnosis chapters for patients with pain mentions compared to the entire CRIS population

Conclusions: This descriptive analysis provides insight into the distribution of pain amongst a cohort of patients within a mental health EHR database. More than half of the patients were identified as having experienced pain, which further highlights the overlap between pain and mental health disorders. Schizophrenia, schizotypical and delusional disorders were the most common primary diagnosis ICD-10 chapter within this cohort, which corroborates literature stating increased physical comorbidities in patients with schizophrenia.

346

USING PERSONAS IN THE DEVELOPMENT OF EHEALTH INTERVENTIONS FOR CHRONIC PAIN: A SCOPING REVIEW AND NARRATIVE SYNTHESIS

S.L. Bartels[1], A.S. Taygar[1], S.I. Johnsson[1], S. Petersson[2], I. Flink[3], K. Boersma[3], L.M. McCracken[4], R.K. Wicksell[1,5]

[1]Karolinska Institutet, Stockholm, Sweden, [2]Linnaeus University, Kalmar, Sweden, [3]Örebro University, Örebro, Sweden, [4]Uppsala University, Uppsala, Sweden, [5]Capio St Göran Hospital, Stockholm, Sweden

Methods: Four bibliographic databases and two registries were systematically searched. In a double-reviewing process, n=6830 hits and n=351 full-texts were screened and read. Ten studies published between 2017 and 2022 were included in the narrative synthesis.

Results: Ten studies reported using “Pain Personas” in the development of eHealth interventions to, e.g., gain an understanding of the user or discuss solutions in team meetings. Personas were based on qualitative and/ or quantitative data. The procedure of creating Personas was described in half of the included studies (n=5), and descriptive details of the Personas included, e.g., pain behavior, technological skills, and motivation.

Conclusions: Although Personas are used by pain researchers in recent projects and highlighted as an important ingredient in the development process, available design guidelines for the creation and use of Personas are not followed or communicated transparently. Benefits and challenges when using Personas in the development of eHealth interventions for people with chronic pain are discussed to support future eHealth efforts and to improve the quality of eHealth innovation in the field of pain.

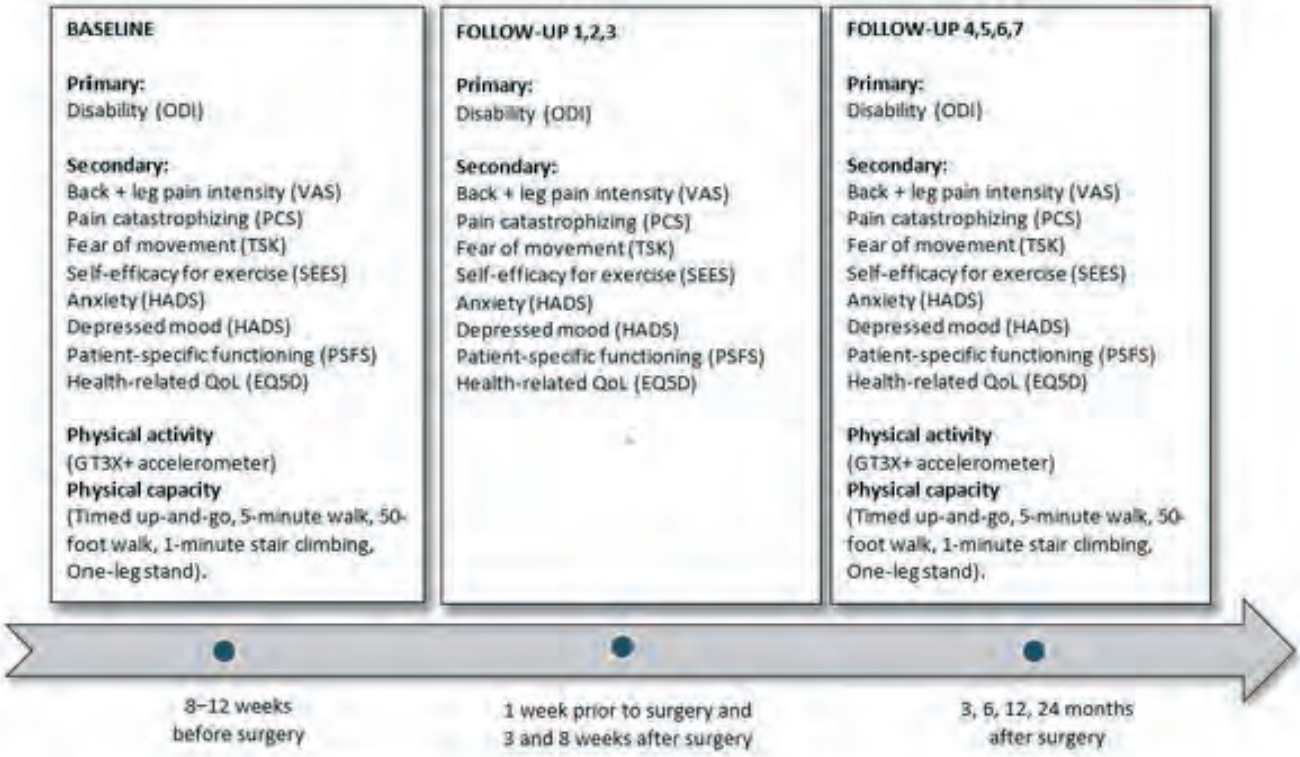
351

LONG-TERM FOLLOW-UP OF A PERSON-CENTERED PREHABILITATION PROGRAM BASED ON COGNITIVE-BEHAVIORAL PHYSICAL THERAPY FOR PATIENTS SCHEDULED FOR LUMBAR FUSION SURGERY

R. Hanafi[1,2], M. Kemani[1,2], M. Lundberg[1,3,4]

[1]Department of Health Promoting Science, Sophiahemmet University, Stockholm, Sweden, [2]Karolinska University Hospital, Medical Unit Medical Psychology, Stockholm, Sweden, [3]Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [4]University of Gothenburg Centre for Person-Centred Care (GPCC), Sahlgrenska Academy, Gothenburg, Sweden

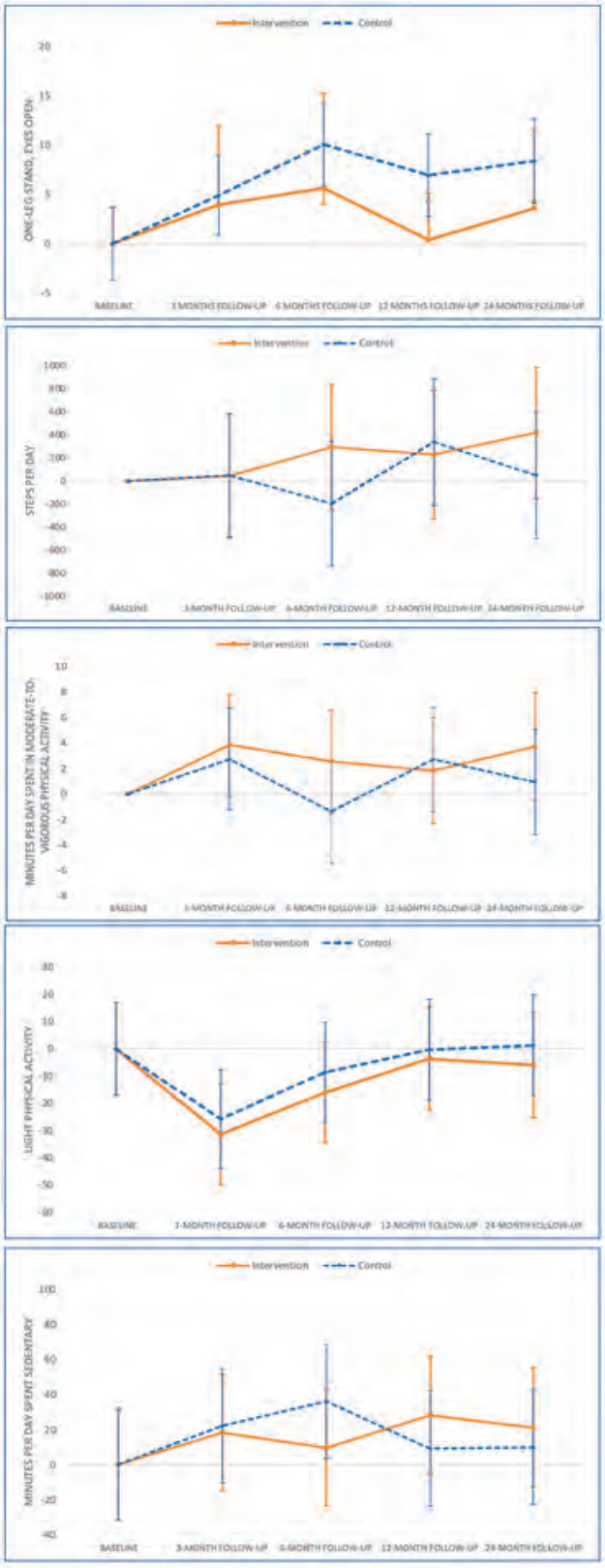
Figure 2. An overview of outcome measures and the different time points for baseline and follow-up assessments.



EQ5D = European Quality of Life 5 Dimensions Questionnaire; GT3X+= ActiGraph GT3X+ (ActiGraph, Pensacola, FL, USA); HADS = Hospital Anxiety and Depression Scale; ODI = Oswestry Disability Index 2.0; PCS = Pain Catastrophizing Scale; PSFS = Patient-Specific Functional Scale; QoL quality of life; SEES = Self-Efficacy for Exercise Scale; TSK = Tampa Scale for Kinesiophobia; VAS = visual analogue scale.

Results: There were no significant interactions between groups at the long-term follow-ups except for the One Leg Stand test in favor of the control group (12 months following surgery). For both groups, there were significant improvements over time for almost all PROMs and physical capacity tests. However, there were no changes over time in either group regarding physical activity.

Figure 3. Graphs of change scores for the One-leg Stand test and physical activity measured as steps per day, minutes per day spent in moderate-to-vigorous physical activity, minutes per day spent in light physical activity and minutes per day spent sedentary, with 95% confidence intervals.



Conclusions: No long-term effect was found on this cognitive behavioral prehabilitation program. A clinically interesting finding was that despite significantly improved self-reported function and objectively measured physical capacity the patient's physical activity behavior did not change.

384

INDIVIDUALS LIVING WITH CHRONIC PAIN IN IRELAND REPORT SIGNIFICANT DIFFERENCES IN LEVELS OF AUTONOMY SUPPORT FROM DIFFERENT HEALTHCARE PROFESSIONALS: A CROSS SECTIONAL STUDY

K. Sheridan[1], S. O'Connor[1], E. Whyte[1]

[1]*Dublin City University, Dublin, Ireland*

Methods: A cross sectional study was completed on participants living with chronic pain (>3 months) in Ireland. Participants (n=389) identified their primary healthcare professional (the healthcare professional considered to have the most influence on their pain management) and completed the Healthcare Climate Questionnaire (HCCQ), Treatment Self-Regulation Questionnaire (TSRQ) and Perceived Competence Scale (PCS). A Kruskal-Wallis H test was used to determine if there were differences in HCCQ, TSRQ and PCS scores between six groups of healthcare workers, "General Practitioner" (n=160), "Rheumatologist" (n=49), "Pain Management Consultant" (n=50), "Neurologist" (n=39), "Allied Healthcare Professionals›› (n=53) and "Other Medical Professionals" (n=31).

Results: Median HCCQ scores were significantly different between healthcare professional groups (H=39.287, p=<0.001). Post hoc analysis revealed allied health professionals (Md = 6.2) demonstrated statistically significant differences in HCCQ scores compared to general practitioners (Md = 4.3) (p=<0.001, r=0.4), neurologists (Md = 4.3) (p=0.002, r=0.41), other medical health professionals (Md = 5.2) (p=0.022, r=0.4) and rheumatologists (Md = 5.2) (p=0.04, r=0.28). Median Autonomous Motivation (TSRQ) scores (H(5)=13.568, p=0.019) and PCS scores (H(5)=30.701, p=<0.001) were also statistically significantly different between healthcare professional groups.

Conclusions: Higher levels of autonomy support, motivation and competence were reported from individuals in partnership with allied health professionals compared to other medical health professionals.

399

PAINFUL DISTORTIONS: PEOPLE WITH KNEE OSTEOARTHRITIS HAVE ALTERED VISUOSPATIAL PERCEPTION

E. MacIntyre[1], F. Braithwaite[1], T. Stanton[1]

[1]*University of South Australia, Adelaide, Australia*

Methods: Fifty people with knee osteoarthritis (age=66.3[8.08], 36 female) and 49 age- and gender-matched pain-free controls (age=65.2[6.92], 35 female) underwent virtual reality-based visuospatial perception tasks (HTC Vive [Taiwan]; custom-built program, Unity Software [CA]; Steam VR [WA]). Participants verbally estimated the steepness (degrees) of 5 ascending and 5 descending hills (5-25 degrees; repeated twice, n=20 total; order randomised). Repeated measures ANOVAs evaluated the effect of group and hill angle on average error for each hill type.

Results: People with osteoarthritis overestimated uphill steepness to a greater extent than people without pain (p<0.001 eta^2=0.02) and while error increased as hill steepness increased (p<0.001, eta^2=0.45), there was no group-hill angle interaction (p=0.23, eta^2=0.01). People with osteoarthritis overestimated downhill steepness to a greater extent than those without pain (p<0.001, eta^2=0.04), and this effect was heightened with greater hill steepness (interaction: p=0.02, eta^2=0.02).

Conclusions: People with knee osteoarthritis view the world as harsher than those without pain. Future work should explore whether this altered visuospatial perception influences activity engagement/participation.

400

INFLUENCE OF ANAESTHETICS ON GLYMPHATIC CEREBROSPINAL FLUID FLOW: A DYNAMIC WHOLE-BODY SINGLE-PHOTON EMISSION TOMOGRAPHY IMAGING STUDY IN MECHANICALLY VENTILATED RATS

N.D.Å. Persson[1,2], T. Lohela[1,3,4], K. Nygaard Mortensen[4], M. Rosenholm[4], Q. Li[4], M. Nedergaard[4,5], T. Lilius[1,2,4,6]

[1]*Individualized Drug Therapy Research Program, Faculty of Medicine, University of Helsinki, Helsinki, Finland,* [2]*Department of Pharmacology, Faculty of Medicine, University of Helsinki, Helsinki, Finland,* [3]*Department of*

Anaesthesiology, Intensive Care and Pain Medicine, HUS Helsinki University Hospital and University of Helsinki, Helsinki, Finland, [4]Center for Translational Neuromedicine, University of Copenhagen, Copenhagen, Denmark, [5]Center for Translational Neuromedicine, University of Rochester Medical Center, Rochester, NY, United States, [6]Department of Emergency Medicine and Services, HUS Helsinki University Hospital and University of Helsinki, Helsinki, Finland

Methods: Rats were anaesthetized with either isoflurane or ketamine-dexmedetomidine, tracheostomised, and coupled to a ventilator. EtCO2 was modulated with either hyperventilation (20 mmHg) or adding CO2 to the inhaled mixture (80 mmHg). The brain distribution of a radiolabeled CSF tracer (^{111}In-DTPA) infused to the cisterna magna was assessed using whole-body single-photon emission tomography. Structural differences in brain compartment volumes were assessed with magnetic resonance imaging (MRI).

Results: Under normocapnia, ketamine-dexmedetomidine promoted larger CSF tracer transport towards the brain than isoflurane. MRI structural imaging revealed distinct differences in CSF compartment volumes between the anaesthetics. Hypercapnia under ketamine-dexmedetomidine did not diminish CSF brain transport. Hyperventilation under isoflurane resulted in minor effects in tracer distribution and also an increase in perivascular CSF volume.

Conclusions: The choice of anaesthetic has a larger influence on CSF tracer transport than EtCO2. Preserved glymphatic function could be a future approach to limit perioperative delirium and pain.

404

DESIGN AND DEVELOPMENT OF AN EHEALTH INTERVENTION TO SUPPORT SELF-MANAGEMENT IN PEOPLE WITH MUSCULOSKELETAL DISORDERS - 'EHEALTH: IT'S TIME': A STUDY PROTOCOL

M. Kelly[1,2], B. Fullen[3], D. Martin[4], C. Bradley[1], B. O'Mahony[1], J. McVeigh[1]

[1]University College Cork, Cork, Ireland, [2]Mercy University Hospital, Cork, Ireland, [3]University College Dublin, Dublin, Ireland, [4]School of Health and Social Care, Teesside University, Middlesbrough, United Kingdom

Methods: A three-step, iterative system development cycle will be utilised to develop and design the "eHealth: It's TIME prototype". The three-step process will include creating website features and content using two sequential focus groups with people with MSDs (n = 6 – 8); heuristic testing using the 10 heuristic principles of Nielsen (n = 5); and usability testing through in-person 60-minute interviews with people with MSDs (n = 3 – 5) and musculoskeletal physiotherapists (n = 3 – 5).

Results: Comprehensive results will be available to be presented in September

Conclusions: The eHealth: It's TIME prototype will be a systematically developed, follow-up self-management support intervention guided by behavioural change theory and the preferences of end users.

405

WHAT DO FINNISH PHYSIOTHERAPISTS AND PHYSIOTHERAPY STUDENTS KNOW ABOUT THE NEUROPHYSIOLOGY OF PAIN?

J. Ehrström[1], R. Pöyhiä[2], J. Kettunen[3], E. Pyörälä[1]

[1]University of Helsinki, Helsinki, Finland, [2]University of Eastern Finland, Kuopio, Finland, [3]Arcada University of Applied Sciences, Helsinki, Finland

Methods: Participants answered an online survey containing RNPQ-FI. The percentage of correct responses and the mean percentage of correct responses were calculated. The association between RNPQ-FI scores and the amount of pain education was examined with one-way analysis of variance (ANOVA) and independent-samples T-test.

Results: A sample of 202 physiotherapists and 97 physiotherapy students completed the survey. Both physiotherapists and students answered more often correctly to items on "How and why pain is perceived" (76.2% and 76.0%), than to items on "Biological mechanisms that underpin pain" (40.7 % and 42.7%). Physiotherapists who had attended at least a 1–2-day pain course and students who had attended a separate pain course scored higher on the RNPQ-FI questionnaire than those without such an education (physiotherapists: mean 7.9 vs. 6.9, $p = 0.002$, and students: mean 8.3 vs. 6.7, $p < 0.001$).

Conclusions: Our study shows that pain education has an impact on pain neurophysiology knowledge of physiotherapists and physiotherapy students. Concurrently, specific and detailed questions about pain neurophysiology were often answered incorrectly. Thus, pain education must be continuous and up-to-date.

406

THE ASSOCIATION BETWEEN PAIN-RELATED PSYCHOLOGICAL FACTORS AND POSTURAL CONTROL IN LOW BACK PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

S. Van Wesemael[1], K. Bogaerts[1,2], L. De Baets[3], N. Goossens[1], E. Vlemincx[4], C. Amerijckx[1], S. Sohail[5,1], T. Matheve[6,1], L. Janssens[1]

[1]REVAL Rehabilitation Research, Faculty of Rehabilitation Sciences, Hasselt University, Diepenbeek, Belgium, [2]Health Psychology, Faculty of Psychology and Educational Sciences, University of Leuven, Leuven, Belgium, [3]Pain in Motion Research group (PAIN), Department of Physiotherapy, Human Physiology and Anatomy, Vrije Universiteit Brussel, Brussel, Belgium, [4]Department of Health Sciences, Vrije Universiteit Amsterdam, Amsterdam, Netherlands, [5]Department of Rehabilitation Sciences, Islamabad, Foundation University Islamabad, Islamabad, Pakistan, [6]Spine, Head and Pain Research Unit Ghent, Department of Rehabilitation Sciences, Ghent University, Ghent, Belgium

Methods: The study was registered at PROSPERO (CRD42021241739). Multiple databases were searched until November 2022. Studies were eligible for inclusion if they measured center of pressure (CoP) parameters during bipedal upright standing and reported at least one pain-related psychological factor (e.g., pain-related fear). Random-effect models were used to calculate pooled correlation coefficients between pain-related psychological factors and CoP parameters during different postural tasks with increasing difficulty. Certainty of evidence was assessed by an adapted version of the GRADE.

Results: 17 studies (n= 735 participants) were included. Pain-related fear (17 studies) and pain catastrophizing (3 studies) were the only reported pain-related psychological factors. Results indicated that both pain-related fear ($-0.04 < \text{pooled } r < 0.15$) and pain catastrophizing ($0.28 < \text{pooled} < 0.29$) were weakly associated with CoP parameters during different postural difficulties (e.g., vision occluded, unstable standing). For all associations, the certainty of evidence was rated very low.

Conclusions: Overall, there is low quality of evidence for weak associations between pain-related psychological factors and postural control during bipedal standing in individuals with LBP, regardless of the postural task difficulty.

414

ROLES OF PVA IN REGULATING MECHANICAL HYPERSENSITIVITY AND AVERSION BEHAVIOR IN MURINE CHRONIC PAIN MODEL

S. Assefa[1], W.-H. Chen[1], Y.-C. Chen[1], C.-C. Chen[1]

[1]Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan

Methods: We used a combination of axonal tracing, behavioral tests, electrophysiology, optogenetic, and chemogenetic approaches to specify pain-responsive PVA neurons and the downstream of PVA.

Results: In this study, we demonstrate that intra-plantar injection of formalin could activate PVA VgluT2^{+} neurons. In addition, we identified PVA as a key brain region that **mediates both nociceptive and emotional aspects of pain**. We discovered that the anatomical and functional segregation of PVA projections to the bed nucleus of the stria terminalis (BNST) and the nucleus accumbens (NAc). Activation of efferent projections to BNST drives mechanical hypersensitivity, whereas activation of PVA efferent to the NAc generates an aversive behavior.

Conclusions: This finding supports the idea that PVA plays an essential role in the nociceptive brain circuitry. Our result also provides an important insight into the mechanism of distinct components of pain response. Targeting PVA can be a potential target brain area for a therapeutic approach to reduce the suffering of patients with chronic pain.

424

CENTRAL SENSITIZATION PROXY MEASURES DIFFER BETWEEN HEALTHY MEN AND WOMEN - FACT OR FALLACY?

A. Guekos[1,2], J. Saxer[1,3], D. Salinas Gallegos[1,4], P. Schweinhardt[1,5]

[1]Integrative Spinal Research, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [2]Decision Neuroscience Lab, Institute of Human Movement Sciences and Sport, Department of Health Sciences and Technology, ETH Zurich, Zurich, Switzerland, [3]Department of Biology, ETH Zurich, Zurich, Switzerland, [4]Department of Health Sciences and Technology, ETH Zurich, Zurich, Switzerland, [5]Faculty of Medicine, University of Zurich, Zurich, Switzerland

Methods: 66 healthy participants (18-40a; 33w) underwent a CS induction protocol (CSIP). A contact thermode was attached to the lateral foot dorsum near the malleolus and heated to 48°C for 6x6s (10 repetitions). Before and 20min after CSIP, testing for the spatial extent of secondary hyperalgesia (SH), a subjective proxy relying on verbal feedback, was performed on the adjacent skin. The nociceptive withdrawal reflex (NWR), an objective spinal proxy, was elicited at the retromalleolar pathway of the sural nerve and recorded from the ipsilateral biceps (BF) and rectus femoris (RF) muscles.

Results: Following CSIP, SH was greater for women than men (12.1±8.1 vs 7.9±6.6cm^2, p=0.02 for two-sided t-test). At 140% reflex-threshold current, the effect on the NWR magnitude was stronger for women than men in the BF (Cohen's d: 0.30 vs 0.15; 94% probability in a Bayesian normal-normal model) but weaker in the RF (0.27 vs 0.20; 76%).

Conclusions: After CSIP, SH was more pronounced in healthy women than men. Effects on NWR magnitude exhibited opposing patterns depending on muscle site. It would be premature to consider CS a sex-specific pain biomarker.

436

DIFFERENCES IN HEADACHE CHARACTERISTICS, CERVICAL MUSCULOSKELETAL IMPAIRMENTS, SIGNS OF SENSITIZATION, AND PSYCHOLOGICAL BURDEN BETWEEN DIFFERENT MIGRAINE PHENOTYPES ASSESSED DURING THE INTERICTAL PHASE

S. Di Antonio[1,2], M. Castaldo[1], L. Arendt-Nielsen[1,3]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy, [3]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: This observational included: controls; migraine(episodic/chronic) assessed in the interictal phase and subgrouped into clusters: Cluster-2.1 no psychophysical impairments, Cluster-2.2: increased pain sensitivity, and Cluster-2.3: increased pain sensitivity, and cervical musculoskeletal impairment.

The following variables were assessed: Clinical characteristics: disease duration, diary (headache frequency/intensity); headache-disability(HDI); neck-disability(NDI); psychological burden(HADS). Psychophysical characteristics: cervical active range of motion(AROM, flexion, extension, right/left lateral flexion, right/left rotation); quantitative sensory testing(QST): static pressure-pain threshold(sPPT) and mechanical pain threshold(MPT) over temporalis, sPPT and dynamic PPT(dPPT) over the neck, sPPT and MPT over the hand, and sPPT over the leg

Results: 154 subjects were included. Cluster-2.3 had longer disease duration(p=0.006), higher headache frequency(p=0.00), disability(p<0.001), and psychological burden(p=0.027) vs. Cluster-2.2 and higher headache(p=0.010) and neck(p=0.009) disability vs. Cluster-2.1. Cluster-2.2 have reduced AROM in all directions vs. Controls, Custer-2.1, and Cluster 2.2(p<0.011). Cluster-2.2 and 2.3 had reduced values in all QST(p<0.001) vs. controls, and reduced values in all QST, but not MPT over temporalis and the hand vs. Cluster-2.1(p<0.039). Cluster-2.1 have lower trigeminal MPT(p=0.008) and higher hand and leg sPPT(p<0.015) vs. controls

Conclusions: Two phenotypes showed signs of increased pain sensitivity, but only one also had cervical musculoskeletal dysfunctions. As the latter phenotype showed longer disease duration and worse clinical characteristics, it could be considered a progression of migraine patients with increased pain sensitivity. A migraine phenotype with no psychophysical impairments showed sing of hypoalgesia compared to controls

437

FRAGMENTED SLEEP INCREASE PAIN SENSITIVITY IN HEALTHY SUBJECTS

E. Hertel[1], M.E. McPhee[1], K.K. Petersen[1]

[1]Aalborg University, Aalborg, Denmark

Methods: Three nightly awakenings for three consecutive nights were planned for 30 healthy subjects. Sleep-associated parameters were assessed with a sleep diary. Pressure pain thresholds were investigated on the infraspinatus and gastrocnemius muscles, bilaterally. Cuff-pressure pain detection and tolerance thresholds, temporal summation of pain, and conditioned pain modulation were determined using computerized cuff-pressure algometry. Suprathreshold pain sensitivity was investigated on the dominant infraspinatus muscle using a handheld pressure algometer to provide a tonic pressure of 120% of the pressure pain threshold for 5 and 60 seconds.

Results: Sleep quality and level of rest were significantly lowered during sleep fragmentation compared to baseline ($p<0.005$). Following sleep fragmentation pressure pain thresholds were decreased at all measured points ($p<0.005$), temporal summation of pain was facilitated ($p=0.022$), and suprathreshold pain areas ($p=0.005$) and intensities ($p<0.05$) were increased compared to baseline.

Conclusions: Three nights with fragmented sleep induced increased pressure pain sensitivity and increased measures of pain facilitation.

438

EFFECTIVENESS OF PHYSIOTHERAPY FOR DELAYED ONSET MUSCLE SORENESS IN SPORT CLIMBING: A RANDOMIZED SINGLE-BLIND CONTROLLED STUDY

G. Carta[1,2,3,4], M. Sinatra[5], J. Lomagistro[6], B. Elena Fornasari[2,3], S. Geuna[2,3], D. Cattaneo[5,7]

[1]Systems Biology of Pain, Division of Pharmacology & Toxicology, Department of Pharmaceutical Sciences, Faculty of Life Sciences, University of Vienna, Vienna, Austria, [2]Human Anatomy, Department of Clinical and Biological Sciences, University of Torino, Torino, Italy, [3]Neuroscience Institute Cavalieri Ottolenghi (NICO), University of Torino, Torino, Italy, [4]ASST FBF-SACCO, Milano, Italy, [5]IRCCS Fondazione Don Gnocchi, Milano, Italy, [6]Nuovo Ospedale degli Infermi, Ponderano, Italy, [7]Department of Biomedical Sciences for Health (SCIBIS), University of Milano, Milano, Italy

Methods: 80 non-professional sport climbers were randomized into three 10 minutes treatment groups (manual muscle stimulation, neurodynamic and placebo treatment) and one control group. Participants in all groups were sex-matched. Participants were blindly assessed at four different time points: before a high-intensity climbing session, after 48 hours (before and immediately after treatment), and 48 hours after treatment. The effects of the treatments were evaluated on: pain intensity at rest, mechanical allodynia on the forearm and anterior tibialis, temporal summation of the nociceptive stimulus in the forearm skin, mechanical nerve irritability, forearm circumference and muscle endurance of the finger flexors.

Results: Pain at rest and mechanical nerve irritability were reduced immediately after the treatment only by neurodynamic treatment ($p<0.001$). The temporal summation of the nociceptive stimulus was reduced immediately after 10 minutes of manual muscle stimulation ($p<0.05$). Muscle endurance was not affected by any intervention.

Conclusions: Considering DOMS as a complex phenomenon, our study shows that several pain-associated mechanisms are modified in a treatment-dependent way and that DOMS-related muscle performance reduction cannot be modified by any intervention. The improvement of DOMS-related symptoms can hugely impact sports practice, improving well-being and facilitating training (NCT04255212).

468

A SYSTEMATIC REVIEW ON THE EFFECTIVENESS OF COGNITIVE TRAINING ON PAIN INTENSITY, COGNITIVE FUNCTION AND PSYCHOLOGICAL ASPECTS IN ADULTS WITH MUSCULOSKELETAL PAIN

E. H. Pereira Nery[1,2], N. P. Rocha[3], V. T. Cruz[4,5], A. G. Silva[2]

[1]Department of Medical Sciences, University of Aveiro, Aveiro, Portugal, [2]CINTESIS.UA and School of Health Sciences, University of Aveiro, Aveiro, Portugal, [3]IEETA and Department of Medical Sciences, University of Aveiro, Aveiro, Portugal, [4]EPIUnit Institute of Public Health, Laboratory for Integrative and Translational Research in Population Health (ITR), University of Porto, Porto, Portugal, [5]Neurology Department, Unidade Local de Saúde de Matosinhos, Porto, Portugal

Methods: Searches were conducted using six electronic databases using a combination of words related to pain and cognitive training. Two reviewers independently screened studies for inclusion against eligibility criteria(studies had to compare cognitive training alone or associated with any other intervention(including non-pharmacological and pharmacological interventions). The risk of bias was assessed using the Cochrane Collaboration's risk of bias(RoB 2) and posteriorly, the overall quality and strength of evidence was assessed using GRADE,and a decision was reached by consensus.

Results: Two studies reporting conflicting results were found. One study compared cognitive training alone against watching a video on general topics(nature,history,science) and reported a significant between-group difference in pain intensity favoring the control group(ES=-0.65,p =0.022). The other study compared cognitive training against no intervention and reported a significant decrease in pain intensity in the experimental but not in the control group(change=-0.5,p=0.04).

Conclusions: The impact of cognitive training on pain intensity in individuals with MSK pain is inconclusive.The limited number of included studies highlights the necessity of more robust studies to explore that gap and improve evidence in this field.

472

CLINICAL EFFECTIVENESS OF A FEMALE CHRONIC PELVIC PAIN MANAGEMENT PROGRAMME: A SPECIALISED INTERDISCIPLINARY APPROACH

S. Johnson[1,2], A. Bradshaw[1], N. Lane[1], M. Liptrott[1], K. Herron[1]

[1]The Walton Centre NHS Trust, Liverpool, United Kingdom, [2]University of Liverpool, Liverpool, United Kingdom

Methods: All patients who attended the chronic pelvic pain programme between 2014 – 2019 and provided outcome data were included. Outcomes comprising of pain intensity, pain distress, pain catastrophizing, depression, pain self-efficacy, occupational performance, physical functioning, and satisfaction. Outcomes were collected at pre-treatment baseline, post-treatment and 6-month post-treatment completion.

To determine the size of pre-post differences in outcomes, we will report benchmarking with effect Size (comparing effect size Cohen's d to reported effect sizes) and Clinically Significant Change. Outcomes of satisfaction results will be reported qualitatively. IRAS ID (19/NW/0130), REC ref (259525).

Results: 102 patients completed the pelvic PMP between 2014-2019. Data analysis is underway and will be completed in Feb/March 2023.

Conclusions: Outcomes will provide first-time quality-of-life outcomes for a group of this size completing a specialised pelvic pain management programme.

475

PREVALENCE OF MUSCULOSKELETAL AND WIDESPREAD PAIN IN A REPRESENTATIVE COHORT OF THE FRENCH GENERAL POPULATION

F. Bailly[1,2], A. Petit[3], S. Kab[4], V. Foltz[5], M. Badard[5], B. Fautrel[1,5]

[1]Pierre Louis Institute of Epidemiology and Public Health, INSERM UMRS 1136, Paris, France, [2]Assistance Publique - Hôpitaux de Paris - Pain Center, Paris, France, [3]Centre de consultations de pathologie professionnelle, CHU Angers, Angers, France, [4]Constances, INSERM UMS011, Villejuif, France, [5]Assistance Publique - Hôpitaux de Paris - Rheumatology center, Paris, France

Methods: The Constances cohort is composed of volunteers, aged 18 to 69 years at inclusion. Eligible subjects were selected at random by stratified sampling with unequal probabilities, over-representing individuals with a higher probability of not volunteering (according to their age, sex, socioprofessional category) with adjustment coefficients weight participation bias. Individuals diagnosed with a cancer were excluded. Musculoskeletal pain was assessed by the Nordic Questionnaire. Significant pain lasted at least 30 days in the last 12 months. Widespread pain syndrome concerned at least 4 of the 6 areas. Chronic moderate to severe pain reached a pain score ≥ 4/10 in the last 7 days. Data from the entire cohort were described and then the the French population prevalence was estimated , based on people included in 2017 with adjustment coefficients.

Results: 193,436 people were included in the cohort. The French population prevalences of each pain location and widespread pain were estimated among the 25,472 people included in 2017.

	Pain prevalence in the cohort	Moderate to severe pain prevalence in the cohort	Pain prevalence estimation in the french population	Moderate to severe pain prevalence estimation in the french population
Back	24.6%	16.0%	25.9 [25.4-26.5]	17.9 [17.4-18.4]
Neck	16.6%	10.4%	17.1 [16.7-17.6]	11.2 [10.8-11.6]
Shoulder	16.3%	9.4%	17.0 [16.5-17.5]	10.5 [10.1-10.8]
Knee	18.9%	11.1%	19.8 [19.3-20.2]	12.4 [12-12.8]
Hand	14.0%	7.7%	14.7 [14.2-15.1]	8.5 [8.2-8.8]
Elbow	8.5%	4.3%	9.2 [8.2-9.6]	4.9 [4.7-5.2]
Widespread pain	7.0%	3.3%	8.1 [7.8-8.5]	4.2 [4-4.5]

Conclusions: The prevalence of musculoskeletal pain in the French population is high, particularly for chronic pain of moderate to severe intensity, which underlines the need to improve their detection, prevention and management.

476

POSITIVE FUNCTIONAL NEUROLOGICAL SIGNS IN HYPERMOBILE EHLERS-DANLOS SYNDROME AND HYPERMOBILE SPECTRUM DISORDERS: A COMPARATIVE CASE SERIES

A. Fernandez[1,2,3,4], M. Jaquet[3], B. Aubry-Rozier[3,5], M.R. Suter[2,3], S. Aybek[6], C. Berna[1,2,3,4]

[1]Center for integrative and complementary medicine, Division of anesthesiology, Lausanne University Hospital (CHUV), Lausanne, Switzerland, [2]Pain Center, Division of anesthesiology, Lausanne University Hospital (CHUV), Lausanne, Switzerland, [3]Faculty of Biology and Medicine, University of Lausanne, Lausanne, Switzerland, [4]The Sense, Innovation and Research Center, Lausanne & Sion, Switzerland, [5]Department of Rheumatology, Lausanne University Hospital (CHUV), Lausanne, Switzerland, [6]University Clinic for Neurology, Inselspital, Bern, Switzerland

Methods: A sample of 24 hEDS/HSD patients underwent a neurological examination including the evaluation of FNS: 4 motor signs (the Sternocleidomastoid, the Give-way weakness, the drift without pronation and the Hoover sign) and 3 sensory signs (splitting of vibration, non-anatomical distribution and the Bowlus-Currier test). The data from patients who had signed a hospital-wide generalized consent for research were retrospectively extracted. A control group (N=22), was then prospectively recruited, with an overall age and gender matching.

Results: Out of 24 patients tested, 22 presented at least one positive FNS (92%): 12 had only sensory signs and 10 showed concomitant sensory and motor signs. The most frequently observed sensory sign was the splitting of vibration (17/22) the most common motor sign was the drift without pronation (8/10). These positive functional neurological signs were very rare in healthy controls: the only one was the splitting of vibration observed in 2/22 controls.

Conclusions: FNS appear to be common in this hEDS/HSD population, suggesting that functional neurological disorders may be one of the comorbidities associated with hEDS/HSD. This first and preliminary observation deserves further investigations in larger samples.

479

EXPLORING PAIN THRESHOLDS AND CATASTROPHIC WORRY IN CHILDREN WITH CANCER: THE MEDIATING ROLE OF PARENTAL CATASTROPHIC WORRY

E. Rheel[1], A. Malfliet[1], J. van der Werff ten Bossch[2], S. Debulpaep[3], T. Vervoort[4], K. Ickmans[1]

[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]University Hospital Brussels, Brussels, Belgium, [3]Ghent University Hospital, Ghent, Belgium, [4]Universiteit Gent, Ghent, Belgium

Methods: This is a cross-sectional case-control study. Participants were 30 children with cancer and 30 sex- and age-matched healthy controls (8-18 years old). PPTs were measured with a digital pressure algometer at the dominant tibialis anterior muscle and trapezius pars descendens muscle. Variables of pain in the last 2 weeks were assessed with 1-item questions. Child and parent pain catastrophic worry is measured by means of the Pain Catastrophizing Scale for Children and the Pain Catastrophizing Scale for Parents respectively.

Results: Data collection was completed in June 2022. Data-analysis is ongoing and the results will be presented during the congress.

Conclusions: Research shows that parental catastrophizing about their child's pain is related to stronger feelings of parental distress and to worse child pain-related outcomes, such as increased disability, distress and pain. In sum, findings of this study might have important implications for pain management and physical rehabilitation in childhood cancer patients.

481

SCHWANN CELL ACTIVATED CGRP RECEPTOR ELICIT PERIORBITAL MECHANICAL ALLODYNIA VIA NO PRODUCTION IN MICE

D. Souza Monteiro de Araujo[1], F. De Logu[1], R. Nassini[1], L. Landini[1], M. Marini[1], M. Titiz[1], P. Geppetti[1]

[1]University of Florence, Florence, Italy

Methods: PMA was assessed with von Frey filaments after CGRP and capsaicin periorbital injection in C57BL/6 mice and in mice with selective silencing of CLR/RAMP1 in Schwann cell (Plp-Cre^{ERT+};Ramp1$^{fl/fl}$). Presence of CLR/RAMP1 in Schwann cell was measured by qRT-PCR and immunofluorescence. Intracellular levels of cAMP, pNOS3 and nitric oxide (NO) were measured in Schwann cells following CGRP stimulation.

Results: CLR/RAMP1 is present on human and mouse Schwann cell. CGRP and capsaicin evoked PMA which was reduced in Plp-Cre^{ERT+};Ramp1$^{fl/fl}$ mice. In vitro, in Schwann cells, CGRP evoked an increase in cAMP, NOS3 phosphorylation and NO that was blocked by CLR/RAMP1 antagonists, an adenylyl cyclase inhibitor, and an NO synthase inhibitor. PMA induced by CGRP and capsaicin is blocked by a NO synthase inhibitor or by a NO scavenger. PMA is also abolished in mice with selective deletion of the oxidant-sensitive TRPA1 channel either in Schwann cells or in sensory neurons.

Conclusions: Present results suggest that peripheral CGRP regulates PMA via CLR/RAMP1 signaling in Schwann cells, which results in a cAMP-dependent release of NO. NO targets the TRPA1, in Schwann cells, which elicits persistent ROS generation, triggering TRPA1 on primary afferents to induce PMA.

493

IMPULSIVITY, AND ANXIETY SENSITIVITY AS TRANS-DIAGNOSTIC FACTORS THAT EXPLAIN INDIVIDUAL DIFFERENCES IN ADJUSTMENT TO CHRONIC PAIN AND OPIOID MISUSE

V. Barrado-Moreno[1], C. Ramírez-Maestre[1,2], R. Esteve[1,2], E.R. Serrano-Ibáñez[1,2], G. Sainero-Tirado[1], G.T. Ruiz-Párraga[1,2], R. de la Vega[1,2], M. Fernández-Baena[3], M.P. Jensen[4], A.E. López-Martínez[1,2]

[1]Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Facultad de Psicología y Logopedia, Universidad de Málaga, Málaga, Spain, [2]Instituto de Investigaciones Biomédicas de Málaga (IBIMA), Málaga, Spain, [3]Unidad del dolor. Hospital Regional de Málaga, Málaga, Spain, [4]Department of Rehabilitation Medicine, University of Washington, Seattle, United States

Methods: The sample was composed of 187 patients with chronic non-cancer pain. Correlations and structural equation modelling analyses were used to test the hypothetical model.

Results: The results obtained by correlational analyses showed that impulsiveness and anxiety sensitivity were both correlated with all the maladjustment variables and also with opioid misuse and craving. Moreover, the results of SEM analyses are in line with this. However, although correlations analyses found significant associations between adjustment to pain and opioid misuse, in the SEM analyse, the association between adjustment to pain and opioid misuse (as latent variables) were non-significant.

Conclusions: Impulsiveness and anxiety sensitivity appear as risk variables which could explain individual differences in adjustment to chronic pain and opioid misuse.

501

EFFECTS OF ACETAMINOPHEN ON CONDITIONED PAIN MODULATION, TEMPORAL SUMMATION OF PAIN, AND OFFSET ANALGESIA IN HEALTHY VOLUNTEERS

Y. Kiyohara[1], Y. Oono[1], R. Kono[1], S. Takagi[1], H. Nagasaka[2], L. Arendt-Nielsen[3,4], H. Kohase[1]

[1]Division of Dental Anesthesiology, Department of Diagnostic and Therapeutic Sciences, Meikai University School of Dentistry, Sakadoshi, Saitama, Japan, [2]Department of Anesthesiology, Saitama Medical University Hospital, Morohonngou, Saitama, Japan, [3]Center for Neuroplasticity and Pain, SMI, Department of Health Science and Technology, School of Medicine, Aalborg University, Aalborg, Denmark, [4]Department of Gastroenterology and Hepatology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: Twenty-two healthy volunteers (12 females, age; 32.5[28.2–34.8]) were recruited. For CPM evaluation, pressure pain threshold (PPT) was measured as test stimulus with and without a thermal conditioning stimulus. CPM effect was calculated as (PPT with conditioning stimulus/PPT without conditioning stimulus − 1) × 100 (%). TSP ratio was evaluated by pin prick and calculated as; mean VAS scores from the 8th to the 10th stimulus/mean VAS scores from the first to the fourth stimulus. OA was induced by three-heat-stimulus train (T1–T2–T3) and OA score was calculated as (maximum VAS score for T2) – (minimum VAS score for T3). CPM, TSP and OA were evaluated before (CPMpre, TSPpre or OApre) and 60 minutes after 1000mg of oral acetaminophen administration. The relationships between pre acetaminophen administration and increment by acetaminophen in CPM, TSP and OA were analyzed with Spearman correlation coefficient (statistical significance: $p<0.05$).

Results: Significant negative correlations were observed between the CPMpre and increment in CPM ($R=-0.7834$, $p=0.00001$), and the TSPpre and increment in TSP ($R=-0.7730$, $p=0.00002$), but not in OA ($R=-0.2408$, $p=0.2803$).

Conclusions: Acetaminophen might activate central pain modulatory pathways which are featured by CPM and TSP but not OA.

515

ACETALDEHYDE *VIA* CGRP RECEPTOR AND TRPA1 IN SCHWANN CELLS MEDIATES ETHANOL-EVOKED PERIORBITAL MECHANICAL ALLODYNIA IN MICE: RELEVANCE FOR MIGRAINE

L. Landini[1], D. Souza Monteiro de Araujo[1], G. De Siena[1], E. Bellantoni[1], P. Geppetti[1], R. Nassini[1], F. De Logu[1]

[1]Department of Health Sciences, Clinical Pharmacology and Oncology Section, University of Florence, Florence, Italy

Methods: Periorbital mechanical allodynia (PMA) following systemic ethanol and acetaldehyde was investigated in mice after TRPA1 and TRPV1 pharmacological antagonism and global genetic deletion. Mice with selective silencing of the receptor activated modifying protein 1 (RAMP1) in Schwann cells or TRPA1 in dorsal root ganglion (DRG) neurons or Schwann cells, were used.

Results: Intragastric ethanol administration evokes a sustained PMA that is attenuated by systemic or local alcohol dehydrogenase inhibition, and TRPA1, but not TRPV1, global deletion, indicating the implication of acetaldehyde. PMA by both ethanol and acetaldehyde is abrogated by pretreatment with the CGRP receptor antagonist and selective silencing of RAMP1 in Schwann cells. PMA by ethanol and acetaldehyde is also attenuated by cyclic AMP, protein kinase A, and nitric oxide inhibition and pretreatment with an antioxidant. Moreover, selective genetic silencing of TRPA1 in Schwann cells or DRG neurons attenuated PMA by ethanol or acetaldehyde.

Conclusions: In mice, PMA, a response that mimics cutaneous allodynia reported during migraine attacks, is elicited by ethanol *via* the systemic production of acetaldehyde that, by releasing CGRP, engages the CGRP receptor in Schwann cells. The ensuing cascade of intracellular events results in a Schwann cell TRPA1-dependent oxidative stress generation that eventually targets neuronal TRPA1 to signal allodynia from the periorbital area.

531

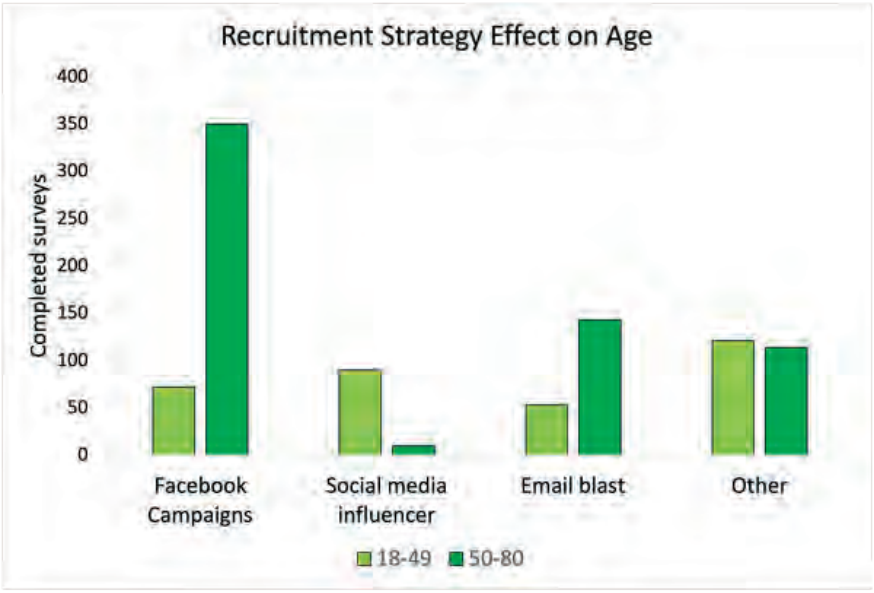
USING ONLINE CASE VIGNETTES TO INVESTIGATE PARTICIPANT-AS-PATIENT CHOICES: RECRUITMENT CONSIDERATIONS AND SAMPLE CHARACTERISTICS

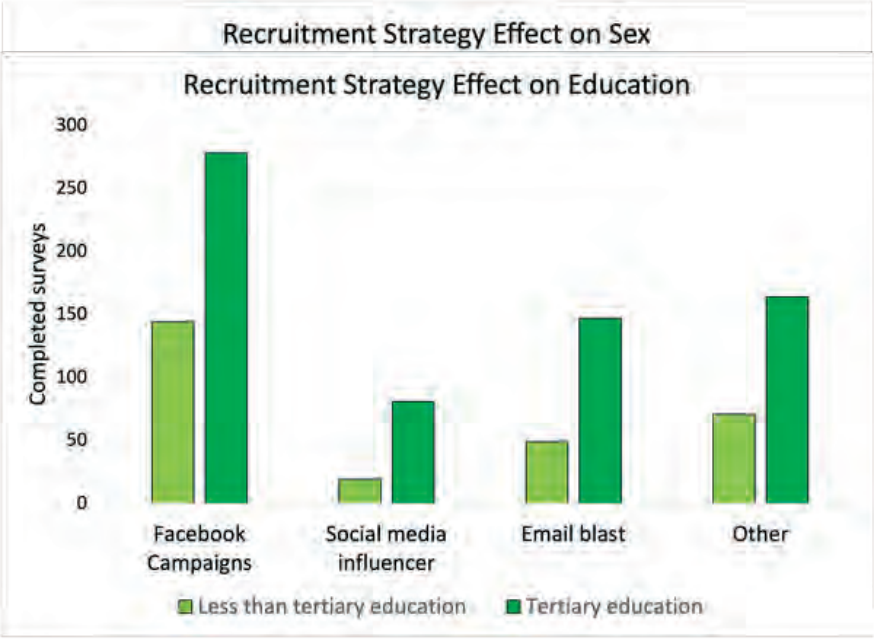
B. Mouatt[1], G.L. Moseley[1], F.A. Braithwaite[1], M.J. Travers[2,3], K. O'Sullivan[4,5,6], C.M. Murray[1,7], T.R. Stanton[1]

[1]IIMPACT in Health, University of South Australia, Adelaide, Australia, [2]School of Physiotherapy, The University of Notre Dame Australia, Fremantle, Australia, [3]School of Physiotherapy and Exercise Science, Curtin University, Bentley, Australia, [4]Sports Spine Centre, Aspetar Orthopaedic and Sports Medicine Hospital, Doha, Qatar, [5]School of Allied Health, University of Limerick, Limerick, Ireland, [6]Health Research Institute, University of Limerick, Limerick, Ireland, [7]Allied Health and Human Performance Academic Unit, University of South Australia, Adelaide, Australia

Methods: Data from Phase 1 of an online, participant-as-patient experiment were used (~25min duration; Gorilla surveys) where participants responded as patients to back pain clinical interactions. Linear/logistic regressions evaluated the effect of recruitment strategy (paid Facebook campaigns [reference category], using an Instagram influencer, email blasts, and 'other' strategies) on the demographics of participants recruited (age, sex, education, back pain).

Results: 953 participants (n=719 female; mean age=54.2±15.6 years; n=670 tertiary education completed; n=889 back pain) from 28 countries (Australia=770) completed the survey (completion rate=29%). An effect of recruitment strategy existed for all outcomes. Using an Instagram influencer (β=-27.00, p<0.001), email blast (β=-3.06, p=0.008), or 'other' strategies (β=-10.38, p<0.001) recruited younger participants, and 'other' strategies recruited fewer female participants (β=-0.78, p<0.001) than Facebook campaigns. Using an Instagram influencer (β=0.79, p=0.004) or email blast (β=0.44, p=0.023) recruited participants with higher educational levels, and an Instagram influencer recruited more people with back pain (β=1.64, p=0.002) than Facebook campaigns.





Conclusions: The type of recruitment strategy used captures differing participant demographics, but still selectively samples females and those with higher education, limiting representativeness. Varying recruitment strategies appears important to attaining a representative population sample, but novel recruitment strategies to target specific demographics (male, lower education) are warranted to maximise generalisability.

534

CHRONIC PAIN EXACERBATES AGE-RELATED COGNITIVE DECLINE

A. Dorado[1], S. Rodríguez-Alegre[1], M. Delgado-Bitata[1], A.M. González-Roldán[1]

[1]Cognitive and Affective Neuroscience and Clinical Psychology, Research Institute of Health Sciences (IUNICS) and Balearic Islands Health Research Institute (IdISBa), University of the Balearic Islands (UIB), Palma, Spain

Methods: For this purpose, a neuropsychological assessment was conducted on 52 older adults with chronic musculoskeletal pain (> 60 years old; 16 males) 58 pain-free older adults (> 60 years old; 22 males) and 57 pain-free younger adults (< 25 years old; 23 males). All participants completed the following tests: digit span test, Trail Making Test (TMT A and B), Wechsler Memory Scale (WMS) word list, Stroop test, Wisconsin Card Sorting Test (WCST), the FAS and animals verbal fluency task and the Word Accentuation Test (WAT).

Results: Older adults with chronic pain showed a significantly reduced performance compared to pain-free older adults in FAS, digit span (forward and backward), Stroop interference, WCST total errors and perseverative errors. Younger participants performed better than both older groups in all tasks except in FAS.

Conclusions: Our results suggest that suffering long-lasting pain exacerbates the cognitive decline related to the aging process, especially in executive processes.

541

INTER- AND INTRA-TESTER RELIABILITY OF POSTURAL STABILITY TESTS IN PATIENTS WITH WHIPLASH-ASSOCIATED DISORDER

N. Särkilahti[1], A. Oksanen[2], E. Löyttyniemi[1], J. Mäkelä[3], J. Kaukonen[3], J. Takatalo[4], O. Tenovuo[1]

[1]University of Turku, Turku, Finland, [2]Turku University Hospital, Turku, Finland, [3]Turku University of Applied Sciences, Turku, Finland, [4]Medical Research Center, Oulu University Hospital, Oulu, Finland

Methods: Fourteen adults with chronic WAD performed in randomized order seven different balance tests with eyes open using CSP: neutral head, gaze rotated 20° (left and right), head rotated 20° (left and right) and body rotated 20° (left and right). Two testers independently and blinded to all subject information performed all tests and one of the testers on two occasions two to four weeks apart. The reliability of the balance outcomes from the sway velocity (mm/s) and momentum (mm^2/s) was evaluated using a paired t-test (level difference) and interclass correlation.

Results: Based on our preliminary analysis, the results of each test do not differ significantly between testers or retests.

Conclusions: Initial results suggest that clinicians can reliably use these tests to assess the effects of symptoms and neck position on postural control in patients with WAD.

548

INVESTIGATING THE INFLUENCE OF ATTENTION BIAS MODIFICATION FOR PAIN ON EXPERIMENTAL PAIN SENSITIVITY AND AUTONOMIC REACTIONS IN HEALTHY ADULTS

E. Gozansky[1,2,3], H. Okon-Singer[1,2,3], I. Weissman-Fogel[4,2,3]

[1]University of Haifa, Haifa, Israel, [2]The Integrated Brain and Behavior Research Center (IBBR), Haifa, Israel, [3]Data Science Research Center at the University of Haifa, Haifa, Israel, [4]Physical Therapy Department, Faculty of Social Welfare and Health Sciences, University of Haifa, Haifa, Israel

Methods: Twenty-five participants underwent tonic heat pain stimulation and cold pressor test simultaneously with electrocardiogram (ECG) recording before and after ABM-P training or a matching control training. Time- and frequency-domain heart rate variability (HRV) were assessed by beat-to-beat heart rate recording.

Results: Preliminary findings demonstrate that participants reported reduced ratings of suprathreshold tonic pain stimuli following ABM-P training. In addition, heart rate during pain decreased ($t=3.28$, $p=0.047$), and a marginally significant increase was observed for high-frequency power and root mean square of successive differences between normal heartbeats (rMSSD). No change was observed in cold pain threshold and tolerance, and in either of the related HRV measures.

Conclusions: Our preliminary results support the claim that ABM-P can reduce experimental pain sensitivity. This inhibitory effect accompanied an increase in the vagal tone reactivity to pain. This suggests that ABM-P training may modulate pain via the antinociceptive effect of the vagus.

552

BIOMARKERS ASSESSMENTS 5 YEARS AFTER TOTAL KNEE REPLACEMENT IN OSTEOARTHRITIS PATIENTS WITH AND WITHOUT CHRONIC POSTOPERATIVE PAIN

R. Giordano[1], C. Capriotti[1,2], M.C. Gerra[2], C. Dallabona[2], L. Arendt-Nielsen[1,3,4], K. Kjær-Staal Petersen[1,4]

[1]Center for Neuroplasticity and Pain (CNAP), SMI, Department of Health Science and Technology, Faculty of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Chemistry, Life Sciences, and Environmental Sustainability, University of Parma, 43123, Parma, Italy, [3]Department of Gastroenterology & Hepatology, MechSense, Aalborg University Hospital, Aalborg, Denmark, [4]Center for Mathematical Modeling of Knee Osteoarthritis (MathKOA), Department of Material and Production, Faculty of Engineering and Science, Aalborg University, Aalborg, Denmark

Methods: Plasma samples were collected 5 years after surgery from 82 patients. Samples were analyzed using Human-XL-Cytokine Magnetic-44-plex Luminex®-assay. Pain in the last 24 hours was assessed using VAS scale. Patients were categorized as experiencing chronic postoperative pain if postoperative VAS was higher than 3/10, otherwise the patients were categorized as recovered and pain free. Biomarker expressions were compared between the two groups.

Results: Sixty-one patients were categorized with chronic postoperative pain and 21 patients were categorized as pain free. T-test highlighted 5 significant proteins (IFN-g, IL-4, MIP-3a, TGF-β, VEGF) comparing the groups ($p<0,05$). Correlations showed 11 markers associated with pain intensity ($p<0,05$). Regression models explained 23% of pain and demonstrated VEGF as independent factor for postoperative pain ($p<0,05$).

Conclusions: The present study confirms a low-grade inflammation in a subset of patients with continues postoperative pain five years after TKR. The current results provide insights into the understanding of the underlying mechanisms which may drive the long experience of the pain after TKA surgery.

554

INTER- AND INTRA-TESTER RELIABILITY OF WALK TESTS IN PATIENTS WITH WHIPLASH-ASSOCIATED DISORDER

N. Särkilahti[1], A. Oksanen[2], E. Löyttyniemi[1], J. Mäkelä[3], J. Kaukonen[3], J. Takatalo[4], O. Tenovuo[1]

[1]University of Turku, Turku, Finland, [2]Turku University Hospital, Turku, Finland, [3]Turku University of Applied Sciences, Turku, Finland, [4]Medical Research Center, Oulu University Hospital, Oulu, Finland

Methods: Fourteen adults with chronic WAD performed the 8-meter walk test in seven conditions: preferred walk (PW), and PW with visual fixation (left and right), visual tracking (left and right) and head rotation 20° (left and right). Two testers independently and blinded to all subject information performed all tests and one of the testers on two occasions two to four weeks apart. We analyzed gait using 4 meters long computerized force plate. The reliability of the gait outcomes from the stance phase (%), step length (cm), step time (ms) and cadence (step/min) were evaluated using a paired t-test (level difference) and interclass correlation.

Results: Based on our preliminary analysis, the results in the PW, and PW with visual tracking and head rotation tests do not differ significantly between testers or retest. However, the results in the PW with visual fixation differ between testers.

Conclusions: Initial results suggest that clinicians can reliably use walk tests to assess the effects of neck symptoms on gait in patients with WAD.

586

NOXIOUS AND INNOCUOUS THERMAL STIMULATION IN OFFSET ANALGESIA: A PSYCHOPHYSICAL STUDY

L. Luebke[1], J. von Selle[1], W.M. Adamczyk[2], K. Luedtke[1], G. Carvalho[1], T.M. Szikszay[1]

[1]University of Luebeck, Luebeck, Germany, [2]The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland

Methods: Healthy, pain-free subjects (n=33) received thermal stimuli of four different modalities, including noxious

heat, innocuous heat, noxious cold and innocuous cold. The applied temperatures were previously determined in a pilot study for each modality. Three trials (Constant Trials (CT), Offset Trials (OT) and Baseline Trials (BT)) were performed twice for each modality on the non-dominant volar forearm starting from a baseline temperature. The intensity of each thermal stimulus was assessed using an electronic visual analogue scale. Offset analgesia will be determined based on comparisons between CTs and OTs.

Results: Repeated-measures ANOVA and LSD-adjusted post-hoc tests revealed a significant difference between OT and CT for noxious heat ($p<0.001$), noxious cold ($p=0.026$) and innocuous cold ($p<0.001$). There was no significant difference concerning innocuous heat ($p=0.551$). No significant correlation between the different paradigms could be identified ($r<0.3$, $p>0.05$).

Conclusions: An OA effect was shown for noxious heat, noxious cold, and innocuous cold but not for innocuous heat. These findings suggest additional peripheral mechanism of OA, mediated by A-fibre afferents rather than C-fibres.

608

VIRTUAL REALITY HYPNOSIS INFLUENCES PAIN PERCEPTION: SELF-REPORTED AND NEUROPHYSIOLOGICAL MEASURES IN HEALTHY PARTICIPANTS

A. Bicego[1], R. Panda[1], C. Toussaint[2], R. Montenegro[1], C. Quoilin[2], S. Laureys[3], O. Gosseries[1], A. Vanhaudenhuyse[1]

[1]University of Liège, Liège, Belgium, [2]Oncomfort SA, Wavre, Belgium, [3]University of Laval, Québec, Canada

Methods: Forty-two healthy participants (26.5±4.31yo; 25 women) received 60 electrical painful stimulations to the foot (n=20) or the shoulder (n=22), during ordinary consciousness (OC) and VRH conditions (Aqua©, Oncomfort). Visual Analogue Scales (VAS) on pain intensity and unpleasantness, dissociation, absorption and a question on time perception were asked after each condition. Level of anxiety was assessed before and after each condition (VAS). High-density EEG (256 electrodes, EGI Geodesics) was also recorded. Repeated measures ANOVAs were performed for behavioral data. Event related potentials (ERPs) following painful stimulations were measured at the individual and group (shoulder and foot) levels for both conditions using cluster based non-parametric test ($p<0.05$).

Results: Pain intensity and unpleasantness, anxiety (post condition) and time perception were reduced in VRH compared to OC. Dissociation and absorption were higher in VRH compared to OC. No significant group effect (foot vs. shoulder) was found. Regarding pain-related ERPs, lower amplitudes at frontal (P100, N200), central and posterior (N100, P100) electrodes were observed during VRH as compared to OC in both groups.

Conclusions: VRH decreases pain perception both behaviorally and electrophysiologically. These results suggest that VRH is an effective approach to reduce experimental pain and pave the way for clinical applications of VRH.

616

BOTULINUM TOXIN A TREATMENT FOR NEUROPATHIC PAIN: A RETROSPECTIVE COHORT ANALYSIS AT A UK CENTRE

R. Berwick[1,2], C. Bredemeyer[2], B. Frank[1,2]

[1]University of Liverpool, Liverpool, United Kingdom, [2]The Walton Centre, Liverpool, United Kingdom

Methods: At The Walton Centre (WC), UK, we conducted a retrospective cohort analysis of all patients receiving BTX-A injections for neuropathic pain (excluding headache conditions) from 04/2017 until 12/2022. Patients received BTX-A injections when failing first and second-line treatments. Patients were given two sessions before their Global Rating of Change Scores were obtained. The audit was registered at WC. Ethical approval was not required (https://hra-decisiontools.org.uk/ethics/). Data were tabulated on Excel and analysed on GraphPad using Fisher's exact test.

Results: During the period captured, 129 patients had BTX-A therapy. Of these, 19 were excluded (15 with one session only, four awaiting the outcome of two sessions. Of these 110 patients, 51 (46.4%) reported "much improved" or "very much improved" symptoms. Comparing this 'successful' treatment group with the 'unsuccessful' one, no significant trends were observed with respect to gender, location, BTX-A dose or aetiology.

	Successful	Unsuccessful	Total	
Demographics				
Male (n)	22	29	51	ns.
Female (n)	29	30	59	ns.
Age	61.9 [18 - 92]	59.8 [19 - 94]	-	ns.
Total Units Injected				
1st Session (units)	168.2 [50-400]	165.5 [50-300]	-	ns.
2nd Session (units)	157.7 [25-300]	185.5 [50-400]	-	ns.
Location				
Orofacial (n)	41	41	80	ns.
Peripheral (n)	10	18	28	ns.
Aetiology				
Post Herpetic Neuralgia (n)	19	22	41	ns.
Trigeminal Neuralgia (n)	12	13	23	ns.
Peripheral Neuropathy (n)	20	24	44	ns.

Conclusions: In summary, we report that subcutaneous BTX-A therapy as a third-line treatment in clinical practice is helpful. It does not show preferential efficacy with different groups or locations.

619

COUPLING NEUROMODULATION AND MIRROR THERAPY IN CHRONIC NEUROPATHIC PAIN: FEASIBILITY, ANALGESIC EFFICACY AND BRAIN CORRELATES

J. Thomas[1], N. Oriol[1,2], C. Chreac'h[1,2,3], L. Garcia-Larrea[1,4], R. Peyron[1,2,3], C. Quesada[1], C. Fauchon[1]

[1]NeuroPain / CRNL, University of Saint-Etienne, CNRS, Inserm U 1028, Saint-Etienne, France, [2]Pain Center, University Hospital of Saint-Etienne, Saint-Etienne, France, [3]Neurology Department, University Hospital of Saint-Etienne, Saint-Etienne, France, [4]Pain Center, Neurological Hospital, Hospices Civils de Lyon, Lyon, France

Methods: This multicenter and placebo-controlled study will include 60 participants with NP located in an upper limb. Resting-state and motor-task fMRI, pain intensity, quality of life questionnaires are collected and analyzed before and after 4 sessions of rTMS (20 Hz over the motor cortex-M1) coupled with MT in virtual reality (2 weeks apart). Patients receive either active MT + active rTMS or sham MT + active rTMS (initiated in 20/60 patients).

Results: MT creates an illusion for the brain that the painful limb moves without pain. In practice, only the healthy limb moves, but both motor cortices are activated. Therefore, we hypothesized that movements without pain prior to neuromodulation will 'pre-activate' or increase excitability in M1. We expect that it will lead to improved pain relief (i.e., more responders and higher global efficacy) by facilitating the recruitment of brain regions (activity and connectivity) involved in the analgesic effect of rTMS.

Conclusions: This study will provide insights into the joint use of these two innovative non-invasive techniques to promote pain relief.

626

EVALUATION OF Δ9-THC CO-ADMINISTRATION ON MORPHINE-MEDIATED EFFECTS IN HUMAN, RAT, MOUSE NEURONAL CELLS TO IMPLEMENT A QUANTITATIVE SYSTEMS PHARMACOLOGY PLATFORM FOR PREDICTING COMBINATIONAL ANALGESIC THERAPIES

E. Cuna[1], S. Spampinato[1], A. Bedini[1]

[1]Alma Mater Studiorum, Bologna, Italy

Methods: Morphine ability to inhibit forskolin-stimulated cAMP accumulation was quantified through ELISA assays in differentiated SH-SY5Y human neuroblastoma cells, rat and mouse primary neurons and HEK-293 cells under basal conditions and co-administering 10-100 nM THC with morphine.

Western Blot analyses were performed to evaluate ERK1/2, p38MAPK, and JNK phosphorylation.

Potential MOR-CB1 heteromerization was analyzed in HEK-293 cells through confocal microscopy.

Results: In differentiated SH-SY5Y, HEK-293 cells, and rat cortex neurons morphine ability to inhibit adenylyl cyclase was improved by THC co-administration. In cells previously subjected to prolonged MOR activation, a condition in which more likely receptors are desensitized, the co-administration of THC rescued morphine-mediated signalling. Notably, in rat striatum neurons THC does not enhance morphine potency. A colocalization signal between MOR-CB1 was observed.

Conclusions: We found that in human neuronal cells and rat cortical, but not in rat cortex primary neurons, the co-treatment with THC and morphine increases morphine potency in activating MOR-dependent signalling. MOR-CB1 heteromerization might be the underlying mechanism. Western blot and confocal microscopy analyses following co-administration of both drugs, currently ongoing, will contribute to shed more light on the synergistic effects between the opioid and cannabinoid systems.

627

MIR-203B-3P FROM PSORIATIC LESIONS ACTIVATES 5-HTR2B AND TRPV4 TO INDUCE PRURITUS

M. Chieca[1], F. De Logu[1], R. Nassini[1], L. Landini[1], M. Marini[1], D.S.M. de Araujo[1], G. De Siena[1], M. Titiz[1], P. Geppetti[1,2], R. Maglie[3,4], G. Poli[5], M. Montini[6], D.A. Cabrini[7], M.F. Otuki[7], P.L. Pawloski[7], E. Antiga[4], T. Tuccinardi[5], J.B. Calixto[8], E. André[7]

[1]Department of Health Science, Clinical Pharmacology and Oncology Section, University of Florence, Florence, Italy, [2]Headeache Center, Careggi University Hospital, Florence, Italy, [3]University of Florence, Florence, Italy, [4]Section of Dermatology, Department of Health Sciences, University of Florence, Florence, Italy, [5]Department of Pharmacy, University of Pisa, Pisa, Italy, [6]Medical Genetics Unit, Department of Experimental and Clinical Biomedical Sciences „Mario Serio", University of Florence, Florence, Italy, [7]Department of Pharmacology, Federal University of Paraná, Curitiba, Brazil, [8]Centro de Inovação e Ensaios Pré-Clínicos (CIEnP), Florianópolis, Brazil

Methods: We explored miRNAs expressions in psoriatic skin of a mouse model of psoriasis and the Ca^{2+} response evoked by miRNAs in rodents dorsal root ganglion (DRG) neurons. We used mouse primary culture of keratinocytes and DRG neurons for *in vitro* model of psoriasis for measurement of miRNA expression.

Results: Mouse psoriatic lesions and an in vitro model of psoriasis showed increased expression of miR-203b-3p. miR-203b-3p induced a Ca^{2+} response in primary culture of DRG neurons and scratching behavior in mice *via* serotonin receptor 2B (5-HTR-2B) activation and protein kinase C-dependent phosphorylation of TRPV4. PKC inhibition reduced Ca^{2+} responses in DRG neurons stimulated by miR-203b-3p. In DRG neurons Ca^{2+} responses by miR-203b-3p or 5-HT were inhibited by 5-HTR2B and TRPV4 antagonism. Thus, miR-203b-3p activated an intracellular pathway, which requires the cooperation between 5-HTR2B and TRPV4 to evoke pruritus.

Conclusions: We found that miRNAs induced the activation of the 5-HTR2B/TRPV4 neuronal pathway which could be involved in the development of pruritus in psoriasis.

629

THE NATURAL COURSE OF ACUTE LOW BACK PAIN IN THE GENERAL POPULATION: AN INCEPTION COHORT STUDY

F. Pfeiffer[1], A. Meichtry[2], H. Luomajoki[1], S. Hotz Boendermaker[1]

[1]Zurich University of Applied Sciences, School of Health Professions, Institut of Physiotherapy, Winterthur, Switzerland, [2]Bern University of Applied Sciences, Department of Health Professions, Bern, Switzerland

Methods: 176 participants with aLBP (pain duration ≤ 4 weeks) were recruited (November 2017 to February 2021) in this inception cohort study and followed-up (FU) at 8, 12, 26 and 52 weeks after pain onset. Pain intensity and biopsychosocial variables were gathered at each FU. Latent-class linear mixed models were used to derive homogeneous aLBP latent class trajectories. Multinomial logistic regression analysis was used to model the odds ratio of latent class membership as linear function of a priori selected biopsychosocial variables at baseline.

Results: Analysis of the data indicated a 4-class model, whereas 46% of all participants (39.3 years of age, 50.9% female) were assigned to a non-favourable trajectory of either *persistent moderate pain intensity*, *moderate/severe fluctuating pain intensity* or *delayed recovery by week 52*. Female sex, increased pain intensity, previous LBP episodes, increased disability and ≥ medium risk of chronicity were associated with less favourable aLBP trajectories.

Conclusions: The natural course of aLBP is less favourable as previously stated and psychosocial variables at baseline do not account for trajectory membership.

639

KYNURENINE AMINOTRANSFERASE II KNOCKOUT MICE SHOW INCREASED PAIN SENSITIVITY

Á. Szabó[1,2], E. Spekker[3], A. Fejes-Szabó[3], J. Toldi[4], M. Tanaka[3], E. Ono[5,6], L. Vécsei[1,3]

[1]Department of Neurology, Albert Szent-Györgyi Medical School, University of Szeged, Szeged, Hungary, [2]Doctoral School of Clinical Medicine, University of Szeged, Szeged, Hungary, [3]ELKH-SZTE Neuroscience Research Group, Danube Neuroscience Research Laboratory, Eötvös Loránd Research Network, University of Szeged (ELKH-SZTE), Szeged, Hungary, [4]Department of Physiology, Anatomy and Neuroscience, University of Szeged, Szeged, Hungary, [5]Department of Biomedicine, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan, [6]Center of Biomedical Research, Research Center for Human Disease Modeling, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan

Methods: Wild-type C57BL/6N (males: n=14; females: n=12) and KAT II KO$^{-/-}$ mice (males: n=12; females: n=11) were tested at 8-, 12- and 16-weeks consecutively. The mechanical threshold withdrawal was measured by touching the hind paw with von Frey filaments of increasing strength three times, of each mouse placed individually.

Results: KAT II KO$^{-/-}$ mice showed significantly higher sensitivity to the filament touch at 8 weeks (males: p=0,034; females: p=0,045), at 12 weeks (males: p=0,046; females: p=0,002), and at 16 weeks (males: p=0,039; females: p=0,002) compared to the wild-type.

Conclusions: Here we show that KAT II KO$^{-/-}$ mice are more sensitive to touch sensation. This is evidence that the Trp-KYN metabolic system, especially the gene *aadat* influences touch sensation. More studies await to explore the enzyme activities and metabolite concentrations of the Trp-KYN system in the consequence of the gene knockout and its translational potential to clinical application.

642

PAIN INTENSITY AND FIBROMYALGIA SEVERITY IS ASSOCIATED WITH ANTI-SATELLITE GLIA CELL IGG ANTIBODIES

K. af Ekenstam[1], J. Menezes[1], E. Krock[1], A. Sandström[1,2], J. Tour[1], K. Sandor[1], A. Jurczac[1], M. Hunt[1], A. Baharpoor[1], D. Kadetoff[1], C. Svensson[1], E. Kosek[1,3]

[1]Karolinska Institute, Stockholm, Sweden, [2]Massachusetts General Hospital, Harvard Medical School, Boston, United States, [3]Uppsala University, Uppsala, Sweden

Methods: Levels of anti-SGC IgG were quantified using an immunofluorescence assay exhibiting percentage of murine SGC, in cell cultures, binding human IgG (2). FM subjects (n=98) were compared to HC (n=41), and the correlations between anti-SGC IgG and symptom severity were assessed in the FM group.

Results: FM subjects had significantly higher anti-SGC IgG than HC(p = 0.007) FM:mean 46,26%, (95%CI:41.35-51.18%), HC:mean 34,56%, (95%CI:27.95-41.18%). Anti-SGC IgG-levels correlated with high pain intensity ratings (VAS)(r = 0.42, p = 0.001) and high impact of fibromyalgia (FIQ)(r = 0.25, p = 0.014), thus replicating our previous results. In addition, we found a weak positive correlation with depression (HADS-D)(r = 0.22, p = 0.032). We found no significant associations between anti-SGC IgG-levels and anxiety, pain catastrophizing, fatigue, or disturbed sleep.

Conclusions: A subset of FM subjects have elevated levels of anti-SGC antibodies, and these levels are associated with higher pain intensity and higher impact of FM.

643

OPTIMISING MANAGEMENT OF MUSCULOSKELETAL PAIN DISORDERS IN PRIMARY PHYSIOTHERAPY CARE: A CLUSTER RANDOMISED CONTROLLED TRIAL (THE SUPPORTPRIM PROJECT)

F. Granviken[1,2], I. Meisingset[1,3], K. Bach[4], A. Bones[1], M.R. Simpson[1], O. Vasseljen[1]

[1]Department of Public Health and Nursing, Norwegian University of Science and Technology (NTNU), Trondheim, Norway, [2]Department of Physical Medicine and Rehabilitation, St.Olavs Hospital, Trondheim, Norway, [3]Unit for Physiotherapy Services, Trondheim Municipality, Trondheim, Norway, [4]Department of Computer Science, Norwegian University of Science and Technology (NTNU), Trondheim, Norway

Methods: In a cluster-randomised multicentre controlled trial, we randomised 44 physiotherapists from primary care in Norway to expose their patients to the CDSS in addition to usual care versus usual care only. The CDSS gives personalised treatment recommendations for a new patient based on knowledge of the most similar successful patients from the past. We enrolled patients with pain in the neck, shoulder, back, hip, knee or with complex pain between February 2021 and November 2021. Primary outcomes were assessed at 3 months by self-reported Global perceived effect and clinically important improvement in function measured by the Patient Specific Functional Scale. The primary outcomes were analysed by intention to treat using three-level mixed logistic regression models and with cluster allocation concealed. Trial registration number: ISRCTN17927832.

Results: A total of 724 patients were included in the analysis. The mean age (SD) of participants was 48.4 years (SD 15.1). Analyses are in progress, results will be presented at the conference.

Conclusions: This is the first study to evaluate the effectiveness of a CDSS based on methods from artificial intelligence in physiotherapy care. Conclusions will be presented at the conference.

645

INDIVIDUAL DIFFERENCES IN HABITUATION AND SENSITIZATION TO PAIN: AN FMRI STUDY

M. van der Miesen[1], J. Eck[1], C. Vossen[2], B. Joosten[2,1], D. Linden[1], A. Kaas[1], J. Peters[1]

[1]Maastricht University, Maastricht, Netherlands, [2]Maastricht University Medical Centre, Maastricht, Netherlands

Methods: Twenty-seven healthy volunteers participated in an MRI session. Participants received three runs of twenty-five electric painful stimuli on the middle finger, which was followed by a rating of their pain intensity using a visual analogue scale. Functional brain data was preprocessed and analyzed using standard preprocessing steps in BrainVoyager and rating data was analyzed using R. Participants were divided into subgroups based on their across-run slope.

Results: On the group level, no significant habituation or sensitization was present in pain ratings. However, different subgroups were found, consisting of twelve habituaters, six sensitizers and nine that remained stable. Participants showed significant BOLD activity in response to painful stimulation in areas related to pain processing such as the cingulate cortex, insula and somatosensory cortices. Over three runs, participants showed decreasing activity in the mid-cingulate cortex, cerebellum and caudate nucleus.

Conclusions: This study showed the feasibility of including single-trial ratings during fMRI acquisition of repeated painful stimulation, which is important for showing individual habituation patterns. Decreased activity was found over three runs which could indicate habituation to pain. Further analyses will investigate the relation between ratings, brain activity and different subgroups.

665

SOMATOSENSORY FUNCTIONING ACROSS THE BREAST CANCER CARE CONTINUUM IN WOMEN WITH AND WITHOUT PERSISTENT PAIN AFTER BREAST CANCER TREATMENT

L. Dams[1,2], V. Haenen[3,1], E. Van der Gucht[2], N. Devoogdt[3,2], A. De Groef[1,3], M. Meeus[1,4]

[1]University of Antwerp, Wilrijk, Belgium, [2]UZ Leuven, Leuven, Belgium, [3]KU Leuven, Leuven, Belgium, [4]Ghent University, Gent, Belgium

Methods: Somatosensory function was assessed using quantitative sensory testing (QST) in 184 women diagnosed with BC, 1 week before and after surgery, as well as at 4,8,12 and 18 months after surgery, and in 33 healthy controls. Eight QST methods (mechanical pain-detection, pressure pain, thermal pain-detection for heat and cold, temporal summation) were performed in the surgical area (trunk, inner upper arm) and in more distant regions (quadriceps). Loss and gain in somatosensory function was evaluated using z-scores. Kruskall-Wallis test (non-normal distribution) or ANOVA (normal distribution) were used to compare somatosensory function of BC survivors without and with persistent pain (mean VAS past week ≥30).

Results: Loss of mechanical and thermal detection in the surgical area was prominent over the entire follow-up after BC surgery (range z-scores -4.23;-2.09). Both women with (n=43) and without (n=111) persistent pain after BC had lower distant pain thresholds. Women with persistent pain had significantly more hypoesthesia to mechanical and cold stimuli in the surgical area throughout the entire follow-up (Kruskall-Wallis, range p-values <0,001;0.038).

Conclusions: Pain and signs of hypersensitivity may not always coincide in BC survivors. Furthermore women with persistent pain had more pronounced local loss of function in larger sensory fibers.

690

TEMPORAL SUMMATION OF PAIN INTENSITY, UNPLEASANTNESS, AND NOCICEPTIVE REFLEXES IN BORDERLINE PERSONALITY DISORDER

A. Löffler[1], D. Kleinböhl[1], S. Steinmann[2], S.C. Herpertz[3], R. Bekrater-Bodmann[1,2], H. Flor[1]

[1]Institute of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [2]Department of Psychosomatic Medicine and Psychotherapy, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [3]Department of General Psychiatry, Medical Faculty, Center for Psychosocial Medicine, Heidelberg University, Heidelberg, Germany

Methods: We assessed pain thresholds, temporal summation of perceived pain intensity and unpleasantness, as well as the nociceptive RIII-reflex as marker for spinal nociceptive processing in 24 participants with BPD and 24 HC using electrical stimulation. We compared both groups regarding the pain measures assessed. Within the groups, the correlations between temporal summation of perceptual and reflex level of pain were examined. Finally, in BPD we related temporal summation of pain intensity and unpleasantness as well as reflex responses to pain thresholds and clinical markers.

Results: In line with previous results, pain thresholds were significantly higher in BPD compared to HC. Temporal summation of pain unpleasantness was significantly higher in BPD compared to HC. However, temporal summation of pain perception was not associated with pain thresholds in BPD. Compared to HC, in BPD there was no significant positive correlation between temporal summation of pain perception and reflex response.

Conclusions: These results emphasize the role of supra-spinal mechanisms in altered pain perception in BPD and further indicate that in BPD different mechanisms might underlie altered pain perception, in terms of increased pain threshold and heightened repetitive temporal summation of pain.

691

THE IMPACT OF SOCIAL SUPPORT ON THE DEVELOPMENT OF HYPERALGESIA: DO INDIVIDUAL FACTORS MODERATE THE DEVELOPMENT OF HYPERALGESIA

K. Jaltare[1], J. Biurrun Manresa[2,3,4], D. Torta[1]

[1]Department of Psychology and Educational Sciences, KU Leuven, Leuven, Belgium, [2]Institute for Research and Development in Bioengineering and Bioinformatics (IBB), CONICET-UNER, Oro Verde, Argentina, [3]Centre for Rehabilitation Engineering and Neuromuscular and Sensory Research (CIRINS), Faculty of Engineering, National University of Entre Ríos, Oro Verde, Argentina, [4]Centre for Neuroplasticity and Pain (CNAP), Aalborg University, Aalborgdend, Denmark

Methods: Forty-two healthy female participants were randomized into two groups(alone vs support) in which SH was induced using middle frequency stimulation(MFS) of the skin. The support group received verbal support from a confederate during the MFS procedure, while the alone group underwent the procedure alone. SH was assessed by the perceived intensity and unpleasantness of mechanical pinprick stimuli and the area of hypersensitivity. SH, cortisol as well as skin conductance was measured at baseline(T0), 25 minutes(T1), and 50 mins(T2) after MFS.

Results: Subjective ratings of SH were significantly lower in the support group than in the alone group. Moreover, higher attachment anxiety predicted lower hyperalgesia in the support group, but not the alone group, for subjective ratings and the width of hyperalgesia. Attachment avoidance had a similar effect but only on the subjective ratings. No differences in cortisol or skin conductance were found.

Conclusions: Verbal support seems to play a role in modulating the development of SH and attachment styles moderates this effect. Yet, attenuation of SH by social support may not involve the stress response.

707

IDENTIFICATION OF CGRP-MEDIATED TRPA1 ACTIVATION PATHWAY IN SCHWANN CELLS

M. Marini[1], F. De Logu[1], R. Nassini[1], L. Landini[1], D. Souza Monteiro de Araujo[1], M. Titiz[1], P. Geppetti[1]

[1]University of Florence, Florence, Italy

Methods: Human primary SCs (HSCs), a mouse SCs line IMS32, and primary SCs from sciatic nerves of C57BL/6J, and *Trpa1*$^{+/+}$ and *Trpa1*$^{-/-}$ mice were used. The Ca^{2+} response after CGRP exposure was monitored by fluorescent microscope. H_2O_2 was determined by using the Amplex Red assay. The CGRP effect was measured also in the presence of antagonists of CGRP (CGRP8-37 and olcegepant) and TRPA1 (A967079) receptors, and inhibitors of adenylyl cyclase (SQ22536), NOS (L-NAME), PKA (H89), NOX1 (ML171) and a ROS scavenger (PBN).

Results: In HSCs and IMS32 cells, CGRP stimulated a slowly developing yet sustained increase in Ca^{2+} response and increased H_2O_2 levels. Olcegepant, CGRP8-37, SQ22536, H89, L-NAME, Ca^{2+}- free medium, PBN or ML171 attenuated Ca^{2+} responses and H_2O_2 levels. A967079 inhibited CGRP-stimulated Ca^{2+} and H_2O_2 responses but did not affect CGRP-stimulated NO formation. CGRP-evoked Ca^{2+} responses were reduced in SCs from *Trpa1*$^{-/-}$ mice.

Conclusions: These results showed that CGRP, by targeting its receptor in SCs, liberates NO, which activates SC TRPA1. Activated TRPA1 promotes a Ca^{2+}-dependent H_2O_2 production that sustains a feed-forward mechanism comprising TRPA1 channel engagement and ROS release.

715

A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED 5-WAY CROSSOVER STUDY TO ASSESS MODULATING EFFECTS OF CBD ON PSYCHOTROPIC AND ANALGESIC EFFECTS OF THC

A. Gorbenko[1,2], J. Heuberger[1], G.J. Groeneveld[1,2]

[1]Centre for Human Drug Research, Leiden, Netherlands, [2]Leiden Unversity Medical Centre (LUMC), Leiden, Netherlands

Methods: This was a randomized, double blind, placebo-controlled, 5-way cross-over trial in 26 healthy volunteers. On each visit participants received one of the following oral treatments: placebo; THC; THC+CBD 10mg; THC+CBD 30mg; THC+CBD 450mg. The THC dose was 9mg in all THC-treatments. Psychoactive and analgesic effects were quantified using standardized assessments. PK sampling was performed throughout the study. Data was analysed using mixed-model ANCOVA.

Results: There were no statistically significant differences in psychotropic effects between THC alone and THC+CBD 10mg or THC+CBD 30mg, whereas THC+CBD 450mg produced significantly stronger psychotropic effects compared to THC alone (Figure 1). THC (with or without CBD) did not produce statistically significant changes in nociceptive thresholds compared to placebo (not shown), but a reduction in post-test pain VAS was observed for all treatments containing THC regardless of CBD dose (Figure 2). Markedly higher plasma THC concentrations were measured after the 450mg CBD treatment (Figure 3).

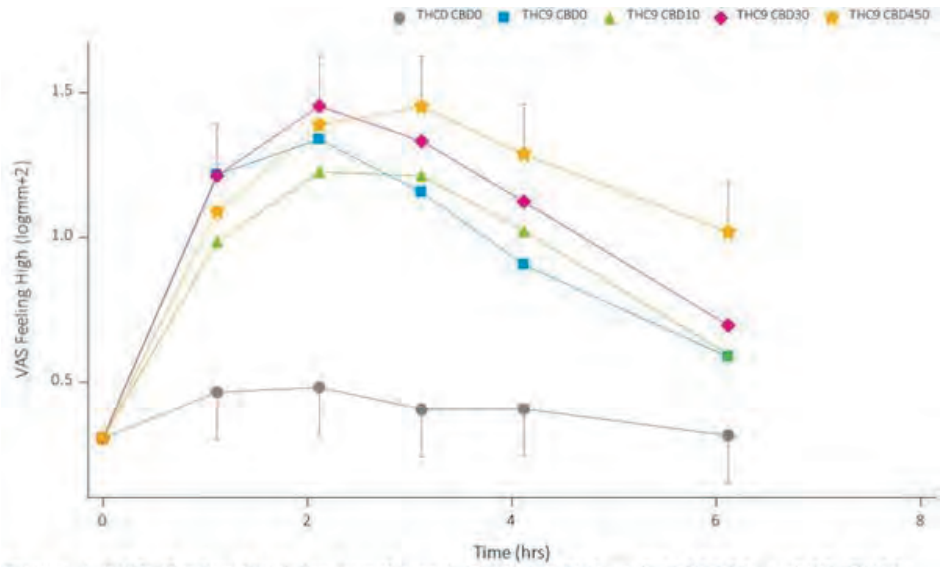


Figure 1. *VAS 'Feeling high', log-transformed. THC9 CBD10 vs THC9CBD0: p>0.05; THC9 CBD30 vs THC9 CBD0: p>0.05; THC9 CBD450 vs THC9 CBD0:* ***p<0.01****;*

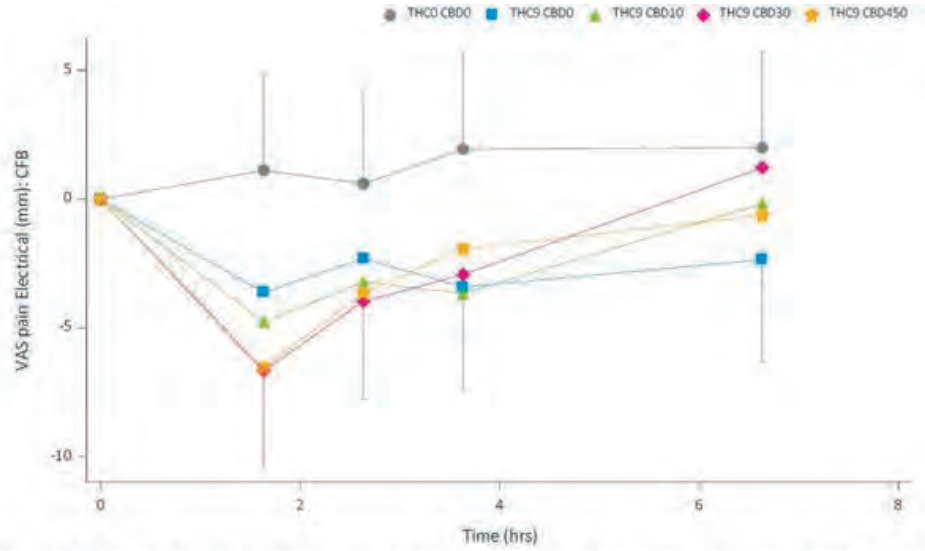


Figure 2. *Mean (SD) VAS 'Pain' post-electrical stair test, change from baseline (mm). THC9 CBD10 vs THC9CBD0: p>0.05; THC9 CBD30 vs THC9 CBD0: p>0.05; THC9 CBD450 vs THC9 CBD0: p>0.05; THC9 CBD0 vs THC0 CBD0:* ***p<0.01***

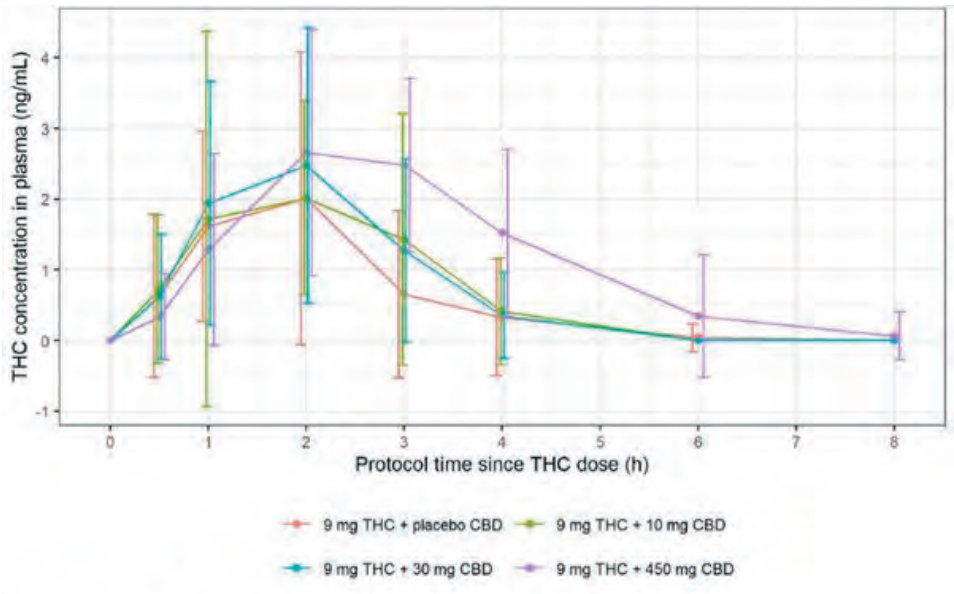


Figure 3. *Mean (SD) concentration of THC in plasma (ng/mL) (linear y-axis)*

Conclusions: CBD 10mg and 30mg did not reduce psychotropic effects of THC. CBD 450mg increased psychotropic effects of THC, probably by increasing THC exposure by way of PK interaction. The study results are consistent with THC acting on pain experience rather than nociception. The observed analgesic effects did not differ between THC-treatments, regardless of CBD dose.

728

MULTIMODAL REHABILITATION FOR IMMIGRANTS WITH CHRONIC PAIN IN NEED OF LANGUAGE INTERPRETER

K. Uhlin[1,2], E. Persson[3], S. Bäärnhielm[4], K. Borg[1,2], M. Löfgren[1,2], B.-M. Stålnacke[1,5]

[1]Karolinska Institutet, Department of Clinical Sciences, Division of Rehabilitation Medicine, Danderyd Hospital, Stockholm, Sweden, [2]Danderyd University Hospital, Department of Rehabilitation Medicine, Stockholm, Sweden, [3]University of Lund, Lund, Sweden, [4]Karolinska Institutet, Stockholm, Sweden, [5]Department of Community Medicine and Rehabilitation, Rehabilitation Medicine, Umeå University, Umeå, Sweden

Methods: A prospective longitudinal cohort study of 95 patients with chronic pain, 74 women and 21 men, who participated in MMR-LI at two Swedish specialist pain rehabilitation centres. Duration and intensity of pain, anxiety and depression, health related quality of life and fear of movement were evaluated prior and after the program. Patients were compared with a reference group of patients, Swedish speaking and participants in MMR.

Results: Before the MMR-LI all variables except pain duration differed significantly to the detriment of the studied group. The studied group showed significant improvements after the MMR-LI on pain intensity, depression and fear of movement. The reference group improved significantly on all variables.

The women in the studied group showed significant improvements in the same variables as the whole group, while the men in the studied group did not improve in any of the variables.

Conclusions: This study indicates that patients, at least women, seem to benefit from participating in MMR-LI. Men might need further support during the program.

The result could be of value for further development of rehabilitation programs with language interpreters.

729

THE ROLE OF MULTISENSORY SENSITIVITY IN CHRONIC BACK PAIN

A. Panzel[1], C. Büchel[1], T. Wager[2], Y. Ashar[3]

[1]Universitätsklinikum Hamburg-Eppendorf, Hamburg, Germany, [2]Dartmouth College, Hanover, United States, [3]University of Colorado Anschutz Medical Campus, Boulder, United States

Methods: We designed a neuroimaging study investigating 142 patients with chronic lower back pain (CBP) during an aversive sound and mechanical pressure pain paradigm. To identify the neural substrates of MSS in CBP, we conducted a Region of Interest (ROI) analysis in primary sensory, sensory-integrative and midline default mode network areas and used multivariate patterns of stimulus-specific (sound, pressure) and generalized negative affect. To test if MSS is shared across centralized pain conditions, we applied a multivariate classifier trained on multisensory stimulation in fibromyalgia to CPB patient data.

Results: ROI responses to aversive auditory stimuli for CBP vs. controls revealed hyperactivity in the primary auditory and insular cortex as well as hypoactivation of the medial prefrontal cortex. Multivariate pattern analysis revealed increased stimulus-specific and generalized negative affect processing and increased fibromyalgia MSS classifier values for CBP vs. controls.

Conclusions: Together, these findings suggest that MSS-related evoked brain responses in CBP are shared with other centralized pain conditions, like fibromyalgia, and reflect both increased stimulus-specific and generalized negative affect processing.

736

STRUGGLING TO MANAGE A LIFE WITH PAIN. A QUALITATIVE INTERVIEW STUDY EXPLORING PATIENTS' EXPERIENCES OF ENDOMETRIOSIS-RELATED CHRONIC PAIN, INCLUDING IMPACT ON PHYSICAL ACTIVITY

J. Larsson[1], B. Heckemann[2], E. Varkey[3], A. Wolf[2], K. Sundfeldt[1], C. Ögren[1], S. Jonsvik[4], P. Andréll[1]

[1]University of Gothenburg, Institute of Clinical Sciences, Gothenburg, Sweden, [2]University of Gothenburg, Institute of Health and Care Sciences Sahlgrenska Academy, Gothenburg, Sweden, [3]University of Gothenburg, Department of Occupational Therapy and Physiotherapy, Gothenburg, Sweden, [4]Department of Anaesthesiology and Intensive Care Medicine, Gothenburg, Sweden

Methods: Fifteen women participating in a large, ongoing randomized controlled trial (NCT05152264), were interviewed during December 2021 – September 2022. The interviews were analysed using qualitative content analysis.

Results: The overall theme, «Managing a life with pain» highlights women's struggle to live a life despite their debilitating, endometriosis-related chronic pain. Three categories further illuminate how women manage to live their lives: „Seeking help" describes the women's need for extended support and increased understanding from healthcare professionals. „Monitoring and assessing" describes how women constantly monitor their pain and energy levels and assess their ability to participate in social or physical activities. „Adapting and taking action" describes the specific adjustments and actions women need to manage the severe pain condition.

Conclusions: Endometriosis-related pain causes suffering and patients experience healthcare support as lacking. In order to manage life with pain, a person-centered collaboration between patients and healthcare is needed to develop suitable treatment plans and lifestyle strategies.

743

A HUMAN SKIN INFLAMMATION MODEL TO STUDY PAIN HYPERSENSITIVITY IN VIVO

F.J. Resch[1], M.J.M. Fischer[1], S. Heber[1]

[1]Medical University of Vienna, Vienna, Austria

Methods: To induce inflammation in human skin, lipopolysaccharide (LPS) was intradermally injected at different spots on the volar forearms of healthy volunteers. Suppression of inflammation by coinjection of dexamethasone served as a positive control for other substances of interest to be tested. Blood flow and noxious sensitivity was assessed at several time points. As noxious stimuli heat, injection of an increasingly acidic solution (mimicking tissue acidosis) or solutions with an increasing concentration of potassium (mimicking tissue necrosis) were applied to inflamed spots or non-inflamed control spots. Volunteers periodically rated the perceived pain during the injection using a numerical rating scale.

Results: The injection of LPS led to locally restricted inflammatory spots, indicated by increased sensitivity and increased blood flow. A maximum is observed after several hours, sensitivity subsides within 24 hours. After 4 hours, there was pronounced sensitisation in inflamed spots compared to control spots. This sensitisation was abolished by dexamethasone.

Conclusions: Our skin inflammation model reliably induced allodynia and hyperalgesia in humans. This model allows to probe substances for interference with the development of inflammatory pain.

771

RELATIONS BETWEEN CHILDREN'S PAIN MESSAGES CLARITY, DEGREE OF NURSE CONFIDENCE AND NURSES CHARACTERISTICS: PRELIMINARY RESULTS FROM POSTOPERATIVE PEDIATRIC COHORT

D. Zontag[1,2], R. Treiter[3]

[1]Department of Pediatric Surgery, Ruth Rappaport Hospital, Rambam Health Care Campus, Haifa, Israel, [2]Haifa University, Haifa, Israel, [3]The Cheryl Spencer Department of Nursing, Faculty of Social Welfare and Health Sciences, University of Haifa, Haifa, Israel

Methods: Children undergo elective surgery and the clinical nurses in the pediatric department were recruited. Postoperatively, the nurse assessed pain using the 0-10 Numerical Rating Scale (NRS) and completed the children hospital of eastern Ontario pain scale (CHEOPS) to assess pain behavior. Pain-message-clarity was calculated as the absolute value of the difference between the 0-10 NRS and the CHEOPS (after converting it into a 0-10 scale). Nurses confidence in their pain assessment was scored on a 0-10 scale.

Results: To date, 15 child-nurse dyads were successfully completed. The mean pain intensity score was 6.2 ± 3.1, the mean CHEOPS score (transformed into a 0-10 scale) was 6.9 ± 1.9, and the calculated pain message clarity (in absolute value) was 2.1 ±1.4. The mean nurse's confidence in their pain assessment was 7.8 ± 2.1. A trend toward significant association was found between nurses' confidence in their assessment and pain-message-clarity (p=0.083, r=0.480).

Conclusions: Unexpectedly, we found a direct negative association between pain-message-clarity and nurses' confidence in their assessment. This finding is opposite to our hypothesis, according to which the clearer the pain-message-clarity is, the higher the nurse's confidence should be. The study in on going - a larger sample will allow to confirm this finding.

786

BRAIN CHANGES DURING 10 WEEKS OF OSTEOARTHRITIS DEVELOPMENT IN A RAT SODIUM MONOIODOACETATE-INDUCED MODEL

M. Kődziora[1], J. Mlost[1], M. Białoő[1], ő. Michalec-Warzecha[1], A. Wősik[1], K. Starowicz[1]

[1]Maj Institute of Pharmacology Polish Academy of Sciences, Cracow, Poland

Methods: OA was induced in the rat's knee joint via intra-articular injection of sodium monoiodoacetate (MIA), pain was measured with Von Frey's and Kinetic Weight Bearing tests, and anxiety was assessed by the Elevated Plus Maze test. Neurochemical brain changes in the frontal cortex, striatum, hippocampus and nucleus accumbens (NAS) were assayed by HPLC 3, 6, and 10 weeks post-OA induction. A correlation matrix between neurotransmitter levels in different structures was created based on the Pearson test. Visualization of the correlation matrix was performed, Boruta machine learning algorithm and vertex degree identified influential nodes in the network.

Results: In OA animals anxiety-like symptoms accompanied chronic pain from week 6. We revealed that MIA treatment disrupts the otherwise highly synchronized network of monoamine metabolites. Moreover, graph analysis further indicated the significance of NAS neurotransmission as the key node, highly intercorrelated with neurotransmitters in other structures. Network analysis and feature selection algorithms allowed us to identify 5-HT and NA neurotransmission in the NAS as the main node affected by chronic pain development.

Conclusions: Our data pave the way toward understanding the functional roles of NA and 5-HT in the NAS in chronic pain.

Acknowledgments: Research funded by the National Science Centre, grant OPUS2019/35/B/NZ7/01176 and IP PAS statutory funds.

817

THE EFFECTS OF INSPIRATORY MUSCLE TRAINING ADDITION TO CONSERVATIVE THERAPEUTIC APPROACH ON PHYSICAL AND PSYCHOSOCIAL MANIFESTATIONS OF CHRONIC NECK PAIN: A RANDOMIZED CONTROLLED TRIAL

G. Yalcinkaya Colak[1,2], S. Ozyurek[3], O. Kalemci[4], Y. Salik Sengul[3]

[1]Bozok University, Faculty of Health Sciences, Yozgat, Turkey, [2]Dokuz Eylul University, Institute of Health Sciences, Izmir, Turkey, [3]Dokuz Eylul University, Faculty of Physical Therapy and Rehabilitation, Izmir, Turkey, [4]Dokuz Eylul University, Faculty of Medicine, Izmir, Turkey

Methods: Twenty-eight female patients with CNP have been included in the study to obtain a physiotherapy program for six weeks. The control group (n=14) received manual therapy and cervicothoracic strengthening exercises, while the IMT group (n=14) performed IMT in addition to the treatment procedure of the control group. Our outcome measures were the severity of neck pain (visual analog scale-VAS), neck disability index (NDI), Tampa scale of kinesiophobia (TSK), and Beck depression inventory (BDI). Besides, we evaluated musculoskeletal features of

neck pain (craniovertebral flexion-CVF and thoracic kyphosis angles-TKA; activation score-AS and performance index-PI of deep neck flexor muscles; cervical joint repositions error-JRE). All measurements were made at baseline and after treatment.

Results: A significant improvement was found in the within-group comparison regarding VAS, NDI, TSK, and BDI ($p<0.05$) in both study groups. Similarly, musculoskeletal features (CVA, TKA, AS, and PI) were also significantly improved in both study groups ($p<0.05$). In between-group comparison, only the delta values of TSK scores ($p=0.03$) and cervical JPE in left rotation ($p=0.003$) in the IMT group were statistically superior to the control group.

Table 1. Anthropometric data and baseline neck pain statues in study groups

	IMT Group (n=14)	Control Group (n=14)	p
Age (years)†	41 (36.25-48)	45.50 (31.25-48.75)	0.898§
Weight (kg)†	60.50 (55-68.50)	67 (65-69.50)	0.071§
Height (cm)†	162 (156.75-163.75)	161 (157.75-168)	0.568§
BMI (kg/m^2) †	23.14 (21.85-26.58)	25.46 (23.11-26.51)	0.208§
Pain intensity $_{(VAS)}$ †	6 (4.45-7.20)	5.85 (4.25-6.95)	0.454§
Pain duration (month) †	54 (36-72)	36 (24-72)	0.431§
Pain lateralization (n /%) **-Right** **-Left** **-Bilateral**	 3 / 21.42 7 / 50 4 / 28.58	 4 / 28.58 8 / 57.14 2 / 14.28	0.773¶

Abbreviations: BMI, Body Mass Index; †: Median (Interquartiles 25%-75%), §: Mann Whitney- U testi, ¶: Chi-square test.

Table 2. The effect of additional IMT training on pain and psychosocial parameters within and between groups.

		Within-groups				Between-groups		
	Groups	**Baseline Median (IQR 25%/75%)**	**Post treatment Median (IQR 25%/75%)**	**z**	**p**	**Δ $_{(Baseline-Post\ treatment)}$ Median (IQR 25%/75%)**	**z**	**p**
VAS	IMT Control	6 (4.45/7.20) 5.85 (4.25/6.95)	0.75 (0/2) 0.90 (0/1.75)	-3.297 -3.061	0.001* 0.002*	5.10 (3.32/6.12) 4.30 (3.70/5.77)	-0.464	0.643
NDI	IMT Control	19 (16/22.25) 18.50 (17/24.25)	3 (2/6.25) 4 (2.25/4.75)	-3.297 -3.063	0.001* 0.002*	15 (10.75/20.50) 16 (12.25/20.50)	-0.284	0.777
TSK	IMT Control	42.50 (37.50/44.25) 41.50 (37.75/42.75)	28.50 (25/36) 34.50 (29.50/37)	-3.207 -2.552	0.001* 0.011*	12 (7/16.75) 6.50 (2.50/10.75)	-2.118	0.034**
BDI	IMT Control	10 (5.75/12.50) 7 (5.25/17.50)	3 (2/6.25) 2.50 (1/7.75)	-3.301 -3.077	0.001* 0.002*	6.50 (3.75/10) 4.50 (3.25/10)	-0.521	0.602

*Abbreviations: IQR, Interquartile range between 25%-75%; VAS, Visual analogue scale; IMT, Inspiratory muscle training group; NDI, Neck disability index; TSK, Tampa scale of kinesiophobia; BDI, Beck depression inventory; *, p<0.05 in Wilcoxon signed rank test; **, p<0.05 in Mann whitney-U test.*

Table 3. The effect of additional IMT training on musculoskeletal features of neck pain within and between groups								
	Within-groups					Between-groups		
	Groups	Baseline Median (IQR 25%/75%)	Post treatment Median (IQR 25%/75%)	z	p	$\Delta_{(Baseline-Post\ treatment)}$ Median (IQR 25%/75%)	z	p
CVF(º)	IMT Control	51.50 (48.49/55.16) 50.66 (46.30/52.99)	55.66 (53.50/58.91) 54.66 (52.24/57.91)	-3.111 -3.061	0.002* 0.002*	-3.16 (-6.25/-1.83) -4.83 (-6.83/-2.75)	-1.057	0.290
TKA(º)	IMT Control	61 (57.75/64) 61.33 (55.74/65.33)	56.50 (52.83/60.74) 57.50 (52.91/61.50)	-3.297 -2.904	0.001* 0.004*	3.16 (2.25/6.08) 3 (2.33/4.49)	-0.619	0.536
AS	IMT Control	2 (2/2) 2 (2/2)	10 (10/10) 10 (10/10)	-3.742 -3.464	<0.001* 0.001*	-8 (-6/-8) -8 (-8/-8)	-0.001	0.999
PI	IMT Control	12 (10/16) 11 (10/12)	100 (80/100) 100 (80/100)	-3.309 -3.064	0.001* 0.002*	-83 (-88/-70) -85 (-89.50/-70)	-0.312	0.755
$JRE_{right(º)}$	IMT Control	6.50 (4.71/7.66) 8.16 (5.47/9.87)	4.63 (2.27/6.13) 5.50 (4.34/7.39)	-1.162 -1.490	0.245 0.136	1.90 (-0.15/3.51) 2.17 (-1.56/4.38)	-0.412	0.681
$JRE_{left(º)}$	IMT Control	7.37 (4.52/8.78) 6.55 (5.23/7.55)	4 (3.19/5.26) 5.92 (4.34/9.57)	-3.107 -0.235	0.002* 0.814	3.40 (1.96-5.42) -0.36 (-2.38/1.92)	-2.932	0.003**
*Abbreviations: IQR, Interquartile range between 25%-75%; CVF, Craniovertebral flexion angle; TKA, Thoracic kyphosis angle; AS, Activation score in deep neck flexor endurance test; PI, Performance index in deep neck flexor endurance test; JRE, cervical joint reposition error sense; *, p<0.05 in Wilcoxon signed rank test; **, p<0.05 in Mann whitney-U test.*								

Conclusions: Our study showed that IMT has potential effects on the management of CNP. Studies with larger sample sizes and longer follow-up durations could clarify our findings.

830

CHANGE IN NUMBER OF PAIN SITES - WHICH FACTORS ARE IMPORTANT? A 12-YEAR PROSPECTIVE COHORT STUDY

S. Vilsbøl[1], D. Høyrup Christiansen[2,3], C. Rud Budtz[3], S. Mose[4,3]

[1]VIA University College, School of Physiotherapy, Holstebro, Denmark, [2]Research, Regional Hospital Central Jutland, Viborg, Denmark, [3]Elective Surgery Center, Silkeborg Regional Hospital, Silkeborg, Denmark, [4]VIA University College, Holstebro, Denmark

Methods: This was a population-based longitudinal cohort study of adults (n=2,328) reporting musculoskeletal pain. Data on pain, demographic, lifestyle, and health-related variables were collected by questionnaires in 2008 and 2020 and register data from 2006-2017. Data was analyzed with linear regression.

Results: We found a mean decrease in number of pain sites (range: -7 - 6) over the 12-year follow-up period (-0.49 (95% CI; -0.57; -0.41)). While participants reporting pain for less than 3 months at baseline had a mean decrease in NPS (-0.34 (95% CI; -0.50; -0,18)), participants reporting pain for longer than 3 months had a slightly higher decrease (-0.55 (95% CI; -0.64; -0.45)). Age at baseline (20-49 years) and obesity (BMI≥30) were associated with increase in NPS over the follow-up period.

Conclusions: NPS is relatively stable over time as 55% of this sample reported no change or one pain site increase/decrease over 12 years. In general, we found a mean decrease in NPS, varying slightly between participants with chronic and acute pain respectively. The results indicate that duration of pain, pain intensity, age and obesity could be relevant factors to consider when predicting change in NPS.

846

THE ULTRASONOGRAPHIC EVALUATION OF DIAPHRAGM IN INDIVIDUALS WITH CHRONIC NECK PAIN: A CASE-CONTROL STUDY

G. Yalcinkaya Colak[1,2], S. Ozyurek[3], O. Kalemci[4], Y. Salik Sengul[3]

[1]Bozok University, Faculty of Health Sciences, Yozgat, Turkey, [2]Dokuz Eylul University, Institute of Health Sciences, Izmir, Turkey, [3]Dokuz Eylul University, Faculty of Physical Therapy and Rehabilitation, Izmir, Turkey, [4]Dokuz Eylul University, Faculty of Medicine, Izmir, Turkey

Methods: Twenty-five individuals with CNP and 23 asymptomatic controls participated in this case-control study. The visual analog scale and neck disability index was used to assess the pain and disability characteristics of the CNP group. Maximum inspiratory and expiratory pressures (MIP and MEP) were measured to determine respiratory muscle strengths. The ultrasonographic characteristics of the diaphragm (muscle thickness in deep inspiration, Tins; and at the end of calm expiration, Texp; ΔT; contraction ratio, CR) were evaluated by two-dimensional ultrasonography (GE Logiq e).

Results: Anthropometric data were similar between individuals with CNP and the asymptomatic group ($p>0.05$) (Table 1). Maximum inspiratory pressures, ΔT, and CR of the diaphragm were found statistically reduced in the CNP group compared to asymptomatic controls ($p<0.05$). However, MEP, Tins, and Texp of the diaphragm were similar between study groups ($p>0.05$) (Table 2).

Table 1. Anthropometric and clinical features of study groups

	CNP Group (n=25) Mean ± SD	Asymptomatic Group (n=23) Mean ± SD	p
$VAS_{instant}$	6.40 ± 1.53	-	-
NDI_{score}	20.44 ± 5.09	-	-
Age (years)	39.36 ± 9.16	37.52 ± 11.02	0.532
Weight (kg)	61.32 ± 5.92	59.43 ± 7.91	0.353
Height (cm)	162 ± 5.13	163.52 ± 5.92	0.349
BMI (kg/m^2)	23.41 ± 2.49	22.22 ± 2.68	0.119

Abbreviations: CNP, Chronic Neck Pain; SD, Standard Deviation; VAS, Visual Analog Scale; NDI, Neck Disability Index; BMI, Body Mass Index; p, independent samples t test results.

Table 2. Comparison statistics of respiratory muscle strength and diaphragmatic ultrasonography characteristics between study groups

	CNP Group (n=25) Mean ± SD	Asymptomatic Group (n=23) Mean ± SD	t	%95 CI	p
MIP_{cmH2O}	73.04 ± 17.94	88.47 ± 7.94	3.610	6.51-22.94	**0.001***
MEP_{cmH2O}	95 ± 18.16	101.95 ± 10.62	1.594	-1.83-15.74	0.118
$Texp_{cm}$	1.18 ± 0.19	1.12 ± 0.15	-1.134	-0.01-0.004	0.263
$Tins_{cm}$	2.06 ± 0.47	2.27 ± 0.50	1.428	-0.008-0.04	0.160
ΔT_{cm}	0.88 ± 0.37	1.14 ± 0.44	2.196	0.002-0.04	**0.033***
$CR_{\%}$	75.04 ± 30.64	101.82 ± 39.59	2.632	6.30-47.25	**0.012***

Abbreviations: CNP, Chronic Neck Pain; SD, Standard Deviation; CI, Confidence Interval; MIP, Maximum Inspiratory Pressure; MEP, Maximum Expiratory Pressure; Texp, diaphragmatic muscle thickness at the end of calm expiration; Tins, diaphragmatic muscle thickness in deep inspiration; ΔT= Tins- Texp; CR, Contraction Ratio; *, $p<0.05$ in independent samples t-test.

Conclusions: The present study revealed that individuals with CNP have reduced ultrasonographic parameters of the diaphragm. Thus, screening and targeting respiratory parameters in individuals with CNP may improve the rehabilitation process. The effect of breathing modalities on the management of CNP should be investigated in future clinical studies.

856

LIPEDEMA PATIENTS SHOW A DISTINCTLY ALTERED QUANTITATIVE SENSORY TESTING (QST) PROFILE WITH PROMISING DIAGNOSTIC POTENTIAL

R. Dinnendahl[1], D. Tschimmel[1], V. Löw[2], M. Cornely[3,4], T. Hucho[1]

[1]Translational Pain Research, Department of Anaesthesiology and Intensive Care Medicine, University Hospital Cologne, University of Cologne, Cologne, Germany, [2]Pain Center Unit, Department of Anaesthesiology and Intensive Care Medicine, University Hospital Cologne, University of Cologne, Cologne, Germany, [3]CG Lympha GmbH Specialized Clinic for Surgical Lymphology, Cologne, Germany, [4]LY.SEARCH GmbH, Cologne, Germany

Methods: 20 non-obese LiDo patients and 20 age and waist-to-height-ratio matched controls were measured at thigh and dorsum of the hand using the clinically approved QST protocol of the German Research Association on Neuropathic Pain (DFNS e.V.). Further, pain and psychometry of participants was assessed using the German Pain Questionnaire.

Results: LiDo patients showed no overt psychometric abnormalities. The pain was described as somatic rather than neuropathic. All QST-measurements were normal with the specific exception of two. Specifically at the affected thigh, the pressure pain threshold (PPT) was strongly reduced and the vibration detection threshold (VDT) strongly increased. In contrast, sensory profiles at the dorsum of the hand were normal. ROC-analysis of the combination of PPT and VDT of thigh versus hand shows very high sensitivity and specificity categorizing correctly 96.5% of the measured participants as LiDo patients or healthy controls.

Conclusions: LiDo pain in lean patients appears as somatic rather than neuropathic or psychosomatic. The distinct alteration of PPT and VDT specifically only at the affected thigh but not the hand suggests a fast easy-to-use test for the identification of lean LiDo patients.

875

THE ROLE OF INFORMAL CAREGIVERS IN PAIN IDENTIFICATION, ASSESSMENT AND MANAGEMENT: A UK QUALITATIVE STUDY OF EXPERIENCES & CHALLENGES IN DEMENTIA

R. Chandler[1], O. Robinson[2], R. Corney[2]

[1]Anglia Ruskin Univeristy, Essex, United Kingdom, [2]University of Greenwich, London, United Kingdom

Methods: Qualitative interviews (n=14) and open-ended surveys (n=34) were used to collect data from IFCs supporting a person with dementia living in the community. Data was analysed thematically.

Results: Three main themes related to pain were generated: Reading Dementia; Relieving Suffering; and Supporting Autonomy. A further theme, The Pain of Caring, was related to broader experiences. IFCs shared experiences acting as pain identifiers, assessors, and supporters of management. Pain was encountered as a complex interplay between physical and psychological suffering, identified through bodily narratives and dyadic relationships. Competing needs, uncertainty, independence, and dementia, were entangled with wider challenges, that could overshadow pain.

Conclusions: IFCs of people with dementia are involved in supporting day-to-day with many aspects of pain. This study provides insights to inform approaches to care that engage IFCs in pain management, thereby offering preparedness for pain and improving the management of pain among people with dementia living in the community.

882

SITE MATTERS: CENTRAL NEUROPATHIC PAIN CHARACTERISTICS AND SOMATOSENSORY FINDINGS AFTER BRAIN AND SPINAL CORD LESIONS

L. Barbosa[1], F. Valerio[1], S. Pereira[1], V.A. da Silva[1], A. Rodrigues[1], R. Galhardoni[1], L. Yeng[1], J. Rosi Junior[1], A. Conforto[1], L. Lucato[1], M. Lemos[1], M. Teixeira[1], D. Ciampi de Andrade[2], G.T. Kubota[3]

[1]University of São Paulo, Sao Paulo, Brazil, [2]Aalborg University, Aalborg, Denmark, [3]University of São Paulo, São Paulo, Brazil

Methods: We explored the symptom-somatosensory profile relationships in CNP patients with different types of

lesions to the CNS to gain insight into CNP mechanisms. We compared CNP profile through pain descriptors, standardized bedside examination, and quantitative sensory test in two different etiologies with segregated lesion locations: the brain - central post-stroke pain (CPSP, n=39) and the spinal cord - central pain due to spinal cord injury in neuromyelitis optica (CPSCI, n=40).

Results: CPSP presented higher evoked and paroxysmal pain scores compared to CPSCI, p< 0.001, and lower cold thermal limen (5.6°C (0.0–12.9)) compared to CPSCI (20.0°C (4.2-22.9); p =0.004). CPSCI also had higher mechanical pain thresholds 784.5mN (255.0-1078.0) compared to CPSP 235.2 mN (81.4-1078.0), p=0.006 and higher mechanical detection threshold compared to control areas 2.7 (1.5-6.2) vs. 1.0 (1.0-3.3), p=0.007. Evoked pain scores negatively correlated with mechanical pain thresholds (r=-0.38, p<0.001) and wind-up ratio (r=-0.57; P<0.001).

Conclusions: CNP of different etiologies may present different pain descriptors and somatosensory profiles, which is likely due to injury site differences within the neuroaxis. This information may help better design phenotype-mechanism correlations and impact trial design for the main etiologies of CNP: stroke and spinal cord lesion.

Perspective: This study evidenced that topography may influence pain symptoms and sensory profile. The findings suggest that central neuropathic pain mechanisms might vary according to pain etiology or lesion topography, impacting future mechanisms-based treatment choices.

884

PATIENT-PRACTITIONER COMMUNICATION PRIOR TO INTERDISCIPLINARY PAIN REHABILITATION TREATMENT: ORIENTATIONS TO THE INSTITUTIONAL SIGNIFICANCE OF REACHING A SHARED UNDERSTANDING

B. Stinesen[1,2], P. Sneijder[1], A. Köke[2,3,4], R. Smeets[2,5]

[1]HU University of Applied Sciences, Utrecht, Netherlands, [2]Maastricht University, Maastricht, Netherlands, [3]Zuyd University of Applied Sciences, Heerlen, Netherlands, [4]Adelante Centre of Expertise in Rehabilitation and Audiology, Hoensbroek, Netherlands, [5]CIR Revalidatie, Eindhoven, Netherlands

Methods: Nine consultations were recorded at various Dutch rehabilitation units, resulting in approximately 4,5 hours of audio. All nine patients participating had chronic primary musculoskeletal pain. Seven practitioners participated. The recordings were transcribed and analyzed on a micro-level combining applied conversation analysis[1,2] with discursive psychology[3].

Results: Both patients and practitioners orient to the institutional significance of a shared understanding. Patients treat agreement as the relevant response to practitioners' deliveries of the team's findings. When it remains unclear whether the patient is in agreement, practitioners tend to pursue an unequivocal response. Their question design pre-empts resistance and encourages patients to confirm the team's findings, rather than to voice their own perspectives.

Conclusions: Patients' and practitioners' orientations to the institutional significance of a shared understanding may hinder an open dialogue about patients' potentially different perspectives. The findings invite practitioners to reflect on how they can develop communication practices that are more likely to bring patients' potential concerns regarding the rehabilitation team's findings out into the open.

902

CONFIRMATION OF FIBROMYALGIA SYNDROME PATIENT IMMUNOGLOBULIN G BINDING TO SATELLITE GLIAL CELLS IN A UK COHORT

R. Berwick[1,2], S. Sensi[1], D. Andersson[3], A. Goebel[1,2]

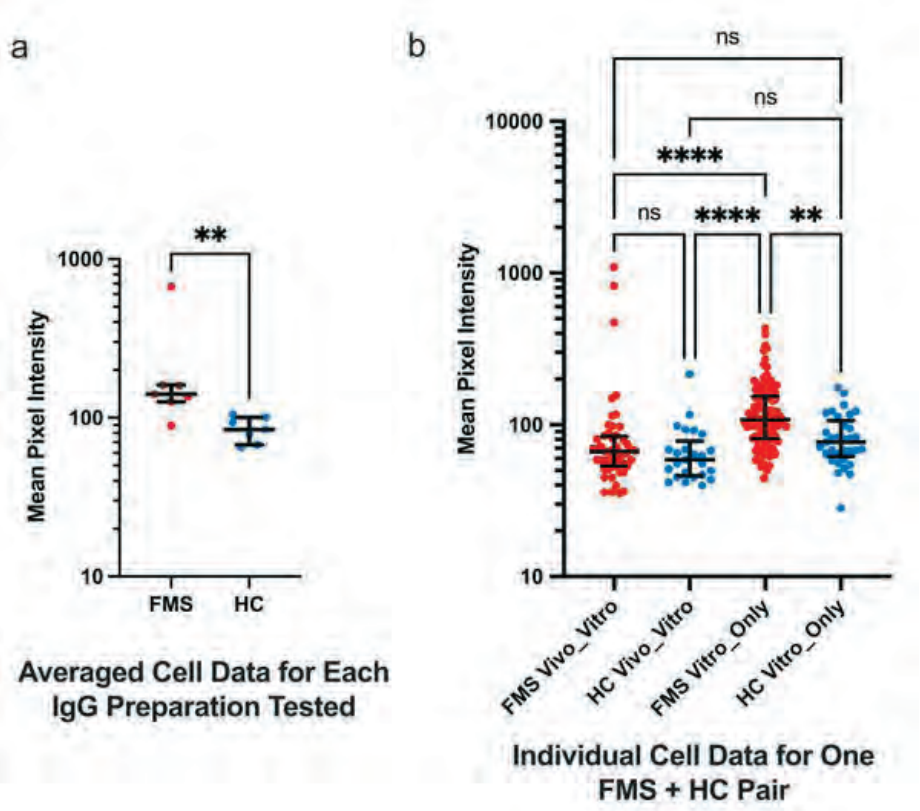
[1]University of Liverpool, Liverpool, United Kingdom, [2]The Walton Centre, Liverpool, United Kingdom, [3]King's College London, London, United Kingdom

Methods: Serum or plasma from FMS diagnosed patients (n=7) (American College of Rheumatology 1990/2010) and pain-free controls (HC) (n=7) were recruited at The Walton Centre, UK (ethics:15/NW/0467, 18/WA/0234). Patients had high pain, scoring ≥7/10. For the passive transfer experiment, a female C57BL/6J mouse was injected intraperitoneally with 8mg protein-G affinity-purified IgG/day and harvested on day four. Mouse SGC-enriched cultures from this mouse, or naïve mice, were prepared. Cultures were incubated with 10µg/ml IgG (3hrs) and labelled for

human IgG. Cells were imaged on a Zeiss LSM_780 microscope, segmented using Cellpose, fluorescence intensity measured on Fiji (ImageJ) and analysis performed with GraphPad Prism (Mann-Whitney-U/Kruskal-Wallis tests).

Results: Mean immunofluorescence data (a) demonstrated SGC IgG-staining was enhanced in FMS-IgG compared to HC-IgG treated cells. This trend was recapitulated in seven FMS-HC paired experiments and overall. Injecting mice with IgG prior to *in vitro* SGC IgG-incubation, remarkably, showed evidence of IgG-antigenicity downregulation in the FMS group (b).

Conclusions: We show FMS patients with high pain produce autoantibodies that stain SGCs significantly more than pain-free controls. We confirm the Swedish and Canadian data, therefore, strengthening the hypothesis that SGC autoimmunity may contribute to FMS pain, indicating a role for therapies reducing serum-autoantibodies.



937

INTERMITTENT AND CONSTANT OSTEOARTHRITIS PAIN EXPERIENCE (ICOAP) PHENOTYPES AND RISK PROFILES

A. Chang[1], O. Almagor[1], J. Lee[1], J. Song[1], L. Muhammad[1], J. Chmiel[1], K. Moisio[1], L. Sharma[1]

[1]Northwestern University, Chicago, United States

Methods: The OAI (Osteoarthritis Initiative) is a prospective, observational study of persons with or at higher risk for knee OA. Intermittent and constant pain experience were annually assessed over 4 years (48- to 96-month OAI visits). 28 baseline sociodemographic, knee-specific, and health-related characteristics were assessed. Group-based multi-trajectory modeling identified distinct pain trajectory phenotypes indicated by ICOAP intermittent and constant pain scores over 4 years. Multivariable multinomial logistic regression model determined baseline factors associated with membership in each of the pain dual-trajectory phenotypes.

Results: We identified 4 distinct dual-trajectory patterns of ICOAP intermittent and constant pain scores over 4 years (Figure 1) [n = 3584, mean age 64.8 (SD 9.0) years, BMI 28.6 (5.0) kg/m^2; 57.9% women]. Having widespread pain, knee joint stiffness, back pain, hip pain, ankle pain, obesity, depressive symptoms, more advanced radiographic disease, and analgesic use at baseline were each associated with an increased risk of membership in the less favorable Groups 2-4 (reference group: Group 1), and older age and female sex with a reduced risk (Table 1).

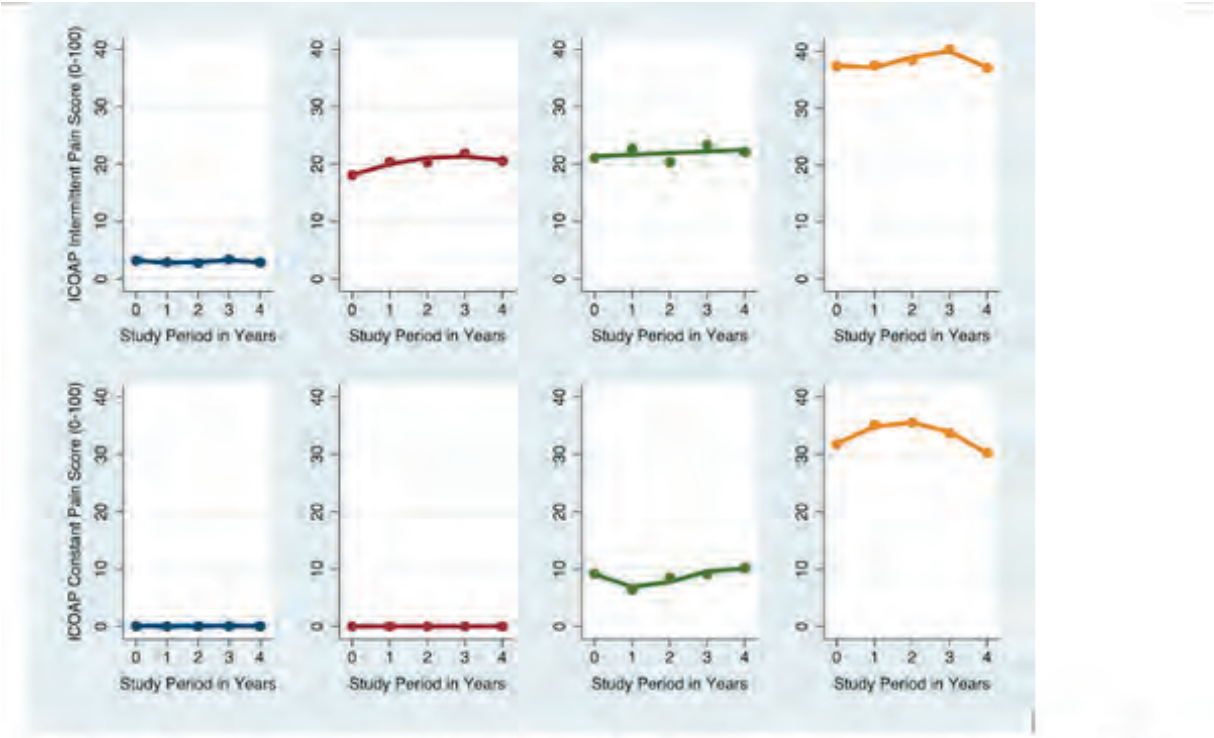


Figure 1. Four distinct dual-trajectory patterns of ICOAP intermittent and constant pain over 4-year follow-up period (n = 3584). Actual (dot) and estimated (solid line) hours per week at each time point. The associated 95% confidence intervals for each line were extremely narrow, therefore not visible on the graphs. Group 1 (n = 1349, 37.7%) includes participants with minimal intermittent pain and no constant pain; Group 2 (n = 1259, 35.1%), mild (i.e., around 20 on the 0-100 scale) intermittent pain and no constant pain; Group 3 (n = 664, 18.5%), mild (i.e., around 20) intermittent pain and low-grade constant pain (i.e., around 10); and Group 4 (n = 312, 8.7%), moderate intermittent pain (i.e., around 40) and mild-to-moderate constant pain (i.e., 30 to 40).

Table 1. Associations of baseline predictors (independent variables) with membership in each of the 4 dual-trajectory groups
Relative risk ratios (95% confidence intervals) from multivariable multinomial logistic regression models
(Reference group: Group 1)
(n = 3584)

Baseline predictors	Group 2	Group 3	Group 4
Age (per 5-year increase)	**0.90 (0.85, 0.95)**	**0.82 (0.77, 0.88)**	**0.71 (0.64, 0.79)**
Sex (women vs. men)	0.97 (0.80, 1.16)	**0.70 (0.56, 0.88)**	**0.64 (0.46, 0.90)**
BMI			
overweight vs. normal	1.23 (0.99, 1.53)	**1.40 (1.05, 1.89)**	1.58 (0.94, 2.65)
obese vs. normal	**1.32 (1.03, 1.68)**	**1.50 (1.10, 2.06)**	**1.95 (1.17, 3.25)**
Widespread pain (yes vs. no)	**1.85 (1.35, 2.56)**	**2.30 (1.60, 3.29)**	**2.48 (1.59, 3.85)**
WOMAC[a] stiffness (per unit increase)	**1.70 (1.57, 1.83)**	**2.03 (1.87, 2.22)**	**3.11 (2.76, 3.51)**
Pain in other body regions			
Back pain (yes vs. no)	**1.58 (1.31, 1.89)**	**1.39 (1.10, 1.77)**	**2.16 (1.47, 3.17)**
Hip pain (yes vs. no)	**1.35 (1.08, 1.70)**	**1.56 (1.19, 2.04)**	**1.60 (1.11, 2.31)**
Ankle pain (yes vs. no)	**1.48 (1.15, 1.90)**	**1.86 (1.39, 2.48)**	**2.32 (1.60, 3.38)**
Pain medication use (yes vs. no)	**2.49 (2.05, 3.04)**	**4.01 (3.15, 5.09)**	**6.26 (4.25, 9.23)**
Depressive symptoms (yes vs. no)	**1.60 (1.15, 2.23)**	**1.48 (1.003, 2.19)**	**2.82 (1.79, 4.43)**
Comorbidity (≥ vs. < 2)	1.20 (0.90, 1.59)	1.22 (0.86, 1.75)	**2.21 (1.41, 3.44)**
Gait speed (per 0.1 m/s increase)	0.96 (0.92, 1.01)	0.95 (0.90, 1.01)	**0.77 (0.71, 0.84)**
K/L grade			
1 vs. 0	0.91 (0.70, 1.18)	0.94 (0.66, 1.33)	0.82 (0.46, 1.47)
2 vs. 0	1.23 (0.97, 1.55)	**1.38 (1.02, 1.87)**	1.11 (0.69, 1.78)
3&4 vs. 0	**1.70 (1.31, 2.21)**	**2.22 (1.60, 3.06)**	**2.32 (1.44, 3.74)**

[a]*WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index), high scores indicating worse status.*

Group 1: minimal intermittent pain and no constant pain
Group 2: mild intermittent pain and no constant pain
Group 3: mild intermittent pain and low-grade constant pain
Group 4: mild-to-moderate constant pain and moderate intermittent pain

Conclusions: This is the first study profiling the pain experience in knee OA by concurrently characterizing intermittent and constant pain using group-based dual-trajectory modeling. These 4 phenotypes may be driven by different underlying mechanisms and need to be managed differently.

958

CONDITIONED PAIN MODULATION PREDICTS ACUTE PAIN AFTER TOTAL JOINT ARTHROPLASTY

A.C. Paredes[1,2,3], A. Almeida[1,2,3], P.R. Pinto[1,2,3]

[1]Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal, [2]ICVS / 3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal, [3]2CA-Braga, Clinical Academic Center, Hospital of Braga, Braga, Portugal

Methods: Baseline assessment included CPM testing and socio-demographic, pain, disability and psychological

questionnaires. CPM was measured using pain pressure threshold (PPT) and cold pressor test. APSP was assessed 48h post-surgery using the mean intensity score from the Brief-Pain Inventory. To control for potential covariates, baseline variables significantly associated with APSP in univariate analysis were included in a hierarchical linear regression model. These were pre-surgical pain (WOMAC), quality-of-life (EQ-5D-5L), disability (WOMAC), PPT and CPM.

Results: This study involved 60 participants (mean age=64.7, SD=7.52; 31 female) undergoing total joint arthroplasty (knee: 30, 50%; hip: 30, 50%). PPT was positively associated with APSP in correlation analysis, but was not a significant predictor in the model. Less effective pain inhibition (higher CPM score) assessed at a distal site predicted higher APSP (β=0.388, p=0.005). CPM at the affected joint was not associated with APSP.

Conclusions: CPM can be a valuable tool to detect patients more prone to intense APSP. Since this is a risk factor for pain chronification, early identification of at-risk patients could inform personalized strategies for improved analgesia and thus contribute to prevent chronic post-surgical pain.

ACP has a PhD scholarship (SFRH/BD/146135/2019) from the Portuguese Foundation for Science and Technology.

972

PREPARED FOR PRACTICE: A QUALITATIVE STUDY OF STUDENT AND NEWLY QUALIFIED NURSES PAIN EDUCATION EXPERIENCES

A. Hassanzadeh[1], E. Briggs[1]

[1]King's College London, London, United Kingdom

Methods: This qualitative study used a developmental evaluation design (Patton 199) with semi-structured interviews conducted online. The convenience sample (n=8) included two subgroups; four final (third) year nursing students and four newly qualified nurses.Thematic analysis technique was used to analyse the rich data collected.

Results: Three related themes emerged:1. Learning and Teaching strategies, 2. Competence and Confidence, 3. Practice learning. Results show that students need greater diversity of teaching and learning methods with more active, simulated learning experiences throughout the curriculum. Effective learning in practice is crucial to building confidence and competence. One prominent finding was the emotional impact of a lack of competence or confidence; participants report feeling frustrated, helpless, and angry. These negative emotional responses are indicative of moral distress in nurses.

Conclusions: This study offers new insights into pain education and the experience of student and early career nurses. Nursing faculties should develop more real world teaching and learning strategies as well as increase time on pain in curricula. Crucially, educators need to help students deal with the emotional impact of caring for people in pain and navigate complex situations to reduce moral distress.

987

SELF-INDUCED PAIN IN WOMEN WITH SELF-INJURY BEHAVIORS AND CONTROLS

M. Lalouni[1], J. Fust[1], S. Blomé[1], R. Mohanty[2], J. Bjureberg[3,4], N. Jayaram-Lindström[3], E. Westman[2], E. Kosek[1,5], H. Ehrsson[6], K. Kilteni[6], C. Hellner[3], W.H Thompson[1,7], K.B Jensen[1]

[1]Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden, [2]Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden, [3]Centre for Psychiatry Research, Karolinska Institutet & Stockholm Health Care Services, Region Stockholm, Stockholm, Sweden, [4]Stanford University, Department of Psychology, Stanford, United States, [5]Uppsala University, Department of Surgical Sciences, Uppsala, Sweden, [6]Department of Neuroscience, Karolinska Institutet, Stockholm, Sweden, [7]Gothenburg University, Department of applied IT, Göteborg, Sweden

Methods: Self-induced and experimenter-induced pressure pain thresholds were compared in women aged 18-35 years with NSSI (n=41) and controls (n=40). Conditioned pain modulation was assessed using ischemic pain on the right arm as conditioned stimulus and pressure pain thresholds on the left calf as test stimulus. Gray matter morphometry was estimated using magnetic resonance imaging (MRI) scans.

Results: Self-induced pain was attenuated in both groups (164.8 kPa; SE = 25.2; P < 0.001). The mean difference in sensory attenuation was not significantly different between the groups (58.4 kPa; SE = 35.4; P = 0.102). However,

more NSSI participants experienced sensory attenuation than controls (95% versus 78%; P = 0.022). There was a correlation between sensory attenuation and response to conditioned pain modulation (tau = 0.17; P = 0.025) but not between sensory attenuation and NSSI characteristics. Cortical thickness was larger in controls compared with the NSSI participants in the right hemisphere's caudal middle frontal (Freesurfer area), representing a part of the premotor cortex (2.62 mm vs 2.54 mm, P = 0.042).

Conclusions: We conclude that sensory attenuation is more prevalent in NSSI participants than controls and that presence of sensory attenuation may increase the likelihood of NSSI.

996

ASSOCIATION BETWEEN PAIN LEVEL WITH MOTOR PERFORMANCE, ACTIVITY, AND PARTICIPATION LEVEL IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

V. Yildiz Kabak[1], S. Buran[1], N.B. Karaca[1], M. Orkun Tufekci[1], E.N. Atabey Gerlegiz[1], E. Aliyev[1], Y. Bayindir[1], S. Atasavun Uysal[1], Y. Bilginer[1], E. Unal[1], S. Ozen[1]

[1]Hacettepe University, Ankara, Turkey

Methods: Children between the age of 7 and 18 years and diagnosed with JIA were included in the present study. The assessments were performed during the follow-up appointments at Hacettepe University/Turkey. To determine pain level, the Juvenile Arthritis Biopsychosocial Scale (JABQ) Pain subscale was used. The Bruininsky Oseretsky Test of Motor Proficiency Short Form (BOT-2 SF) was used to assess motor performance. Activity level and participation level were assessed by using the Childhood Health Assessment Questionaire (CHAQ), and Child and Adolescent Scale of Participation (CASP), respectively.

Results: Forty-five children (Girl/Boy: 26/19) with a mean age of 13.28±3.16 years were included. The mean pain level was 2.00±2.35 (range: 0-9) points. There was a low to moderate association between pain and BOT-2 Balance subscale (r=-0.374, p=0.012). A moderate association was found between pain and CHAQ Total Score (r=0.470, p<0.001). There was a low to moderate relationship between pain and CASP Total Score and CASP Community Participation Score (r=-0.232, p=0.033, and r=-0.351, p=0.001; respectively).

Conclusions: Pain is one of the leading cause of poor motor performance, limitations of activity, and participation in social life in children with JIA. To increase children's performance, activities, and participation in social life, supportive therapies to decrease pain should be implemented in children with JIA.

1000

INTERPERSONAL MECHANISMS AND THEIR EFFECT ON PAIN OVER TIME 2: A SCOPING REVIEW BETWEEN FAMILY MEMBERS AND PEOPLE WITH PAIN

H. Birkinshaw[1], C. Friedrich[1], E. Keogh[2], T. Pincus[1]

[1]University of Southampton, Southampton, United Kingdom, [2]University of Bath, Bath, United Kingdom

Methods: A scoping review was undertaken. The search included key psychosocial interpersonal factors explored in any study with a timeline, partners/spouses, parents and children, and any type of pain. The following databases were searched: Embase, MEDLINE, Web of Science Core Collection, and PsycINFO. Two authors completed screening and extraction. PPIE contributed to both the development of the search and interpretation of the findings. The full protocol is available on the Open Science Framework.

Results: The search identified 14364 records to be screened. After title and abstract and full-text screening, 43 studies were eligible for inclusion. For partners, support type was the most common mechanism (nine studies, n=1657), with autonomous, protective, and emotional support associated with better pain outcomes. For parents and children, parental anxiety (but not depression) was consistently associated with worse child pain outcomes (10 studies, n=4942). Parent catastrophising was also strongly associated with worse pain outcomes and the development of chronic pain for children (seven studies, n=1684).

Conclusions: There is limited research on the effects of partner interpersonal mechanisms on a person's pain transitions. However, there is strong evidence for the effect of parent anxiety and catastrophising on the development of child chronic pain.

1008

THE COMORBID RELATIONSHIP BETWEEN FIBROMYALGIA AND DEPRESSION: A NETWORK APPROACH

J. Reichert[1], A. Drusko[1], E. Beiner[1], J. Tesarz[1]

[1]University Hospital Heidelberg, Heidelberg, Germany

Methods: Networks were calculated based on the baseline documentation of n = 3675 FMS patients. One network was calculated for FMS patients with comorbid MD and another one for FMS patients without MD as well as an additional combined network. Networks were compared for differences using the Network Comparison Test. A walktrap algorithm was used to search for symptom-clusters within the networks. Further, centrality measures and their accuracy were calculated.

Results: There were no significant differences between networks from FMS patients with and without MD. The centrality measures showed a good accuracy (CS = 0.7). Within the whole network, dejection showed the highest predictability and emerged as the most central (bridging) symptom. Four symptom cluster were found within the networks.

Conclusions: Comorbid networks for FMS and MD can be calculated using a mixed sample. Overall, pain symptoms showed little direct association with symptoms of other clusters. Follow-up studies should examine the association of pain and depression using idiosyncratic network analyses. By the date this abstract is submitted data analysis is not finished yet. Thus, minor changes in the results are possible.

1197

RECALLING LAB-INDUCED PAIN AFTER FIVE MONTHS

Z. Liu[1], Y. Chen[1], T.-Y. Chuang[1], S. Wang[1,2]

[1]Duke Kunshan University, Kunshan, China, [2]University of Bath, Bath, United Kingdom

Methods: A total of 92 participants were recruited. In the cold-pressor task, participants kept their non-dominant hand submerged in the cold water (3°C ± 1°C) until they could no longer endure the pain and rated their pain intensity and unpleasantness level every 15 seconds. Each participant completed two cold-pressor sessions one week apart. The follow-up pain recall was conducted using *Qualtrics* after approximately five months, asking about their overall and peak intensity level of pain and the unpleasantness.

Results: While participants› memory of the peak pain intensity and unpleasant feelings diminished after five months, they still have a relatively good memory of their overall (average) pain intensity and unpleasantness in the long term. Further analysis of relevant factors will be conducted.

Conclusions: The accuracy of the peak experimental pain intensity recall decreases, while the memory of the overall pain experience is still valid in the long term, which has important clinical implications - when we report pain or other discomforts to health professionals to seek help, it's based mainly on recalled memories. An accurate recall would aid the pain assessment and diagnosis process.

1238

MEMORY, EXPECTATION AND EXPERIENCED MENSTRUAL PAIN

R. Dong[1], S. Wang[1,2]

[1]Duke Kunshan University, Kunshan, China, [2]University of Bath, Bath, United Kingdom

Methods: Seventy-four female participants (18-36 years) were initially recruited who identified themselves as experiencing recurring pain during their monthly cycle. Self-report data of memorized, expected, and present feelings of abdominal pain during menstrual cycles were collected through a multi-phase online study over three months for each participant according to her cycle.

Results: Preliminary analysis revealed that 1) memory of previous menstrual pain influences the pain expectation of the forthcoming cycle; 2) while memorized pain is less intense than the "present feeling" reported during the

menstrual cycle, the peak pain intensity of the forthcoming cycle can be accurately predicted by the memorized unpleasantness of the last cycle.

Conclusions: This is the first time studying the interplay among memory, expectation, and experiences of menstrual pain, which lays the groundwork for future research to use menstrual pain as a recurrent cyclical model of pain that naturally occurs and is highly predictable.

1263

METABOLIC DISTURBANCES IN SENSORY NEURONS PREDISPOSE TO THE TRANSITION FROM ACUTE TO CHRONIC PAIN

H. Willemen[1], P. Ribeiro[1], M. Broeks[2], N. Meijer[2], S. Versteeg[1], J. Malecki[3], P. Falnes[3], J. Jans[2], N. Eijkelkamp[1]

[1]UMCU / CTI, Utrecht, Netherlands, [2]UMCU / Metabolic diagnostics, Utrecht, Netherlands, [3]University of Oslo, Oslo, Norway

Methods: To model the transition from acute to chronic pain we used a murine hyperalgesic priming model. This model comprises of an intraplantar injection of 5 ul 1% carrageenan followed by a subsequent injection of PGE_2 (100 ng/paw), a week later when the carrageenan-induced hyperalgesia had resolved. Mechanical hypersensitivity was measured using Von Frey. Metabolic alterations were assessed with mass spectrometry and perturbed by intraperitoneal or intrathecal injections with the NAD^+ precursor nicotinamide riboside (NR). Persistent inflammatory pain was induced by an intraplantar injection of Complete Freund's Adjuvant (CFA; 20 ul/paw).

Results: Carrageenan-induced transient hyperalgesia resolved in 4 days. At day 7 mice displayed hyperalgesic priming, because hyperalgesia induced by PGE_2 was severely prolonged compared to non-primed mice. This hyperalgesic priming caused metabolic disturbances in sensory neurons. Inhibition of mitochondrial respiration or NR treatment, to restore the redox balance, were sufficient to prevent the switch from acute to chronic pain. Importantly NR treatment also attenuated CFA- induced persistent inflammatory pain.

Conclusions: Metabolic alterations predispose to the transition from acute to chronic inflammatory pain. Metabolic reprogramming prevented the transition to chronic pain and showed efficacy to treat chronic pain in mice.

1303

TWO DECADES OF MONITORING CHRONIC NON-CANCER PAIN AND LONG-TERM OPIOID USE IN DENMARK

G.P. Kurita[1,2,3], S.F. Herling[4,3], C.C. Lykke[2,5], S. Skurtveit[6], A. Hamina[7], P. Sjøgren[2], O. Ekholm[8]

[1]Dept. Anaesthesiology, Pain, Respiratory Support, Rigshospitalet, Copenhagen, Denmark, [2]Dept. Oncology, Rigshospitalet, Copenhagen, Denmark, [3]Dept. Clinical Medicine, University of Copenhagen, Copenhagen, Denmark, [4]Neuroscience Centre, Rigshospitalet, Copenhagen, Denmark, [5]Dept. Palliative Care, The North Zealand, Hillerød, Denmark, [6]Dept. Chronic Diseases, Public Health Institute, Oslo, Norway, [7]Niuvanniemi Hospital, FI, Kuopio, Finland, [8]National Institute of Public Health, University of Southern Denmark, Copenhagen, Denmark

Methods: Data stem from the Danish Health and Morbidity Survey waves between 2000-2021. In all waves, adult Danes ((≥16 y.) were randomly selected to complete a self-administered questionnaire. After exclusion of individuals with cancer history, samples included 10,089 individuals in 2000, 5,292 in 2005, 14,330 in 2010, 13,429 in 2013, 13,050 in 2017, and 10,384 in 2021. CNCP was defined as pain lasting ≥6 months. Survey data were linked on individual level with data from the Danish National Prescription Registry. Long-term opioid use was defined as at least one prescription/month for six months in the previous year. Calibration weighting was applied to reduce potential non-response bias.

Results: In all waves, majority were women (51.9%-56.0%) and between 25-64 years old (56.9%-72.7%). CNCP prevalence increased from 19.5% in 2000 to 27.8% in 2017. In 2021, the prevalence decreased to 25.3%. Among those with CNCP, the prevalence of long-term opioid use was stable around 6-7% between 2000 and 2017 but dropped to 4.4% in 2021.

Conclusions: In 2021, the prevalence of CNCP dipped for the first time in the study period. It was accompanied by a decrease in the prevalence of long-term opioid use among individuals with CNCP.

1334

CYTOKINE EXPRESSION IN CANCER SURVIVORS SUFFERING FROM CHRONIC PAIN: A SYSTEMATIC REVIEW

A. De Groote[1], T. Vande Vyvere[1,2], W. Tjalma[3,4], W. Vanden Berghe[5], S. Kumar-Singh[6,7], A. De Groef[1,8], M. Meeus[1,9]

[1]Research Group MOVANT, Department of Rehabilitation Sciences and Physiotherapy (REVAKI), University of Antwerp, Wilrijk, Belgium, [2]Department of Radiology, Antwerp University Hospital, Antwerp, Belgium, [3]Department of Gynecological Oncology, Antwerp University Hospital, Antwerp, Belgium, [4]Multidisciplinary Breast Clinic, Antwerp University Hospital, Antwerp, Belgium, [5]Lab Protein Chemistry, Proteomics & Epigenetic Signaling (PPES), Department of Biomedical Sciences, University of Antwerp, Wilrijk, Belgium, [6]Molecular Pathology Group, laboratory of Cell Biology & Histology, Faculty of Medicine and Health Sciences, University of Antwerp, Wilrijk, Belgium, [7]Translational Neurosciences, Faculty of Medicine and Health Sciences, University of Antwerp, Wilrijk, Belgium, [8]Research Group Rehabilitation in Internal Disorders (GRID), Department of Rehabilitation Sciences, KU Leuven, University of Leuven, Leuven, Belgium, [9]Department of Rehabilitation Sciences, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium

Methods: The study conducted a systematic literature search in the databases PubMed, Web Of Science, and, Embase for articles examing cytokine levels and pain experience at a time point of minimum three months post-cancer diagnosis. Pain experience was categorized into a total pain score, pain intensity, and pain interference.

Results: Eight articles were included, investigating six cancer types and 30 cytokines. Moderate evidence was found for pro-inflammatory cytokine IL-6 to be correlated with pain intensity but not with total pain or pain interference. Besides, higher IL-6 levels are observed in cancer survivors experiencing chronic pain compared to pain-free survivors. Moderate evidence was found for TNF-α to be not correlated with any pain experience and for anti-inflammatory cytokines IL-8 and IL-10 with pain intensity. For the remaining 26 cytokines and pain outcomes, only limited evidence was found for an association.

Conclusions: More standardized post-cancer treatment studies are warranted to confirm these results and explore associations with other cytokines. Nonetheless, moderate evidence suggests that elevated levels of IL-6, in contrast with TNF-α levels, are correlated with pain intensity in cancer survivors experiencing chronic pain compared to pain-free survivors.

1361

DO WE PERCEIVE PAIN INSIDE AND OUTSIDE OF OUR BODY DIFFERENTLY? EVALUATION OF PERCEPTUAL DIFFERENCES BETWEEN VISCERAL AND SOMATIC PAIN

L. Guadagnoli[1], S. Den Hond[1], J. Zaman[1], J. Vlaeyen[1,2], D. van Ryckeghem[2,3,4], S. Van Damme[3], L. Van Oudenhove[1]

[1]KU Leuven, Leuven, Belgium, [2]Maastricht University, Maastricht, Netherlands, [3]Ghent University, Ghent, Belgium, [4]University of Luxembourg, Esch-sur-Alzette, Luxembourg

Methods: Electrical stimulation was applied to the wrist (somatic site) and to the distal esophagus (visceral site) in healthy participants. A double pseudorandom staircase determined pain thresholds for the somatic and visceral stimulations, separately. Participants labeled each stimulus on a 10-point categorical rating scale and the lowest stimulus intensity rated as “faint pain” was set as the pain threshold. Stimulus reaction time (ms, via button press) as well as pain intensity, unpleasantness, and threat level (all 100 pt VAS) were also recorded after each stimulus. Wilcoxon ranked-sum tests compared differences in response time, intensity, unpleasantness, and threat ratings between somatic and visceral stimuli at their respective pain threshold.

Results: Seventeen participants were included [mean (SD) age = 23.8 (5.9); 68.8% female]. Compared to somatic stimuli, visceral stimuli were rated as more unpleasant (Z= -2.534, p=.01; median rating 65.0 vs. 57.0) and threatening (Z= -2.223, p=.03; median rating 59.0 vs. 47.0). No differences were observed for reaction time or numerical pain intensity ratings.

Conclusions: Visceral pain is perceived as more threatening and unpleasant compared to somatic pain, despite being rated similar in pain intensity. Future research in larger samples is needed to confirm findings and consider implications for visceral/somatic pain populations.

1410

INFLUENCE OF PROLONGED PAIN ON CORTICOMOTOR EXCITABILITY AND MOTOR MAPS: INSIGHTS FROM USE-DEPENDENT PLASTICITY

A.M. Zamorano[1], E. De Martino[1], A. Insausti-Delgado[2], B. Kleber[3], P. Vuust[3], H. Flor[4,1], T. Graven-Nielsen[1]

[1]Center for Neuroplasticity and Pain (CNAP), Department of Health Science and Technology, Aalborg University, Aalborg, Denmark, [2]TECNALIA, Basque Research and Technology Alliance (BRTA), Donostia, Spain, [3]Center for Music in the Brain, Dept. of Clinical Medicine, Aarhus University & The Royal Academy of Music Aarhus/Aalborg, Aarhus, Denmark, [4]Department of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany

Methods: Nineteen musicians –one of the best models for studying use-dependent plasticity— and 19 non-musicians attended the laboratory for three sessions (Day1, Day3, Day8). Tonic pain was induced by intramuscular injection of Nerve Growth Factor into the right first dorsal interosseous (FDI) muscle at the end of the Day1 session. Using transcranial magnetic stimulation, the corticospinal excitability was assessed in each lab session by exploring the representational motor map (area and volume) of the FDI muscle.

Results: The motor map area was smaller in musicians than non-musicians ($p<0.05$). Motor map volume was smaller in musicians than for controls at Day1 ($p<0.05$). Whereas non-musicians showed reduced map volume after the induction of experimental pain on Day3 ($p<0.005$), musicians did not show significant differences across days ($p>0.8$).

Conclusions: Established changes in corticomotor excitability of individuals performing repetitive fine-motor training are not compromised by the maladaptive plasticity associated with persistent pain, which is evidenced in non-musicians. This study improves our understanding of how the effects of prolonged pain on corticomotor excitability differ based on the presence of long-term use-dependent plasticity.

Acknowledgments: This study was funded by a grant from the Lundbeck Foundation (R303-2018-3356) to AMZ. CNAP is supported by the Danish National Research Foundation (DNRF121).

1450

USE OF PRESCRIPTION ANALGESICS AMONG DANISH COMMUNITY-DWELLING OLDER ADULTS: THE IMPACT OF STRUCTURED EXERCISE PROGRAMS AND SELF-MANAGEMENT STRATEGIES

N.H. Svensson[1], J.B. Thorlund[2,1], P.Ø. Olsen[3], J. Søndergaard[1], S. Wehberg[1], H.S. Andersen[1], P. Caserotti[4], T. Thilsing[1]

[1]Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Odense, Denmark, [2]Research Unit for Musculoskeletal Function and Physiotherapy, Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark, [3]Department of Health, Culture and Development, Municipality of Tønder, Tønder, Denmark, [4]Centre for Active and Healthy Aging, Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark

Methods: Data from two completed randomised controlled trials (RCTs), *The Welfare Innovation in Primary Prevention* (n=115) and *The SITLESS project* (n=333), were combined with data from the Danish National Prescription Registry on use of analgesics. The RCTs included community-dwelling adults +65 years, recruited from the nationally regulated preventive home-visits. We estimated the changes in the usage of prescription analgesics within the different intervention groups throughout a 2-year period by using a linear fixed effects regression. The primary measure for the outcome was the average total annual defined daily dose (DDD) of prescription analgesics.

Results: Our analysis indicated that the estimated within-group changes in the use of prescription analgesics generally increased over time, ranging from 1.53 (95% CI: -14.08 : 17.15) to 38.28 (95% CI: -5.12 : 81.67) for groups receiving structured exercise programs and self-management strategies alone or combined (Table 1). However, these increases were not statistically significant.

Table 1. Estimated within-group changes.

	Time 1 (baseline)	**Time 2** (2-year follow-up)	**Estimated within-group changes (95% CI)**
Outcome **Total annual defined daily dose (DDD) of analgesics***	**Average** (SD)**	**Average (SD)**	
Self-management strategies, alone (n=163)	94.47 (144.09)	106.49 (147.97)	12.02 (-3.38 ; 27.43)
Structured exercise programs, alone (n=110)	74.36 (116.08)	75.89 (120.28)	1.53 (-14.08 ; 17.15)
Structured exercise programs and self-management strategies, combined (n=175)	108.64 (177.44)	146.92 (346.24)	38.28 (-5.12 ; 81.67)
Analgesics covers N02BE01 (paracetamol), M01A (non-steroidal anti-inflammatory drugs - NSAIDs), and N02A* (opioids). We excluded combination products with glucosamine (M01AX05) and codeine (N02AJ*). **The average is based on the participants' time at risk in the given period. Participants who do not receive any analgesics are still included in the estimating of average total annual DDD of analgesics.			

Conclusions: This study demonstrates that structured exercise programs and self-management strategies, whether utilised alone or combined, did not result in a decreased use of prescription analgesics among Danish community-dwelling older adults over time.

1475

AN ASIAN FACIAL EXPRESSION DATABASE OF SPONTANEOUS AND POSED PAIN

Z. Liu[1], Y. Chen[1], T.-Y. Chuang[1], S. Wang[1,2]

[1]Duke Kunshan University, Kunshan, China, [2]University of Bath, Bath, United Kingdom

Methods: Spontaneous pain facial expressions were captured while 63 participants performed a cold pressor task by submerging their hands in cold water (3°C ± 1°C) until they could no longer endure the pain. Their posed neutral and painful expressions were also recorded. A group of 2142 multi-ethnic participants validated the standardized facial expression images in terms of sensational and affective qualities, expressiveness, authenticity, valence, arousal, racial/ethnic typicality, masculinity/femininity, and attractiveness.

Results: The database encompasses spontaneous and posed pain facial expressions, along with neutral faces from over 50 Chinese young adults. Each expression has been validated through at least 50 ratings and is accompanied by the norming data, with additional manually and automatically coded Facial Action Coding Scores (FACS).

Conclusions: This is the first known database of Asian/Chinese facial expressions of spontaneous and posed pain, which allows researchers to compare pain expressions across different races and cultures, leading to a more comprehensive understanding of nonverbal communication of pain and increasing diversity in the research of pain expressions.

1488

REDUCED LEVELS OF TNFRI AND TNFRII IN CSF OF PATIENTS WITH OSTEOARTHRITIS COMPARED TO PAINFREE VOLUNTEERS INCLUDED IN THE DANPAIN-BIOBANK

M. Blichfeldt-Eckhardt[1,2,3], K. Lambertsen[2]

[1]Vejle-Middelfart Hospital, Vejle, Denmark, [2]University of Southern Denmark, Odense, Denmark, [3]Odense University Hospital, Odense, Denmark

Methods: CSF from 81 participants with OA, included in the DANPAIN-biobank and 25 age-matched, pain-free controls were examined.

Concentrations of TNFα and LTα, were measured using V-PLEX Custom Human Proinflammatory Panel1 Biomarker

assay, while TNFRI and TNFRII were measured using a R-PLEX Human TNF-RI assay/TNF-RII assay from Mesoscale. We used multiple regression model with robust standard errors to compare the concentrations of the biomarkers while accounting for the possible confounders: age, sex, bmi, plate distribution.

Results: We found no significant difference between CSF-concentrations of TNFα or LTα, but reduced concentrations of soluble TNFRI (coefficient= -232; p=0.003, CI=-381 to -83) and soluble TNFRII (coefficient= -270; p=0.006; CI= -460 to -81) in OA-patients compared to pain-free volunteers.

Conclusions: Downregulation of TNFRI which mediates proinflammatory effects of TNFα was somewhat suprising whereas the downregulation of TNFRII which primarily mediates antiinflammatory effects of TNFα supports the theory of increased central neuroinflammation in OA-pain.

1490

CHARACTERIZATION OF THE BIRHE MODEL TO STUDY BURN INJURY PAIN

C. Nappi[1], F.J Taberner[1]

[1]*Instituto de Neurociencias / CSIC-UMH, San Juan de Alicante, Spain*

Methods: To circumvent this caveat, we have developed and characterized a novel mouse model for burn injury pain, called BIRHE (Burn Injury by Repeated Heat Exposure) that consists of exposing several times the left hind paw of the mouse on a plate at 52ºC for few seconds. By varying the number of expositions, we show that mice consistently develop different degrees of burn injury with distinct levels of tissue damage and recapitulate diverse aspects of burn injury pain.

Results: We demonstrate that the different intensity BIRHE treatments markedly reduce acute mechanical and thermal pain thresholds recruiting spinal interneurons in a repetition-dependent manner. Interestingly, while BIRHE-treated mice gradually recover from thermal hyperalgesia, males' recovery from mechanical hyperalgesia is biphasic, showing a hypoalgesia peak one-day post-injury. Immunohistochemistry of BIRHE skin showed that BIRHE-20 (20 repetitions) induces extensive fragmentation of MRGPRD epidermal terminals and extensive mobilization of immune cells. By ablating TRPV1 and MRGPRD nociceptive sensory fibers, we describe their relevance in burn injury pain.

Conclusions: In conclusion, the BIRHE model reproduces the most frequent pain manifestations after a burn. Furthermore, it is an easy-to-implement and versatile paradigm that allows us to study cellular and circuit mechanisms in different degrees of burn injury.

1508

DNA METHYLATION AS A NOVEL APPROACH FOR PERSONALIZED MEDICINE IN CRPS

A.-K. Reinhold[1], N. Scheu[1], A. Leopold[1], R. Aldisi[2], N. Mallesh[2], P. Krawitz[2], L. Haertle[3], M. Kortüm[3], A. Brack[1], H. Rittner[1]

[1]*University Hospital Würzburg, Department of Anaesthesiology, Intensive Care, Emergency and Pain Medicine, Würzburg, Germany,* [2]*Bonn University, Institute for Genomic Statistics and Bioinformatics, Bonn, Germany,* [3]*University Hospital Würzburg, Department of Internal Medicine II, Würzburg, Germany*

Methods: We studied DNA methylation in leukocytes of a) 30 CRPS patients and 20 FC, and b) 32 CRPS patients over 2.5y, stratified into pain resolution and persistence. >860.000 CpG sites were analysed (IlluminaEpic array). Group differences were studied on CpG and promoter level, and Gene Ontology (GO) analysis was performed. Candidate genes were validated via qPCR. Statistical significance was calculated using t-test/ANOVA and corrected for false discovery rate. $P < 0.005$ or $q < 0.05$ were considered statistically significant.

Results: Regulated CpGs were mostly hypomethylated in CRPS and associated with immunoregulation or neuronal processes. Outcome groups differed in ~2,000 CpGs. Over time, methylation pattern changed mainly in pain resolution. This was e.g. true for CpGs associated with histondeacetylase HDAC4, a regulator of thermal hypersensitivity. HDAC4 qPCR confirmed biological relevance and correlated with neuropathic pain scores. GO analysis showed a regulation of neuronal differentiation and axonogenesis.

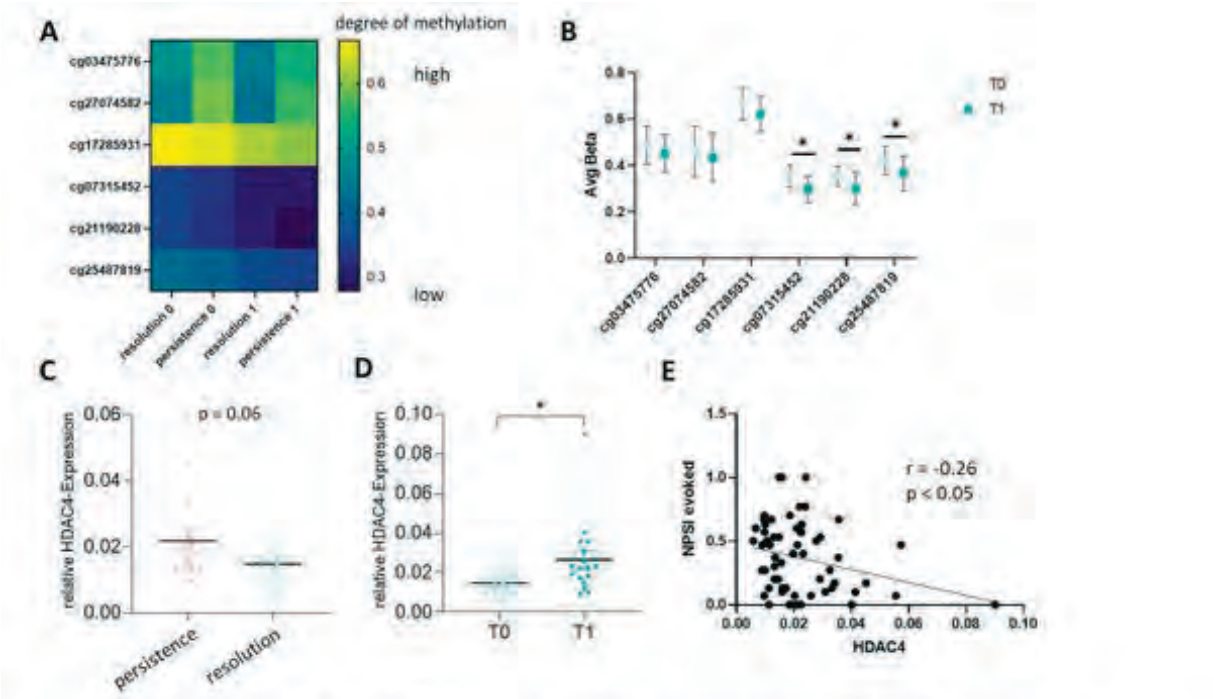


Fig. HDAC4 and neuropathic pain the course of CRPS. A methylation of HDAC4-associated CpGs initially (T0) and afert 2.5y (T1) in pain resolution and persistence. **B** Course of HDAC4-associated CpGs in the resolution group. t-test. **C** qPCR for HDAC4 at T0. t-test. **D** qPCR for HDAC4 in pain resolution over time. paired t-test. **E.** Correlation of NPSI vs HDAC4 mRNA expression level $p < 0.05$. n 16-17, * $p < 0.05$. NPSI = Neuropathic Pain Symptome Inventory.

Conclusions: DNA methylation is altered in CRPS, and epigenetic regulation of pain mediators, like HDAC4, is associated with clinical outcome. General hypomethylation underlines pain resolution as an active process. Methylation profiling could present a novel approach towards a personalized medicine, as biomarkers and targets.

1598

RELIABILITY OF TASK-BASED FMRI IN THE DORSAL HORN OF THE HUMAN SPINAL CORD

A. Dabbagh[1], U. Horn[1], M. Kaptan[2], T. Mildner[1], R. Mueller[1], J. Lepsien[1], N. Weiskopf[1,3], F. Eippert[1]

[1]Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, [2]Stanford University, California, United States, [3]Felix Bloch Institute for Solid State Physics, University of Leipzig, Leipzig, Germany

Methods: In two 3T fMRI sessions, 40 participants received painful heat stimuli on their left forearm. Data were motion-corrected, high-pass filtered and denoised during first-level model estimation. Group-level analyses were carried out in a standardized space using multiple comparison correction via voxel-wise permutation testing. Test-retest reliability was quantified using the intraclass correlation coefficient (ICC).

Results: At the group level, we observed spatially specific BOLD responses at the expected location, but no overlap in response patterns across days. While autonomic indicators of pain processing showed good-to-excellent reliability, the reliability of the beta-estimates of task-related BOLD responses in the target region was only poor. However, using an extended mask including the draining veins improved reliability.

Conclusions: Heat pain stimuli as short as 1s are able to evoke a robust BOLD response in the ipsilateral dorsal horn in spinal cord segment C6. However, across days two days, the BOLD responses strongly varied within individuals. Future research should investigate to what extent draining veins distort spatial specificity in spinal fMRI.

POSTER PRESENTATIONS

198

A REALIST EVALUATION OF A SELF-MANAGEMENT APP TO HELP PEOPLE WITH CHRONIC LOW BACK PAIN

R. Hunter[1], T. Gorely[1], M. Beattie[1], A. Zubala[1]

[1]University of Highlands and Islands, Inverness, United Kingdom

Methods: Realist evaluation is a theory-led study design aimed at building theoretical explanations as to how programmes may or may not work. In this evaluation, theories from a previous realist synthesis on self-management apps for CLBP were tested with nine (CLBP) participants after they had used a self-management app for three months. One-to-one realist interviews were conducted. Data was analysed using retroductive logic to refine, refute and create new programme theories to explain who may benefit from using an app, why and under what circumstances.

Results: Of the initial 15 theories, 3 remained unchanged and 14 refined theories were created. These theories identified contextual factors such as flexibility and personalisation, as well as key mechanisms like confidence and hope, were important in determining whether a self-management app was considered beneficial.

Conclusions: A self-management app may help to improve a person's agency and control in self-managing CLBP. However, the findings suggest this is contingent on whether the user has accepted their condition and felt believed. Furthermore, using an app for long-term self-management of CLBP is likely to be insufficient, therefore an app may be best used as an adjunct to ongoing support.

203

PSYCHIATRIC DISORDERS, PERSONALITY TRAITS AND CHILDHOOD TRAUMATIC EVENTS PREDICTING INCIDENCE AND PERSISTENCE OF CHRONIC PAIN: RESULTS FROM THE COLAUS|PSYCOLAUS STUDY

I. Rouch[1], M.-P. Strippoli[2], J.-M. Dorey[3], B. Laurent[4], A. von Gunten[2], M. Preisig[2]

[1]Saint Etienne University and INSERM, Saint-Etienne and Bordeaux, France, [2]Lausanne University, Lausanne, Switzerland, [3]Lyon University, Lyon, France, [4]University of Saint Etienne and INSERM, Saint Etienne and Lyon, France

Methods: *Population*: Data stemmed from the three first follow-up evaluations of CoLaus|PsyCoLaus, a prospective cohort study conducted in the general population of Lausanne (Switzerland).

Measures: Diagnostic criteria for PD and ETE were elicited using semi-structured interviews, CP and personality traits were assessed by self-rating questionnaires. Follow-up intervals were subdivided into two groups: those without (n=2280) and those with (n=1841) CP initially.

Statistical analyses: The associations between the psychological variables and the occurrence or persistence of CP 5 years later were assessed using serially adjusted logistic regression models.

Results: Higher neuroticism (OR=1.2;95%CI 1.08;1.36) and extraversion (OR=1.18;95%CI (1.06;1.32)) were associated with higher 5-year CP incidence, whereas current MDD (OR=2.03;95%CI (1.25;3.30)) and lower extraversion (OR=0.83;95%CI (0.74;0.94)) were associated with persistence of CP. In contrast ETE and anxiety disorders were not associated with CP.

Conclusions: Our results suggest that personality traits are associated with both the occurrence and persistence of CP, whereas the presence of major depressive episodes may be more associated with CP persistence. Both personality and MDD are accessible to psychotherapy and MDD also to pharmacotherapy. Hence, these therapeutic measures might decrease the risk of CP and its persistence.

212

EXERCISE-INDUCED HYPOALGESIA (EIH) AFTER AEROBIC EXERCISE AND THE ENDEGONOUS OPIOID SYSTEM – A PHARMACOLOGICAL FMRI STUDY

J. Nold[1], C. Büchel[1]

[1]Institute of Systems Neuroscience, University Clinic Hamburg-Eppendorf, Hamburg, Germany

Methods: To this date, 12 healthy participants (6 female, age: 18 – 45 years, BMI: 18 - 30) completed 2 sessions (within-subject) cycling on a stationary bike for 4 blocks of 10 minutes of moderate-high and low intensity. Each block was followed immediately by an fMRI scan where participants received 15-second-long painful heat (through a thermode attached to the left lower arm) and pressure (through a cuff around the left upper arm) stimuli in an alternating fashion. We employed a double-blind, RCT design, where participants were blind to the pharmacological intervention with naloxone (opioid-antagonist) and saline.

Results: Due to the risk of bias and currently low sample size, results concerning the effect of naloxone and exercise cannot be analysed as of now. However, preliminary analyses comparing heat and pressure pain convey distinct as well as overlapping temporal and spatial activation patterns (see Figure). Results of the complete dataset will be presented at the conference.

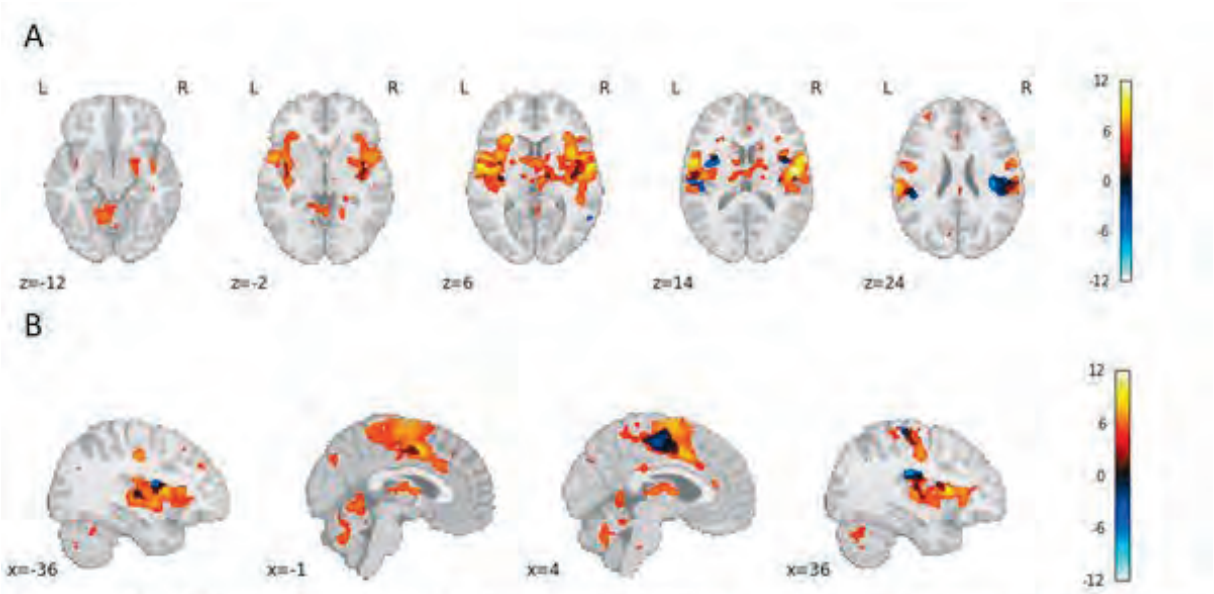


Figure 1. Peak activations for heat pain (orange-red) and pressure pain (blue) during highest stimulus intensity (VAS 70) in axial (A) and saggital (B) view. FWE corrected at p < .05 based on FIR model.

Conclusions: This study aims to provide a comprehensive investigation of EIH on a cortical and pharmacological level.

214

NADA EAR ACUPUNCTURE FOR OPIOID WITHDRAWEL SYMPTOMS IN CHRONIC PAIN PATIENTS

K. Vestergaard[1], A. Henckel[1], M.M. Laustsen[1]

[1]*Holbæk Sygehus/ Anæstesi/Tværfagligt smertecenter, Holbæk, Denmark*

Methods: 53 patientens received NADA acupuncture 2 times af week along with their tapering opioids.

5 NADA needles was placed in both ears (sympaticus, kidney, liver ,lung, Shen Men), for 45 minutes. The patients rest in a comfortable chair or on a madras, and listen to meditation music. A cup of herb tea is served(NADA tea)

Every 5. treatment the patient fill out a questionaire scoring their withdrawel symtoms. (Withdrawel symptoms scale)

Results:

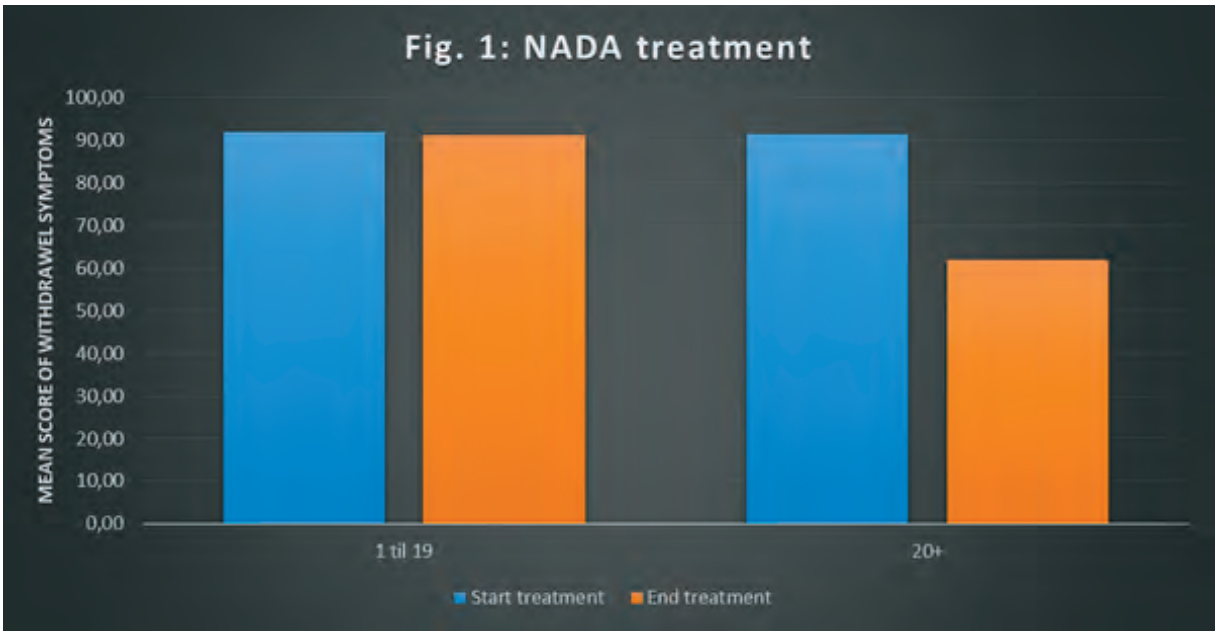


Fig. 1: NADA treatment
MEAN SCORE OF WITHDRAWEL SYMPTOMS
100,00
90,00
80,00
70,00
60,00
50,00
40,00
30,00
20,00
10,00
0,00
1 til 19
20+
Start treatment
End treatment

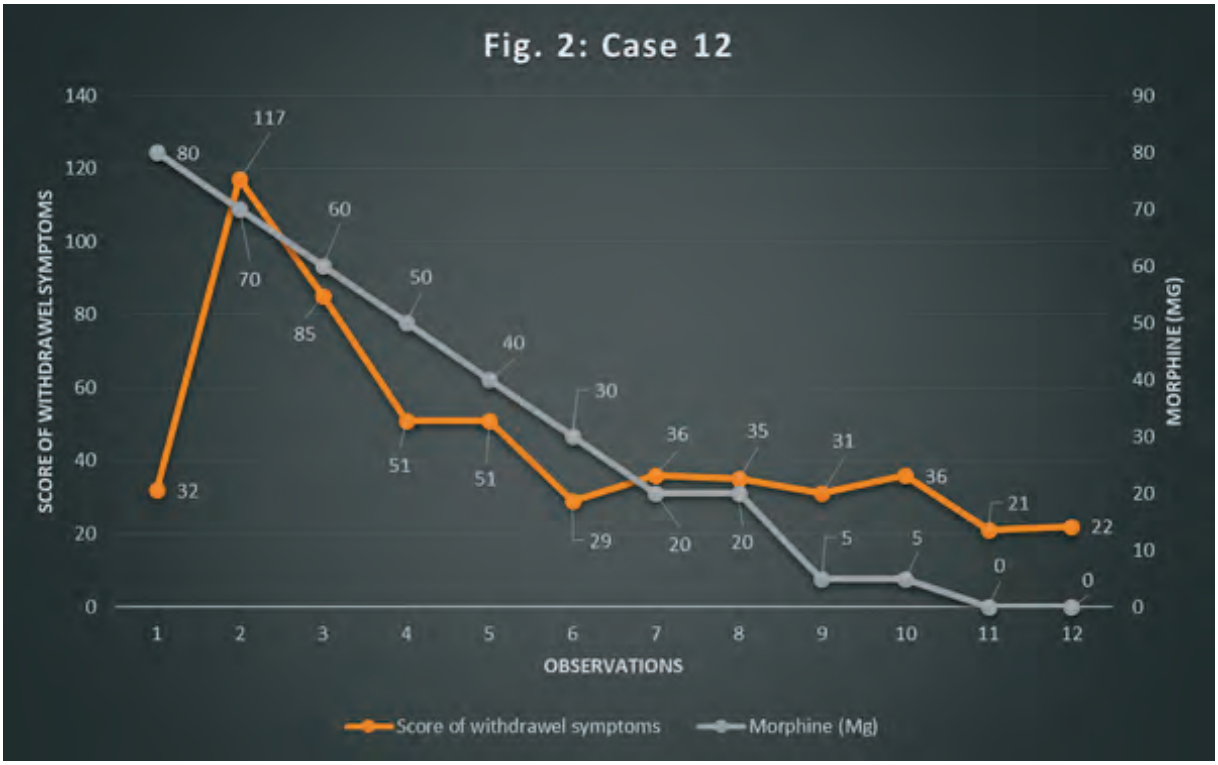


Fig. 2: Case 12
SCORE OF WITHDRAWEL SYMPTOMS
MORPHINE (MG)
OBSERVATIONS
Score of withdrawel symptoms
Morphine (Mg)
80
117
70
60
85
50
40
51
51
30
29
36
20
35
20
31
5
36
5
21
0
22
0

Fig. 1 show the difference in the 2 groups. Tapering opioids combined with NADA treatment. Group 1: 1-19 NADA treatments. Group 2: 20 and more NADA treatments. Group 2 shows reduced withdrawel symptoms from start to end treatment.

Fig. 2 and Fig. 3: shows the withdrawel symptoms along the tapering opioids period for 2 different patient cases

Conclusions: Pain patients who reciewe 20 and more NADA treatment has reduced withdrawel symtoms.

Other patient experiences: Professionel care and support during a difficult tapering period. Sharing and social contact with other patients in the same situation. Relaxation 45 minutes 2 times a week, in a difficult time of their life.

215

IMPROVEMENTS OF HEAD AND SHOULDER RELOCATION ACCURACY AND POSTURAL PERFORMANCES AFTER CERVICAL FACET NERVE BLOCKADE IN PATIENTS WITH CHRONIC CERVICAL PAIN

H. Heikkilä[1], A. Ristmägi[1], S. Välilä[1], T. Uusi-Kraapo[1]

[1]*Satasairaala, Pori, Finland*

Methods: The study was performed on 99 patients . All patients had a history of chronic cervicalt pain syndrome and voluntarily approved to diagnostic and therapeutic blockade treatment at the unit. Cervical and shoulder proprioceptive functions were assessed by examining repositioning accuracy and static posture by computerized posturography before, after facet nerve blocks and at 1-month follow-up

Results: Uniform improvement in HRA flexion occurred after FBA and this positive effect was still seen at 1-month follow-up. There was also a significant improvement in shoulder relocation accuracy for abduction after the blocks. Postural performances improved significantly after FBA . At 1-month follow-up after single treatment (FBA), patients also rated significant improvements of cervical pain, health related quality of life as well as improvement of Oswestry index.

Conclusions: Findings in this study indicated effects of a single unilateral FNBs for some of the HRA and JPE aspects measured by objective tests of movement control. Also balance testing using computerized posturography did show positive responses. Positive effects for pain, functioning and Quality of life were also obserwed at 1-month follow-up.

222

HOW IS COGNITIVE BEHAVIOURAL THERAPY FOR INSOMNIA DELIVERED TO ADULTS WITH COMORBID PERSISTENT MUSCULOSKELETAL PAIN AND DISORDERED SLEEP? A SCOPING REVIEW

A. Browne[1,2], R. Cahalan[1,2], K. O'Sullivan[1,3,4]

[1]School of Allied Health, University of Limerick, Limerick, Ireland, [2]Physical Activity for Health Centre, University of Limerick, Limerick, Ireland, [3]Sports and Human Performance Centre, University of Limerick, Limerick, Ireland, [4]Ageing Research Centre, University of Limerick, Limerick, Ireland

Methods: Electronic searches of ten databases and three clinical trials registries were performed up to February 2022.Study quality was evaluated using the PEDro tool. Reporting of interventions was evaluated using the Template for Intervention Description and Replication (TIDieR) checklist.

Results: Ten studies met the eligibility criteria. PEDro scores ranged from 5-8/10. TIDieR scores ranged from 7-11/12. CBT-I always involved three core components – sleep restriction, stimulus control and a cognitive component. Furthermore, an additional four components were usually involved - sleep hygiene, sleep education, relaxation procedures and relapse planning. CBT-I was delivered individually and in groups. There was considerable consistency in the frequency (weekly) and duration (6-9 weeks) of CBT-I programmes. Aspects inconsistently reported included who delivered the intervention and the session content and duration.

Conclusions: These findings demonstrate considerable consistency in the components of CBT-I delivered in clinical trials, along with the frequency and number of sessions. However, some aspects were either not reported (e.g., content of components) or inconsistent (e.g., terminology). Greater consistency, and more detailed reporting regarding who delivered the intervention, the training provided, and the specific content of CBT-I components would add clarity, and may enhance CBT-I efficacy and replication.

228

TO THE ISSUE OF HEADACHE IN PATIENTS RECEIVING PROGRAM DIALYSIS

J. Khalmukhamedov[1], R. Yorkin[1]

[1]Tashkent Pediatric Medical Institute, Tashkent, Uzbekistan

Methods: The study included 40 males and 40 females with CKD on program dialysis for more than 12 months in 2022, session lasting 4 hours. The exclusion criteria were patients receiving drugs that can cause headache and with any type of primary headache not associated with the HD procedure, diabetes mellitus, and others. Patients with DH were further compared with patients without DH in terms of BP and blood values such as urea, creatinine, Na+, K+.

Results:

Table 1	with DH (%)	without DH (%)	Total
Patients	45% (36)	55% (44)	80
Sex, F/M	22/14 (60/40)	18/26 (41/59)	40/40
Age, years	47±7	46.5±7.5	47±7
Duration of HD	7±4.5	5±3.5	6.5±4

Table 2 Features of DH		Frequency, % (n)
Intensity	Moderate Severe	73% (58) 27% (22)
Quality	Throbbing Dull	80% (64) 20% (6)
Duration	<4 >4	63% (50) 37% (30)

45% (n=36) reported DH, which was common in women 60%. Differences between pre- and post-dialysis urea values in patients with DH were statistically significant ($p<0.05$). Patients with DH showed significantly higher mean

SBP and DBP values before dialysis compared with patients without DH (systolic, P<0.001; diastolic, P<0.01). 80% of patients (n=64) reported the quality of their headaches asbeing throbbing, whereas (20%, n=6) had headaches with dull character. Headache intensity was moderate in 73% (n=58) and severe in 27% (n=22). The headache duration was reported to last less than 4 hours in 63% (n=50) and 4 to 36 hours in 37% (n=30), table 2.

Conclusions: We determined that DH is a common type of headache among HD patients, female predominance, begins after several hours of therapy, with progressive intensity and throbbing character, which is not associated with a coexisting primary headache, but may be related to differences in urea levels and BP before and after treatment.

230

IS THERE AN ASSOCIATION BETWEEN SOLUBLE INTERLEUKIN-2 RECEPTOR LEVELS AND DISEASE SEVERITY IN CHRONIC COMPLEX REGIONAL PAIN SYNDROME?

T. Mangnus[1], K. Bharwani[1], S. Baart[1], W. Dik[1], M. Dirckx[1], F. Huygen[1]

[1]Erasmus MC University Medical Center, Rotterdam, Netherlands

Methods: Our research group conducted a cross sectional cohort study in which we determined the sIL-2R level and the CRPS severity score. The study sample consists of adult chronic CRPS patients as diagnosed by the new IASP clinical diagnostic criteria for CRPS who are currently under treatment at the tertiary referral Center for Pain Medicine. The CRPS symptoms and signs were assessed using the CRPS severity score. Furthermore, a tube of venous blood was drawn to assess the sIL-2R level.

Results: Fifty-three chronic CRPS patients were included. Mean disease duration was 84 months (Q3-Q1:180-48). The median sIL-2R level was 330 U/mL (Q3-Q1:451-256) and the mean CRPS severity score was 11 (sd±2,3). No statistically significant correlation was observed between sIL-2R levels and the CRPS severity score (r_s=0.15, p=0.28).

Conclusions: Our findings indicate that sIL-2R levels cannot be used as a biomarker for disease severity in chronic CRPS.

231

IN VITRO BOVINE INTERVERTEBRAL DISC NERVE INGROWTH MODEL TO STUDY DISCOGENIC PAIN ASSOCIATED PATHOLOGY

J. Ma[1], R. Tognato[1], J. Eglauf[1], S. Grad[1], M. Alini[1], T. Serra[1]

[1]AO Research Institute, Davos, Switzerland

Methods: AF explants (2×2×2 mm) of bovine IVDs were primed with IL-1β and TNF-α for 24 h. AF without cytokine priming served as control. DRG neurons were assembled around each piece of AF in defined position using sound-orchestrated hydrodynamic forces within collagen matrix. In the DRG-AF co-culture system, axons were labelled by CGRP immunofluorescence at day 2. The axonal morphology was evaluated using 'imageJ SNT' and 'R'.

Results: The cytokine-primed AF presence increased the length of CGRP(+) axons by 52% compared to control. In cytokine-primed group, 86.7% of CGRP(+) neurons had more axons guided towards the AF, while this proportion was only 50% in control group. These effects were only significant when neurons were positioned within 1.3 mm from AF tissue indicating the importance of controlling IVD-neuron distance in the co-culture system (n=12 and 15 neurons, n= 119 and 236 axons for control and cytokine treated AF groups, respectively).

Conclusions: Cytokine-primed AF tissue displayed neurotrophic and neurotropic effect on CGRP(+) axons. This is the first large animal *in vitro* model studying IVD nerve ingrowth.

232

PAIN CHARACTERISTICS AND PSYCHOLOGICAL FACTORS MEDIATE THE ASSOCIATION BETWEEN OBESITY AND OUTCOMES OF INTERDISCIPLINARY PAIN REHABILITATION

H.-J. Dong[1], A. Forslind[1], B. Gerdle[1], E. Dragioti[1]

[1]*Linköping University, Linköping, Sweden*

Methods: Sociodemographic variables, pain characteristics and psychological factors were retrieved from the Swedish Quality Registry for Pain Rehabilitation (SQRP). Data was collected at baseline (pre-IPRP) and at a 1-year follow-up (FU-IPRP). Obesity was classified as Body Mass Index (BMI) ≥30kg/m^2.

Results: 232 (26.6%) of 872 patients (mean age 45.8±10.5, 80.3% female) were obese. Obese patients reported higher pain intensity (p=0.02), a higher number of pain locations (p< 0.001) and longer pain duration (p=0.002) compared to non-obese patients. At FU-IPRP, significant improvements with small to large effect sizes were found in pain intensity and psychological functioning for both groups. Pain intensity, pain spreading, and depressive disorders mediated the association between obesity and pain intensity at FU-IPRP. Depressive disorders together with pain intensity or pain spreading also mediated the association between obesity and the two psychometric scales (dysfunctional and adaptive coper) at FU-IPRP.

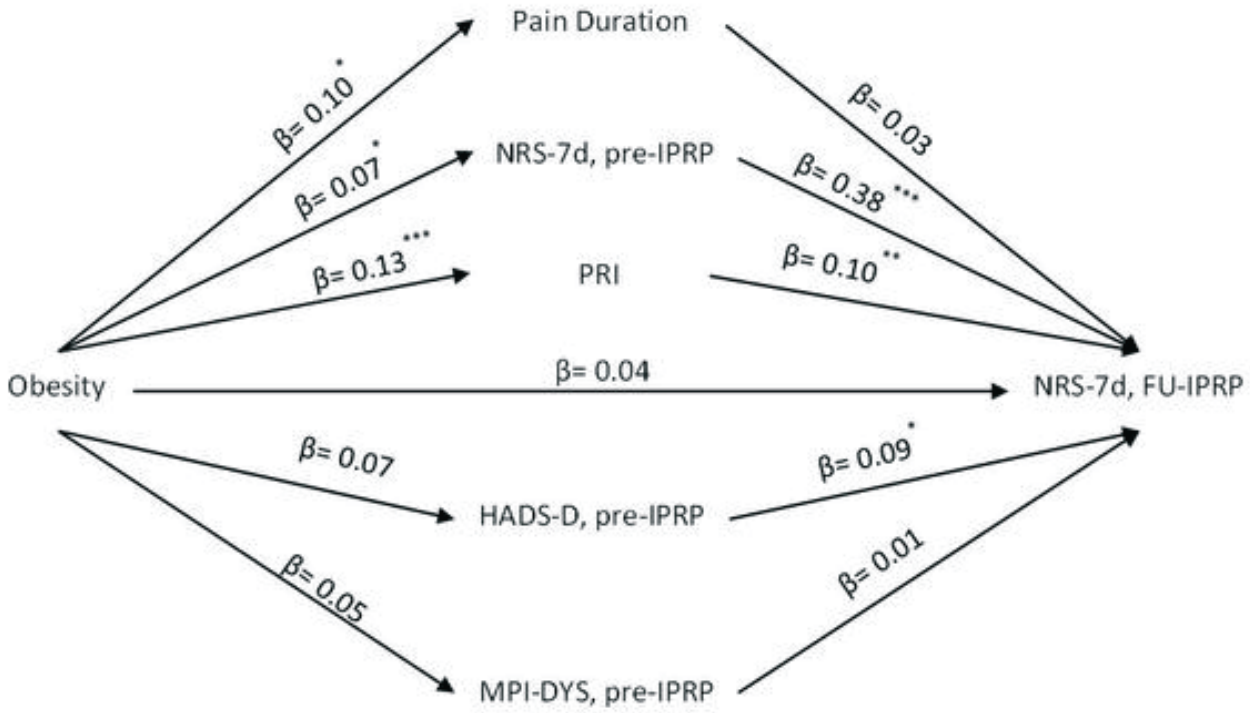


Figure 1 Conceptual diagram of the first mediation model.

Notes: IPRP, Interdisciplinary Pain Rehabilitation Program; Pre-IPRP, start of IPRP; FU-IPRP, 1-year follow up after IPRP; NRS-7d: average pain intensity in the last 7 days; PRI: Pain Region Index; MPI: Multidimensional Pain Inventory; DYS: dysfunctional profile; HADS, Hospital Anxiety and Depression Scale; HADS-D: HADS-depression subscale. *p<0.05, **p<0.01, ***p<0.001

Conclusions: Obesity via pain intensity, pain spreading, and depressive disorders indirectly affected pain and psychological improvements at FU-IPRP. The roles of these mediators need to be specifically addressed in designing a tailored IPRP for pain patients with comorbid obesity.

233

ARE ONGOING NEURAL OSCILLATIONS MODULATED BY NOCICEPTIVE STIMULI AFFECTED BY A CONCOMITANT ARITHMETIC TASK?

C. Leu[1], A. Courtin[1,2], C. Cussac[1], G. Liberati[1]

[1]*Université catholique de Louvain, Brussels, Belgium,* [2]*Aarhus University, Aarhus, Denmark*

Methods: Sustained periodic thermonociceptive and vibrotactile stimuli were delivered at a frequency of 0.2 Hz to 25 healthy volunteers. Subjects were exposed to two conditions during the stimulation: baseline and an arithmetic task. After each of the 40 trials, subjects provided a VAS rating of stimulus intensity. EEG was recorded using a 64-channel cap during the entire experiment. Linear mixed models were used to assess the effects of condition and modality on the intensity ratings, the phase-locked EEG and the modulation of OO at the frequency of stimulation (FoS).

Results: The arithmetic task led to a significant decrease in perceived intensity for both modalities. Both stimuli led to a phase-locked response at the FoS and thermonociceptive stimuli induced significantly larger modulations of the OOs, compared to vibrotactile stimuli, in all frequency bands. No significant differences were found between the conditions.

Conclusions: These findings suggest that ongoing oscillations may play a role in the neural processing of painful stimuli, but do not necessarily reflect the experience of pain itself, as a decrease in pain perception is not reflected in a decreased modulation of these oscillations.

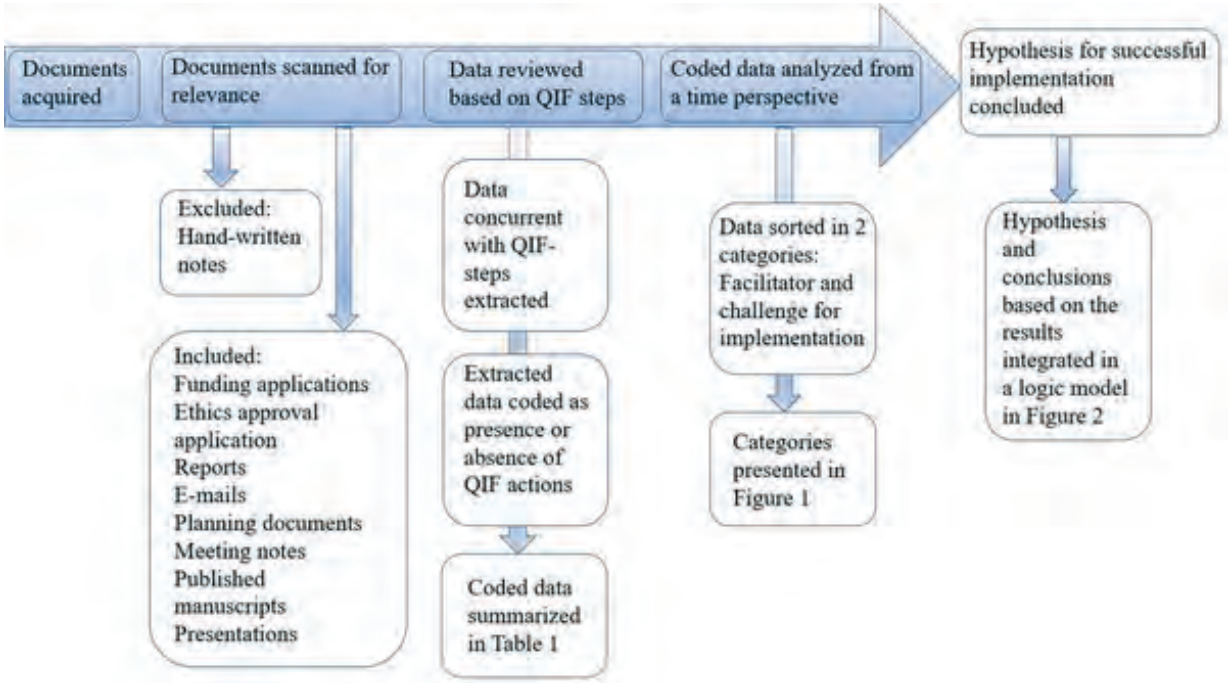
236

HURDLES AND POTENTIALS WHEN IMPLEMENTING INTERNET-DELIVERED ACCEPTANCE AND COMMITMENT THERAPY IN INTERDISCIPLINARY PAIN REHABILITATION PROGRAMS: A RETROSPECTIVE APPRAISAL USING THE QUALITY IMPLEMENTATION FRAMEWORK

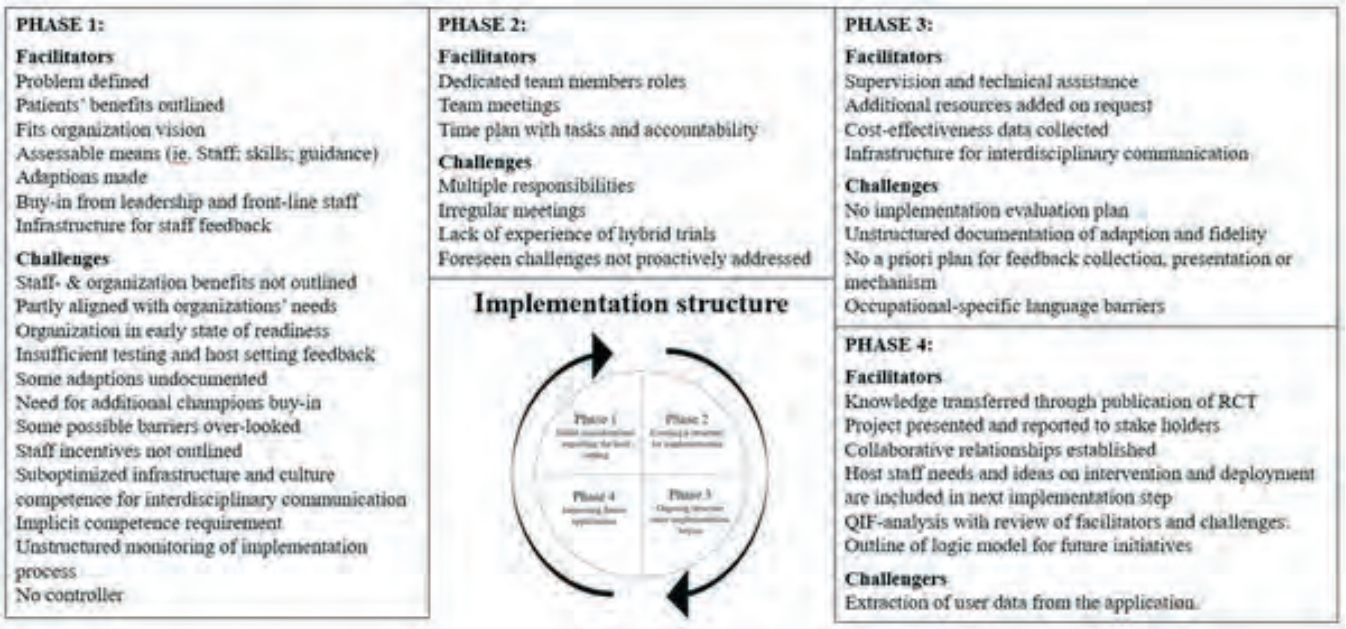
N. Bendelin[1], B. Gerdle[1], G. Andersson[2,3,4]

[1]Pain and Rehabilitation Centre, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden, [2]Department of Behavioural Sciences and Learning, Linköping University, Linköping, Sweden, [3]Department of Biomedical and Clinical Sciences, Linköping University, Linköping, Sweden, [4]Department of Clinical Neuroscience, Karolinska Institute, Stockholm, Sweden

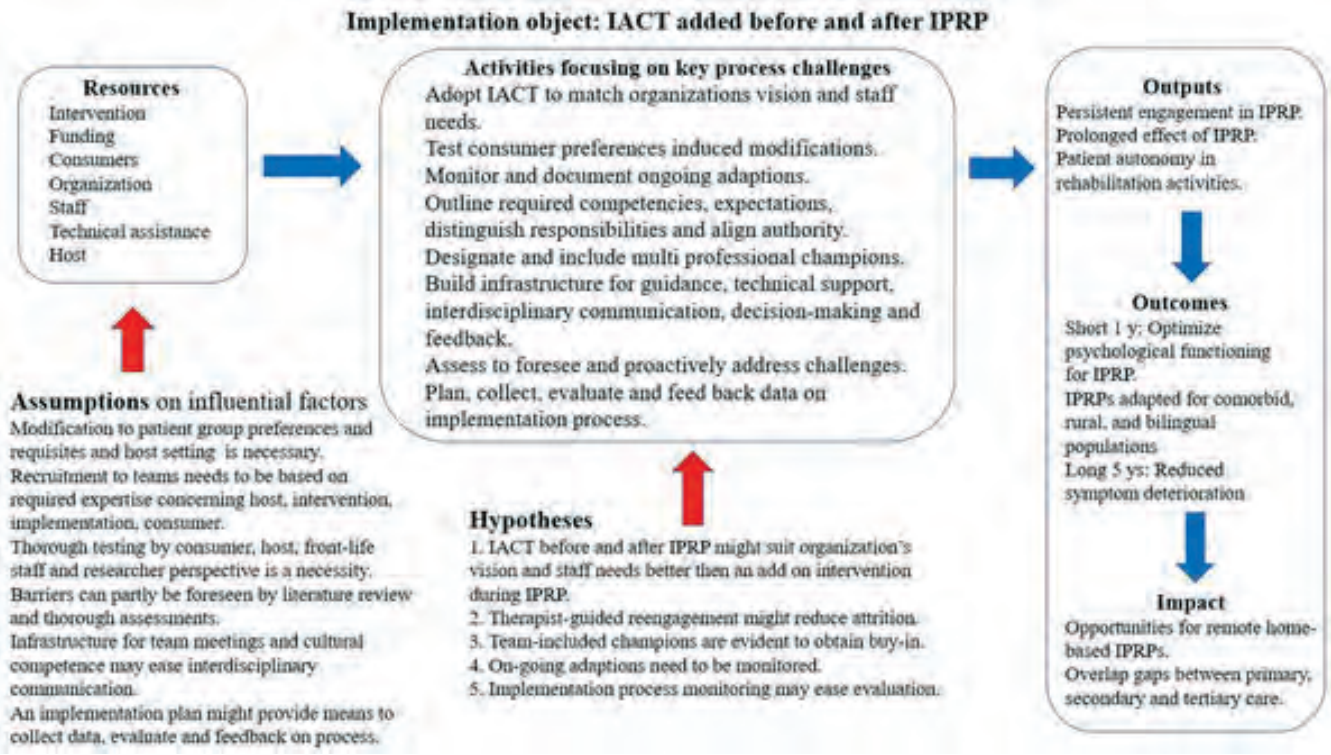
Methods: In this retrospective study we describe actions taken during an RCT, where IACT as an addition to IPRP was compared to IPRP alone. Documents from the implementation process were reviewed for data on implementation actions and coded using the Quality Improvement Framework (QIF).



Results: The QIF-analysis showed that leadership buy-in, infrastructure for multiprofessional communication, supervision and dedicated key champions team members facilitated implementation. However, actions relating to context considerations and structure during RCT, could have been further detailed. This might have challenged assessment and capacity-building, potentially leading to difficulties to adopt to hurdles. The coded actions resulted in two categories: Facilitators and Challenges. To ease future implementation initiatives, influential factors, hypotheses and key process challenges are presented in a logic model.



Conclusions: Sustainable implementation may depend on both the continuity of facilitating implementation actions and flexibility to the changing needs and interests among end-users, providers and stakeholders. We recommend the use of theories, models and frameworks (TMF) as well as logic models to ease implementation of IACT into IPRP.



238

PERCEIVED INJUSTICE AND ANGER IN FIBROMYALGIA WITH AND WITHOUT COMORBID MENTAL HEALTH CONDITIONS – VALIDATION OF A HEBREW VERSION OF THE INJUSTICE EXPERIENCE QUESTIONNAIRE

G. Gilam[1], J. Silvert[1], S. Raev[2], D. Malka[2], I. Gluzman[2], M. Rush[1], O. Elkana[2], V. Aloush[3,4]

[1]Hebrew University of Jerusalem, Jerusalem, Israel, [2]Academic College of Tel Aviv-Yaffo, Tel Aviv-Yaffo, Israel, [3]Tel Aviv Medical Center, Tel Aviv-Yaffo, Israel, [4]Tel Aviv University, Tel Aviv-Yaffo, Israel

Methods:

Participant demographics according to diagnostic group (Mean ± SD unless noted otherwise).				
	HC	**RA**	**FM-MH**	**FM+MH**
Sex (female; %)	21 (65.63) ^	26 (76.47)	53 (82.81)	59 (89.39) ^
Age (years)	35.28 ± 13.24 *	61.91 ± 13.43 *	51.22 ± 11.92 HC, RA, ^	46.35 ± 14.13 HC, RA, ^
Education (years)	16.80 ±7.75	15.09 ± 2.57	14.86 ± 3.23	14.36 ± 2.96
Duration of diagnosis (years)	n/a	12.16 ± 10.48 ^	8.67 ± 6.17	7.76 ± 5.00 ^
Significance levels Bonferroni corrected for 6 between group comparisons (.05/6 = .0083).				
* Significantly different to all other groups; ^ Significant non-corrected difference between groups with this sign; Otherwise significantly different to indicated groups.				

Data was acquired using online questionnaires, sent to patient groups via the Rheumatology Department at Tel Aviv Medical Center, and to HC via social media. The final sample comprised 66 FM with self-reported mental health conditions; 64 FM without mental health conditions; 34 RA; and 32 HC (Table1). The IEQ was translated using the forward-backward method. State-anger was assessed using the State-Trait Anger Expression Inventory, and pain intensity using the gold-standard 0-10 scale.

Results:

Main study measures according to diagnostic group (Mean ± SD).				
	HC	**RA**	**FM-MH**	**FM+MH**
Pain intensity	0.69 ± 0.90 *	3.65 ± 3.06 *	7.23 ± 2.25 HC, RA	7.18 ± 2.17 HC, RA
IEQ	4.53 ± 5.95 *	12.94 ± 10.93 *	21.78 ± 12.66 *	28.30 ± 12.87 *
State Anger	19.00 ± 5.46 FM+MH	17.79 ± 3.18 FM-MH, FM+MH	22.83 ± 8.16 RA, ^	26.30 ± 11.30 HC, RA, ^
Significance levels Bonferroni corrected for 6 between group comparisons (.05/6 = .0083).				
* Significantly different to all other groups; ^ Significant non-corrected difference between groups with this sign; Otherwise significantly different to indicated groups.				

Consistent with the original IEQ, we confirmed a one-factor structure (KMO=0.94, Bartlett's p<0.001, Component loadings>0.60, Commonalities>0.30), with Cronbach's alpha (coefficient=0.95) indicating excellent internal consistency. Confirming our hypothesis, FM patients with comorbid mental health demonstrated the highest IEQ, state-anger, and pain intensity (p<0.001; Table2). Results remained significant when controlling for demographic factors (p<0.001).

Conclusions: Our findings validate a Hebrew-IEQ version and highlight the importance of PI and anger in the differential manifestation of mental health comorbidity in FM. Therapeutic interventions may thus consider targeting PI in chronic pain.

242

WORKING TOWARDS IMPROVING PERIOPERATIVE PAIN MANAGEMENT IN SOUTH AFRICA: ANALYSIS OF DATA COLLECTED AT BASELINE

S. Chetty[1], P. Baumbach[2], K. Sankar[1], T. Pretorius[3], M. Saw[4], C. Mafanya[5], A. Mallier Peter[6], N. Biyase[7], J. Purcell-Jones[8], S. Bechan[9], A. De Vaal[10], T. Leonard[11], R. Parker[10], I.A. Sherif[1], W. Meissner[2], C. Arnold[2], C. Weinmann[2], M. Komann[2], R. Zaslansky[2]

[1]Stellenbosch University, Cape Town, South Africa, [2]University Hospital Jena, Jena, Germany, [3]Paarl Provincial Hospital, Paarl, South Africa, [4]Mediclinic Panorama Hospital, Cape Town, South Africa, [5]Netcare Union Hospital, Gauteng, South Africa, [6]Klerksdorp Tshepong Hospital Complex, Klerksdorp, South Africa, [7]Charlotte Maxeke Johannesburg Academic Hospital, Johannesburg, South Africa, [8]New Somerset Hospital, Cape Town, South Africa, [9]Inkosi Albert Luthuli Central Hospital, Durban, South Africa, [10]Groote Schuur Hospital, Cape Town, South Africa, [11]Chris Hani Baragwanath Academic Hospital, Johannesburg, South Africa

Methods: PAIN OUT, an international perioperative pain registry, provided tools for assessing PROs and pain management on the first postoperative day. Assessment included whether patients received 4 evidence-based pain management techniques, largely independent of surgery and recommended for most patients undergoing surgery as part of a multimodal treatment approach.

Results: From 01-05/2022, 1669 patients undergoing procedures for orthopedic/trauma, OBGYN, and general surgery, fulfilled the inclusion criteria. ≥50% (median) of patients reported experiencing severe pain; pain interfered with activities in bed in 42,6% and interfered with sleep in 36,4% of patients. 37,2% reported helplessness due to pain; ≥50% would have liked to receive more pain treatment. A full daily dose of 1-2 non-opioid analgesics was administered to 32% of patients; 82% of patients received at least one local/regional anesthesia technique; pain was assessed in 10% of patients; receiving information about pain management options was reported by 27%. None received all 4 interventions.

Conclusions: In this multi-center cohort, a sizable proportion of patients reported severe pain and interference. Many did not receive guideline-based care. Collaborators will introduce a QI intervention in 2023, working towards providing pain care as a human right to a wider circle of patients.

243

SCALP BLOCK VS PIN SITE INFILTRATION

H. Mamidala[1], K. S. Challam[1], P. Punetha[1]

[1]Sri Sathyasai Instt of Higher Medical Sciences, Bangalore, India

Methods: Data were tested first for normal distribution by Klomogorov– Smirnov test.. For comparing categorical data, Chi square test was performed. Exact test was used instead when the expected frequency is less than 5. A probability value (p value) less than 0.05 was considered statistically significant.

Results: There was no statistically significant difference between the two groups in terms of baseline, post induction,pre- pin insertion and post pin insertionheart rate, systolic, diastolic and mean arterial blood pressure, serum cortisol and serum glucose levels.

Conclusions: This study showed that the use of regional block with 0.5% levobupivacaine as an adjuvant to general anaesthesia.The use of SB provides effective analgesia as evidenced by significant reductionin requirement of additional fentanyl boluses and isoflurane during pin application; satisfactory analgesia as evidenced by stable hemodynamicsis observed.

Pin site infiltration with surgical incision site infiltration was as effective as scalp block statistically. However, additional adjuvants had to be supplemented to control the changes in hemodynamics especially with reapplication of pins at a different site from where the local anesthetic had been infiltrated.

In view of the observed benefits, we would recommend routine use of regional nerve blocks such as Scalp Block in anesthesia for craniotomy.

244

WHAT NON-PHARMACOLOGICAL AND NON-INVASIVE PAIN MANAGEMENT INTERVENTIONS ARE AVAILABLE FOR TURKISH-SPEAKING ETHNIC GROUPS WITH NON-MALIGNANT CHRONIC PAIN? A SCOPING REVIEW OF PUBLISHED LITERATURE

D. Nicklin[1], J. Walumbe[2], D. Denneny[2], E. Godfrey[3]

[1]Whittington Health NHS Trust, London, United Kingdom, [2]University College London Hospital NHS Foundation Trust, London, United Kingdom, [3]Kings College London, London, United Kingdom

Methods: The MEDLINE database was searched for published literature. Adults with non-malignant chronic pain from Turkish-speaking ethnic groups and all non-pharmacological and non-invasive pain management interventions were considered. No limits were placed on geographic location, gender, sex, study design, date of publication or setting. An English language filter was applied. Data was charted, key concepts identified and frequency counts tallied.

Results: 13 studies were included in the final review. All were conducted within a quantitative research paradigm. The studies were completed in Turkey (9), Belgium (1), Sweden (1) and Switzerland (1). One was a multi-country review. No studies were conducted in the UK. The primary interventions included; pain science education (2), cognitive behavioural therapy (2), transcranial magnetic stimulation (1), balneotherapy (1), extracorporeal shockwave therapy (1), music therapy (1), transcutaneous electrical nerve stimulation (1) wool therapy (1), acupuncture (1), exercise & patient dialogues (1) and aromatherapy massage & reflexology (1). Location of pain, outcome measures and timings of follow-ups were heterogeneous.

Conclusions: Intervention heterogeneity, exclusively quantitative methodology and absence of studies completed in the UK meant no conclusions could be made on what represents the most appropriate non-pharmacological and non-invasive interventions intervention for individuals from Turkish speaking ethnic groups with non-malignant chronic pain.

245

PROTOCOL FOR A FIRST INTERNATIONAL CLINICAL RESEARCH REGISTRY AND DATA BANK FOR COMPLEX REGIONAL PAIN SYNDROME

S. Grieve[1,2], F. Brunner[3], L. Buckle[1,2], C. McCabe[2]

[1]Royal United Hospitals Bath NHS Foundation Trust, Bath, United Kingdom, [2]University of the West of England, Bristol, United Kingdom, [3]Balgrist University Hospital, Zurich, Switzerland

Methods: Adults meeting the Budapest diagnostic clinical criteria for CRPS will be recruited internationally. After informed consent they will complete the standardised baseline and follow-up questionnaires, comprising demographic data and self-reported measures. There is no upper limit on participant numbers. Clinicians will complete diagnostic data, the CRPS Severity Score plus a minimal core dataset of clinician-reported outcomes. Time points for data collection are at enrolment (mandatory) and 3, 6 and 12 months later (frequency decided by the investigator at each recruiting centre to fit local practices).

Results: These data will enable us to answer our research question 'what is the clinical presentation and course of CRPS and what factors influence it?' and provide a springboard for further studies. There is no single analysis planned.

Conclusions: The research conducted via this registry and data bank has the potential to improve health outcomes for the CRPS population worldwide by developing targeted therapeutic approaches.

247

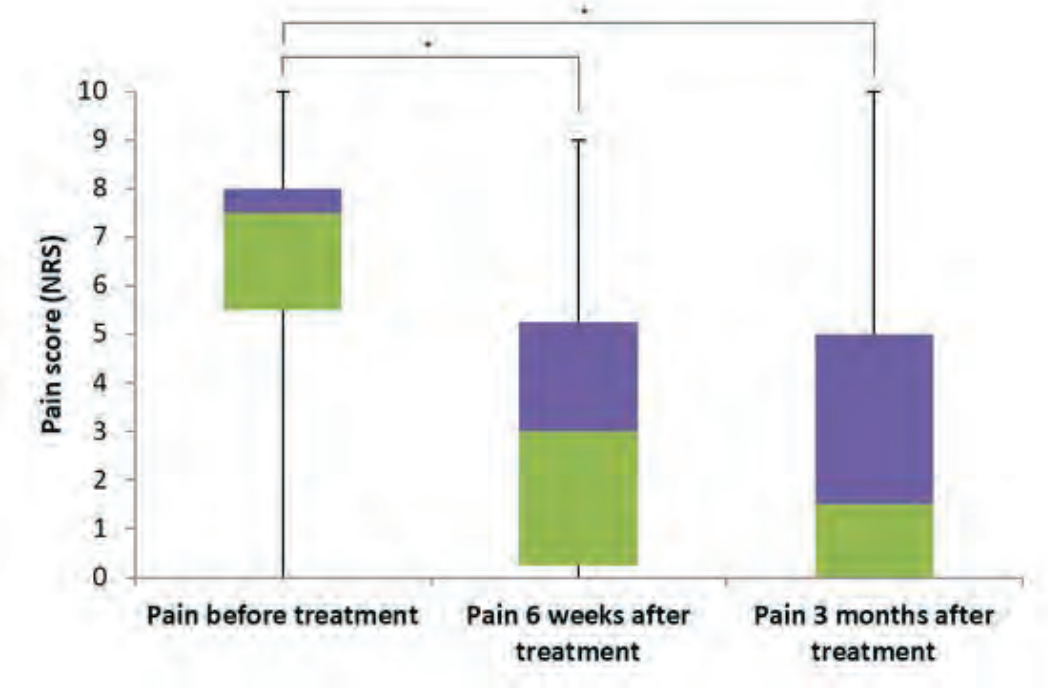
EFFICACY OF ULTRASOUND GUIDED CORTICOSTEROID INJECTIONS FOR MERALGIA PARESTHETICA AND ANALYSIS OF PREDICTORS

D. Peek[1], L. de Valck[1], L. Khajeh[1], K. Reuls-van den Elsen[1], N. Bouwman[1]

[1]Zuyderland Medical Centre, Sittard-Geleen, Netherlands

Methods: In this retrospective cohort study patients treated for MP with an ultrasound guided corticosteroid injection between 2011 and 2016 were included. The primary outcome was statistical significant improvement in numeric rating scale score (NRS) 6 weeks and 3 months after treatment. Secondary outcomes were occurrence of complications after treatment, recurrence rate within a year after treatment and significant association between patient dependent variables and pain or recurrence after treatment.

Results: 55 cases of MP were included in this study. The median NRS before treatment was 7.5. 6 weeks after treatment median NRS was 3 (-4.5; Z:-5.78, p<0.001). Three months after treatment the NRS was 1.5 (-6; Z:4.85, p<0.001). A linear regression analysis showed no association between any of the variables and a better outcome in NRS after treatment. Symptoms recurred in 41.8% of cases (N=23). A logistic regression analysis showed that a higher NRS before treatment was associated with a lower chance for recurrence (odds ratio: 0.67, p=0.02). There were no complications.



Conclusions: Using an ultrasound guided corticosteroid injection as a treatment for MP is safe and effective, with recurrence being less likely in patients who experience extensive pain before treatment.

248

"WHY WASN'T I EVER TOLD THAT?" CONSUMER INSIGHTS ON THE NEED FOR, AND KEY TENETS OF, A SOCIETY-WIDE INTERVENTION TO IMPROVE MANAGEMENT OF OSTEOARTHRITIS

F. Braithwaite[1], J. Arnold[1], A. Davis[1], I. Gwilt[1], E. MacIntyre[1], S. Morris[2], K.R. James[2,1], K. Lee[2,1], H. Marshall[2,1], P. Ninnes[2,1], D. Scrafton[2,1], N. Smith[2,1], T. Stanton[1]

[1]University of South Australia, Adelaide, Australia, [2]Arthritis Foundation of South Australia, Adelaide, Australia

Methods: We used a co-design approach with a non-hierarchical participatory framework. Workshops with six consumers [2 female, mean age 68.7(9.8) years, 3-30 years symptom duration] were conducted using activities to promote creative thinking. We also engaged six industry stakeholders, including researchers, clinicians, and science communication experts, to provide independent feedback on co-design processes and outcomes.

Results: Consumers identified: 1) osteoarthritis knowledge and understanding requires improvement at the societal-level, targeting consumers (particularly at diagnosis), support networks, health professionals and information sources; 2) key misconceptions were: inevitable progressive decline (no hope); movement/exercise makes osteoarthritis worse ('wear and tear', 'rest is best'); osteoarthritis means you have no cartilage ('bone-on-bone'); surgery is the only option; it is not possible to lose weight; and osteoarthritis should be an expected part of ageing (ageism).

Conclusions: Through an innovative co-design approach in partnership with consumers, we identified meaningful focal areas for translational research including development of a scalable educational intervention targeting societal osteoarthritis misconceptions. The novel solutions proposed by consumers reshaped our research priorities and highlighted their value as co-researchers in translational research.

252

EFFECT OF INTRADISCAL GLUCOCORTICOID INJECTION ON LUMBAR DISCOGENIC BACK PAIN AND THE INFLUENCE OF END-PLATE INFLAMMATORY MODIC CHANGES: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RCTS

M. Riegger[1,2], H. Lee[3], G. Gyenes[3], J. Hirsch[4], A. Cianfoni[5,6], C. Candrian[7,2], S. van Kuijk[2,3], E. Koetsier[8,2]

[1]Service of Orthopaedics and Traumatology, Department of Surgery, Lugano, Switzerland, [2]Faculty of Biomedical Sciences, Università della Svizzera Italiana, Lugano, Switzerland, [3]Department of Clinical Epidemiology and Medical Technology Assessment, Maastricht University Medical Center+, Maastricht, Netherlands, [4]Department of Radiology, Massachusetts General Hospital, Harvard, United States, [5]Diagnostic and Interventional Neuroradiology, Neurocenter of Southern Switzerland EOC, Lugano, Switzerland, [6]Department of Neuroradiology, Inselspital University Hospital Bern, Bern, Switzerland, [7]Service of Orthopaedics and Traumatology, Department of Surgery, EOC, Lugano, Switzerland, [8]Neurocenter of Southern Switzerland, EOC, Lugano, Switzerland

Methods: A comprehensive literature search was performed by screening PubMed and Embase through May 2022. Only randomized controlled trials (RCTs) comparing IGI to sham control in adult patients with discogenic lumbar back pain were included. A random effects model was used to pool mean differences of pain intensity (VAS 0-100), and physical function assessed with the Oswestry Disability Index (ODI). Subgroup analyses were stratified by Modic MRI findings.

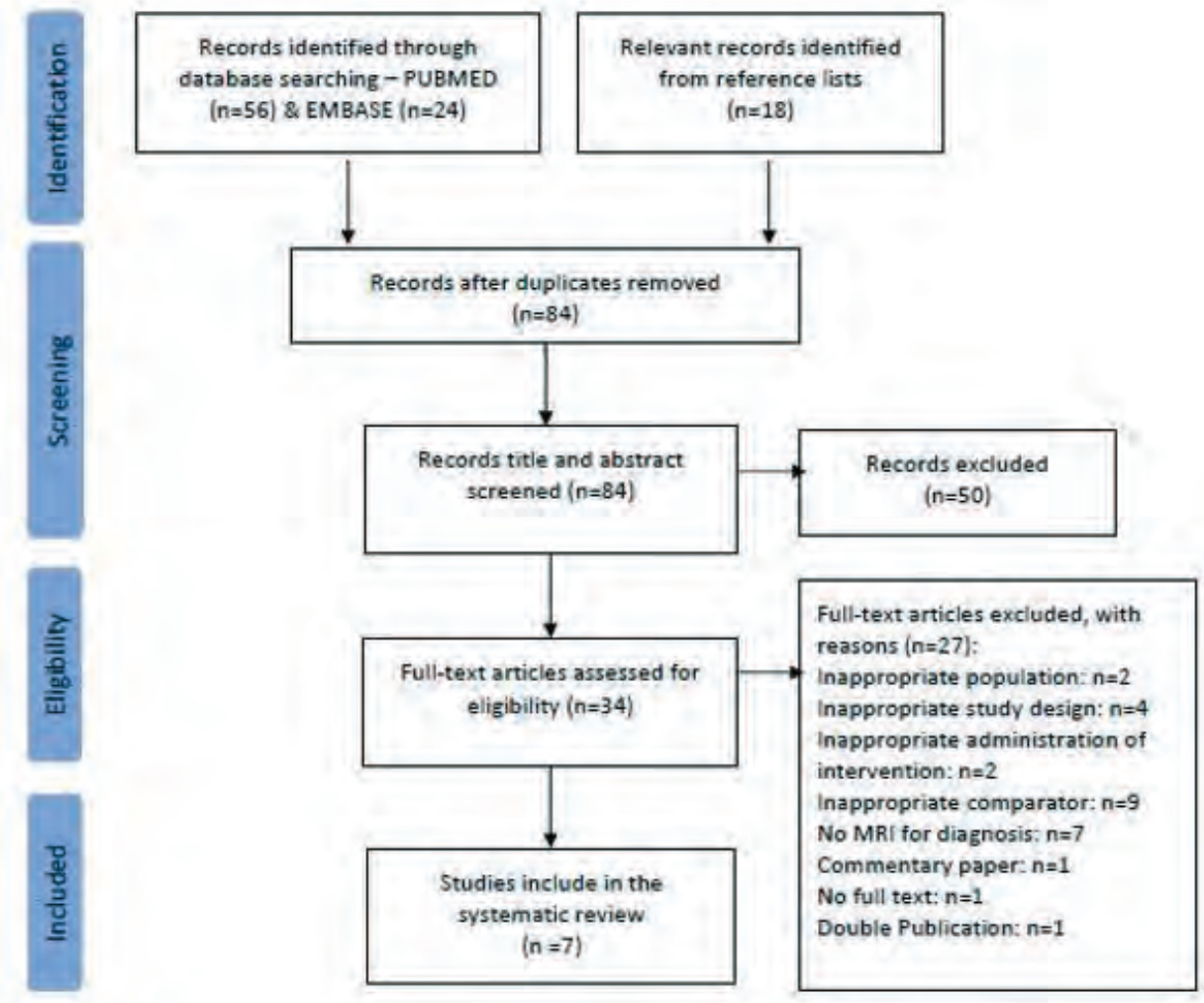
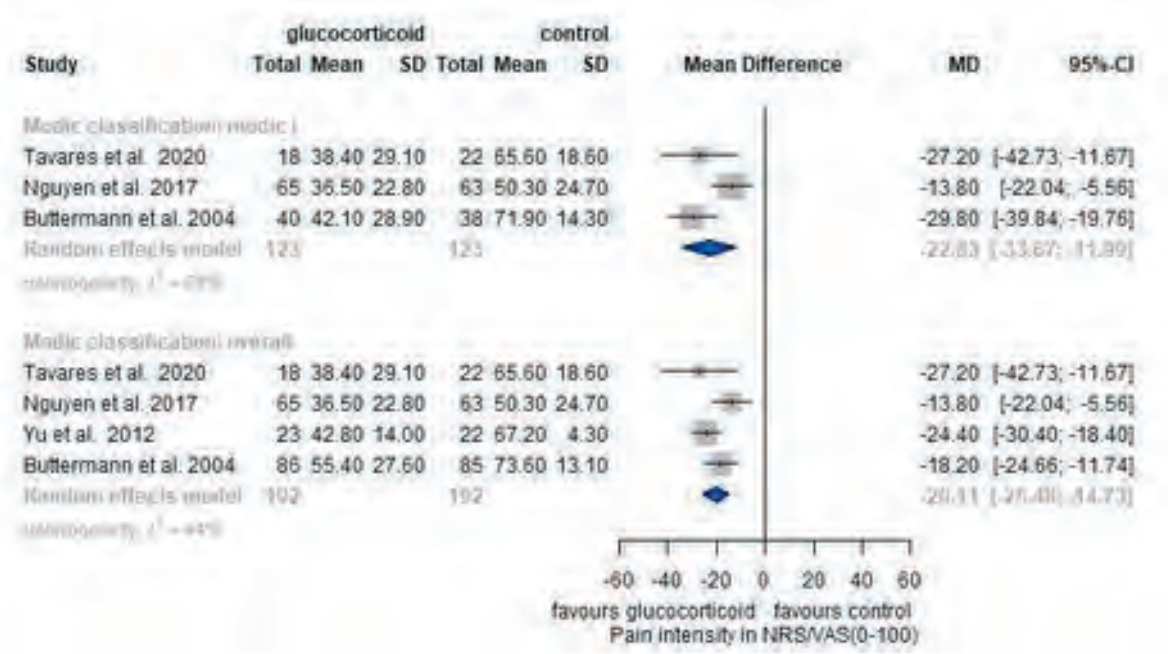


Table 1. Characteristics and technical aspects of eligible studies

Study, year	Country	Study design	Participants	Glucocorticoid	Control	Modic Classification	N Glucocorticoid	N Control	Follow-up (months)	Measurement				
										Pain intensity	Pain improvement	Physical function	Quality of life	Analgesic treatment
Simmons et al.[47], 1992	USA	Double-blinded RCT[a]	One-level symptomatic disc disease	Methyl prednisolone	Bupivacaine	NR[b]	n=14	n=11	10-14[c]	VAS[d]	Patient-reported	ODI[e]	No	No
Buttermann et al.[5], 2004	USA	Non-blinded RCT	Chronic discogenic LBP[f]	Beta-methasone & Discography	Discography	Modic I	n=40	n=38	1-3; 4-6;7-12; 12-24	VAS	Patient-reported	ODI	No	Yes[g]
						Not modic I	n=46	n=47						
Khot et al.[24], 2004	UK	Single-blinded RCT	Chronic discogenic LBP	Methyl prednisolone	Saline	NR	n=60	n=60	12	VAS	No	ODI	No	No
Cao et al.[9], 2011	China	Double-blinded RCT	Chronic discogenic LBP	Beta-methasone	Saline	Modic I[h]	n=20	n=20	3,6	VAS	No	ODI	No	No
						Modic II	n=20	n=20						
Yu et al.[54], 2012	China	Double-blinded RCT	Chronic discogenic LBP with negative discography	Dexamethasone & Discography	Saline	NR	n=23	n=22	1-6	VAS	No	ODI	No	No
Nguyen et al.[37], 2017	France	Double-blinded RCT	Chronic LBP with active discopathy	Prednisolone & Iodixanol contrast	Iodixanol contrast	Modic I	n=67	n=68	1,12	NRS[i]	Yes[j]	QBPDS[k]	SF-12[l]	Yes[m]
Tavares et al.[51], 2020	France	Single-blinded RCT	Chronic LBP with active discopathy	Prednisolone	Lidocaine	Modic I	n=24	n=26	1,3,6	VAS	No	ODI	SF-36[n]	Yes[o]

Results: Seven studies met inclusion criteria with a total of 626 patients. The short-term (<3 months) follow-up showed significant pooled mean difference in both pain intensity (-20.1, 95%CI: -25.5; -14.7) and physical function (-9.9, 95%CI: -16.1; -3.6). In the intermediate -term follow-up (3-<6 months), only physical function remained significantly better in the glucocorticoid group (-13.1, 95%CI: -22.3; -3.9). There was no clinically meaningful or significant difference in pain scores and physical function at the long-term (≥6 months) follow-up. Subgroup analysis did not demonstrate an effect of Modic (type I) changes on efficacy of IGI.



Conclusions: We conclude that IGI reduces discogenic LBP intensity and improves physical function effectively in the short-term follow-up, and continues to improve physical function at intermediate-term. However, six months after treatment outcomes are similar in comparison to sham. The type of Modic change does not appear to be related with the response to IGI.

260

THE ADDED VALUE OF AN ONLINE BEHAVIORAL WEIGHT REDUCTION PROGRAM TO BLENDED REHABILITATION IN PATIENTS WITH CHRONIC LOW BACK PAIN: A RANDOMIZED CLINICAL TRIAL

A. Malfliet[1], P. Clarys[1], T. Deliens[1], A. Quiroz Marnef[1], J. Nijs[1]

[1]*Vrije Universiteit Brussel, Brussels, Belgium*

Methods: Figure 1 shows an overview of outcomes and timepoints of assessment. Participants (n=100) will be included when suffering from CLBP and comorbid overweight or obesity. All participants will receive 10 weeks of online treatment (self-management plus 3 online tele-sessions with a physiotherapist).Best Evidence Physiotherapy includes pain neuroscience education and cognition-targeted exercise therapy. Behavioral weight reduction will be applied in the experimental group only and will be integrated as a lifestyle approach within the exercise program.

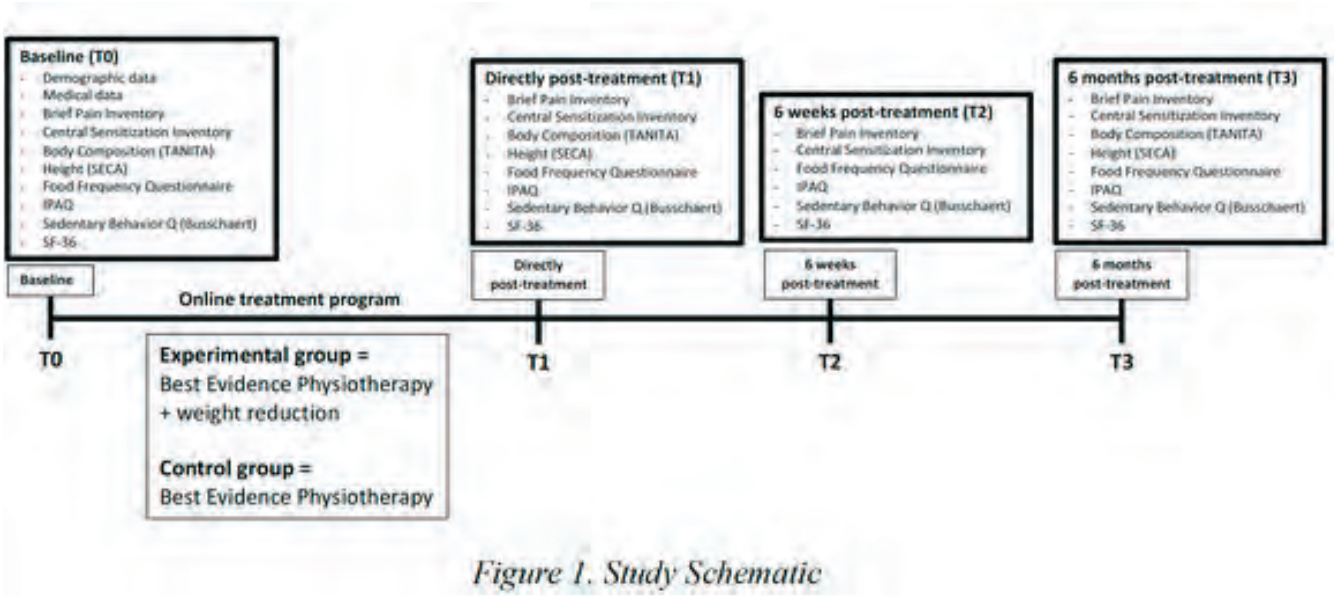


Figure 1. Study Schematic

Results: Study is ongoing, preliminary results will be ready to be presented at the EFIC congress in 2023.

Conclusions: We hope that adding a weight reduction program to best-evidence physiotherapy will result in greater improvements of pain and function in overweight/obese CLBP patients.

261

THE PERCEPTION OF PATELLOFEMORAL PAIN FOLLOWING A TARGETED EXERCISE PROGRAM: A QUALITATIVE DESCRIPTIVE STUDY

D. Manojlović[1], N. Šarabon[1], M. Prosen[1]

[1]*University of Primorska, Faculty of Health Sciences, Izola, Slovenia*

Methods: A qualitative study including three focus groups was used to explore patients› experience of PFP and its impact on their everyday life before the inclusion in the exercise program, during its duration, and 10 to 12 months after its conclusion. The obtained data were analyzed thematically, through a linear, six-phased method. Several measures, including investigator triangulation were taken to ensure the trustworthiness of the study.

Results: Fourteen patients with PFP included in the exercise program participated in the study. Patients provided rich and detailed descriptions of their physical, psychological and social well-being before the inclusion in the exercise program, their personal experience of the exercise program, followed by long-term changes in their daily behaviors after its conclusion. Accordingly, three main themes emerged from the focus groups: 1) PFP characteristics and its impact on daily life, 2) experience of the exercise program, and 3) PFP relief and behavioral changes following the exercise program.

Conclusions: The findings of our study suggest that a targeted exercise program effectively reduces long-term

PFP and contributes to the physical, psychological and social well-being. Further qualitative research is needed to further explore the experience of PFP in relation to different exercise programs and to investigate the influence of self-motivation on long-term behavioral changes.

272

COMBINED PAIN NEUROSCIENCE EDUCATION AND SENSORIMOTOR RETRAINING REDUCES CHRONIC POSTSURGICAL PAIN AFTER TOTAL KNEE ARTHROPLASTY

S. Tanaka[1,2], T. Nishigami[3], R. Imai[4], A. Mibu[5], M. Tokunaga[6], T. Yoshimoto[6], T. Ushida[2]

[1]Fukuoka Orthopaedic Hospital / Department of Rehabilitation, Fukuoka, Japan, [2]Aichi Medical University / Department of Pain Medicine, Aichi, Japan, [3]Prefectural University of Hiroshima / Department of Physical Therapy, Faculty of Health and Welfare, Hiroshima, Japan, [4]Osaka Kawasaki Rehabilitation University / School of Rehabilitation, Osaka, Japan, [5]Konan Women's University / Department of Physical Therapy, Faculty of Nursing and Rehabilitation, Hyogo, Japan, [6]Fukuoka Orthopaedic Hospital / Department of Orthopaedic, Fukuoka, Japan

Methods: We enrolled 39 patients with CPSP persisting at 3 months after TKA. All patients with a visual analog scale (VAS) score at ≥30 mm was included. The intervention group (n = 21) received PNE and sensorimotor retraining for 3 months. The control group (n = 18) was encouraged to perform the same lower extremity stretching and strengthening home exercises. The primary outcome was the level of pain intensity at 6 months after TKA, measured using VAS.

Results: The pain intensities in the intervention and control groups were comparable, both prior to surgery and at 3 months after TKA; however, the pain intensity at 6 months after TKA was significantly lower in the intervention group (17.7 mm) than in the control group (36.9 mm). The effect size for pain intensity at 6 months (r = 0.55) was large.

Conclusions: PNE and sensorimotor retraining combined with standard exercise therapy may be effective in reducing pain in patients with CPSP after TKA.

274

AN ECOSYSTEM OF ACCEPTING LIFE WITH CHRONIC PAIN: A META-ETHNOGRAPHY

C. Macgregor[1,2], D.N Blane[3], E. Tulle[1], C. Campbell[4], R.J Barber[5], C. Seenan[1]

[1]Glasgow Caledonian University, Glasgow, United Kingdom, [2]NHS Lanarkshire, Lanarkshire, United Kingdom, [3]University of Glasgow, Glasgow, United Kingdom, [4]NHS Fife, Fife, United Kingdom, [5]No afflitiation, Lanarkshire, United Kingdom

Methods: Qualitative, interpretive, secondary literature synthesis using Meta-ethnography.

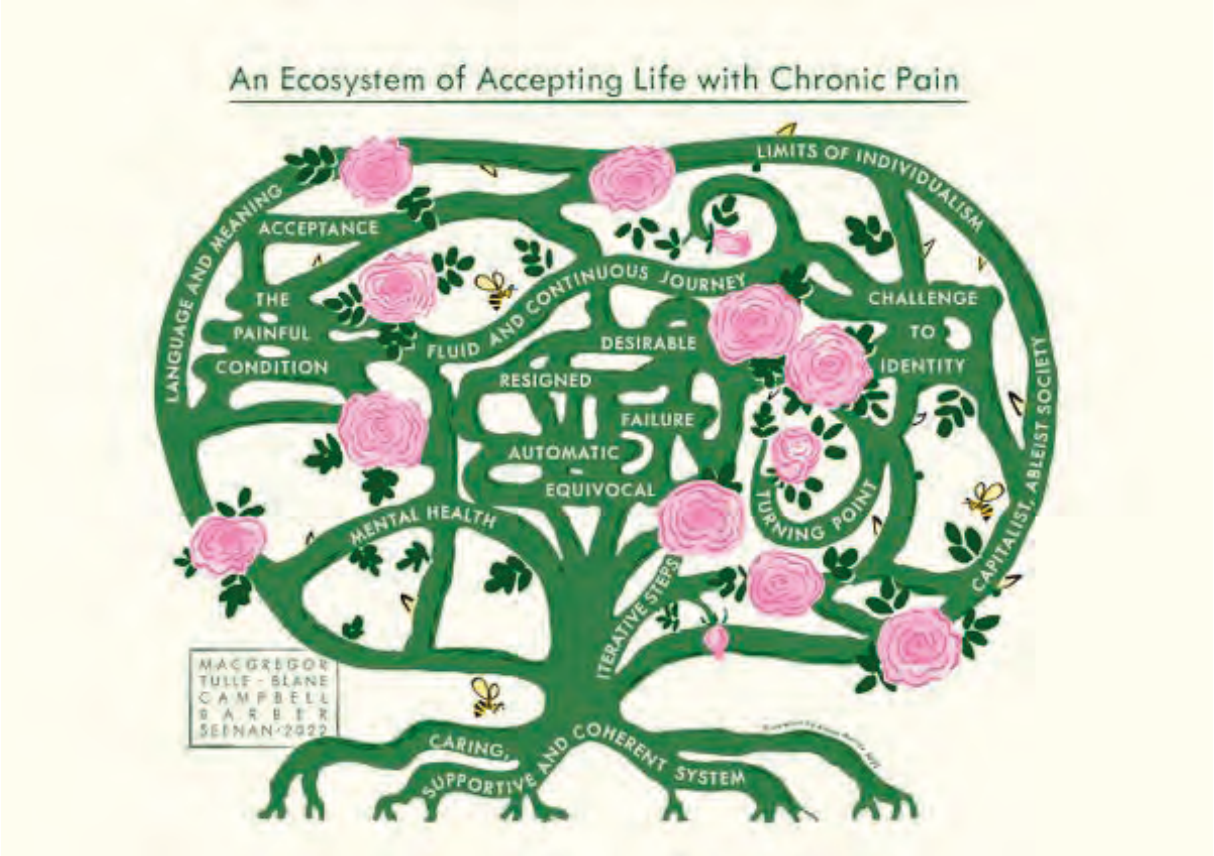
Systematic search and screening.

PROSPERO protocol: CRD42021253509.

Inclusion: qualitative studies using adults; chronic pain as the primary condition; study included aim to research the acceptance concept.

We conducted the synthesis stages with co-researchers involved in data extraction and provided checks and feedback on the synthesis throughout.

Results: Ten qualitative studies were included from: Canada, Sweden, The Netherlands, Ireland, UK, Australia and New Zealand. The illustration shows the conceptual framework of the meta-ethnography, represented by a rosebush with interconnected branches, holding both roses and thorns, such is the nature of accepting life with chronic pain. The illustration shows the fluid and continuous journey with a turning point, iterative steps, and fluctuating states of acceptance in the knotted centre that have different features of mental health. The outer branches contain socio-cultural-political aspects that influence the ongoing journey, including the roots as the caring, supportive and coherent system.



Conclusions: Our findings broaden conceptualisation of 'acceptance of chronic pain' beyond an individual factor, to a fluid and continuous journey, interconnected with our socio-cultural-political world; an ecosystem. While pain management must be personalised, it should not be de-contextualised from our social world.

277

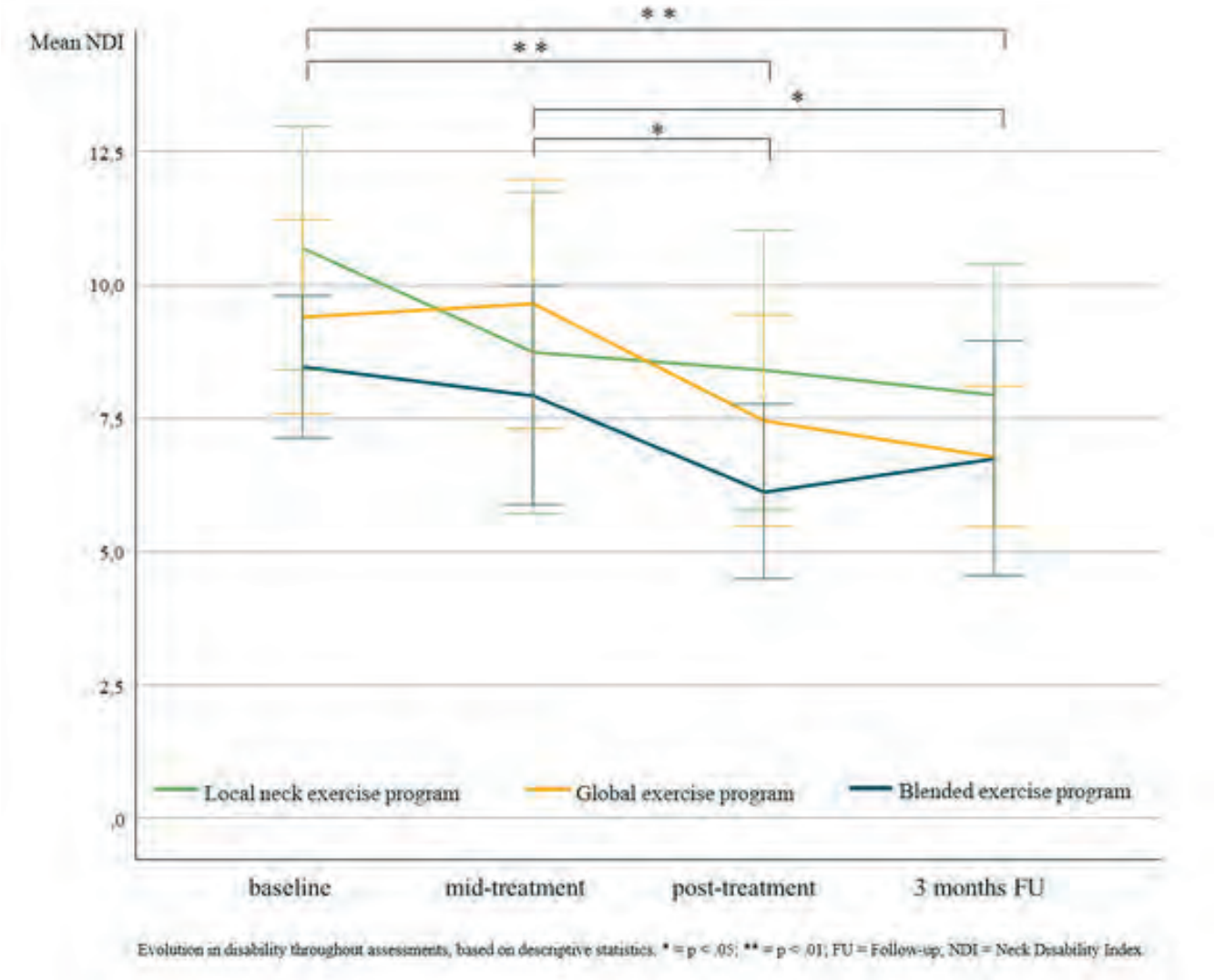
THE NEXERCISE TRIAL: RESHAPING EXERCISE PROGRAMS FOR PATIENTS WITH CHRONIC NON-SPECIFIC NECK PAIN, A RANDOMIZED CONTROLLED TRIAL

J. Bontinck[1,2], M. Meeus[1,3,2], L. Voogt[4,2], M. Chys[1], I. Coppieters[5,6,7,2], B. Cagnie[1], K. De Meulemeester[1]

[1]Department of Rehabilitation Sciences, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium, [2]Pain in Motion International Research group, Brussels, Belgium, [3]Department of Rehabilitation Sciences and Physiotherapy, MOVANT, University of Antwerp, Antwerp, Belgium, [4]Research Centre for health Care Innovations, Rotterdam University of Applied Sciences, Rotterdam, Netherlands, [5]Department of Physiotherapy, human Physiology and Anatomy, Faculty of Physical Education and Physiotherapy, Vrije Universiteit Brussel, Brussels, Belgium, [6]Laboratory for Brain-Gut Axis Studies (LaBGAS), Translational Research in Gastrointestinal Disorders (TARGID), Department of Chronic Diseases and Metabolism (CHROMETA), KU Leuven, Leuven, Belgium, [7]Leuven Brain Institute, KU Leuven, Leuven, Belgium

Methods: Forty-eight patients with CNNP were randomized into three exercise programs. Online questionnaires were collected at baseline, mid-treatment, post-treatment and at three months follow up. Quantitative Sensory Testing and Actigraphy were assessed before and after treatment. Linear mixed model analyses were performed to evaluate treatment effects within and between groups.

Results: No time x treatment interaction effects were found. All groups improved in neck-pain related disability, pain intensity, self-reported symptoms of central sensitization, local pain sensitivity, physical activity, and pain medication use. No effects were found on quality of life, sleep quality, depression, anxiety and stress, widespread pain sensitivity, health economic, or actigraphy measurements. The blended program reported higher global perceived effect than the other groups.



Evolution in disability throughout assessments, based on descriptive statistics. * = p < .05; ** = p < .01; FU = Follow-up; NDI = Neck Disability Index.

Conclusions: A blended exercise program was not superior to the standalone programs, nevertheless the global perceived effect was higher. Exercise programs seem to be effective for treating patients with CNNP, regardless the type of exercise. Future research should investigate how to tailor exercise programs to the individual physical and psychosocial needs.

280

PAIN, COGNITION AND CULTURE: A SCOPING REVIEW

R. Taqdees[1], A. Taiwo[1], T. Mercer[1]

[1]*University of Wolverhampton, Wolverhampton, United Kingdom*

Methods: A scoping review was undertaken which included all types of research relating to pain and cognition in individuals with dementia, as well as research which investigated connections between pain, cognition, culture, and dementia.

Results: The cognitive deficits which are most often associated with pain in individuals with dementia include executive function, memory, and attention.

Article	Outcomes/findings
[1]	For those with dementia, there were lower scores of word memory, attention, psychomotor speed, visuospatial skills & executive functions
[2]	There is impaired working memory, attention, and executive task performance in Alzheimer's

Cultural factors which may influence an individual's expression of pain include whether their culture favours stoicism or expressivity, and how an individual's culture believes they should manage their pain.

Article	Outcomes/findings
[3]	The expression, causality & meaning of pain and older age is often informed by cultural context
[4]	Cultural definitions and meanings of pain influence the cognitive, perceptual, and attentional processes related to pain

Cognitive impairments found in dementia may affect pain communication. The type of pain assessment, whether it is self-report, or observatory would also be affected.

Article	Outcomes/findings
[5]	The cognitive domain, including attention, impacts communication
[6]	Self-reported pain is diminished in cognitively impaired older adults compared to controls when assessed following movement. There is a relationship between self-report and pain behaviours

Conclusions: While evidence suggests that there is some interrelation between culture, pain, and cognition in dementia, it is not clear; previous studies have explored pain as a single concept. This makes it unclear as to what pain factors specifically relate with culture and cognition.

283

EFFECTIVENESS OF FLIPPED TEACHING ON THE KNOWLEDGE AND SELF-EFFICACY OF NURSING PERSONNEL IN NON-PHARMACOLOGICAL PAIN MANAGEMENT-AROMATHERAPY

C.W. Chiu[1], C.H. Liu[2]

[1]Taipei Medical University Hospital, Taipei City, Taiwan, [2]National Taiwan Normal University, Taipei City, Taiwan

Methods: A quasi-experimental design and convenience sampling were adopted. The participants were nurses who had been employed for over one year in two hospitals in Taiwan. Forty nurses were included in the experimental and control groups. Nurses in the control group received one hour of introduction to the use of aromatherapy in

pain management. Nurses in the experimental group received a 2.5-hour flipped teaching course on aromatherapy. Two weeks before classroom activities, the nurses in the experimental group watched a 30-minute aromatherapy concept video on an e-learning teaching platform. Thereafter, the nurses participated in two hours of classroom teaching in group. The course design included group discussions, mind mapping, case discussion, practice with essential oils, and do-it-yourself essential oil preparation.

Results: There were no significant differences in the pre-test knowledge and self-efficacy scores between the two groups. The test was analyzed using a generalized estimating equation. Post-test knowledge and self-efficacy results showed that the change in scores in the experimental group was significantly better than that in the control group, indicating that flipped teaching improved the participants' knowledge and self-efficacy in aromatherapy.

Conclusions: This study confirmed that flipped teaching was effective in helping nursing personnel learn aromatherapy. Implementation of aromatherapy by nurses in clinical practice and its impact on patient care should be further assessed.

284

TO THE QUESTION OF PAIN SYNDROMES DEVELOPING IN PATIENTS WITH CHRONIC KIDNEY DISEASE RECEIVING PROGRAM DIALYSIS

J. Khalmukhamedov[1], R. Yorkin[1]

[1]*Tashkent Pediatric Medical Institute, Tashkent, Uzbekistan*

Methods: In a cross-sectional study in 2021, 160 male and female patients on program dialysis (PD), aged 22 to 77 (53.3±7.11) receiving for 7.7 ± 1.83 (1 to 25) lasting 12 ± 0.24 hours per week (average KT / V 1.4 ± 0.03) on Fresenius and B. Braun devices. The intensity of cramps was assessed a numeric rating scale (NRS) from 0 to 10, as well as its impact on quality of life. To identify patients with intradialytic hypotension (IDH), we used the KDOQI guidelines, which defines IDH as a 20 mm Hg decrease in systolic blood pressure (BP) from the origin, were assessed over 3 consecutive sessions. All patients in the blood serum were checked for phosphorus (P), calcium (Ca), parathyroid hormone (PTH).

Results: Patients were divided into 2 groups, presence 81 (51.0%) or absence 79 (49.0%) of cramps (table 1). Among patients without diabetes, the frequency of absence of cramps is 2 times higher than patients with diabetes (6% vs. 94%, respectively) (table 2). Among with hypotension, only 12% there was no cramps, while without hypotension 85% (table 3). No statistically significant difference was found between the groups any of the 3 parameters (PTH, P, Ca).

Sex	Cramps presence	Cramps absence
Male	40 (50%)	40 (50%)
Female	41 (51%)	39 (49%)
Total	81	79

Diabetes Mellitus	Cramps presence	Cramps absence
Presence	21 (26%)	5 (6%)
Absence	60 (74%)	74 (94%)
Total	81	79

Hypotension	Cramps presence	Cramps absence
Presence	55 (68%)	12 (15%)
Absence	26 (32%)	67 (85%)
Total	81	79

Conclusions: Painful muscle spasms insufficiently studied, although their impact on the quality life of dialysis patients is clinically significant. The first steps should be on corrected for potentially modifying risk factors, development of hypotension during a procedure and correction of phosphorus levels.

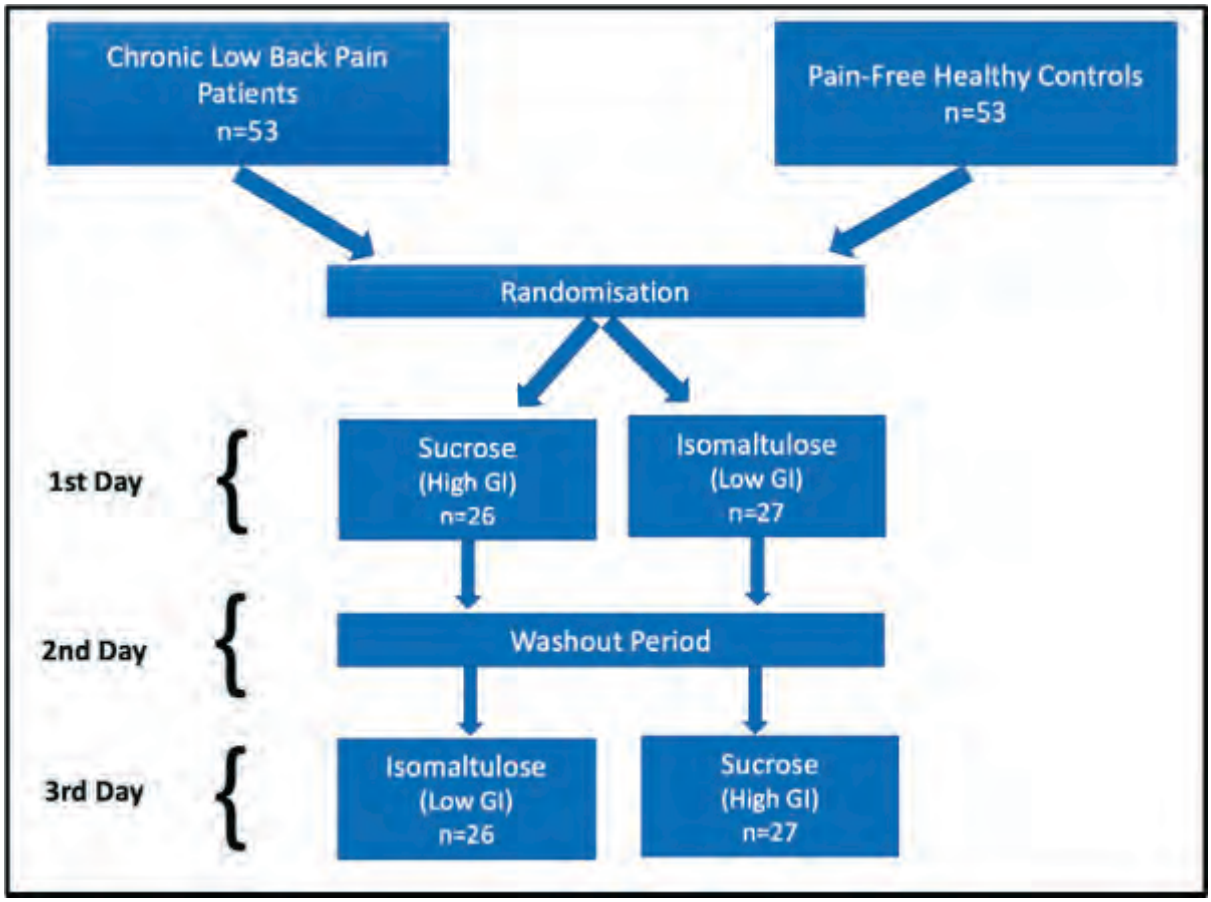
285

IMPAIRED CARBOHYDRATE METABOLISM AMONG CHRONIC LOW BACK PAIN PATIENTS AND ROLE OF DIETARY CARBOHYDRATES: A RANDOMISED CONTROLLED CROSS-OVER TRIAL

O. Elma[1], S.T. Yilmaz[1], J. Nijs[1], P. Clarys[1], I. Coppieters[1], A. Malfliet[1], E. Mertens[1], T. Deliens[1]

[1]*Vrije Universiteit Brussel, Brussel, Belgium*

Methods: In this trial, 53 non-diabetic CLBP patients and 53 HCs were recruited. Participants randomly received 50 g of isomaltulose (low-glycaemic-index) or 50 g of sucrose (high-glycaemic-index) in a cross-over manner. Blood glucose levels were measured at the fasting state and 15, 30, 45, 60, 90, and 120 minutes after the beverage intake. Additionally, each participant underwent experimental pain measures.

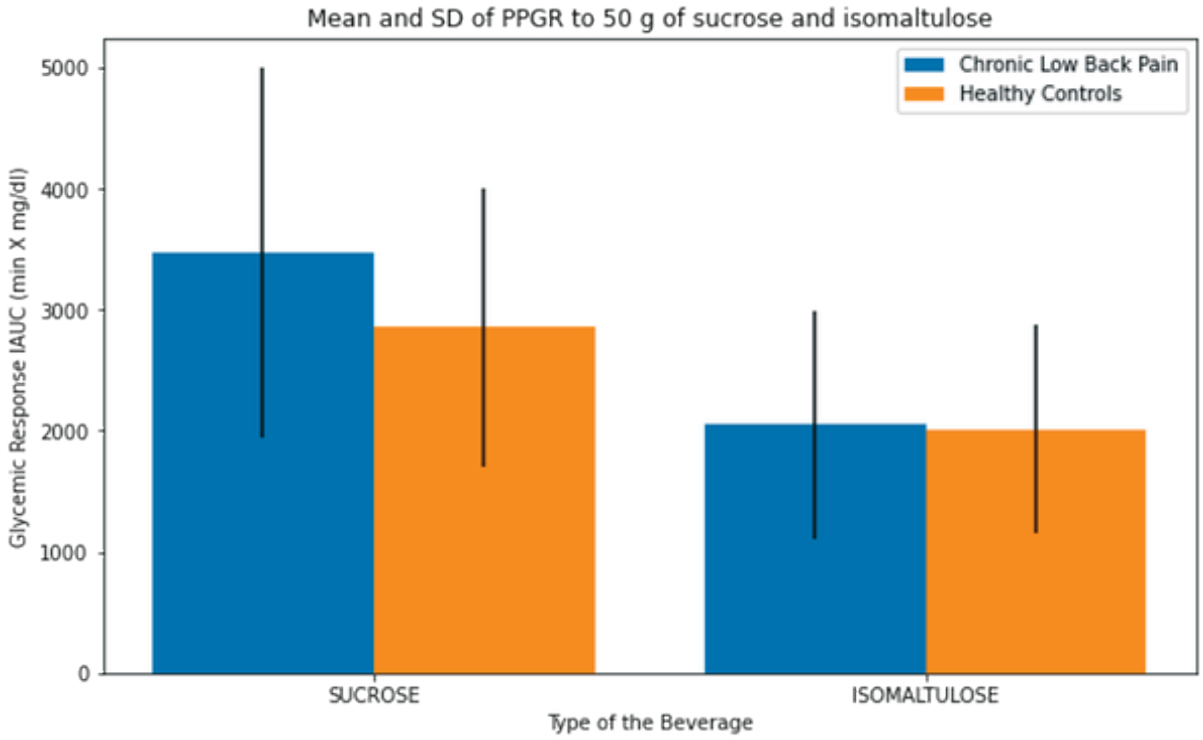


Study-Flow

Results: Compared to the HC group, the CLBP group showed significantly higher PPGR to sucrose ($p<0.021$) while both groups did not differ PPGR after isomaltulose intake. Additionally, the CLBP group showed a significantly higher decrease in PPGR ($p = 0.045$) when comparing PPGR to sucrose with PPGR to isomaltulose. Correlation analysis did not reveal any meaningful associations between PPGR and pain in CLB patients.

Table 1: Baseline Characteristics				
	Pain Group (n=53) Mean (SD)	Healthy Group (n=53) Mean (SD)	Effect Size (Cohen's d)	p-value
Age (years)	37.4(12.8)	34.1(9.8)	0.292	0.136
Weight (kg)	72.3(15.8)	69.7(12.1)	0.187	0.338
Height (cm)	163.5(6.0)	164.6(7.1)	-0.153	0.433
BMI (kg/m^2)	27.1(6.1)	25.8(4.9)	0.225	0.249
Body fat %	32.7(7.1)	31.8(6.8)	0.140	0.472
Body muscle %	64.0(6.6)	64.6(6.3)	-0.094	0.630
Body water %	48.2(5.2)	48.8(4.9)	-0.120	0.537
Sf-36 – PF	70.8(20.7)	89.4(13.0)	-1.076	<0.001*
Sf-36 – RF	56.6(40.5)	86.3(26.2)	-0.872	<0.001*
Sf-36 – SF	70.0(25.9)	77.2(21.9)	-0.303	0.122
Sf-36 – EH	57.2(43.1)	66.6(39.3)	-0.228	0.243
Sf-36 – BP	51.0(23.9)	78.4(20.8)	-1.224	<0.001*
Sf-36 – MH	61.6(20.4)	69.7(15.6)	-0.445	0.024*
Sf36 – V	48.8(20.4)	59.1(17.7)	-0.538	0.007*
Sf36 – GH	52.7(21.4)	65.8(15.6)	-0.700	<0.001*
IPAQ Total (min/week)	4643.8(3894.4)	3589.6(3659.3)	0.279	0.154
Mean Fasting Blood Glucose Level (mg/dl)	95.9(8.4)	96.8(7.8)	-0.104	0.594
Mean 2h Blood Glucose Level (mg/dl)	96.7(11.0)	98.3(9.7)	-0.160	0.411
EDT	3.3(0.6)	3.2(0.5)	0.200	0.305
EPT	9.9(3.9)	8.9(3.2)	0.281	0.151
TS	22.5(17.5)	23.0(17.7)	-0.029	0.882
OA	6.0(15.0)	11.4(15.4)	-0.354	0.072
PPT-LBP	6.6(2.1)	7.8(3.1)	-0.470	0.017*
PPT-TA	7.0(2.0)	7.5(2.7)	-0.223	0.254
CSI	42.0(14.2)	27.2(12.4)	1.110	<0.001*
BPI-Severity	3.3(1.9)	0(0)	2.422	<0.001*
BPI-Interference	3.1(2.4)	0(0)	1.839	<0.001*

*p<0.05
n, the number of participants; SD, standard deviation; BMI, body mass index; kg, kilogram; cm, centimeter; mg, milligram; dl, deciliter; sf-36, short form 36; PF, physical function; RF, role function; SF, social function; EH, emotional health; BP, bodily pain; MH, mental health; V, vitality; GH, general health; IPAQ, International Physical Activity Questionnaire, min; minutes; EDT, electrical detection threshold; EPT, electrical pain threshold; TS, temporal summation; OA, offset analgesia; PPT, pressure pain threshold; LBP, low back; TA, tibialis anterior; CSI, central sensitization inventory; BPI, brief pain inventory



Conclusions: CLBP patients can show higher PPGR when they consume a moderate-glycaemic-indexed beverage or food compared to the HC group. This finding disappears when sucrose is replaced with a low-glycaemic-index beverage. Thus, normoglycaemic CLBP patients might have a higher risk of developing impaired glucose tolerance compared to pain-free individuals.

293

FROM A BIOMEDICAL TOWARDS A MULTI-DIMENSIONAL PROFILE-BASED PHYSIOTHERAPY-APPROACH - A PARADIGM SHIFT IN MANAGING PATIENTS WITH CERVICOGENIC HEADACHE

S. Mingels[1], M. Granitzer[2], A. Schmid[3], W. Dankaerts[1]

[1]KU Leuven, Leuven, Belgium, [2]University of Hasselt, Hasselt, Belgium, [3]Oxford University, Oxford, United Kingdom

Methods: Eighteen adults (29-51 years) with CeH were profiled based on pain modulation (PM) (suboccipital, erector spine, tibialis anterior pressure pain thresholds), and psychosocial-lifestyle factors (Depression Anxiety Stress-Scale, Headache Impact Test, Pittsburgh Sleep Quality Index). Individual results were compared to normative data. Four profile-types were defined: P1) normal PM and psychosocial-lifestyle, P2) deviating PM and normal psychosocial-lifestyle, P3) normal PM and deviating psychosocial-lifestyle, P4) deviating PM and psychosocial-lifestyle.

Results: Patients with CeH could be profiled based on PM and psychosocial-lifestyle factors: P1 n=7, P2 n=7, P3 n=3, P4 n=1.

Conclusions: Four profiles with differing prevalence were identified within the CeH-population. As a next step, a proof-of-principle study will analyse if profile-based interventions are more successful compared to the standard approach.

299

ESTABLISHING A LARGE PUBLIC INVOLVEMENT NETWORK FOR A CHRONIC PAIN RESEARCH CONSORTIUM

S. Grieve[1,2], L. Austin[3], C.A Chew-Graham[4], R. Harrison[4], A. Higginbottom[4], C. McCabe[1], E. Readman[1], N. Shivji[4], I. Taverner[3], C. Wilkinson[3]

[1]University of the West of England, Bristol, United Kingdom, [2]Royal United Hospitals Bath NHS Foundation Trust, Bath, United Kingdom, [3]University of Bath, Bath, United Kingdom, [4]School of Medicine, Keele University, Newcastle, United Kingdom

Methods: Targeted advertising via pain organisations invited adults with chronic pain, or caring for someone with chronic pain, to apply for PCs roles. An inclusive recruitment strategy promoted diversity including gender, age, ethnicity, and prior experience of PI work. Interested individuals were provided with a role outline and access to a bespoke website with 'Find Out More' video content. Governance documentation was produced by the PI team to ensure data protection and safeguarding safe practice. The leadership and contribution of the PC's were integral to all processes.

Results: 28 PCs were appointed. Induction training sessions were delivered as a recorded video or 'live' via Microsoft Teams.

Conclusions: The PI network has successfully begun working in collaboration with the CRIISP research teams to ensure the voices of people with chronic pain are heard in all aspects of CRIISP. Working in partnership with people with lived experience of pain, will fully embed their contribution across all workstreams. We will evaluate all processes to inform future PI involvement.

302

INFORMATION AND COMMUNICATION TECHNOLOGIES FOR CHRONIC PAIN: A SURVEY TO EXPLORE THE PERCEPTION OF PEOPLE WITH FIBROMYALGIA

X. Porta[1], P. Bourdin[1], R. Nieto[1], M. Serrat[2]

[1]Universitat Oberta de Catalunya, Barcelona, Spain, [2]Hospital Vall d'Hebron, Barcelona, Spain

Methods: An online survey was developed and administered to a sample of 265 people with fibromyalgia who have previously attended an intervention in an hospital from Barcelona

Results: Mean age was 53.81 (SD: 8.44), 92.1% were women, and mean scores for FIQ-R were 6.85 (SD: 18.95). Only 0.8% of participants have not used any of the 14 types of ICT listed for pain management. The most frequently used were: Instant messaging applications (89.4%); Websites aimed to improve the management of fibromyalgia (88.3%); Phone calls with professionals (86%); Online multimedia resources (83.8%). The most frequently selected perceived benefits of ICT for pain management were: Possibility of receiving treatment from home; Access to specialized treatment; Use as a complement to face-to-face interventions. The most frequent disadvantages were: Not having close contact with the health professional; Not being able to express emotions and feelings; Lack of knowledge or resources to use ICT.

Conclusions: ICT were frequently used by fibromyalgia patients to manage their pain. However, their satisfaction level was low to moderate. It is therefore essential to invest resources in optimizing their experiences with ICT.

304

EFFICACY AND SAFETY PHASE 2 STUDY WITH TOPICAL AMITRIPTYLINE IN CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHIC PAIN IN ADULT CANCER SURVIVOR PATIENTS

P. Picaut[1], F. Catus[2], J. Leibreich[3], G. Cavaletti[4]

[1]University of Pharmacy, Paris, France, [2]Paris University, Paris, France, [3]University of California, Santa Barbara, United States, [4]Milano-Bicocca, Monza, Italy

Methods: Amitriptyline (AMT)›s mechanism of action on the peripheral nervous system was elucidated recently. The ongoing phase II, randomized, double-blind, parallel arm study compare the efficacy and safety of ATX01 to placebo. Patients randomized should have completed their CT treatment since at least 6 months, having a DN4 ≥ 4 and a NPRS ≥4 related to a prior course of platins or taxanes. Effects on other sensory symptoms, rescue medication use and on function/ QoL using validated scales and PGIC are secondary outcome measurements. 240 patients are necessary to statistically demonstrate the superiority of ATX01 over placebo. The study is conducted in Europe (CTAs approved) and the USA (IND and Fast Track Designation granted).

Results: AMT was found to be a potent inhibitor of Sodium Channels (Nav) and of sensory neurons. AMT significantly inhibits the activity of Nav 1.7, 1.8 and 1.9 and of the firing activity of A∂ and C fibers leading to alleviation of neuropathic pain.

Conclusions: In view of the mechanism of action of AMT, the topical administration of ATX01 directly on the painful sites (hands and/or feet) can directly have a significant impact on the peripheral sensory neurons without interfering with the CT treatment.

305

EVALUATION OF A THIRD SECTOR COMMUNITY PROJECT, SUPPORTING PEOPLE LIVING WITH PERSISTENT PAIN

S. Morgans[1]

[1]*The Pain Exchange, London, United Kingdom*

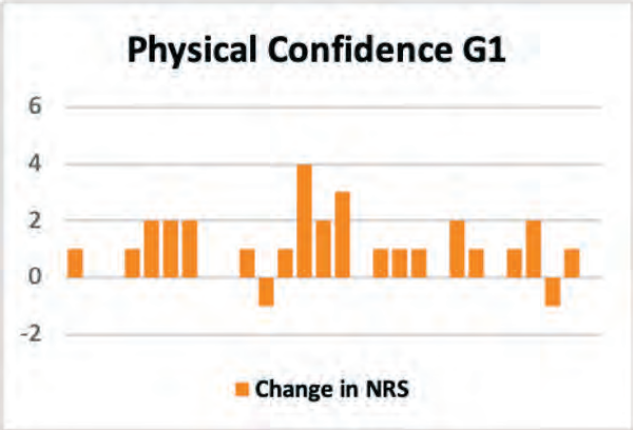
Methods: Participant data were collected at two time points, during a 6-month snapshot of the service. Data comprised of: - Numerical rating scores (NRS) 0-5, for confidence in:

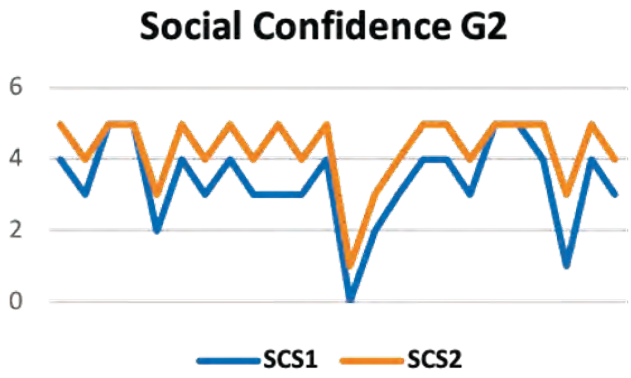
•Physical ability

•Socialising

All data was anonymized and added to an excel spreadsheet. NRS were evaluated using excel data analysis. Additionally, participants were asked to complete an anonymous patient feedback questionnaire.

Results: 85% of participants demonstrated improved social confidence and 64% demonstrated improved confidence in physical ability. There were 4 data sets missing from the second NRS for social confidence,85% is a possible over-estimate. Patient feedback demonstrated that 100% of participants benefitted from the service.





Conclusions: The charitable aims are being met in the majority of participants, demonstrating efficacy of the service. Results indicate that there is room for improvement. The data set is small, as the data set grows, access to statistical analysis would be helpful in quantifying significance of the service.

307

PURE BORDERLINE PERSONALITY DISORDERS (BPD) AND COMPLEX BORDERLINE PERSONALITY DISORDERS (CBPD) WITH PARADOXAL PAIN: PROSPECTIVE AND QUALITATIVE RESEARCH

E. Guertzenstein[1], M. Teixeira[1]

[1]Divisão de Neurocirurgia/ Departamento de Neurologia/ Faculdade de Medicina da Universidade de São Paulo/ Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paul, S. Paulo, Brazil

Methods: Survey was carried out from 2015 to 2022.

16 patients with BPD (11 women and 5 men aged 16 to 21) and 19 patients with CBPD plus depressive disorder (10 women and 9 men aged 15 to 21), all with paradoxal pain examined through: Schedules for Clinical Assessment Neuropsychiatry, ICD-10, DCR-10, ICD-11 and DSM-5 and Clinical Global Impression (CGI), disease severity (CGI-S) and global clinical improvement (CGI-I); interviews with patient's closest people.

Patients' treatment: antidepressant and second-generation antipsychotic plus psychotherapy. All patients started treatment for sex reassignment.

Results: BPD patients:

- 4 had complete remission
- 5 had a significant improvement; they felt pain during the rare episodes of self-mutilation
- 7 didn't have remission of symptoms.

CBPD patients with depressive disorder:

- 3 showed significant improvement of both disorders; they felt pain during the rare episodes of self-mutilation
- 16 didn't have remission of BPD or depressive disorder.

Conclusions: Even partial symptoms control caused the patients to feel pain in the rare episodes of self-mutilation, possibly resulting from the treatment that allowed correction of neurobiological dysfunctions.

313

IMPACT OF PHYSICAL AND PSYCHOSOCIAL FACTORS ON RETURN TO WORK FOLLOWING A KNEE INJURY: A BIO-PSYCHOSOCIAL APPROACH

A. Savona[1], H. Razmjou[1]

[1]Sunnybrook Health Sciences Centre, Toronto, Canada

Methods: This was an observational study of workers with a knee injury. The assessment involved a multidisciplinary review by an orthopedic surgeon with subspecialty in lower extremity injuries and an experienced physical therapist.

Results: Data of 60 consecutive injured workers were reviewed. There were 40 (67%) males. Physical disability as it was defined by the LEFS was significantly higher in the non-working sample (p=0.04). The average total score of a psychosocial survey that incorporated fears of pain or injury, negative and distressed affect was also statistically significantly higher in the non-working sample (p=0.047). In addition, anxiety (p=0.020) and depression (p=0.0004) of the HADS showed a similar pattern of being higher in the non-working sample.

Conclusions: We found a significant relationship between psychosocial well-being and a successful RTW following a knee injury. Addressing the distressed affect and increased anxiety and depression, in association with the workplace factors through targeted interventions will assist clinicians in proposing recommendations for return to the pre-injury physical and occupational status.

314

THE SOCIAL BENEFITS STRESS TASK: VALIDATION OF A NEW STRESS INDUCTION TASK RELEVANT FOR CHRONIC PAIN

A. Chiron[1,2,3], A. Fernandez[2,3,4,1], S. Plaza-Wuthrich[4,1], C. Berna[2,3,4,1]

[1]Center for Integrative and Complementary Medicine, Division of Anesthesiology, Lausanne University Hospital (CHUV), Lausanne, Switzerland, [2]Faculty of Biology and Medicine, University of Lausanne, Lausanne, Switzerland, [3]The Sense, Innovation and Research Center, Lausanne & Sion, Switzerland, [4]Pain Center, Division of Anesthesiology, Lausanne University Hospital (CHUV), Lausanne, Switzerland

Methods: Forty women with CWP due to hypermobility spectrum disorders were included. After a 30-min baseline, they had to justify their inability to work. Following a recovery period, patients were fully debriefed. The psychophysiological stress response was captured using self-reported stress ratings (VAS), salivary collections for cortisol and α-amylase as well as continuous physiological monitoring.

Results: The analysis revealed a significant transient increase in stress VAS during the stress task (vs. baseline and recovery) [$F(4, 156) = 39.8$, $p < 0.001$] associated with a peak in salivary cortisol [$F(2.9, 101.5) = 7.3$, $p < 0.001$] and α-amylase [$F(4, 146.3) = 7.1$, $p < 0.001$] concentrations. Further analyses will examine the physiological response to the SBST. Inter-individual differences will be analyzed to identify potential cofactors.

Conclusions: The SBST is a relevant experimental model of social stress for patients with CWP as it induced objectively and subjectively a reproducible moderate stress response. This new task will allow to better address the relationship between stress and chronic pain. We intend to use it to evaluate non-pharmacological therapies targeting stress resilience.

315

GENERAL HOSPITAL OF ATHENS ''HIPPOKRATIO'' POSTOPERATIVE ANALGESIA SERVICE (PAS): THREE-YEAR RETROSPECTIVE STUDY 2018 – 2021

I. Kouroukli[1], P. Kekelos[1], A. Grigoraki[1], F. Filippoussi[1], N. Soulima[1], A. Christodoulou[1], N. Bakopoulos[1], A. Papadima[1], V. Tsirtsiridou[2]

[1]Hippocratio General Hospital of Athens, Athens, Greece, [2]Director of Anesthesiology department and Pain clinic of Hippocratio, Athens, Greece

Methods: Recorded: type of surgery, type of analgesia (epidural or PCA), analgesic drugs, location of epidural (thoracic or lumbar), depth of epidural space, depth of epidural catheter placement, length of stay of epidural catheter or PCA, complications and patient satisfaction.

Results: 2000 patients who underwent urological and general surgery type of operations were recorded. PCA was applied to 26% of patients and epidural to 74% of which 30% was lumbar and 70% thoracic.

Depth of epidural space was found at 5,57±0.97cm, depth of epidural catheter placement was10,74±0.91 cm, while duration of analgesia application was 3.47±1,23 days. Morphine and ropivacaine were administered through epidural catheter while fentanyl and ondasetron for PCA. No major complications (respiratory depression, epidural hematoma or abcess) were observed.

Minor complications and other problems were:

Nausea/Vomiting 150 (7.5%)

Itching 70 (3.5%)

Dizziness- Drowsiness- Weakness 55 (2.75%)

Displacement- unintentional catheter removal 60 (4.6%)

PCA removal from surgeon 40 (7.5%)

The degree of patient satisfaction of both groups was 4,3± 0.2 (scale 1-5 very displeased 1, displeased 2, neither displeased nor satisfied 3, satisfied 4, very satisfied 5.

Conclusions: The effectiveness of PAS's work can be considered extremely satisfactory and encouraging for the continuation of the organized provision of post-operative analgesia.

316

IS PARASAGGITAL EPIDURAL STEROID INJECTION AN EFFECTIVE ANDE SAFE THERAPEUTIC OPTION :IN PATIENTS WITH LUMBAR RADICULITIS :RETROSPECTIVE STUDY OF 3 YEARS FOLLOW UP

I. Kouroukli[1], N. Westzaan[1], A. Grigoraki[1], P. Botou[1], F. Filippoussi[1], P. Kekelos[1], A. Christodoulou[1], I. Xanthaki[1], A. Papadima[1]

[1]*Hippocratio General Hospital of Athens, Athens, Greece*

Methods: 90 patients with lumbar radiculitis due to intervertebral disc herniation, confirmed by MRI, underwent parasaggital epidural steroid injections under fluoroscopy. The number of injections, the intensity of pain by NRS prior to the intervention and 1, 3, 6 and 12 months after the intervention, the spread of contrast agent in the anterior epidural space and the side effects were recorded.

Results: 75 patients (83%) underwent 3 injections and 15 patients (17%) underwent 2 injections. All patients experienced a decrease of the pain intensity after the intervention: 80% reduction one month later, 75% 3 months, 70% 6 months and 65% one year later with a concomitant reduction of analgesics. The contrast agent reached the anterior epidural spacein all the patients. No severe side effects were observed.

Conclusions: Parasaggital epidural steroid injection under fluoroscopyis an effective and safe therapeutic intervention for the treatment oflumbar radiculitis due to intervertebraldisc herniation.

317

CERVICAL EPIDURAL STEROIDS INJECTION IN PATIENTS WITH CERVICAL RADICULITIS: RETROSPECTIVE STUDY OF THE EFFICACY AND SAFETY OF THE TECHNIQUE

I. Kouroukli[1], N. Westzaan[1], A. Christodoulou[1], P. Kekelos[1], P. Botou[1], A. Grigoraki[1], A. Gika[1], I. Xanthaki[1], A. Papadima[1]

[1]*Hippocratio General Hospital of Athens, Athens, Greece*

Methods: Retrospective study with a 1-year follow-up of 33 patients with neck and/ arm pain, positive neurological symptoms, presence of intervertebralcervical disc herniation, MRI-confirmed, and insufficient improvement by previous conservative treatment. Patients underwent a blind interlaminarepidural injection at A7-T1 or A6-A7 intervertebral space with the loss of resistance technique. The outcome was recorded 3 months and 1 year after the intervention.

Results: The study included 33 patients, 20 men (60%) and 13 women (40%) with an average age of 51 years old (range 30-63). The average duration of pain was 72 (30-400)and 64 (25-300) days respectively. Patients underwent an average of 1.7 injections (range 1-3). 16 (49%) patients underwent one injection. All patients were potentially candidates for surgery. Only 2 (6%) patients needed a surgery during the follow-up period. There was a significant improvement in pain and a reduction of the analgesics intake. No serious side effects were recorded. 82% of the patients would answer «yes» for repeating the same treatment.

Conclusions: Cervical epidural steroids injection is a safe and effective treatment for patients with cervical radiculitis due to intervertebral disc herniation and it is a therapeutic option before patients are referred to surgical intervention.

319

THE ROLE OF INOS ON THE ANALGESIC EFFECT OF PHOTOBIOMODULATION THERAPY (904 NM) IN STREPTOZOTOCIN-INDUCED DIABETIC NEUROPATHIC MICE

W. Vieira[1], C. de Oliveira[1], M. Chacur[1]

[1]*University of São Paulo (USP), São Paulo, Brazil*

Methods: 17 iNOS *knockout* mice [$Nos^{2tm1Lau}$(iNOS-)] were used; the Ethics Committee in Animal Research approved all procedures at ICB/USP (CEUA n. 2017110820). Mice were divided into 4 groups: $Nos^{2tm1Lau}$(iNOS-); $Nos^{2tm1Lau}$(iNOS-)+SCB; $Nos^{2tm1Lau}$(iNOS-)+STZ; $Nos^{2tm1Lau}$(iNOS-)+STZ+PBMT. STZ injections were made intraperitoneally (i.p.) (40 mg/kg) for 5 consecutive days; 0.1 M sodium citrate buffer (SCB) was used as control. Mechanical hyperalgesia was evaluated by electronic von Frey test; PBMT was applied with a low-level laser (904 nm; 45 mW; 16 J/cm^2) at

a single point, between L4 and L5 lumbar levels, daily, between the 21st and 28th days. Statistical analyses were performed with two-way ANOVA followed by the Bonferroni post-hoc test.

Results: In iNOS *knockout* mice, mechanical hyperalgesia was observed 7 days after starting STZ injections, which was maintained until the 28th day. PBMT promoted analgesia in STZ-induced PDN iNOS *knockout* mice after 8 cumulative sessions.

Conclusions: The analgesic effect of PBMT is not dependent on the iNOS isoform in PDN mice. Other mechanisms should be investigated.

320

SUPPORTING SELF-MANAGEMENT OF LOW BACK PAIN WITH AN INTERNET INTERVENTION IN PRIMARY CARE: A RANDOMISED CONTROLLED TRIAL (SUPPORTBACK 2)

A. Geraghty[1], T. Becque[1], J. Hill[2], N. Foster[3], B. Stuart[4], L. Yardley[5], E. Hay[2], D. Turner[6], G. Griffiths[1], F. Webley[1], L. Durcan[1], A. Morgan[1], S. Hughes[1], S. Bathers[2], S. Butler-Walley[7], S. Wathall[2], G. Mansell[8], P. Little[1]

[1]University of Southampton, Southampton, United Kingdom, [2]Keele University, Keele, United Kingdom, [3]University of Queensland, Brisbane, Australia, [4]Queen Mary University of London, London, United Kingdom, [5]University of Bristol, Bristol, United Kingdom, [6]University of East Anglia, East Anglia, United Kingdom, [7]University of Keele, Keele, United Kingdom, [8]Aston University, Birmingham, United Kingdom

Methods: Study design: 3-arm randomised controlled trial; 1) usual care, 2) usual care + internet intervention, 3) usual care + internet intervention + physiotherapy telephone support. 'SupportBack' was an accessible internet intervention (accessed via a website). The supported arm received three brief calls from a physiotherapist. The primary outcome was LBP-related disability over 12 months using the Roland Morris Disability Questionnaire (RMDQ) with measures at 6 weeks, 3, 6 and 12 months. Analysis was by intention-to-treat.

Results: 825 participants were randomised. Follow-up rates were 83% at 6 weeks, 72% at 3 months 70% at 6 months, and 79% at 12 months. There was a small reduction in RMDQ over 12 months compared to usual care following the internet intervention without support (-0.5, 97.5% CI -1.2 to 0.2) and the internet intervention with support (-0.6, 97.5% CI -1.2 to 0.1). These differences were not statistically significant. Both interventions led to significantly more participants reporting clinically important benefit (30% reduction in RMDQ) at 12 months than usual care. There were no harms. Cost-effectiveness analyses are ongoing.

Conclusions: Supported and unsupported internet interventions had a small impact on LBP-related disability. The interventions were safe, and the online intervention is highly scalable. Its use could be considered to support behavioural self-management in primary care.

323

THE EFFICACY AND SAFETY OF TRANSCATHETER ARTERIAL EMBOLIZATION IN PATIENTS WITH SHOULDER PAIN

C.-H. Roh[1], D.-S. Kim[1,2], Y.H. Won[1,2], S.-H. Park[1,2], M.-H. Ko[1,2], J.-H. Seo[1,2], K.Y. Kim[2,3], G.-W. Kim[1,2]

[1]Department of Physical Medicine & Rehabilitation, Jeonbuk National University Medical School, Jeonju, Korea, Republic of, [2]Research Institute of Clinical Medicine of Jeonbuk National University - Biomedical Research Institute of Jeonbuk National University Hospital, Jeonju, Korea, Republic of, [3]Department of Radiology, Jeonbuk National University Medical School, Jeonju, Korea, Republic of

Methods: Nine of 24 patients with shoulder pain who did not respond to the conservative were completed. The TAE was performed by an experienced interventional radiologist. Pain and functional scales were evaluated before, the next day, and 1 month after TAE using the Numeric Rating Scale (NRS) and Shoulder Pain and Disability Index (SPADI). Constant score, and ultrasonography by an experienced physician.

Figure 1. Angiography before and after TAE

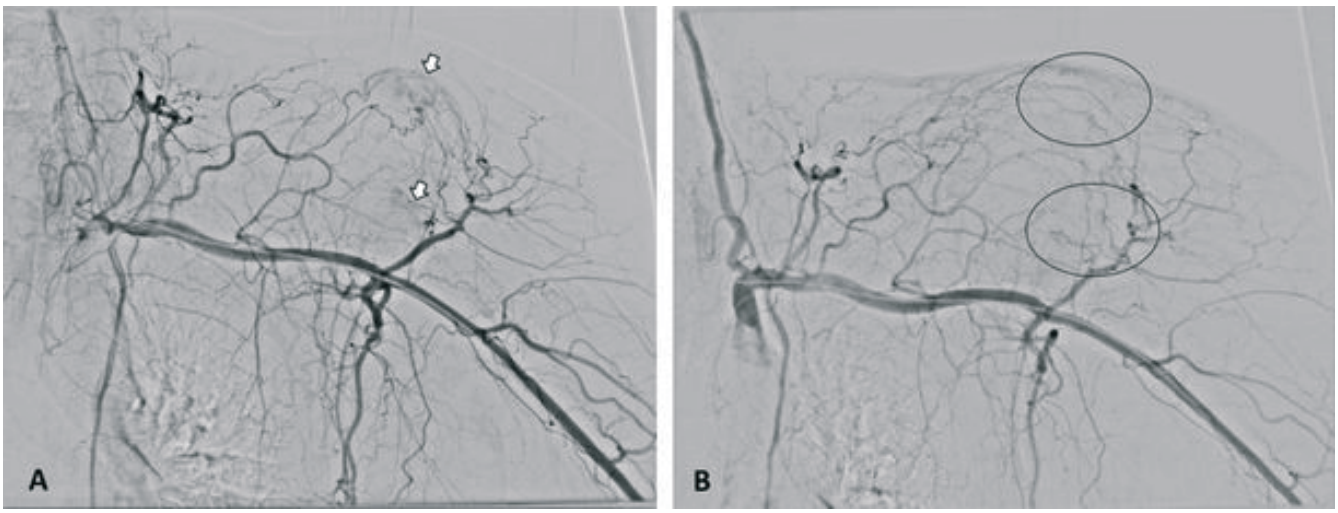


Figure A shows multifocal hypervascular staining lesions on initial subclavian artery angiography (arrows). Figure B shows disappearance of multifocal hypervascular staining after embolization.

Results: The average values of numeric rating scale during movement evaluated before and after TAEs were 5.00±2.60 before TAE, 3.11±2.09 a day after TAE, and 2.94±1.74 after 1 month of TAE. In the functional scales, the average values of shoulder pain and disability index were 39.49±14.60, 18.71±12.05, and 16.58±10.98, and constant scores were 50.02±15.27, 65.93±16.83, and 71.46±20.19, respectively. NRS and functional scales are significantly changed before and after TAE. There were no major adverse effects.

Table 1.

	Pre	Post	Post 1 month	*p* value
NRS	5.00±2.60	3.11±2.09	2.94±1.74	0.002
SPADI	39.49±14.60	18.71±12.05	16.58±10.98	<0.001
Constant score	50.02±15.27	65.93±16.83	71.46±20.19	<0.001

Conclusions: Substantial pain relief and functional scales improvement were observed both immediately and one month after TAE.

324

CONTRAST-ENHANCED ULTRASONOGRAPHY AND THERAPEUTIC EFFECT USING H2O2-RESPONSIVE NANOPARTICLES IN NERVE INJURY RAT MODEL

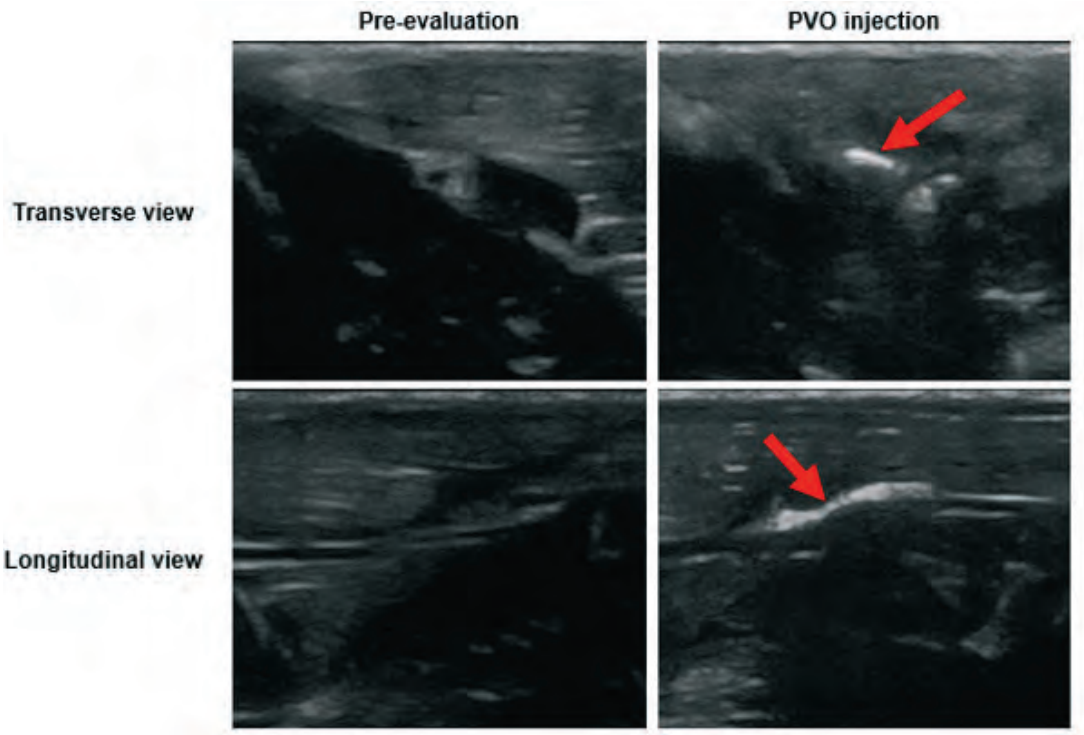
C.-H. Roh[1], D.-S. Kim[1,2], D.-w. Lee[3,4], Y.H. Won[1,2], S.-H. Park[1,2], M.-H. Ko[1,2], J.-H. Seo[1,2], G.-W. Kim[1,2]

[1]Department of Physical Medicine & Rehabilitation, Jeonbuk National University Medical School, Jeonju, Korea, Republic of, [2]Research Institute of Clinical Medicine of Jeonbuk National University - Biomedical Research Institute of Jeonbuk National University Hospital, Jeonju, Korea, Republic of, [3]Department of Bionanotechnology and Bioconvergence Engineering, Jeonbuk National University, Jeonju, Korea, Republic of, [4]Department of Polymer Nano Science and Technology, Jeonbuk National University, Jeonju, Korea, Republic of

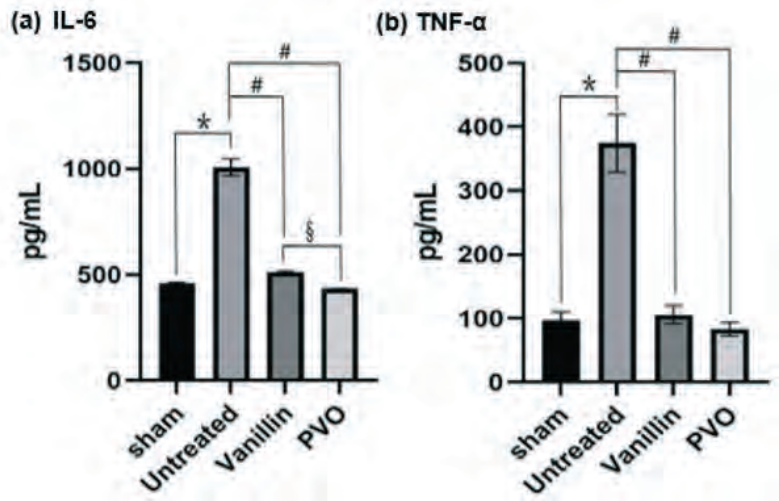
Methods: Previous research reported “poly(vanillin oxalate) (PVO)” which rapidly scavenges H_2O_2 and generates CO_2 bubbles, which could serve as an ultrasonographic contrast. With the rat in prone position, the sciatic nerve can be traced and the nerve stimulator via a needle stimulator confirmed the sciatic nerve. Then, the examiner injected 150ul of 10mg/ml carrageen into the sciatic nerve. Amplex red assay was conducted to measure the level of H_2O_2

at 3, 6, and 24 hours after the rat modeling. US were performed 24 hours after the rat modeling, and US-guided contrast agent injection using PVO nanoparticles were done peri-lesionally.

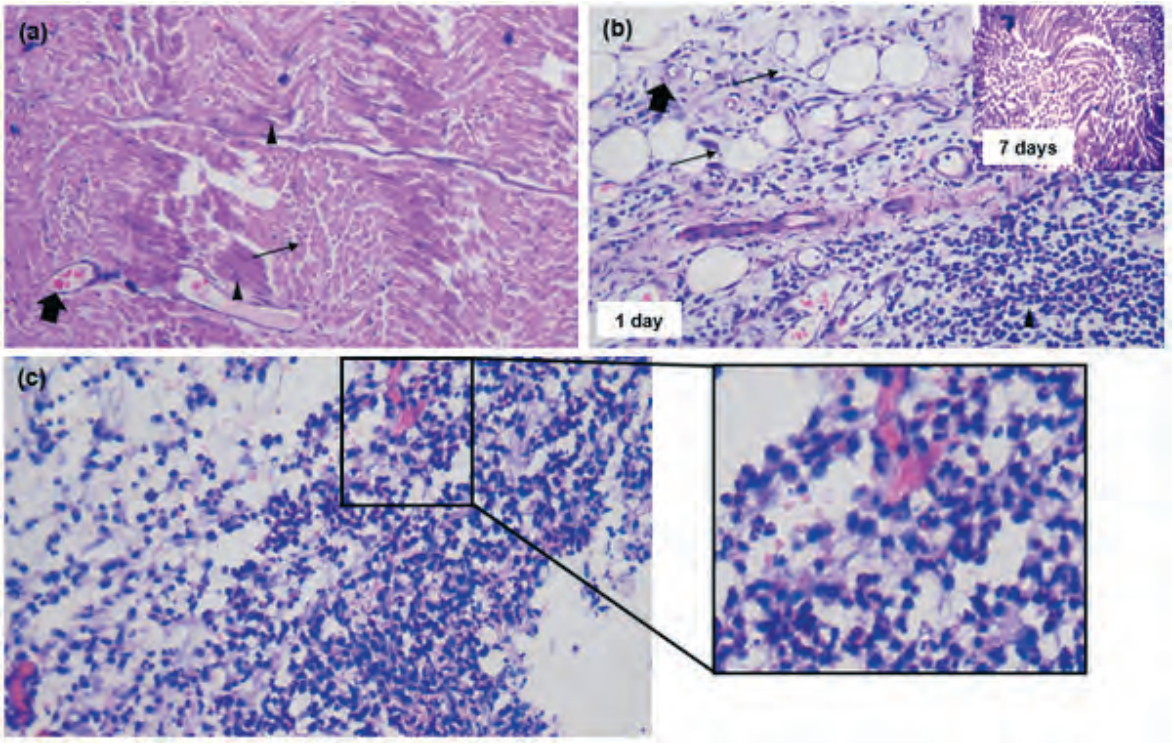
Results: The 24 hour-rat model showed the highest fluorescence intensity, which means the highest level of H_2O_2.



The contrast enhancement US using PVO nanoparticles showed linear hyperechogenecity through the epithelium of the sciatic nerve.



After PVO injection, the pro-inflammatory cytokines (IL-6 and TNF- α) levels were decreased compared with other groups.



In the histologic examination, nerve edema and neutrophilic infiltration were observed 24 hour after the rat modeling. The macrophage and excess blood flow with vessel dilatation were detected a weeks later.

Conclusions: This study is the first attempt to develop the rat models for focal neuroinflammation and conduct contrast-enhanced US using PVO nanoparticle.

326

OPERANT CONDITIONING OF DECREASED PAIN AVOIDANCE REACTIONS IN PATIENTS WITH CHRONIC PAIN AND HEALTHY CONTROLS

M.L. Flury[1,2,3], F. Hubschmid[1,4], M. Löffler[1,2,5], S. Becker[1,2,3,4,5]

[1]Integrative Spinal Research Group, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [2]University of Zurich, Zurich, Switzerland, [3]Neuroscience Center Zurich, University of Zurich, Zurich, Switzerland, [4]Clinical Psychology, Department of Experimental Psychology, Heinrich-Heine University Düsseldorf, Düsseldorf, Germany, [5]Institute of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany

Methods: 31 unspecific musculoskeletal chronic pain patients (PAT; *M*=35.06±13.16 years) and 26 age-/sex-matched healthy controls (HC; *M*=31.46±11.64 years) performed a pain avoidance task. By reacting fast enough to a cue, participants could avoid painful heat stimuli administered using a contact thermode. Avoidance motivation was assessed as surrogate of emotional-motivational pain processing by reaction times (RT) and success rates (SR). After assessing avoidance behavior first in participants‘ unchanged natural state, the second half of the task monetary rewards were coupled either contingently or noncontingently on successful avoidance behavior to modulate pain avoidance responses.

Results: Contingent rewards showed no significant effects on RT nor SR compared to the baseline in PAT and HC. Contrarily, noncontingent reinforcement significantly increased RT in PAT compared to the baseline, but not in HC. Furthermore, noncontingent reinforcement significantly decreased SR in PAT and HC.

Conclusions: The results contradict the hypothesis that contingent operant conditioning can decrease pain avoidance reaction. The effects of noncontingent rewards was unexpected. Due to unconventional contingencies reinforcing unsuccessful responses, unspecific motivational effects might have outweighed specific intended learning effects.

328

AAT-076: A NOVEL OPIOID-SPARING AND HIGHLY CNS PENETRANT COX-2 INHIBITOR INTENDED FOR CLINICAL DEVELOPMENT AS A TREATMENT FOR ACUTE PAIN AND NEUROPATHIC PAIN

J. Masferrer[1], A. Nagahisa[1]

[1]*Noitami Therapeutics, Cambridge, United States*

Methods: Clinical Study:

Subjects undergoing multiple tooth extraction were randomized to receive 1 of 5 treatments: solution of AAT-076 60, 180, or 360 mg; Ibuprofen 400 mg or placebo.

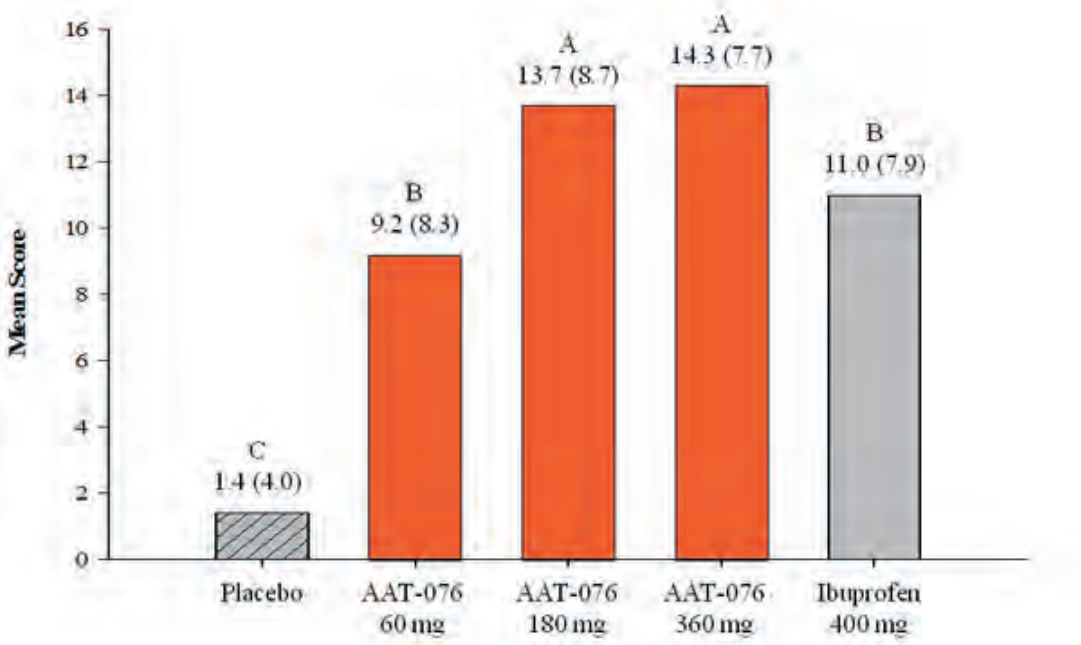
Primary efficacy Total Pain Relief (TOTPAR[6]) with multiple secondary endpoints.

Results: AAT-076 is a low-molecular weight benzoic acid with CNS penetration. AAT-076 has a ~200-fold selectivity for COX-2 enzyme producing maximal efficacy without compromising the GI and platelet function. AAT-076 demonstrated superior analgesic activities vs Celebrex in s preclinical models. AAT-076 demonstrated 19% CNS penetration in rats with brain levels of approximately 7% of that of plasma. ATT-076 at 1 mg/kg inhibited inflammation-induced hyperalgesia, midbrain, spinal cord and CSF PGE2 by 80%(Table 1.).

	Treatment	PGE_2 in paw/joint tissue (ng/g tissue)	PGE_2 in midbrain (ng/g tissue)	PGE_2 in spinal cord (ng/g tissue)	PGE_2 in CSF (ng/mL)
Normal	None	2.19 ± 3.92	1.77 ± 0.5	2.29 ± 0.26	0.15 ± 0.03
Adjuvant arthritis	Vehicle, po	21.42 ± 8.27	8.99 ± 1.46	9.64 ± 2.21	1.71 ± 0.33
	AAT-076 0.08 mg/kg, po	12.45 ± 2.06	2.08 ± 0.33	1.38 ± 0.09	0.41 ± 0.08
	AAT-076 0.8 mg/kg, po	6.78 ± 1.26	0.79 ± 0.06	1.26 ± 0.13	0.37 ± 0.01

Data expresses mean ± SE. N=4-5 rats/group.
AAT-076 or vehicle was perorally administered to adjuvant arthritis rat at day 20 after CFA injection.
Samples were collected to measure PGE_2 at 4 hr after dosing.

Subjects treated with 180 and 360 mg AAT-076 had a significantly higher TOTPAR(6) score compared to those treated with 400 mg ibuprofen. A dose response was observed for all endpoints, with 360 mg AAT-076 showing highest improvements (Figure 1)



Same letter treatments are not Statistically different

Conclusions: The current study demonstrated that AAT-076 is a highly CNS penetrant COX-2 inhibitor with superior efficacy vs. Ibuprofen, and significantly differentiated from current anti-inflammatory/analgesic agents in terms of efficacy and safety.

331

MODERATION EFFECTS OF SOCIOECONOMIC POSITION ON THE EFFECTS OF BELIEFS AND COPING ON FUNCTION IN INDIVIDUALS WITH CHRONIC PAIN

A. Ferreira-Valente[1,2,3], J. Pais-Ribeiro[2], M.P. Jensen[3]

[1]Universidade Católica Portuguesa, Centro de Investigação para o Desenvolvimento Humano, Porto, Portugal, [2]ISPA – University Institute, William James Center for Research, Lisboa, Portugal, [3]University of Washington, Department of Rehabilitation Medicine, Seattle, WA, United States

Methods: 561 adults with chronic pain completed a sociodemographic questionnaire and measures of pain-related beliefs, pain-coping responses, pain, and function. SEP was operationalized as two variables: (1) education level and (2) household income relative to the poverty threshold.

Results: Moderation effects for education level and household income were observed for 11% to 13% of the 120 moderation analyses, including those related to medication, solicitude, disability, and medical cure beliefs, and asking for assistance, task persistence, exercising/stretching, support seeking, and self-statements coping responses. These beliefs are maladaptive for all individuals, except for those from lower SEP, for whom such beliefs appear to be adaptive. Asking for assistance and support seeking are maladaptive, especially among those with higher income (for asking for assistance) and a PhD degree (for support seeking). Exercising/stretching, coping self-statements, and task persistence are generally adaptive, but maladaptive for individuals with higher SEP (for the first two), or for those with lower SEP (for the latter).

Conclusions: Some modifications may be needed when adapting multidisciplinary treatments for pain management to improve their efficacy in people with different SEP.

Acknowledgements: FCT (reference SFRH/BPD/121452/2016).

333

IS THERE A DIFFERENCE IN FACTORS AFFECTING REST PAIN AND MOVEMENT-EVOKED PAIN AT 1 YEAR AFTER TOTAL KNEE ARTHROPLASTY?

Y. Tomooka[1,2], S. Tanaka[1], S. Matsuda[3], M. Tokunaga[3], T. Yoshimoto[3], T. Nishigami[2,4]

[1]Department of Rehabilitation, Fukuoka Orthopaedic Hospital, Fukuoka, Japan, [2]Program in Health and Welfare, Graduate School of Comprehensive Scientific Research, Prefectural University of Hiroshima, Hiroshima, Japan, [3]Department of Orthopedic, Fukuoka Orthopaedic Hospital, Fukuoka, Japan, [4]Department of Health and Welfare Physical Therapy Course, Faculty of Health and Welfare, Prefectural University of Hiroshima, Hiroshima, Japan

Methods: One hundred twenty-six individuals (female: 103; average age: 72.3 ± 8.1 years) undergoing TKA were included. Multiple regression analyses used rest pain and movement-evoked pain as dependent variables and age, gender, body mass index, central sensitization inventory-9 (CSI-9) score, Fremantle Knee Awareness Questionnaire (FreKAQ) score, FTA, and β angle as independent variables.

Results: Multiple regression analyses demonstrated that FreKAQ score (β = 0.583, 95% confidence interval [CI] 0.72–1.34) was a significant independent predictor for rest pain and that FreKAQ score (β = 0.486, 95% CI 0.72–1.52), CSI-9 score (β = 0.183, 95% CI 0.02–0.93), and β angle (β = −0.218, 95% CI −3.17 to −0.60) were significant independent predictors for movement-evoked pain.

Conclusions: Different factors affect rest pain and movement-evoked pain. Rest pain may benefit from specific treatment targeting disturbed body perception. In contrast, movement-evoked pain includes multiple factors such as coronal alignment of the knee joint, central sensitivity syndrome, and disturbed body perception, so a more complex treatment strategy may be needed.

334

LEVEL OF PHYSICAL ACTIVITY IS AN IMPORTANT CHANGEABLE VARIABLE CORRELATED TO PAIN SENSITIVITY AMONG CHRONIC PAIN PATIENTS

O. Skogberg[1], L. Karlsson[1], B. Gerdle[1], D. Lemming[1], E. Bäckryd[1]

[1]Linköping University/ Department of Medical and Health Sciences, Linköping, Sweden

Methods: Patients (n=78), 18-65 years old with different chronic pain conditions (>3 months) were compared to healthy controls (n=98). Multivariate data analasys was done with self-reported PA, pain sensitivity and patient-reported outcome measures, first comparing controls and patients and then looking specifically at patients.

Results: The three most important variables for group discrimination were perceived health status (EQVAS: p(corr) = -0.85 i.e., lower in patients), depression (HADS-D: p(corr) = 0.81 i.e., higher in patients), and maximum pain intensity (VAS-peak-arm: p(corr) = 0.75 i.e., higher in patients).

In patients, the most important predictors for pain sensitivity were female gender, the number of painful regions, pain intensity, followed by self-reported PA , **Table I**.

Table I Variable importance for regression of VAS-peak-arm for patients in descending order of absolute p(corr) values in orthogonal partial least squares (OPLS) model

Variables	p(corr)
Gender*	-0.75
Painful regions	0.72
Pain intensity	0.55
GLTEQ	-0.39
Pain duration	0.30
GSES	-0.19
Age	-0.24
QOLS	0.12
ASI	-0.05
BMI	0.05

*Female gender is associated with higher VAS-peak. P(corr)|>0.4 was considered significant. A positive p(corr) signifies a positive correlation with PTT arm. ASI = Anxiety Sensitivity Index, GLTEQ = Godin Leisure-Time Exercise Questionnaire, GSES = The General Self-Efficacy Scale, QOLS = Quality Of Life Scale.

Conclusions: Level of PA is the most important changeable variable correlated to pain sensitivity. This study highlights the importance of more research to further understand how increased physical activity may improve pain sensitivity in chronic pain patients.

336

NEURONAL LOSS AND NEURONAL PRESERVATION - IMPACT OF BRACHIAL PLEXUS INJURY ON HUMAN DORSAL ROOT GANGLIA

J. Degenbeck[1], A. Schulte[1,2], A. Aue[1], M. Schindehütte[3], F. Schlott[1,2], M. Schneider[4], C.M. Monoranu[5], M. Bohnert[6], M. Pham[3], G. Antoniadis[4], R. Blum[2], H. Rittner[1]

[1]Center for Interdisciplinary Pain Medicine, Department of Anesthesiology, Intensive Care, Emergency Medicine and Pain Therapy, University Hospital of Würzburg, Würzburg, Germany, [2]Department of Neurology, University Hospital of Würzburg, Würzburg, Germany, [3]Institute of Neuroradiology, University of Würzburg, Würzburg, Germany, [4]Peripheral Nerve Surgery Unit, Department of Neurosurgery, University of Ulm, Günzburg, Germany, [5]Institute of Pathology, Section Neuropathology, University of Würzburg, Würzburg, Germany, [6]Institute of Forensic Medicine, University of Würzburg, Würzburg, Germany

Methods: Plexus injury patients underwent MRI, were clinically phenotyped, and answered questionnaires on patient-reported outcomes. Human DRG were extracted 3-8 months after traumatic brachial plexus injury, during therapeutic nerve reconstruction surgery. As controls, post-mortem DRG from forensic autopsies were used. DRG tissue was investigated with H&E histology and immunohistochemistry. Multi-color tile microscopy, showing neurons, satellite glia and macrophages, was quantitatively analyzed with deep learning-based bioimage analysis.

Results: In 6 of 13 plexus injury patients, the quantitative cell composition of the DRG multicellular unit was well preserved. Surprisingly, in the remaining 7 patients, only adipocytes and fibrous tissue were found instead of the multicellular DRG unit. These patients endured more widespread injury and tended towards more pain.

Conclusions: We suggest to categorize plexus injury patients with root avulsion into two groups: Type I (neuronal preservation), and type II (neuronal loss). For type II patients, DRG tissue replacement may be a strategy. For restoring DRG neurons, the complete neuron-SGC entity would need to be replaced.

Kretschmer, Thomas et al. "Patient satisfaction and disability after brachial plexus surgery." Neurosurgery vol. 65,4 Suppl (2009): A189-96. doi:10.1227/01.NEU.0000335646.31980.33

337

MODERATION EFFECTS OF RELIGIOUS DENOMINATION ON THE EFFECTS OF BELIEFS AND COPING ON FUNCTION IN ADULTS WITH CHRONIC PAIN

A. Ferreira-Valente[1,2,3], J. Pais-Ribeiro[2], M.P. Jensen[3]

[1]Universidade Católica Portuguesa, Centro de Investigação para o Desenvolvimento Humano, Porto, Portugal, [2]ISPA – University Institute, William James Center for Research, Lisboa, Portugal, [3]University of Washington, Department of Rehabilitation Medicine, Seattle, WA, United States

Methods: 561 adults with chronic pain completed a sociodemographic questionnaire, as well as measures of pain, function, pain beliefs, and coping.

Results: Moderation effects for religious denomination was observed for 13% of the 60 analyses performed, with those effects emerging for harm, medication, medical cure, and emotion beliefs, as well as for the task persistence coping response. Harm and medication beliefs were generally maladaptive, especially for individuals for those identifying as Non-Catholic Christians (for both beliefs), and as atheists/agnostics (for harm beliefs). Medical cure and emotion beliefs were adaptive for individuals identifying as Catholics and as belonging to Non-Christian religions, while these beliefs were maladaptive for those identifying as Non-Catholic Christians, and as atheists/agnostics. Task persistence was generally adaptive, especially among those self-identifying as belonging to Non-Christian religions, and as atheists/agnostics.

Conclusions: The findings suggest that some modifications might be needed to adapt pain multidisciplinary treatments for people with different religious denominations.

Acknowledgements: This study was supported by a Grant from the Portuguese Foundation for Science and Technology (grant number SFRH/BPD/121452/2016).

338

MEASURING PAIN INTENSITY IN OLDER PATIENTS: A COMPARISON OF FIVE SCALES

S. Nimmaanrat[1], A. Thepsuwan[1], M.P. Jensen[2]

[1]Department of Anesthesiology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand, [2]Department of Rehabilitation Medicine, University of Washington, Seattle, United States

Methods: Two hundred and one individuals > 65 years old were asked to rate their current pain, and least, average, and worst pain intensity in the past week using 5 scales: Verbal Numerical Rating Score (VNRS), Faces Pain Scale - Revised (FPS-R), Verbal Descriptive Scale (VDS), Numerical Rating Scale (NRS) and Visual Analogue Scale (VAS). Participants were also asked to indicate scale preference. We computed the rates of incorrect responding and rates of scale preference, the associations between each measure and a factor score representing the shared variance among the scales, and the associations between incorrect response and preference rates and age, education level, and cognitive function.

Results: The findings support validity of all 5 scales in older individuals. The VNRS had the lowest (11%) and the VAS had the highest (32%) incorrect response rate. The NRS was the most (35%) and the VAS was the least (5%) preferred. Age, education level and cognitive function were not significantly associated with incorrect response rates or scale preference.

Conclusions: All 5 scales are valid, but the NRS evidences the best overall utility in older individuals with pain.

341

SHORT-TERM EFFICACY OF INTERLAMINAR EPIDURAL STEROID INJECTIONS IN TREATMENT OF DEGENERATIVE LUMBAR CENTRAL SPINAL STENOSIS

V. Dzabijeva[1,2], I. Logina[2], S. Petronis[1,2]

[1]Riga 2nd Hospital, Riga, Latvia, [2]Riga Stradins University, Riga, Latvia

Methods: The randomized controlled study included patients with MRI - confirmed LCSS with Visual Analogue scale (VAS) ≥ 7 points who underwent IESI. Outcome measures were checked before the intervention and 3 months after IESI, which included VAS and Oswestry Disability index (ODI).

Results: The population of the study included 78 (46.2%) males and 91 (53.8%) females. The mean age of the patients was 63±12.2 years. The mean VAS before treatment was 7.0±1.8, which improved to 4.2±1.5 after the IESI. This difference was statistically significant (P<0.001). The mean pre-treatmnet ODI was 37.2±11.7 that improved to 28.7±8.5 after the intervention (P<0.001). No significant association was found between the outcome improvement and sex of the patients. The improvement of ODI had negative correlation with the age of the patients (r=-0.657, P<0.001). And VAS also was negatively correlated with the age of the patients (r=-0.423, P<0.001).

No complications were recorded in the patients until the last date of follow-up.

Conclusions: IESI should be regarded as efficacious and safe method for alleviating of pain and improving disability in patients with LCSS suffering severe pain.

343

FUNCTIONAL CONNECTIVITY BETWEEN MEDIAL PULVINAR AND CORTICAL NETWORKS AS A PREDICTOR OF AROUSAL TO NOXIOUS STIMULI DURING SLEEP

H. Bastuji[1,2], A. Cadic-Melchior[1], L. Ruelle-Le Glaunec[1], M. Magnin[1], L. Garcia-Larrea[1,3]

[1]Central Integration of Pain (NeuroPain) Lab - Lyon Neuroscience Research Center, INSERM U1028; CNRS, UMR5292; Université Claude Bernard, Lyon, France, [2]Centre du Sommeil, Hospices Civils de Lyon, Lyon, France, [3]Centre d'évaluation et de traitement de la douleur, Hôpital Neurologique, Lyon, France

Methods: The intra-cortical and -thalamic signal was analysed in 440 iEEG segments during nocturnal sleep in 8 epileptic patients receiving laser nociceptive stimuli. We compared the spectral coherence between the PuM and 10 cortical regions grouped in networks during the 5 seconds before and the second after the stimulus according to the presence or absence of an arousal EEG response.

Results: Pre- and post-stimulus phase coherence between the PuM and all networks was significantly increased in instances of arousal, both during N2 and REM sleep. Thalamo-cortical enhancement in coherence involved both sensory and higher-level areas and predominated in the pre-stimulus period.

Conclusions: The association between pre-stimulus widespread increase in thalamo-cortical coherence and subsequent arousal suggests that the probability of sleep interruption by a noxious stimulus increases when it occurs during phases of enhanced trans-thalamic transfer of information between cortical areas.

347

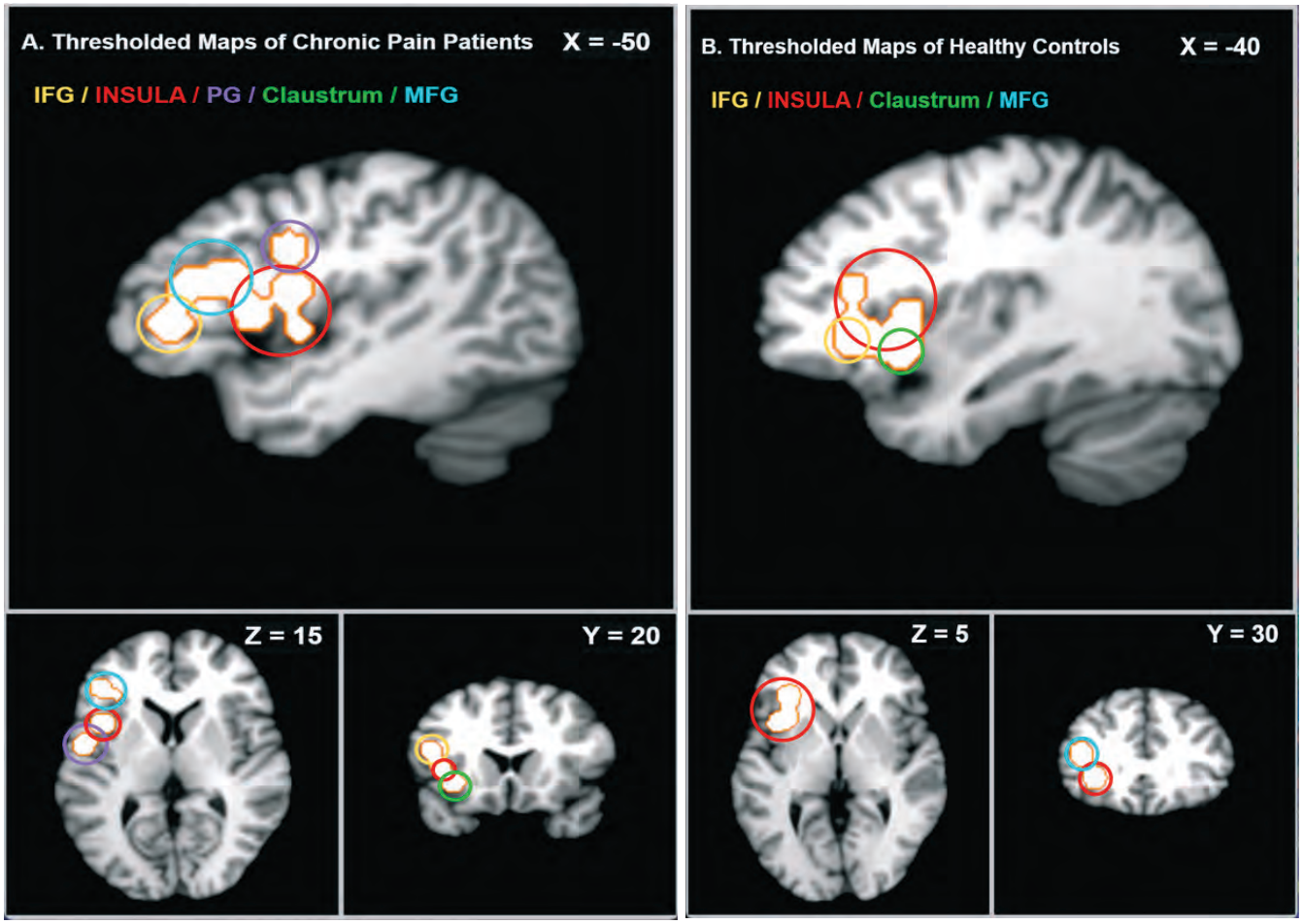
A SYSTEMATIC REVIEW AND META-ANALYSIS OF FMRI BOLD SIGNAL IN CHRONIC PAIN PATIENTS DURING ONGOING AND PROVOKED PAIN USING ALE APPROACH

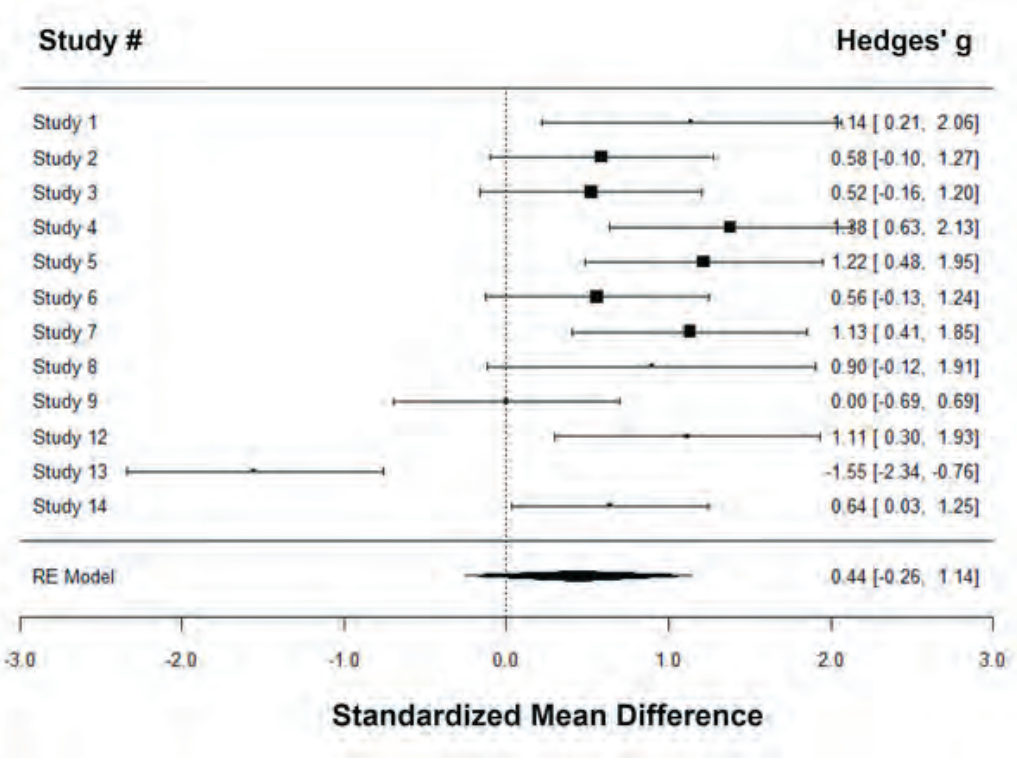
K. Al-Faraj[1], E. Valentini[1], P. Hanel[1]

[1]*University of Essex, Colchester, United Kingdom*

Methods: We used activated likelihood estimation to conduct coordinate-based analysis. Our methodology aims to enhance precision and sensitivity by applying advanced hierarchical mixed-effects models while reducing false positive rates by combining a priori contrasts with family-wise error corrections. Importantly, we will compare cluster-level and voxel-level error corrections to better assess the specificity of the identified neural activations. For the first stage of the (pilot) meta-analysis, we identified 9 articles consisted of 17 experiments (222 CP and 103 C).

Results: A whole brain meta-analysis assessed the differences in spatial convergence between-groups to noxious stimuli. A preregistered lenient statistical threshold cluster-level p <.05, reveals no significant difference between-groups at preregistered statistical threshold. The analysis of behavioural data for the pain rating average across studies suggests variability across studies, but an overall positive effect size with CP. In addition, moderator analysis did not reveal any significant impact of demographics, relevant personality traits and methodological differences.





Conclusions: We propose to meta-analyse more studies since a rigorous cluster forming threshold will produce sufficient power that is generalisable and less impacted by heterogeneity across studies, whilst addressing problems such as p-hacking.

356

INTERPRETATION OF THE AVOIDANCE-ENDURANCE FAST-SCREEN QUESTIONNAIRE IN PATIENTS WITH HIGH-IMPACT CHRONIC PAIN: A QUALITATIVE STUDY USING COGNITIVE INTERVIEWS

L.M.S. Razniak[1], A. Aagaard[1], H.B. Vægter[2,3], T.E. Andersen[1], M.I Hasenbring[3,4], M.L. Rasmussen[1], S.L. Ravn[1,5]

[1]Department of Psychology, Faculty of Health Sciences, University of Southern Denmark, Odense, Denmark, [2]Department of Clinical Research, Faculty of Health Sciences, University of Southern Denmark, Odense, Denmark, [3]Pain Research Group, Pain Center, Department of Anesthesiology and Intensive Care Medicine, University Hospital Odense, Odense, Denmark, [4]Department of Medical Psychology and Medical Sociology, Faculty of Medicine, Ruhr University Bochum, Bochum, Germany, [5]Specialized Hospital for Polio and Accident Victims, Roedovre, Denmark

Methods: Cognitive interviews following The Three-Step Test-Interview was performed with adults with high-impact chronic pain (N=34) referred to interdisciplinary pain treatment. This method aims to give insights into how people process, interpret, and respond to a questionnaire. Transcripts will be coded and analyzed to identify potentially problematic items in two steps. First, congruency of responses will be coded by two independent coders using an a priori coding framework. Second, causes for incongruency will be explored using thematic analyses.

Results: The coding process is currently ongoing. Results will therefore be presented at the conference.

Conclusions: Results will be summarized and discussed in relation to previous findings regarding chronic pain and pain behavior patterns. By providing insights into potential interpretation problems, the findings will add important knowledge about the use of the AE-FS and hopefully thereby aid future validity and screening accuracy, potentially also by guiding future revisions. This will be of value both in clinical practices and research.

357

CATASTROPHISM AND SENSITIZATION-ASSOCIATED SYMPTOMS ARE ASSOCIATED WITH KINESIOPHOBIA IN COVID-19 SURVIVORS WITH POST-COVID PAIN

M. Herrero-Montes[1], C. Fernández-de-las-Peñas[2], D. Ferrer-Pargada[3], S. Tello-Mena[3], P. Parás-Bravo[1], J.A Valera-Calero[4], L. Arendt-Nielsen[5]

[1]Departamento de Enfermería, Universidad de Cantabria, Santander, Spain, [2]Department of Physical Therapy, Occupational Therapy, Physical Medicine and Rehabilitation, Universidad Rey Juan Carlos, Madrid, Spain, [3]Servicio de Neumología, Hospital Universitario Marqués de Valdecilla, Cantabria, Spain, [4]Department of Physiotherapy, Faculty of Health, Camilo José Cela University, Villanueva de la Cañada, Madrid, Spain, [5]Aalborg University, Aalborg, Denmark

Methods: Demographic (age, weight, height), clinical (intensity and duration of pain), psychological (anxiety/depressive level, Hospital Anxiety and Depression Scale (HADS), sleep quality (Pittsburgh Sleep Quality Index, PSQI)), cognitive (catastrophizing, the Pain Catastrophizing Scale, PCS), sensitization-associated symptoms (Central Sensitization Inventory, CSI), as well as kinesiophobia levels (11-item short-form of the Tampa Scale for Kinesiophobia, TSK-11) were collected in a cohort of 146 previously hospitalized COVID-19 survivors with post-COVID pain at 18.8 (SD+/-1.8) months after hospital discharge. Stepwise multiple linear regression models were used to identify variables associated with kinesiophobia (TKS-11) score

Results: Kinesiophobia was associated with anxiety (r: .356, P<.001), depression (r: .306, P<.001), sleep quality (r: .288, P<.001), catastrophism (r: .578, P<.001) and sensitization-associated symptoms (r: .450, P<.001). The stepwise regression analysis revealed that 38.1% of kinesiophobia variance was explained by catastrophism (r^2 adj: .329, *B*=0.416, t=8.377, P<.001) and sensitization-associated symptoms (r^2 adj: .381, *B*=0.130, t=3.585, P<.001).

Conclusions: This study found that kinesiophobia level was associated with catastrophism and sensitization-associated symptoms in COVID-19 survivors with post-COVID pain. Identification of patients at risk of developing higher kinesiophobia levels associated with post-COVID pain could lead to better therapeutic strategies.

359

IS POST-COVID PAIN ASSOCIATED WITH SINGLE NUCLEOTIDE POLYMORPHISMS IN COVID-19 SURVIVORS WHO HAD BEEN HOSPITALIZED? A SUMMARIZING STUDY

R. Giordano[1], C. Fernández-de-las-Peñas[2], G. Díaz-Gil[3], A. Gil-Crujera[3], S.M Gómez-Sánchez[3], S. Ambite-Quesada[2], L. Arendt-Nielsen[1]

[1]Aalborg University, Aalborg, Denmark, [2]Department of Physical Therapy, Occupational Therapy, Physical Medicine and Rehabilitation, Universidad Rey Juan Carlos, Madrid, Spain, [3]Research group GAMDES, Department of Basic Health Sciences, Universidad Rey Juan Carlos, Madrid, Spain

Methods: No-stimulated saliva samples were collected from 293 (49.5% female, age: 55.6±12.9 years) previously hospitalized COVID-19 survivors. Three different types of SNP were investigated: 1, pain-related: OPRM1_*rs1799971*, COMT_*rs4680*, BDNF_ *rs6265*, HTR1B_*rs6296*; 2, inflammatory-related: IL-6_*rs1800796*, IL-10_*rs1800896*, TNF-α_ *rs1800629*, IFITM3_*rs12252*; and, 3, COVID-19 related: ACE2_*rs2285666*, ACE2_*rs2074192*, ACE1_*rs1799752*; TMPRSS2_rs*12329760*, TMPRSS2 _ *rs2070788*.

Three potential genotypes of each SNPs were identified. The presence of post-COVID pain symptoms, intensity and duration of pain were assessed in a face-to-face interview conducted at 17.8 ± 5.2 months after hospitalization.

Results: One hundred and seventeen (39.9%) experienced post-COVID pain, particularly defined of musculoskeletal origin. Overall, the distribution of the genotype variants of any SNP were not significantly different between COVID-19 survivors with and without de novo post-COVID pain symptoms (all, P>0.151). No effect of gender was identified for any SNP.

Conclusions: The current summarizing study found that different SNPs associated with pain, inflammatory and immune responses, and COVID-19 acute severity did not appear to predispose for the development of de novo long-COVID pain symptoms in previously hospitalized COVID-19 survivors.

365

REDUCED PAIN AND REGIONAL BRAIN ACTIVATION FOLLOWING TETRODOTOXIN (TTX) TREATMENT IN A CYNOMOLGUS MODEL OF POST-OPERATIVE PAIN

D. Wong[1], W. Korz[1], Y. Awaga[2], M. Yano[2], R. Fujii[2], T. Natsume[2], A. Hama[2], H. Takamatsu[2]

[1]WEX Pharmaceuticals Inc., Vancouver, Canada, [2]Hamamatsu Pharma Research Inc, Hamamatsu, Japan

Methods: On Day 0, under anesthesia, a midline abdominal muscle and skin incision was performed. Starting 24hrs after surgery, TTX was administered subcutaneously twice daily for a total of four doses. Pressure thresholds were measured before surgery, and before and 1hr after TTX. Brain activation with innocuous abdominal pressure was visualized by fMRI before surgery, after surgery but before TTX, and after the last dose of TTX.

Results: One day following surgery but before TTX treatment, significantly decreased pressure threshold and activation of the insular cortex/somatosensory cortex II (Ins/SII) and cingulate cortex (CC) were observed. Significantly increased mean pressure threshold was exhibited after the second TTX treatment. Following the last TTX, activation of the CC and the right Ins/SII but not the left was decreased.

Conclusions: This study demonstrates that peripheral mechanisms of TTX can lead to reductions in the activity of pain regions in the brain.

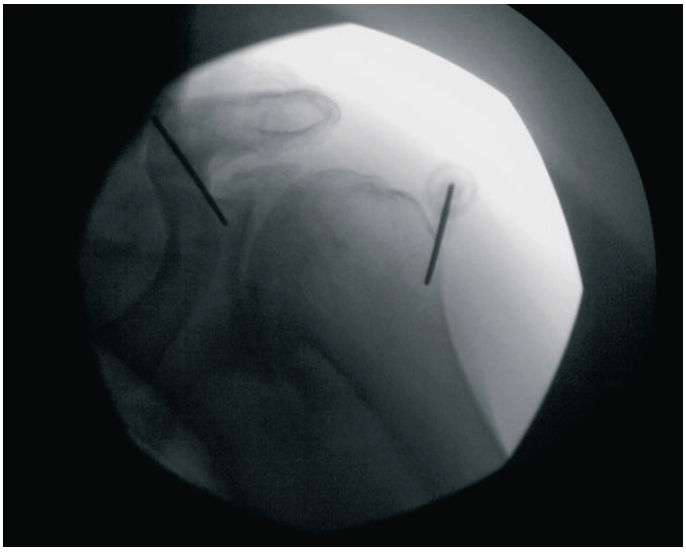
369

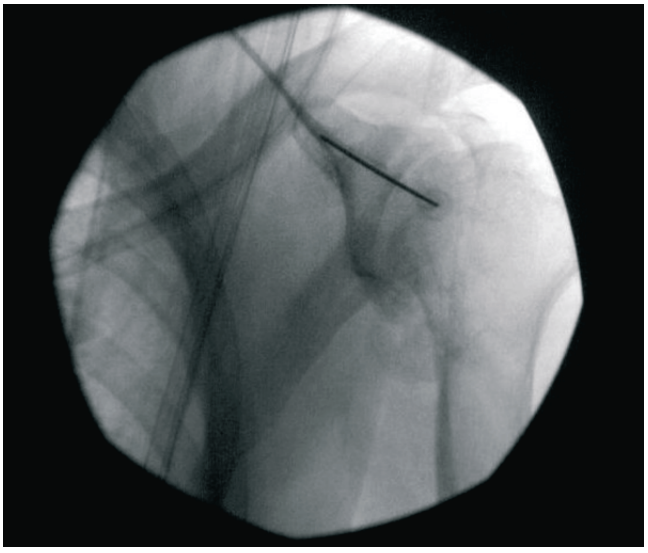
EFFICACY OF PAIN RELIEF AND FUNCTIONAL IMPROVEMENT WITH COOLED RADIOFREQUENCY ABLATION OF THE SHOULDER

P.K Park[1], L.V Thang[1]

[1]Washington University in St. Louis, Saint Louis, United States

Methods: Prospective, single-center, observational study, in 40 patients with chronic shoulder pain, who meet all inclusion criteria. cRFA of SSN, AN, and LPN will be performed and their NRS score, active ROM and function (ASES score), will be measured at 1, 3, and 6 month intervals. One-way repeated measures ANOVA will be used for all inferential statistics.





Results: Thus far, 11 cRFA have been performed in 10 patients. In all 10 patients, NRS, active ROM, and ASES have improved by 1 month interval, with further improvement in one patient at 3 month interval.

	Baseline				1-month follow-up				3-month follow-up			
	NRS	ASES	AROM-F	AROM-A	NRS	ASES	AROM-F	AROM-A	NRS	ASES	AROM-F	AROM-A
1	6	37	90	50	4	68	100	110				
2	6	48	120	90	4	55	110	120	4	68	120	110
3	8	23	90	90	5	60	120	110				
4	10	20	80	95	5	72	150	130				
5	8	32	115	90	8	47	120	100				
6	9	15	128	96	0	95	1140	160				
7	7	28	80	83	4	48	100	95				
8	8	23	80	80	6	50	110	120				
9	8	27	90	85								
10	7	40	120	105								

Conclusions: Preliminary results are encouraging for cRFA of SSN, AN, and LPN improving pain, range of motion, as well as function. More studies are needed to demonstrate the short and long term benefits of cRFA for chronic shoulder pain.

370

INTERHEMISPHERIC ASYMMETRY OF VISUAL EVOKED POTENTIALS UNDERLIES MULTISENSORY INTERACTION BETWEEN NOCICEPTION AND VISION

M. Halicka[1], A. Kuzminova[1], V. Legrain[1,2]

[1]Institute of Neuroscience, Université catholique de Louvain, Brussels, Belgium, [2]Psychological Sciences Research Institute, Université catholique de Louvain, Louvain-la-Neuve, Belgium

Methods: 28 healthy participants made temporal order judgements (TOJs) on pairs of light flashes presented one in either side of space with different onset asynchronies. They were shortly preceded by a nociceptive stimulus randomly delivered to the left or right hand. We compared between the two hemispheres the amplitude of the event-related potentials (ERPs) to simultaneous visual stimuli.

Results: TOJs were significantly biased towards perceiving the light on the side of the nociceptive stimulus as having flashed earlier than the light on the opposite side. Mean amplitude of the visual ERPs was significantly larger over the hemisphere contralateral to the side of the nociceptive stimulus, relative to the response over the ipsilateral hemisphere, mostly over parietal-occipital area at 100-160 msec after bilateral lights' onset.

Conclusions: This data shows that nociceptive stimuli can affect cortical processing of visual stimuli at a relatively early latency in extra-striate areas. The effect is thought to index cortical mechanisms by which one's attention is drawn towards the portion of visual space surrounding the body part on which nociceptive stimuli are applied.

376

THERMAL HYPERALGESIA AND MECHANICAL ALLODYNIA IN ITCH SENSATION: INVOLVEMENT OF TRPA1 CHANNEL

M. Tsagareli[1], I. Nozadze[1], M. Iodi Carstens[2], G. Gurtskaia[1], E. Carstens[2]

[1]Beritashvili Center of Exp Biomedicine, Tbilisi, Georgia, [2]University of California, Davis, United States

Methods: The latency and threshold of hindpaw withdrawal from a noxious heat and mechanical stimuli respectively were measured. In the first set of experiments, each group of mice received two intraplantar injections of either saline or one of the three concentrations of a given pruritogens. In the second set of experiments, the effect of intraplantar pretreatment with two different doses of the TRPA1 antagonist HC-030031 on thermal or mechanical withdrawals was tested.

Results: Intraplantar injection of CQ, BAM8-22, and SLIGRL resulted in significant thermal hyperalgesia and mechanical allodynia ipsilaterally that persisted for 1 h. Pretreatment with the TRPA1 antagonist (HC-030031) significantly reduced thermal hyperalgesia and mechanical allodynia elicited by CQ, BAM-822, and SLIGRL, indicating that effects elicited by these non-histaminergic itch mediators require TRPA1.

Conclusions: These findings indicate that itch and pain coexist simultaneously and that CQ, BAM8-22, and SLIGRL

can acutely elicit hyperalgesia and allodynia in addition to itchy dysesthesias. The TRPA1 channel inhibitors might prove to be useful in the clinical treatment of increased pain and allodynia which may be symptoms in patients suffering from chronic itch.

Acknowledgments: This work was supported by a grant from the Rustaveli National Science Foundation of Georgia (#217076).

379

LOW BACK PAIN: COMPARISON OF TWO TREATMENT METHODS

A. Spindler Vesel[1], G. Požlep[1], J. Markovic Bozic[2], T. Doupona[3]

[1]UMC Ljubljana, Ljubljana, Slovenia, [2]UMC Ljubljana, University Ljubljana, Ljubljana, Slovenia, [3]Medical University Ljubljana, Ljubljana, Slovenia

Methods: 45 patients with chronic low back pain were included, divided into two groups, according to the type of block. Using the McGill Pain Questionnaire and the Brief Pain Inventory, we assessed pain quality, pain intensity, quality of life, and analgesic consumption on the day of the procedure and after one and three months.

Results: Patients with lumbar trigger point blocks had a statistically significant lower time course pain according to McGill at 1 and 3 months (at 1 month: 3.8 *vs.* 5.7; p =0.01; at 3 months 3.8 *vs*. 5.5; p = 0.03). Patients in this group walked statistically significantly easier after 1 month. The effect of pain on quality of life was statistically significantly lower 1 month after trigger point block and at 3 months both groups had an equally favorable block effect. Sleep quality improved significantly in the radiographically guided block group 1 month after block (7.1 *vs*. 5.1; p = 0.01). In the entire patient sample, analgesic consumption decreased after block (p = 0.01).

Conclusions: Sleep quality improved with the radiographically guided block, and the impact of pain on the quality of life was also lower in this group. The block had a beneficial effect on analgesic consumption in all patients.

385

PARACETAMOL PRESCRIPTION PATTERNS IN LOW BACK PAIN AND OSTEOARTHRITIS IN REAL-WORLD GENERAL PRACTICE IN FRANCE

J. Cittée[1], P. Lemire[2], A. Annenkova[3], J.-Y. Milon[3], S. Perrot[4]

[1]University Paris-Est Créteil Val de Marne, Paris, France, [2]IQVIA, Paris, France, [3]UPSA SAS, Rueil-Malmaison, France, [4]Hospital Cochin, Université Paris Cité, INSERM U987, Paris, France

Methods: Prescription data from IQVIA's French EMR database with a representative panel of GPs. Data collection was systematic, non-interventional, reflecting the daily clinical practice. Patients presenting with LBP- and OA-related pain and receiving a paracetamol prescription during a GP consultation were included and followed over a 6-month period for the analyses.

Results: A total of 18,677 LBP and 8,882 OA patients were included. In more than 90% of these patients, the paracetamol prescriptions were not preceded by any other analgesic for the same diagnosis within the previous month. Paracetamol was mainly prescribed alone (57% LBP, 78% OA). The most frequent associations were NSAIDs and grade II. Treatment discontinuation at Month 1 was the most frequent event (67% LBP and 52% OA). At Month 3, 89% LBP and 89% OA patients discontinued treatment. In case of treatment restart, paracetamol was prescribed again in 57% LBP and 81% OA patients.

Conclusions: Paracetamol is a pivotal analgesic and is prescribed first line and alone in the majority of patients in pain management for both indications in general practice in France.

386

SLEEP AND HEALTH RELATED QUALITY OF LIFE IN PERSONS BEFORE AND AFTER PARTICIPATION IN A CHRONIC PAIN REHABILTATION PROGRAM

A. Hållstam[1], J. Eriksson-Carnander[1], C. Angelhoff[2], L. Gellerstedt[1]

[1]Karolinska Institutet, Stockholm, Sweden, [2]Linköpings University, Linköping, Sweden

Methods: Transcripts of 2-4 focus group interviews with patients who passed a pain rehabilitation program will be analyzed by content analysis. In addition, patient reported outcome measures for insomnia, quality of life and pain before and after rehabilitation will be analyzed by statistical methods.

Results: Preliminary results will be presented.

Conclusions: The findings are important for future development of rehabilitation programs.

391

SHARED DECISION-MAKING ABOUT PAIN MANAGEMENT IN SURGICAL NURSING

H. Schultz[1,2], K. Steemann Kristensen[2], T. Dilles[3], N. Hyldig[1,4], N. Qvist[1,2]

[1]University of Southern Denmark / Department of Clinical Research, Odense, Denmark, [2]Odense University Hospital / Surgical Department, Odense, Denmark, [3]Antwerp University / Centre for Research and Innovation in Care, Antwerp, Belgium, [4]Odense University Hospital / Hematological Department, Odense, Denmark

Methods: A before-and-after study was performed in a surgical department in the Region of Southern Denmark. The study intervention was a scheduled training program for surgical nurses in shared decision-making and pain management. The effect was measured by the Danish versions of the Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R-D), the shared decision-making Questionnaire (SDM-Q-9), and a medical file review.

Results: In total, 165 patients were included. The median score on a patient perception of care subscale on an 11-point scale (0 = worst perception – 10 = best perception) was 8 in the control group and 6.5 in the intervention group (p = 0.0007). On a pain intensity subscale, the median score on an 11-point scale (0 = no pain – 10 = worst pain) was 4.7 and 4.3 in the control and intervention groups, respectively (p = 0.06). No significant differences between the groups on pain interference with activity and emotions, side effects, and consumption of analgesics was found.

Conclusions: The training of surgical nurses in shared decision-making about pain management did not improve patients' perception of care about pain management.

392

QUALITY IMPROVEMENT STUDY OF FENTANYL PATCH TREATMENT AMONG INPATIENTS

R. Ovadia[1], D. Oren[1], O. Morag[1], I. Goor-Aryeh[1]

[1]Sheba Medical Center, Ramat Gan, Israel

Methods: A retrospective interventional study based on hospital risk management program data related to fentanyl patches administered between 2018 and 2022. A questionnaire was administered to 50 nurses and 50 doctors, from the departments where most events occurred

Results: 154 adverse events were reported, where 43% were obtained from the surgical set, 25% from internal set and 32% from rehabilitation. Medical staff errors (66%) were associated to recording an incorrect medical instruction, mainly (72%) in the frequency of changing the patch, wrong dosage or double instruction. A minority of mistakes was related to the nursing staff (27%) and lack of knowledge (7%). In the questionnaires, the main findings were: lack of knowledge incorrect medication prescription and potential clinical effects related to withdrawal syndrome.

Conclusions: The study highlights the challenges associated with treating a fentanyl patch in an inpatient setting. The intervention included training, changes to the registration file and instructions for the whole hospital.

394

SERIOUS ADVERSE EFFECTS OF IV LIDOCAINE TREATMENT FOR CHRONIC PAIN- A RETROSPECTIVE COHORT STUDY

N. Shalit[1], R. Shalit[1], O. Morag[1], A. Balzer[1], I. Goor-Aryeh[1]

[1]Sheba Medical Center, Ramat Gan, Israel

Methods: To perform a comprehensive analysis of all IV lidocaine treatments in the Pain Clinics of Tel Hashomer Hospital between the years 2013-2017. Methods: the standard Clinics infusion treatments of 10.762 patients with chronic pain were analyzed. Multivariable logistic regression model was used to control for confounders

Results: There were 5937 (55%) infusions of lidocaine, 3604 (33.4%) infusions of magnesium and 936 (8.7%) infusions of amantadine. Forty-four incidents of serious adverse effects (SAE) required referral to the emergency department within 14 days of the treatment, in which thirty-four (77.3%) occurred after lidocaine infusion and 10 (20.5%) after magnesium infusion. Patients treated with IV lidocaine were at significantly higher risk for SAE (PV= 0.023 OR= 2.46 (C=I 1.18-5.13)) compared with other treatments. Magnesium (PV= 0.072 OR= 0.510 (CI= 0.24-1.06)) and amantadine treatment were not associated with high risk for adverse effects. Patients with cardiovascular or cerebrovascular illnesses, were at higher risk for serious adverse effects from all IV treatments respectively (PV 0.009 OR 3.71 (CI 1.39-9.87)) (PV 0.023 OR 3.28 (CI 1.18-9.11))

Conclusions: IV lidocaine treatment for chronic pain increased the risk for SAE by 2.46 compared to infusions of magnesium or amantadine, but not IV magnesium and amantadine. The findings suggest that patients with cardiovascular or cerebrovascular diseases might benefit from alternative treatments and protocols.

395

DEFINITION OF PARKINSON´S DISEASE ASSOCIATED CHRONIC SECONDARY PAINS

V. Mylius[1,2,3], S. Perez Lloret[4], J. Hunger[1], R. Gonzenbach[1], J.C. Möller[5,3], F. Brugger[6,7], D. Ciampi de Andrade[8,9,10]

[1]Department of Neurology, Kliniken Valens, Valens, Switzerland, [2]Kantonsspital St. Gallen, St. Gallen, Switzerland, [3]Department of Neurology, University of Marburg, Marburg, Germany, [4]Facultad de Ciencias Médicas, Pontificia Universidad Católica Argentina, Buenos Aires, Argentina, [5]Parkinson Center, Rehaklinik Zihlschlacht, Zihlschlacht, Switzerland, [6]Department of Neurology, Kantonsspital St. Gallen, St. Gallen, Switzerland, [7]Department of Neurology, University of Zurich, Zurich, Switzerland, [8]Departamento de Neurologia da Faculdade de Medicina da Universidade de Sao Paulo, Sao Paulo, Brazil, [9]Hospital das Clínicas, Sao Paulo, Brazil, [10]Center for Neuroplasticity and Pain (CNAP), Department of Health Science and Technology, Faculty of Medicine, Aalborg University, Aalborg, Denmark

Methods: The PD-PCS has been evaluated in 101 non-demented PD patients during the On-phase in three centers in Switzerland (enlarged database from the validation study). It defines PD-associated pain when 1 out of 4 criteria are met (pain at the beginning of the disease, pain aggravated during the Off-phase, pain during choreatic dyskinesia, and pains responding to dopaminergic treatment). Then, it hierarchically allocates the pain syndrome to a pain category.

Results: Both, mean pain and mean disease duration were about seven years. 92% of the patients presented with 166 pains (mean number of pains: 1.8). 109(66%) were PD-related and 57(34%) were unrelated. Pain improvement with dopaminergic medication and pain at worsening of motor symptoms occurred in 75 and 69%. 33% of the pains were attributed to the beginning of the disease, while pain during choreatic dyskinesia occurred in 8%. 43% of the PD-related pains were attributed to the nociceptive, 17% to the nociplastic, and 5% to the neuropathic category.

Conclusions: The improvement with dopaminergic treatment and pain at the off-stage were the most common factors compared to pain at the beginning of the disease and pain during dyskinesia. All four criteria reflect different aspects and their use should facilitate further classification, diagnostics and treatment (2).

396

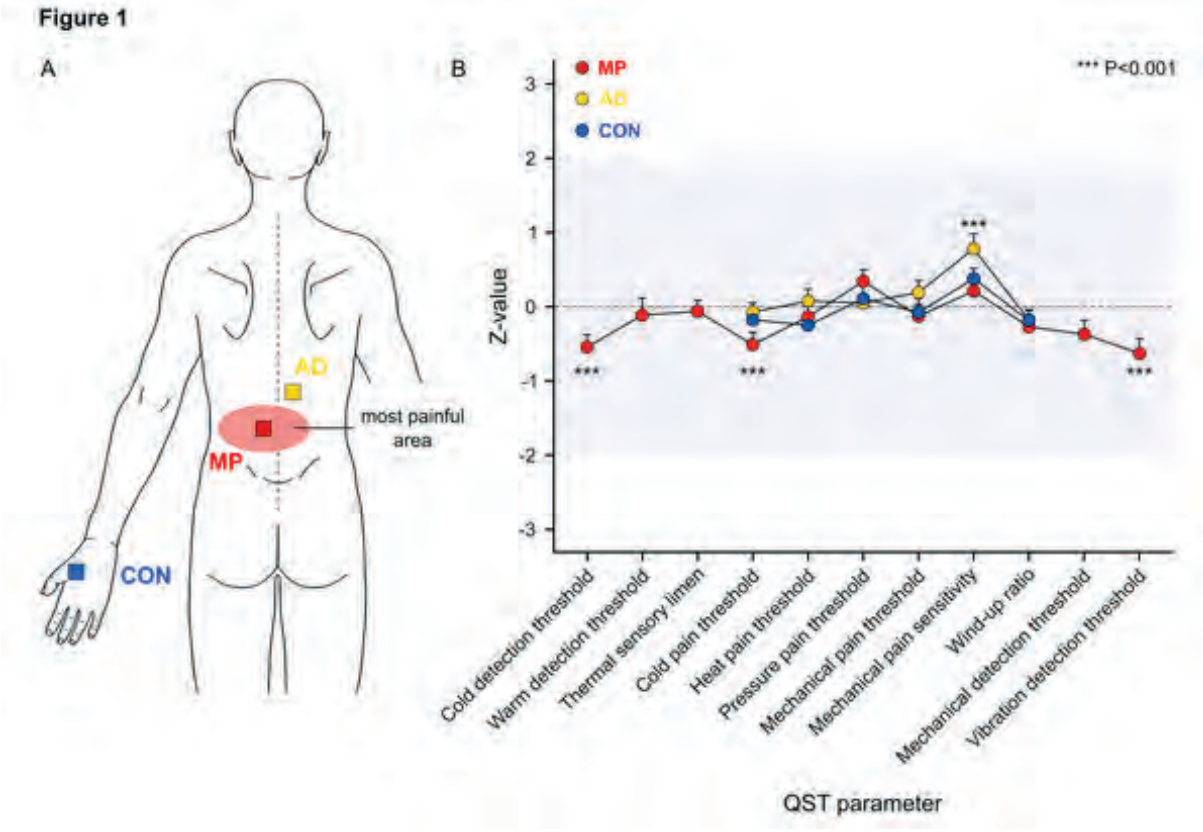
MECHANICAL HYPERALGESIA ADJACENT TO MOST PAINFUL AREA INDICATES SPINAL SENSITIZATION IN PATIENTS WITH CHRONIC LOW BACK PAIN

L. Sirucek[1], I. De Schoenmacker[2], P.S. Scheuren[2], R. Luetolf[2], L. Gorrell[1], A. Langenfeld[1], M. Baechler[1], B. Wirth[3], M. Hubli[2], P. Schweinhardt[1]

[1]Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [2]Spinal Cord Injury Center, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [3]Winterthur Institute of Health Economics, School of Management and Law, University of Applied Sciences, Winterthur, Switzerland

Methods: Fifty-nine CLBP patients (51±16.6y, 63%F) and 35 controls individually matched for age, sex, and testing areas (49±17.5y, 57%F) underwent a full QST protocol in MP and a reduced QST protocol focusing on sensory gain in AD and CON (Fig.1A). All QST parameters except paradoxical heat sensations (PHS) and dynamic mechanical allodynia (DMA) were z-transformed to the matched controls. Z-values of CLBP patients were compared to an ideal Z-value distribution using z-tests with α=0.001. Fisher›s exact tests with α=0.05 were used to compare the presence or absence of PHS and DMA between the cohorts.

Results: CLBP patients showed sensory gain for mechanical pain sensitivity (P<0.001; Fig.1B) and more frequently DMA compared to controls (P=0.015) in AD. In MP, CLBP patients presented with sensory loss (for cold detection thresholds, cold pain thresholds, and vibration detection thresholds; all Ps<0.001; Fig.1B). In CON, CLBP patients showed neither sensory gain nor loss (Fig.1B).



Conclusions: Mechanical hyperalgesia adjacent to the patients‘ most painful area might reflect secondary hyperalgesia and thus, spinal sensitization in patients with CLBP.

397

PAIN RELIEF AS REWARD: ALTERED LEARNING PATTERNS AND NEURAL CORRELATES IN CHRONIC PAIN PATIENTS

S. Desch[1,2], P. Schweinhardt[3], H. Flor[2], S. Becker[1,2]

[1]Heinrich Heine University Düsseldorf, Düsseldorf, Germany, [2]Institute of Cognitive and Clinical Neuroscience, Central

Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [3]Integrative Spinal Research, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Switzerland

Methods: During functional magnetic resonance imaging, we tested modulation of pain relief from tonic heat pain using a probabilistic relief-seeking task (a 'wheel of fortune' gambling task) and compared a group of patients suffering from fibromyalgia and a group of patients with chronic back pain to a control group of healthy participants. We used computational modelling to assess underlying learning mechanisms.

Results: Relief perception was enhanced in active decision-making states compared to passive states within all groups, but there was no difference in this enhancement between patients and healthy controls. Endogenous pain modulation scaled with uncertainty expressed in prediction errors: higher absolute prediction errors were accompanied by stronger pain modulation with no difference between patients and healthy controls. However, patients with fibromyalgia showed a stronger bias towards relief related cues. Prediction errors were correlated with deactivation in the perigenual anterior cingulate cortex, which was attenuated in patients with fibromyalgia compared to controls.

Conclusions: While the informational content of pain relief seems to be preserved in patients with chronic pain, subtle differences in underlying mechanisms may contribute to altered reward processing and learning in chronic pain.

408

RELATIONSHIP BETWEEN PHYSICAL EXERCISE AND CHRONIC PAIN INTENSITY

I. Chumakov[1,2], M. Parisien[1], S. Jahangiri Esfahani[1,2], M. Bergevin[3], S.J Thompson[4,5], L. Bherer[3], F. Bobeuf[3], B. Pageaux[3], M. Roy[4,5,3], L. Diatchenko[1]

[1]Faculty of Dental Medicine and Oral Health Sciences and Department of Anesthesia, Faculty of Medicine and Health Sciences, Alan Edwards Centre for Research on Pain, McGill University, Montreal, Canada, [2]Department of Human Genetics, Faculty of Medicine and Health Sciences, McGill University, Montreal, Canada, [3]Centre de Recherche de l'Institut Universitaire de Gériatrie de Montréal (CRIUGM), Montreal, Canada, [4]Department of Psychology, McGill University, Montreal, Canada, [5]Alan Edwards Center for Research on Pain, McGill University, Montreal, Canada

Methods: The blood samples were collected from 35 participants experiencing LBP who underwent 14 weeks of physical exercise. The first blood draw was done after two weeks of low-intensity exercise, and the second was after the last exercise session. 7-day average pain intensity scores were collected two weeks before the start of the program and then two weeks after the end of the study. To determine the success of the intervention, the statuses of "resolver" and "non-resolvers" were assigned based on the pain score cut-off of 4, which is considered clinically significant. The DESeq2 and fgsea programs have been used for transcriptomics analysis.

Results: We found that over the study span "resolvers" had a higher number of significantly differentially expressed pathways (2741) than non-resolvers (1806). We observed 10 vs. 1 inflammatory pathways, 42 vs. 30 immune pathways, 18 vs. 10 genes in resolvers and non-resolvers, respectively. Inflammatory pathways decreased in expression over time in both groups during the exercise program. However, those who resolved pain showed substantially higher enrichment scores of downregulating genes.

Conclusions: Our results suggest that active biological processes underlie pain resolution in chronic LBP patients, and active down-regulation of inflammation is a major contributor.

411

LATERALITY, EMOTION RECOGNITION AND QUANTITATIVE SENSORY TESTING IN PATIENTS WITH HIGHLY FREQUENT OR CHRONIC MIGRAINE

B. Taxer[1,2]

[1]FH JOANNEUM Graz - University of Applied Sciences, Graz, Austria, [2]Paracelsus Medical University Salzburg, Salzburg, Austria

Methods: A cross-sectional study comparing individuals with highly frequent and chronic migraine was conducted including questionnaires, left-right judgement of hands, neck and face, a quantitative sensory testing battery and conditioned pain modulation (CPM). The results were calculated with ANOVA for between group comparisons and Spearmen coefficients for correlations between the above described parameters.

Results: Hardly no statistically significant between group comparisons were observed but clinical tendencies can be found especially in QST. Statistically significant results were found in assessing central sensitisation which leads to several clinical implications.

Only weak to moderate correlations were found between psychological questionnaires for depression and anxiety, sensory components and CPM.

Conclusions: Psychosocial aspects weakly correlate with sensory aspects and laterality judgement. Though there were hardly no statistically significant differences between the migraine group and the healthy control, questionnaires can be included for further screening for central sensitisation which leads to a broader scope in the management of those individuals.

412

GENERALIZABILITY OF A NEW EXPERIMENTAL MODEL OF ACUTE MUSCLE PAIN IN HUMANS BASED ON SHORT-WAVE DIATHERMY

C. Mista[1,2], L. Intelangelo[3], S. Laugero[4], J. Adur[1,4], O.K Andersen[5], J. Biurrun Manresa[1,2,5]

[1]Institute for Research and Development on Bioengineering and Bioinformatics (IBB), CONICET-UNER, Oro Verde, Argentina, [2]Center for Rehabilitation Engineering and Neuromuscular and Sensory Research (CIRINS), National University of Entre Ríos (UNER), Oro Verde, Argentina, [3]University Center for Assistance, Teaching and Research (CUADI), University of Gran Rosario, Rosario, Argentina, [4]Department of Bioengineering, National University of Entre Ríos (UNER), Oro Verde, Argentina, [5]Center for Neuroplasticity and Pain (CNAP), SMI®, Faculty of Medicine, Aalborg University (AAU), Aalborg, Denmark

Methods: SWD was applied to thirty-one healthy volunteers on the dominant shoulder, and stimuli were rekindled 3 times. Topographical pain distribution, electronic visual analogue scale, pressure pain threshold (PPT), and isometric external rotation force were assessed in random order before and 30 min after SWD application. PPT and force assessments were repeated three times and averaged.

Results: Rekindling SWD elicited 2.71% of high, 21.16% of medium, and 30.64% of low pain intensity areas on the upper quadrant. Volunteers reached the tolerance pain intensity threshold in 3.23±1.29, 1.87±1.05, and 1.55±0.78 minutes for each repetition. PPT in the ipsilateral at post assessment was lower compared with the baseline value (218±85 vs 313±93 kPa) and with the contralateral side for both time assessments (218±85 vs 342±113 and 309±90 kPa). No differences were found for mean external rotation force for any side or time.

Conclusions: The SWD model with rekindling elicited acute muscle pain in the shoulder area, showing that is a viable alternative for inducing experimental muscle pain.

419

THE FORGOTTEN ROLE OF BACK MUSCLE CHARACTERISTICS TO TAILOR EXERCISE THERAPY FOR RECURRENT NON-SPECIFIC LOW BACK PAIN: STUDY PROTOCOL FOR THE BACK-TO-BACK STUDY

N. Goossens[1], S. Dierckx[2], A. Agten[1], L. Moke[3], F. Vandenabeele[1], S. Rummens[4], K. Desloovere[2], Z. Louvaris[2], S. Brumagne[2], L. Janssens[1]

[1]REVAL Rehabilitation Research Center, UHasselt, Diepenbeek, Belgium, [2]Dept. of Rehabilitation Sciences, KU Leuven, Leuven, Belgium, [3]Institute for Orthopaedic Research and Training, KU Leuven, Leuven, Belgium, [4]Dept. of Development and Regeneration, KU Leuven, Leuven, Belgium

Methods: We will evaluate various characteristics of the lumbar multifidus and erector spinae in 90 patients with NSLBP and 55 healthy controls: muscle volume with 3D freehand ultrasound, muscle fiber type composition with minimally-invasive muscle biopsies, proprioceptive use during postural control by applying muscle vibration during standing on a force plate, and muscle activation and oxygenation with electromyography and near-infrared spectroscopy (Fig. 1). We will determine the most discriminating muscle characteristics between patients with NSLBP and controls, based upon which phenotypes will be delineated. Then, the patients with NSLBP will be randomized into two groups receiving a 16-week program of proprioceptive training or resistance training. The effect of both programs on back muscle characteristics and disability will be evaluated halfway through the program, at the end of the program, and 16 weeks after the end of training.

Figure 1. (A) 3D freehand ultrasound, (B) Fine-needle biopsy, (C) Electromyography, (D) Muscle vibration during standing on force plate.

Results: The protocol is submitted to the Ethical Committees of UZ/KU Leuven and UHasselt. The study is funded by the Research Foundation - Flanders (FWO) (G072122N). Participant recruitment and data collection are anticipated to start in March 2023.

Conclusions: We expect the results to help improve the patient-tailored exercise therapy for NSLBP.

421

A SYSTEMATIC REVIEW WITH META-ANALYSIS ON THE EFFECTIVENESS OF NEURAL MOBILIZATION TECHNIQUES ON PAIN INTENSITY, FUNCTIONAL STATUS, AND PHYSICAL PERFORMANCE IN ADULTS WITH MUSCULOSKELETAL PAIN

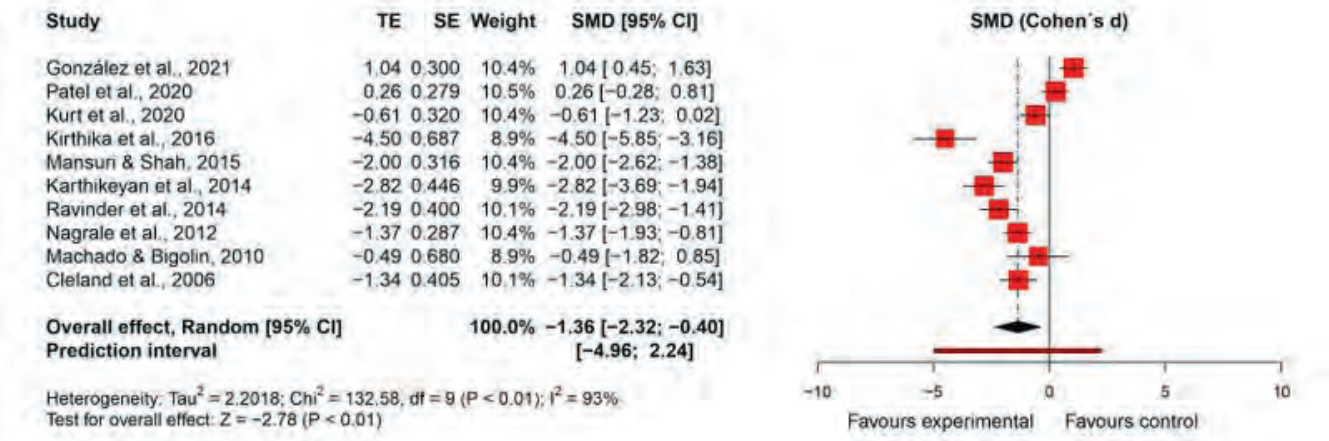
F. Baptista[1], E. Cruz[2], V. Afreixo[3], E. Nery[1], A. Silva[4]

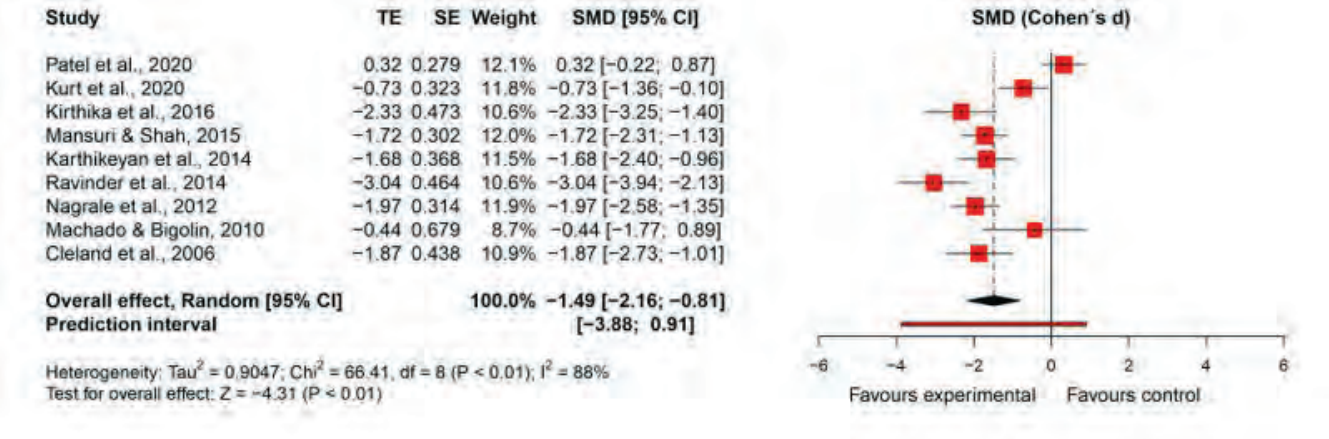
[1]Department of Medical Sciences, University of Aveiro, Aveiro, Portugal, [2]Department of Physiotherapy, Escola Superior de Saúde (Instituto Politécnico de Setúbal), Setúbal, Portugal, [3]Center for Research and Development in Mathematics and Applications (CIDMA), Department of Mathematics, University of Aveiro, Aveiro, Portugal, [4]5Center for Health Technology and Services Research (CINTESIS.UA@RISE), School of Health Sciences, University of Aveiro, Aveiro, Portugal

Methods: A systematic review of randomized, quasi-randomized, and crossover trials in adults with musculoskeletal pain. Main outcomes were pain, function, and physical performance. The table below provides a list of all research sources consulted. Risk of bias were assessed by the RoB 2 tool. Certainty of the evidence was evaluated using the GRADE approach. Meta-analyses were performed whenever possible. Study protocol was registered in PROSPERO (CRD42021288387) and published elsewhere[1].

Electronic databases	1. Web of Science (five collections included – Web of Science Core Collection, Korean Journal Database, MEDLINE, Russian Science Citation Index and SciELO Citation Index) 2. PubMed 3. MEDLINE (via PubMed and Web of Science) 4. Cumulative Index to Nursing and Allied Health Literature (CINAHL Plus with Full Text) - accessed through EBSCO host Web 5. Cochrane Central Register of Controlled Trials (CENTRAL) – accessed through EBSCO host Web 6. Scopus 7. Physiotherapy Evidence Database (PEDro)
Scientific repositories	1. Open Access Scientific Repositories of Portugal (RCAAP–acronym in Portuguese)
Trials registers	1. The International Clinical Trials Registry Platform of the World Health Organization 2. ClinicalTrials.gov
Other sources	1. Bibliography of the included studies and previous reviews

Results:





There was a large effect favouring the NM group for pain and function in people with low back pain (ES = -1.36 [95%-CI -2.32; -0.40]; ES = -1.49 [95%-CI -2.16; -0.81], respectively) and a medium effect for grip strength in people with hand osteoarthritis (ES = 0.72 [95%-CI 0.37; 1.07]). No other significant effects were found for the remaining clinical conditions (neck pain, epicondylitis, and rheumatoid arthritis). However, there is low confidence in the effect estimates.

Conclusions: NM appears to have positive effects on pain and function for patients with low back pain, but to bring no additional value for neck pain, lateral epicondylitis, and rheumatoid arthritis. Further studies are needed.

422

LONGITUDINAL RESTING-STATE FMRI ANALYSIS OF CHRONIC CANCER-INDUCED BONE PAIN IN RATS SHOW REORGANIZATION OF SUPRASPINAL NETWORKS RELEVANT FOR NEGATIVE AFFECT

B. Pradier[1,2], D. Segelcke[1], N. Just[2,3], N. Nagelmann[2], C. Faber[2], E. Pogatzki-Zahn[1]

[1]Department of Anesthesiology Intensive Care and Pain Medicine of the University Hospital Munster, Munster, Germany, [2]Department of Clinical Radiology, Translational Research Imaging Center, Munster, Germany, [3]Danish Research Centre for Magnetic Resonance, Centre for Functional and Diagnostic Imaging and Research, Copenhagen, Denmark

Methods: CIBP was initiated in male SD rats by injecting potent Walker 256 cells into the proximal tibia. We performed longitudinal RS-fMRI followed by brain network analysis 1 week before (baseline, BL) and at day (D) 3, 8 and 17 following cell inoculation using technical equipment and protocols as recently published (Amirmohseni et al. 2016). In parallel, the development of non-evoked pain was monitored by probing the footprint area of both hind paws prior to fMRI measurements as described recently (Segelcke et al. 2021).

Results: In behavioral experiments, cell inoculation reduced footprint area from D8 onwards ($p<0.01$), representing increased levels of non-evoked pain. Further, RS-fMRI analysis identified significantly different functional connectivity (FC) between BL and D3 and between D3 and D8 (paired network-based statistic, $p<0.05$) in CIBP animals. Chages early after cell inoculation (BL-v-D3) included altered intra-basalganglia and intra-senrorimotor processing. During the initiation of chronic pain (D3-v-D8) changes in FC were detetected between sensorimotor regions (S1, S2, M1, M2) and the amygdala, posterior insula and striatum.

Conclusions: During the initiation of CIBP, the reorganization of cerebral networks is characterized by changes in sensorimotor processing and negative affect. These data provide new insights into disease-specific mechanisms of CIBP.

423

STEROID RECEPTOR-MEDIATED ALTERATIONS IN THE GENOMIC REGULATION OF PAIN SIGNALING MOLECULES OF PRIMARY AFFERENT NEURONS

M. Schäfer[1], M. Shaqura[1], M. Al-Madol[1], A. Beyer[2], S. Treskatsch[1], S. Mousa[1]

[1]Charité University Berlin/Dep. of Anaesthesiology, Berlin, Germany, [2]LMU University München/Dep. of Anaesthesiology, Munich, Germany

Methods: In cultured PC12, N18TG2, and dorsal root ganglion cells, the expression of putative pain signaling molecules such as TRPV1, Nav1.8, CGRP, and trkA were investigated under the influence of mineralocorticoid and glucocorticoid receptor agonists and antagonists by quantitative Real-Time Polymerase Chain Reaction (RT-PCR).

Results: Distinct genes of pain signaling molecules were differentially up- or downregulated under the influence of mineralocorticoid and glucocorticoid receptor agonists and antagonists. Significant results will be presented as a genomic expression profile of pain signaling molecles in primary afferent neurons under the influence of mineralocorticoid and glucocorticoid receptor ligands.

Conclusions: Mineralocorticoid and glucocorticoid receptors in peripheral nociceptive neurons might change the genomic response to their ligands in a distinct genomic response of specific pain signaling molecules. (supported by the Prof. KH René Koczorek Stiftung, Neuried, Germany)

425

RESTING-STATE FMRI ANALYSIS OF ACUTE POST-SURGICAL PAIN IN MICE OF BOTH SEXES SHOW REORGANIZATION OF AFFECTIVE AND EXECUTIVE NETWORKS

B. Pradier[1,2], H. Chen[2], H. Bhatti[2], N. Nagelmann[2], M. Augustin[1], D. Segelcke[1], C. Faber[2], E. Pogatzki-Zahn[1]

[1]Department of Anesthesiology Intensive Care and Pain Medicine of the University Hospital Munster, Munster, Germany, [2]Department of Clinical Radiology, Translational Research Imaging Center, Munster, Germany

Methods: We performed an incision on the right hind paw (Segelcke et al. 2021) or SHAM procedure in C57BL/6J male and female mice. On post-operative day 1, we conducted RS-fMRI experiments using a Cryoprobe in a 9.4T MRI scanner and performed brain network analysis using methods as recently published (Pradier et al. 2021).

Results: We found that global network properties (functional connectivity (FC) strength and small-world-index) were not different at POD1 following INC or SHAM. However, we found strong differences in individual FCs when comparing INC-vs-SHAM conditions in both sexes (network-based statistic (NBS), $p<0.01$) and when comparing male-vs-female mice following INC (NBS, $p<0.05$). Overall, we found that INC decreased FC within sensory input and sensory cortex regions and between cingulate cortex and sensorimotor network compared to SHAM conditions. Moreover, we identified sex-specific changes in prefrontal cortex (PFC) connectivity following INC.

Conclusions: Acute post-surgical pain did not affect the global network structure and efficiency. However, specific alterations in FC patterns reveal INC-induced network reorganization in sensory-discriminative and affective pathways. Moreover, sex most strongly affected PFC networks suggesting alterations in executive functions.

426

A FEASIBILITY STUDY OF A COMPUTERIZED CLINICAL DECISION SUPPORT SYSTEM FOR STRATIFIED CARE IN PATIENTS WITH MUSCULOSKELETAL PAIN IN GENERAL PRACTICE – THE SUPPORTPRIM PROJECT

L.C.N. Lervik[1], A.F. Bones[2], F. Granviken[2], J. Hill[3], D. van der Windt[3], T. Øien[1], B. Austad[1], P. Jørgensen[1], E. Fors[1], O. Vasseljen[2], I. Meisingset[2]

[1]Norwegian University of Science and Technology / General Practice Research Unit, Trondheim, Norway, [2]Norwegian University of Science and Technology, Trondheim, Norway, [3]Primary Care Centre Versus Arthritis, Keele School of Medicine, Keele University, Keel, United Kingdom

Methods: Patients were stratified to five phenotypes (figure 3). Matched treatment recommendations within the categories: “Advice and guidance”, “work”, “medication”, and “referrals” were given based the patients’ phenotype. The recommendations were evidence- and consensus based. Personalized recommendations were also provided based on individual risk profiles. The matched treatment recommendations and the CDSS were tested in a feasibility study with 2 general practitioners and 8 of their patients.

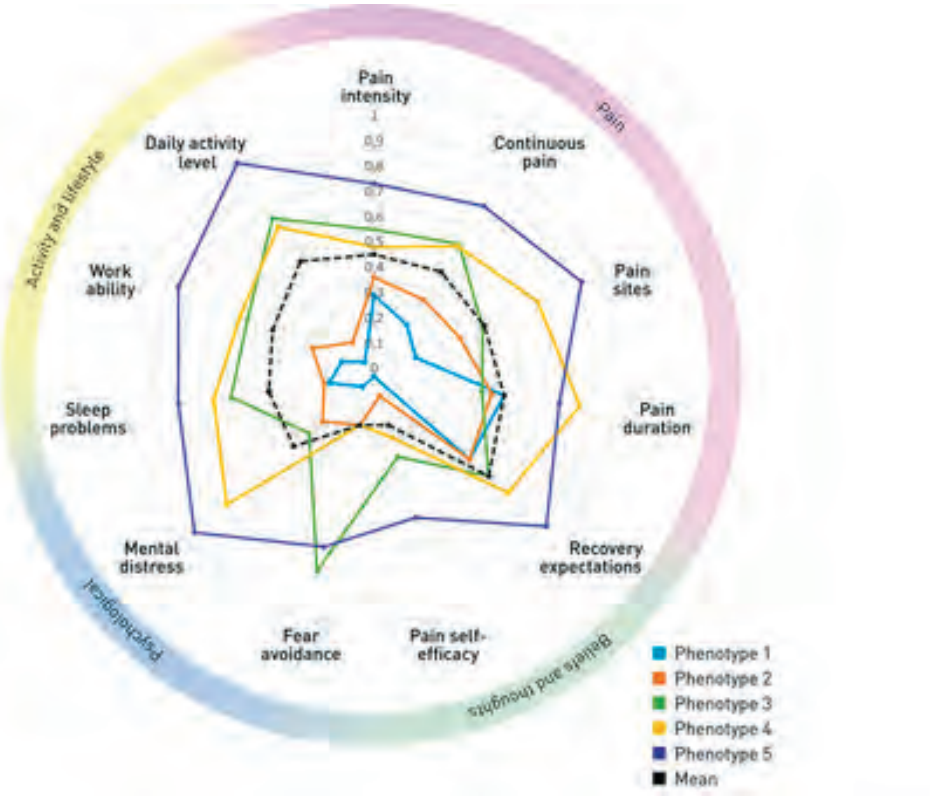


Figure 3

Results: GPs reported good acceptability and usability of the CDSS and that the CDSS provided detailed information that improved the communication with the patient. The matched treatment options were helpful in the shared decision making, although the time frame within the consultation was a barrier for completing a comprehensive shared decision-making process when deciding treatment. The patients reported that the system provided a correct profile of their pain complaint and that it was helpful in communicating with their GPs. The display of the patient in the decision support system was well understood by the patients.

Conclusions: The matched treatment options were well accepted by the GPs and the computerized clinical decision support system could be tested in a clinical setting in general practice.

429

DIFFERENCES IN SYMPTOMS ACCORDING TO THE CONFORMITY DEGREE BETWEEN SELF-REPORTED PAIN SITES AND STANDARDIZED PALPATION PAIN SITES IN TEMPOROMANDIBULR DISORDER PATIENTS

S.-Y. Choi[1], S.-M. Ok[2], S.-H. Jeong[2], Y.-W. Ahn[2], H.-M. Ju[2]

[1]Department of Oral Medicine, Pusan National University Dental Hospital, Yangsan, Korea, Republic of, [2]Department of Oral Medicine, Pusan National University, School of Dentistry, Yangsan, Korea, Republic of

Methods: During January 2020, a total of 58 patients visited the department of Oral Medicine, Pusan National University Dental Hospital with TMD symptoms were investigated. Patients who complained of referred pain were excluded from the analysis. Patients were divided into 3 groups: low, moderate and high, according to the degree of agreement between the pain sites complained of by the patients and the pain sites during the standardized palpation test. The medical records and 10 DC/TMD Self-Report instruments including oral behavior checklist, patient health questionnaire-9(PHQ-9) and patient health questionnaire-15(PHQ-15) of patients were analyzed.

Results: The low group showed that highest numeric rating scale, parafuctional habbits score, PHQ-9 score and PHQ-15 score above all(p<0.05). In addition, the low group patients have more pain sites that patients complained of and sites that felt pain during the palpation than the others(p<0.05).

Conclusions: The lower the degree of pain site conformity, the higher the psychological factor related to pain and the more intense the pain. This degree of conformity has the potential to be used to predict symptoms and psychological problems in patients if further studies are conducted.

431

PAIN SENSITIVITY DURING THE 4 PHASES OF THE MIGRAINE CYCLE IN EPISODIC MIGRAINE PATIENTS

S. Di Antonio[1,2], M. Castaldo[1], L. Arendt-Nielsen[1,3]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy, [3]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: Temporal summation of pain (TSP), pressure pain threshold (PPT), and mechanical pinprick pain threshold (MPT) from the trigeminal area, and PPT and MPT over the hand were assessed during the 4 migraine phases in EM patients and compared with controls. Clinical characteristics (Headache frequency, intensity, and duration of the disease) were assessed

Results: A total of 135 patients and 46 controls were included. Compared to controls, TSP was facilitated in ictal EM (p=0.004). Trigeminal PPT and MPT were reduced in interictal (p=0.021; p=0.001), preictal (p=0.033; p<0.001), ictal (p<0.001, p<0.001), and postictal EM (p=0.006; p=0.001), compared to controls. Preictal EM had reduced hand PPT and MPT (p=0.006; p=0.035), while EM in the other phases showed a reduction in hand MPT (interictal: p=0.002; ictal: p=0.004; p=0.003) without significant reduction in hand sPPT. Hand MPT was negatively correlated with longer disease duration (r=-0.25; p=0.011), and hand PPT was negatively correlated with higher drug usage (r=-0.31; p=0.002).

Conclusions: In all phases of the migraine cycle, patients with EM show signs of sensitization in the trigeminal area, with patients with the most prominent sensitization in the ictal phase. Signs of widespread sensitization were consistent in preictal EM patients and in the subgroups of patients with EM with the longest disease duration and more usage of symptomatic drugs

---

432

CERVICAL MUSCULOSKELETAL IMPAIRMENTS DURING THE MIGRAINE CYCLE IN EPISODIC MIGRAINE PATIENTS

M. Castaldo[1], S. Di Antonio[1,2], L. Arendt-Nielsen[1,3]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy, [3]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: Total cervical active range of motion (AROM), the total number of myofascial trigger points (MTrPs) (head/neck muscles), reproduction of headache during passive accessory intervertebral movement (PAIMs), and cervical pressure pain threshold (PPT) were assessed during the 4 migraine phases in EM patients and compared with healthy subjects controlling for neck pain. Clinical characteristics (Headache frequency, duration, intensity, headache disability (HDI), and neck disability (NDI)) were assessed

Results: In the 211 subjects included. Number of MTrPs and PAIMs were increased in all 4 phases of the migraine cycle versus controls ($p<0.001$). AROM ($p<0.002$) and cervical PPT ($p<0.007$) were reduced in ictal EM versus controls with no differences in other phases. AROM ($r=-0.24$; $p=0.008$) and cervical PPT ($r=-0.25$; $p=0.006$) were negatively correlated with NDI. The number of MTrPs was positively correlated with headache duration ($r= 0.24$; $p=0.008$) and disability ($r=0.20$; $p=0.30$), and the number of PAIMs was positively correlated with headache frequency ($r= 0.18$; $p=0.045$) and duration ($r=0.24$; $p=0.007$)

Conclusions: EM had increased number of MTrPs and PAIMs in the 4 phases of the migraine cycle independently by the presence of neck pain. The more the MTrPs and PAIMs, the worse the clinical manifestation of headache. Cervical active mobility and pain threshold were reduced in ictal EM patients and those with higher neck pain

---

433

TRIGEMINOCERVICAL PAIN SENSITIVITY DURING THE MIGRAINE CYCLE DEPENDS ON HEADACHE FREQUENCY

S. Di Antonio[1,2], L. Arendt-Nielsen[1,3], M. Castaldo[1]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy, [3]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: Quantitative sensory tests(QST) (Wind-up ratio(WUR), pressure pain threshold(PPT) from the trigeminal area, and PPT from the upper-cervical spine) were recorded. CM were assessed ictally and interictally and compared vs controls. LFEM and HFEM were assessed in the interictally, preictally, ictally, and postictally and compared vs. 1) each other's, matched for the phase; 2) CM (ictal LFEM and HEM were compared vs. ictal CM; postictal, interictal, preictal LFEM and HFEM were compared vs interictal CM); 3) control

Results: A total of 56 controls, 32 CM, 105 LFEM, and 74 HFEM were included. Compared to controls:

1) ictal CM had lower trigeminal and upper cervical PPTs ($p<0.001$), and higher trigeminal WUR ($p=0.020$); no differences were observed with interictal CM

2) preictal HFEM had lower upper-cervical PPT ($p=0.014$); ictal HFEM had lower trigeminal ($p=0.002$) and upper-cervical ($p=0.009$) PPTs, and higher trigeminal WUR ($p=0.002$); postictal HFEM had lower trigeminal ($p=0.004$) and upper-cervical ($p=0.010$) PPT. No differences were observed with interictal HFEM.

3) interictal LFEM had lower trigeminal ($p=0.002$) and upper-cervical ($p=0.016$) PPTs; preictal LFEM had lower upper-cervical PPT ($p=0.014$); postictal LFEM had lower upper cervical PPT ($p=0.006$). No differences were observed with ictal LFEM

Ictal LFEM had higher trigeminal ($p=0.013$) and upper cervical ($p=0.012$) PPTs compared to CM. No other differences were observed between HFEM and LFEM or HFEM and CM

Conclusions: This study suggested that HFEM patients have a sensory profile matching CM better than LFEM

434

PHENOTYPING MIGRAINE PATIENTS ACCORDING TO CLINICAL AND PSYCHOPHYSICAL CHARACTERISTICS: A CLUSTER ANALYSIS APPROACH

M. Castaldo[1], S. Di Antonio[1,2], L. Arendt-Nielsen[1,3]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy, [3]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: In this observational study, two cohorts of migraine patients(episodic/chronic) were included. Cohort-1: ictal/perictal phase; Cohort-2: interictal phase.

Cluster analysis was performed using the following variables were assessed: headache frequency; disability; cervical active range of motion(AROM) in flexion, extension, right/left lateral flexion, right/left rotation; pressure-pain threshold(PPT) over: temporalis, two cervical areas(C1/C4 vertebral segments), and two distal pain-free areas(hand/leg).

Results: Cohort-1: 100 patients were included and two clusters were identified. Cluster-1.1(19%), Cluster-1.2(81%). Cluster 1.1 had a higher percentage of men($p=0.037$) and lower disability($p=0.003$) compared to Cluster 1.2. Cluster 1.2 had higher disability ($p=0.003$), reduced AROM in flexion, extension, and left/right lateral flexion($p<0.037$), and lower PPT value in all areas($p<0.001$) compared to Cluster 1.1.

Cohort-2: 98 patients were included and three clusters were identified. Cluster-2.1(18%), Cluster-2.2(45%), and Cluster-2.3(37%). Cluster-2.1 had a higher percentage of men compared to clusters-2.2 and 2.3($p=0.009$). Cluster-2.3 had higher headache frequency, and disability compared to Cluster-2.2($p<0.006$), and higher disability compared to Cluster-2.1($p=0.010$). Cluster-2.3 had reduced AROM in all directions compared to Clusters-2.1 and 2.2($p<0.029$). Clusters-2.2 and 2.3 have lower PPT values in all areas compared to Cluster-1.1($p<0.001$).

Conclusions: In the Ictal/perictal phase, two phenotypes were identified, with one group showing no psychophysical impairment and one with increased pain-sensitivity, cervical musculoskeletal-dysfunctions, and higher disability.

In the interictal phase, three phenotypes could be identified, with one group showing no psychophysical impairment, one increased pain-sensitivity, and one increased pain sensitivity and cervical musculoskeletal-dysfunctions, and higher headache frequency and disability.

435

DIFFERENCES IN HEADACHE CHARACTERISTICS, CERVICAL MUSCULOSKELETAL IMPAIRMENTS, SIGNS OF SENSITIZATION, AND PSYCHOLOGICAL BURDEN BETWEEN DIFFERENT MIGRAINE PHENOTYPES ASSESSED DURING THE ICTAL/PERICTAL PHASE

L. Arendt-Nielsen[1,2], S. Di Antonio[1,3], M. Castaldo[1]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark, [3]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy

Methods: In this observational study, healthy subjects and migraine patients(episodic/chronic) assessed in the ictal/perictal phase were included. Migraine patients were subgrouped into different clusters: Cluster 1.1 no psychophysical impairments, Cluster 1.2: increased pain sensitivity and cervical musculoskeletal impairment.

The following variables were assessed: Clinical characteristics: disease duration, diary (headache frequency/intensity); headache-disability(HDI); neck-disability(NDI); psychological burden(HADS). Psychophysical characteristics: cervical active range of motion(AROM, flexion, extension, right/left lateral flexion, right/left rotation); quantitative sensory testing(QST): static pressure-pain threshold(sPPT) and mechanical pain threshold(MPT) over temporalis, sPPT and dynamic PPT(dPPT) over the neck, sPPT and MPT over the hand, and sPPT over the leg

Results: 156 subjects were included. Cluster 1.2 had higher headache intensity ($p=0.48$), disability ($p=0.003$), neck-disability ($p=0.005$), and psychological burden ($p=0.005$) compared to Cluster 1.1. Cluster 1.2 had reduced AROM in all directions ($p<0.023$) and reduced values in all QST ($p<0.001$) compared to controls and reduced AROM in flexion, left/right lateral flexion ($p<0.045$), and reduced values in all QST ($p<0.001$), but not MPT over the hand compared to Cluster 1.1.

Cluster 1.1 had no difference in AROM and higher sPPT values over temporalis, neck, and leg ($p<0.049$).

Conclusions: The migraine phenotype with increased pain sensitivity and cervical musculoskeletal impairment is worse affected by the disease, showing worse clinical and psychophysical characteristics. On the other hand, a migraine phenotype with no psychophysical impairments showed sing of hypoalgesia compared to controls

---

439

THERAPIST-INFORMED DEVELOPMENT OF DIGITAL BEHAVIOURAL TREATMENT FOR CHRONIC PAIN USING FOCUS GROUPS: PHASE 1 OF THE DAHLIA PROJECT

S.L. Bartels[1], R. de la Vega[2], S.I. Johnsson[1], S. Petersson[3], H. Al Sharaa[1], O. Kolokotronis Johansson[1], I. Flink[4], K. Boersma[4], L. McCracken[5], R. Wicksell[1,6], A.S. Taygar[1]

[1]Karolinska Institutet, Stockholm, Sweden, [2]Psychology Department, University of Malaga, Malaga, Spain, [3]Linnaeus University, Kalmar, Sweden, [4]Örebro University, Örebro, Sweden, [5]Uppsala University, Uppsala, Sweden, [6]Capio St Göran Hospital, Stockholm, Sweden

Methods: Three focus groups were conducted with four therapists each (i.e., psychologists/psychotherapists) working in primary and secondary care. Discussions were recorded and transcribed verbatim. A qualitative framework analysis was performed using three frameworks: the Consolidated framework for implementation research (CFIR), the Behavioral Interventions using Technology (BIT) and the Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM).

Results: Analyses are finished for one focus group. During the development phase, the CFIR captures biopsychosocial patient needs and therapists' characteristics (e.g., capability), aspects related to the inner (e.g., infrastructure) and outer setting (e.g., local conditions), and innovation domain (e.g., design, adaptability). The BIT and RE-AIM allow for an understanding of prospective adoption, appropriateness, feasibility, fidelity, reach, effectiveness, and implementation.

Conclusions: Therapists provide relevant insights into the care context of people with chronic pain and should therefore be included in the development of new treatments. The CFIR represents a solid and comprehensive framework and is usable in the development phase, although it is time-consuming, while the BIT and RE-AIM are simpler and may be better suited as part of optimisation and effectiveness trials.

440

RELATIONSHIP BETWEEN PSYCHOLOGICAL INFLEXIBILITY AND WELL-BEING AND FUNCTIONING IN EVERYDAY LIFE: AN N-OF-1 OBSERVATIONAL PILOT STUDY IN FIBROMYALGIA USING INTENSIVE LONGITUDINAL DATA

A.S. Taygar[1], S.L. Bartels[1], P. Onghena[2], S. McDonald[3], R. Wicksell[1,4]

[1]Karolinska Institutet, Stockholm, Sweden, [2]KU Leuven, Leuven, Belgium, [3]University of Queensland, Queensland, Australia, [4]Capio St Göran Hospital, Stockholm, Sweden

Methods: An n-of-1 observational design was used and six women with fibromyalgia enrolled. Participants were asked to complete a digital diary twice daily for six weeks assessing momentary psychological inflexibility, pain, well-being (i.e., mood, stress, fatigue), and functioning (i.e., pain self-efficacy, catastrophizing, avoidance). Missing data were handled with three imputation strategies (i.e., single, multiple, and no imputations), before performing dynamic regression modeling.

Results: Data from n=3 participants (response rates: 62%, 87%, 90%) were available to answer the research question. Psychological inflexibility showed dynamic patterns over time (Fig1), and predicted aspects of within-person well-being and functioning. The strength and significance of associations varied between individuals and based on the imputation technique used.

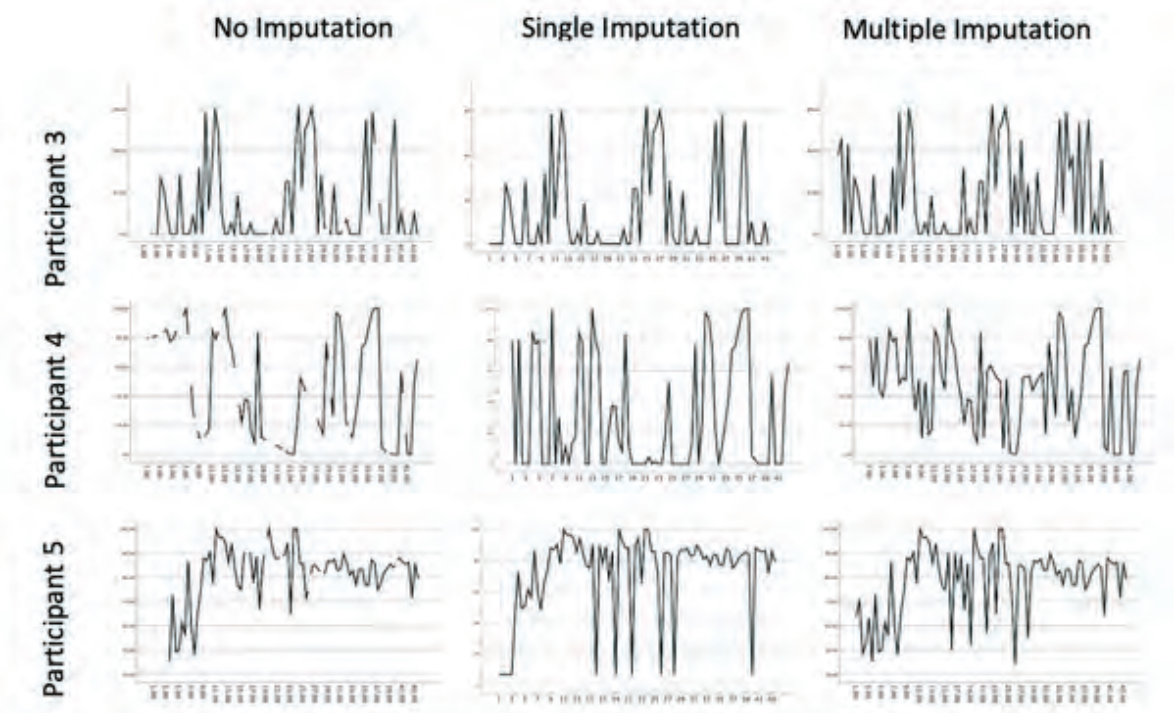


Figure 1. Fluctuations of psychological inflexibility: by participants and imputation techniques.

Conclusions: This pilot show that psychological (in)flexibility can be measured in everyday life, demonstrating within-person fluctuations and between-person differences. Psychological inflexibility furthermore is linked to daily levels of well-being and functioning on an individual level. Future research should expand on these findings with a greater sample size and validating the methodological approach.

441

BETWEEN MASCULINITY AND CARING – A QUALITATIVE STUDY OF THE EXPERIENCES OF MALE PARTNERS TO WOMEN WITH VULVODYNIA

L.M. Stensrud[1], S.E. Reme[2], G.K. Haugstad[1], K.S. Groven[1]

[1]Oslo Metropolitan University, Oslo, Norway, [2]University of Oslo, Oslo, Norway

Methods: Eight Norwegian women diagnosed with vulvodynia by gynecologists were recruited with their partners (aged 20-32 years). For this study, only the male partner's data was analyzed. Data was collected with individual semi-structured interviews and analyzed with inductive thematic analysis.

Results: The results of the data material were structured into four main themes: 1) Insecurity, 2) Rejection, 3) Caring, and 4) Keeping up the façade. The participants worried about the future of their relationships, the cause and prognosis of vulvodynia, as well as their role as partner. At the same time, they struggled with emotional and sexual rejection by their partners, while they tried to hide their struggles from their social network to keep their masculine status.

Conclusions: Male partners to women with vulvodynia experience conflicting ideals while trying to be both caregiver and sexual partner, as well as living up to social expectations related to masculinity ideals. They cope with these conflicts by going into different roles depending on whether they are with their partner, friends, or health professionals.

442

THE IMPACT OF MOVEMENT-INDUCED PHASIC EXPERIMENTAL PAIN ON TASK PERFORMANCE AND ATTENTION DURING A NOVEL VISUOMOTOR SEQUENCE LEARNING TASK IN A HEALTHY POPULATION

D. Matthews[1], A. Khatibi[1], D. Falla[1]

[1]University of Birmingham, Birmingham, United Kingdom

Methods: This randomised control study investigated the effects of movement induced phasic electro-cutaneous experimental pain on motor learning during a single session of a novel visuomotor sequence joystick task, in healthy subjects (N=60). Healthy participants were randomised to receive either a painful electro-cutaneous (intervention) or a non-noxious electro-cutaneous (control) stimulation, to the wrist. Time to complete a sequence, joystick accuracy and smoothness of movement were the primary outcome measures. Secondary outcome measures exploring the attentional control of subjects, using eye tracking, was collected. Early, mid and late training epochs were identified for each dependent variable. A mixed ANOVA or Friedmans test, followed by post hoc analysis was applied to each measure.

Results: Both groups showed a significant improvement in task performance ($p<.001$) and attentional control ($p<.001$) at mid and late training epochs compared to the early training epoch. There was no significant difference ($p=0.085$) in either of the above measures between the groups at any time point suggesting pain had no impact on task performance or attentional control improvements across a single training session.

Conclusions: Movement induced experimental pain does not interfere with learning during a novel visuomotor task. Combined with previous research the results suggest rehabilitation approaches dependent on motor learning can be completed in the presence of pain.

444

THE FEASIBILITY, UTILITY, AND VALIDITY OF BEDSIDE QUANTITATIVE SENSORY TESTING IN CANCER SURVIVORS WITH PERSISTENT PAIN: A SURVEY AMONG DUTCH-SPEAKING PHYSICAL THERAPISTS

V. Haenen[1,2], M. Meeus[1,3], D. Lups[4], S. Ubaghs[5], N. Devoogdt[2,6,7], B. Morlion[8,9], L. Dams[1,10], A. De Groote[1], T. Vande Vyvere[1,11], A. De Groef[1,2]

[1]Department of Rehabilitation Sciences and Physiotherapy, University of Antwerp, Antwerp, Belgium, [2]Department of Rehabilitation Sciences, KU Leuven, Leuven, Belgium, [3]University of Ghent, Ghent, Belgium, [4]Vrij Universiteit Brussel, Brussels, Belgium, [5]Department of Physiotherapy, Human Physiology and Anatomy, Faculty of Physical Education and Physiotherapy (KIMA), Vrij Universiteit Brussel, Brussels, Belgium, [6]Centre for Lymphoedema, Department of Physical Medicine and Rehabilitation, University Hospitals Leuven, Leuven, Belgium, [7]Lymphovenous Centre, Department of Vascular Surgery, University Hospitals Leuven, Leuven, Belgium, [8]Department of Cardiovascular Sciences, Section Anesthesiology & Algology, KU Leuven, Leuven, Belgium, [9]Leuven Centre for Algology and Pain Management, University Hospitals Leuven, Leuven, Belgium, [10]Department of Physical and Rehabilitation Medicine, University Hospitals Leuven, Leuven, Belgium, [11]Department of Radiology, Antwerp University Hospital, Antwerp, Belgium

Methods: PTs with experience in cancer rehabilitation were invited to watch two videos in which four bedside tests and one questionnaire were presented: (1) Pressure pain threshold (PPT), (2) Cold detection threshold (CDT) using a cold pack, (3) Temporal summation (TS) with an algometer, (4) Conditioned pain modulation (CPM) with a blood pressure cuff and algometer, (5) the Douleur Neuropathique 4 (DN4) questionnaire. Participants completed an online survey on the feasibility, utility, face, and content validity.

Results: 40 Dutch-speaking PTs were included. Most tests were considered feasible. DN4 and CDT were rated as most utile whereas PPT, TS and CPM were rated as least utile because of time and material needed. For content validity, DN4 and PPT were rated as relevant. Most PTs agreed on the face validity of the tests. In total, 45% of PTs would implement the proposed protocol in clinical practice. Barriers to implementation were lack of time, lack of material and questionable added value for pain management.

Conclusions: Even though most PTs agreed on the feasibility, utility, face, and content validity, implementation of QST in clinical practice is low.

445

CHALLENGES IN THE TREATMENT AND THERAPY OF PUDENDAL NEURALGIA. PRESENTATION OF AN ULTRASOUND-GUIDED THERAPY

P. Pottyondy[1], E. Budai[1]

[1]Jahn Ferenc Dél-pesti Kórház és Rendelőintézet, Budapest, Hungary

Methods: In our presented case, the 33-year-old female patient has had pain since 2010. Before the onset of pain, she attended intensive spinning classes for years. Since then, she has undergone numerous examinations and interventions, but her symptoms only worsened. Based on her examination and complaints, a diagnosis of pudendal neuralgia could be established.

Results: First of all we changed her chaotic medication. Then we blocked the nerve by a transgluteal approach. After the puncture the pain was immediately gone. Later we performed an ultrasound guided pulsed radiofrequency therapy of the nerve. Overall, her pain was relieved, and became tolerable.

Conclusions: Based on the literature, several types of injection methods can be found. It can be said that the transgluteal ultrasound-guided approach is similar in effectiveness to methods performed from other approaches. Our case corresponds to the experience that the ultrasound-guided technique can be also effective.

446

A RANDOMIZED, DOUBLE-BLIND, DOUBLE DUMMY, PLACEBO CONTROLLED, FOUR-WAY CROSS-OVER STUDY TO INVESTIGATE THE ANALGESIC EFFECTS AND CNS EFFECTS OF MORPHINE AND PREGABALIN IN HEALTHY SUBJECTS

W. Bakker[1], D. Dumas[1], H. Hijma[1], G.J. Groeneveld[1]

[1]Centre for Human Drug Research, Leiden, Netherlands

Methods: We performed a double-blind placebo-controlled cross-over study. In four identical study days with 7 days wash-out in-between, 24 healthy volunteers (18-65years) received 300mg pregabalin, 3mg + 7mg morphine, a combination of these two and placebo in randomized order. A comprehensive nociceptive test battery, a neurocognitive test battery and pharmacokinetic blood sampling were performed pre-dose and up to 10h post-dose. Data were analysed with a repeated-measures ANOVA.

Results: Mean age was 39 ±16.4 years. Significant effects on pain tolerance thresholds (PTT) were found for cold pressor (figure 1), electrical burst (figure 2), electrical stair and pressure test. A difference on postural stability and eye-hand coordination (figure 3) are significant for morphine – morphine + pregabalin. Detailed results will be presented at the congress.

Figure 1. Cold pressor pain tolerance, morphine – morphine + pregabalin ED – 11.23 sec, 95% CI -16.05 sec to -6.42 sec)

Figure 2. Electrical Burst pain tolerance, morphine – morphine + pregabalin ED – 1.28 mA, 95% CI -2.34 mA to -0.22 mA

Figure 3 Eye-hand coordination, morphine – morphine + pregabalin ED 5.786%, 95% CI 3.499% to 8.072%

Conclusions: Pregabalin and morphine combined induced superior analgesic - and limited additional cognitive effects compared to either monotherapy and placebo. Results suggest benefit of a combination therapy as opioid-sparing treatment

---

448

BRAIN CHANGES THAT ACCOMPANY INFANT CARE: DECODING PAIN IN BABIES' CRIES

S. Corvin[1,2], I. Faillenot[1], D. Reby[2], N. Mathevon[2], R. Peyron[1], C. Fauchon[1]

[1]Centre de Recherche en Neurosciences de Lyon, NeuroPain, Saint-Etienne, France, [2]ENES Bioacoustics Research Lab, CRNL, Saint-Etienne, France

Methods: We have already recruited 29 participants out of the 60 planned (7/20 fathers, 13/20 mothers and 9/20 childless women working in pediatric care).

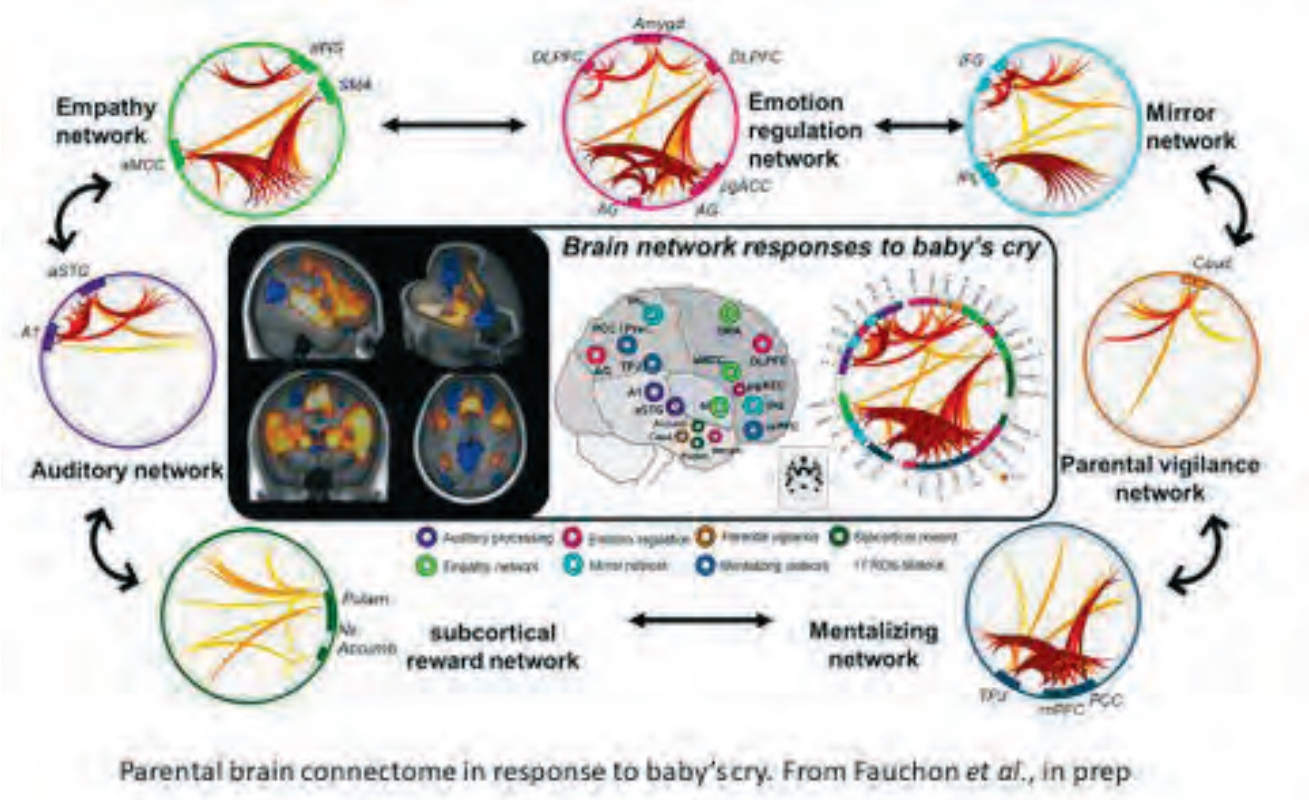
Eight 2-month old babies (6 girls) were recorded during their bath ("discomfort cries") and during routine vaccination ("pain cries").

Each participant was assigned to one baby and engaged in:

1)learning session: listening of discomfort cries from their assigned baby to become familiar with her/him;

2)test session in fMRI: listening to 64 cries (discomfort and pain cries, for familiar and unknown babies). They had to determine whether each cry was produced by their assigned baby or not, and due to discomfort or pain.

Analyses will include BOLD contrasts between conditions/groups, and connectivity between regions of the "parental brain connectome" (see figure).



Parental brain connectome in response to baby's cry. From Fauchon *et al.*, in prep

Results: We expect the "parental caregiving network" (including insula-cingulate regions, the amygdala, inferior frontal gyrus) to be more activated, with pain cries of familiar babies leading to stronger activations in regions supporting understanding, emotion regulation, and resonance with baby physical pain.

Conclusions: Our neuroimaging study will help to understand how parental and professional experience shape brain activity and make adults experts at pain identification in cries.

453

IMPLEMENTATION FRAMEWORKS GUIDING SCIENTIFIC INNOVATION IN CHRONIC PAIN: A SCOPING REVIEW OF DIGITAL SELF-MANAGEMENT INTERVENTIONS

R. de la Vega[1,2], S.L. Bartels[3], A.S. Taygar[3,4], S. Petersson[5], R. Wicksell[3]

[1]University of Málaga, Málaga, Spain, [2]Biomedical Institute of Málaga (IBIMA), Málaga, Spain, [3]Karolinska Institutet, Stockholm, Sweden, [4]Institute of Social Sciences, Uskudar University, Istanbul, Turkey, [5]Department of Medicine and Optometry, Linnaeus University, Kalmar & Region Kalmar County, Sweden

Methods: The search strategy and purpose of the review were registered in the Open Science Framework platform before selecting the included articles (accessible at: https://doi.org/10.17605/OSF.IO/XDPS9). Four bibliographic databases (Medline, Web of Science Core Collection, PsycInfo, and CINAHL) and two registries (PubMed Central, medarXiv) were systematically searched between 2007 and June 2022.

The following terms were used: (i) digital, eHealth or internet, (ii) intervention or program, and (iii) chronic, persistent, or long-term pain. The term 'framework' was searched in the full-text. A narrative synthesis was conducted. Finally, the quality of the included studies will be assessed.

Results: All records identified (n=6830) were screened and full-texts (n=351) were read by two independent reviewers. Eleven articles reporting on 9 studies were included in the ongoing narrative synthesis. Five implementation frameworks were found: Behavioral Interventions using Technology (BIT), Consolidated Framework for Implementation Research (CFIR), Medical Research Council (MRC), mHealth agile research lifecycle, and Reach, Effectiveness, Acceptance, Implementation, Maintenance (RE-AIM).

Conclusions: Results will inform about: at what stages of the project are implementation frameworks used, how are they operationalised, and what strengths and weaknesses users mention in the included papers.

454

THE ASSOCIATION OF LOW BACK PAIN WITH LUMBAR SPINE MOVEMENT CONTROL IMPAIRMENT SYNDROMES – A COHORT STUDY

P. Rytkönen[1,2], J. Takatalo[1,3], P. Oura[3,4], H. Luomajoki[5], J. Karppinen[3,4]

[1]Loisto Terveys, Oulu, Finland, [2]Fysios & Mehiläinen Oulu, Oulu, Finland, [3]Medical Research Center Oulu, University on Oulu and Oulu University Hospital, Oulu, Finland, [4]Research Unit of Health Sciences and Technology, University of Oulu, Oulu, Finland, [5]Institute of Physiotherapy, School of Health Professions, Zurich University of Applied Sciences, Winterhur, Switzerland

Methods: The study population included 1907 participants at a mean age of 46 years. Five video recorded MCI tests were chosen for this study: Sitting knee extension (SKE), prone knee bend (PKB), one leg stance (OLS), rocking backwards (RB) and waiters bow (WB). MCI tests were categorized as positive or negative in the specified testing direction. The rotation, rotation-extension and rotation-flexion directions were analyzed both on left and right side individually and after combining both sides. Individuals were categorized into low-, medium-, or high-level of LBP-related disability based on pain frequency and level of disability. A multinomial regression analysis was used to analyze the association of LBP with each MCI direction. Reference categories were low-level of disability and negative findings in all the MCI tests of the tested direction.

Results: High-level disability was associated with flexion-rotation MCI on the left side when one of the two tests (SKE or OLS) was positive (OR 2.36; 95% confidence interval 1.14-4.87) and when both tests were positive (OR 2.45; 1.10-5.54). Moreover, high-level disability was associated with both side rotation tests combined (three tests for both sides) when at least three tests were positive (OR 3.02; 1.01-9.03).

Conclusions: High level of back-related disability was associated with MCI. The rotational component of the MCI seems to be more clinically relevant than MCI in the sagittal plane. The association became stronger as the number of positive MCI tests increased.

458

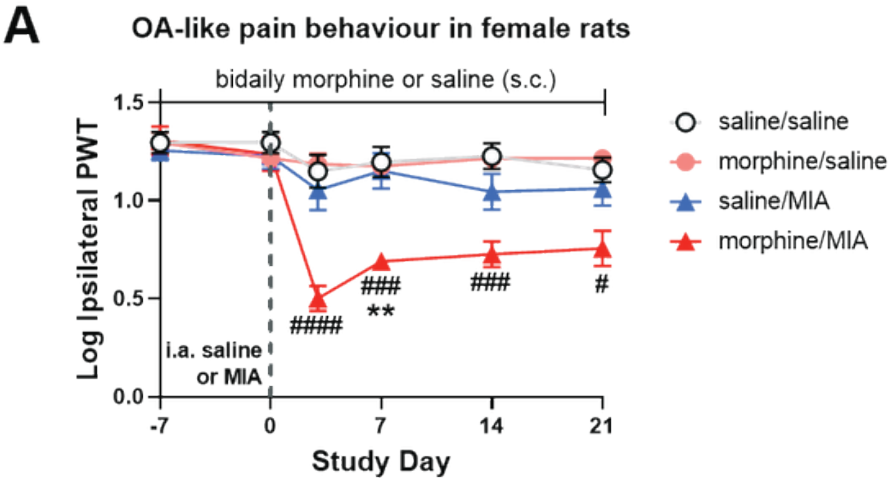
MECHANISTIC STUDIES OF MORPHINE-INDUCED EXACERBATION OF CHRONIC OSTEOARTHRITIC (OA) PAIN IN FEMALE RATS

S. Woodhams[1], S. Goncalves[1], L. Li[1], G. Hathway[1], V. Chapman[1]

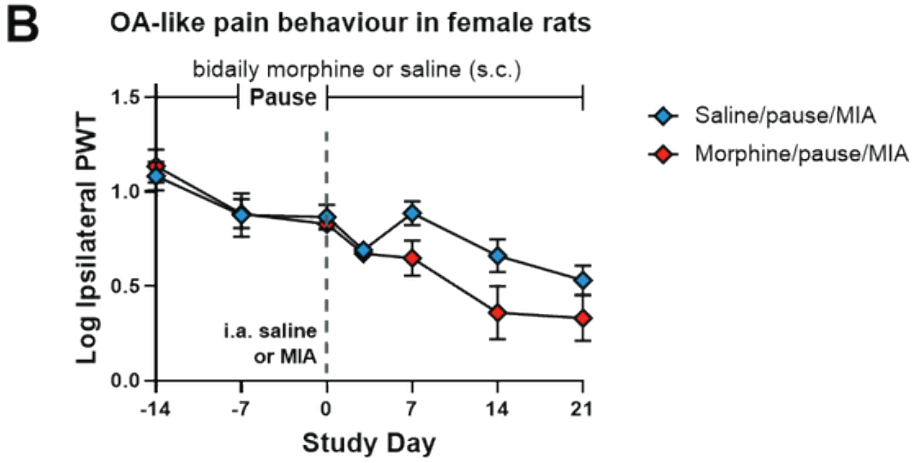
[1]University of Nottingham, Nottingham, United Kingdom

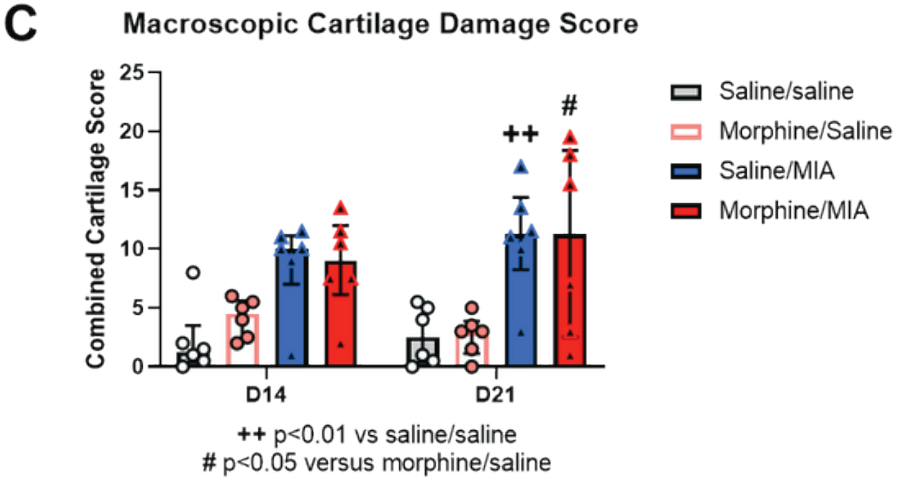
Methods: The monosodium iodoacetate (MIA) model of OA-like pain was adapted for female Sprague-Dawley rats (8 weeks old). Rats received bidaily systemic saline (1mL/kg) or morphine HCl (3mg/kg, s.c) for 7 days, then intra-articular saline (50µL) or MIA (2mg). OA-like pain behaviour was assessed via paw withdrawal thresholds (PWT), and saline or morphine treatment continued for 2 or 3 weeks. To investigate effects of morphine discontinuation, dosing was interrupted for 7 days after initial treatment, then resumed on the day of MIA injection. Knee joint cartilage damage was scored macroscopically.

Results: Morphine exacerbated OA-like pain in female rats (logPWT = 0.756±0.223 versus 1.157±0.153, **Fig A**), without significantly altering joint pathology (**Fig C**). Continuous morphine produced a larger exacerbation of OA-like pain (**Fig A**) compared to when treatment was interrupted (**Fig B**; difference in PWT compared to saline/MIA: interrupted = 29±21%; continuous= 53±10% pain response).



# p<0.05, ### p<0.001, #### p<0.0001 vs morphine/saline
** p<0.01 vs saline/MIA
2 way ANOVA with Tukey's *post-hoc* test





++ p<0.01 vs saline/saline
# p<0.05 versus morphine/saline

2 way ANOVA with Sidak's multiple comparison test

Conclusions: Prior & continued morphine exacerbated OA pain behaviour in female rats. Initial analyses show no differences in joint pathology, potentially indicating a central mechanism. Elucidation of underlying mechanisms is ongoing via physiological (*in vivo* spinal recordings) and anatomical (immunohistochemistry & super-resolution microscopy) approaches.

459

MULTIFACETED STRATEGIES TO OPTIMIZE FENTANYL BUCCAL SOLUBLE FILM (FBSF) PRESCRIBING FOR BREAKTHROUGH CANCER PAIN IN TAIWAN

M.S. Lu[1], C.Y. Chou[1,2], Y.L. Chang[1,2,3]

[1]Department of Pharmacy, Taipei Veterans General Hospital, Taipei, Taiwan, [2]Faculty of Pharmacy, School of Pharmaceutical Sciences, National Yang-Ming University, Taipei, Taiwan, [3]Department and Institute of Pharmacology, National Yang-Ming University, Taipei, Taiwan

Methods: The hospital-level policies were implemented during the period from November 2018 to August 2019. A retrospective pre- and post-intervention cross-sectional study was conducted to investigate prescribing pattern changes. The prescription which incompatible with each indicator that we identified as appropriate one was considered as potentially irrational.

Results: The amount of 7,284 FBSF dispensing at outpatient department during September to November in 2018. The overall prevalence of PIP in pre-intervention period was up to 76.3 %. The most common example of PIP identified were FBSF used with opioid-intolerant patients and frequency over four times a day. After intervention, the total number of FBSF decreased by 45.7% and the prescription accuracy increased by approximately 17.2% relatively compare with pre-intervention period.

Conclusions: Our findings support multifaceted interventions as an effective and suitable strategy to reduce FBSF use and may improve prescribing practices for pain control at outpatient department of a medical center in Taiwan.

460

PSYCHOSOCIAL PREDICTORS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH CHRONIC BACK PAIN

I. Dimitrijević[1], D. Hnatešen[1,2,3], I. Radoš[1,2], D. Budrovac[1,2], O.K. Tot[1,2], I. Omrčen[1,2], V. Matković[1,4], M. Perković Kovačević[5,2]

[1]Clinical Department of Pain Management, University Hospital Osijek, Osijek, Croatia, [2]Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia, [3]Nursing Institute "Professor Radivoje Radić", Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia, [4]College of Applied Sciences "Lavoslav Ružička", Vukovar, Croatia, [5]Department of Psychiatry, University Hospital Osijek, Osijek, Croatia

Methods: Data were collected from 186 patients with chronic back pain using the SF-36 Health Status Questionnaire (SF-36), Pain Anxiety Symptoms Scale Short Form 20 (PASS-20), The Pain Catastrophizing Scale (PCS), Chronic Pain Acceptance Questionnaire (CPAQ-8) and The Numeric Pain Rating Scale (NRS).

Results: The linear regression model was statistically significant ($F = 44.28$, $p < .001$), explained 49.9% of variance regarding HRQL in patients with chronic back pain. The findings of this study show that pain intensity, acceptance of chronic pain, pain catastrophizing and pain anxiety significantly affect HRQL.

Conclusions: Psychosocial factors detected by this study as predictors of a lower quality of life in patients with chronic pain are: stronger intensity of pain, weaker acceptance of chronic pain, and a higher level of catastrophizing and pain anxiety.

461

WHOLE-BODY PHOTOBIOMODULATION THERAPY FOR FIBROMYALGIA: A FEASIBILITY TRIAL

B. Fitzmaurice[1,2], N. Heneghan[2], A. Rayen[1], R. Grenfell[3], C. Browne[4], A. Soundy[2]

[1]Department of Pain Management, Sandwell and West Birmingham NHS Trust, Birmingham, United Kingdom, [2]School of Sport, Exercise and Rehabilitation Sciences, University of Birmingham, Birmingham, United Kingdom, [3]Clinical Research Facility, Sandwell and West Birmingham NHS Trust, Birmingham, United Kingdom, [4]Sandwell and West Birmingham NHS Trust, London, United Kingdom

Methods: A single-arm feasibility trial informed by PPIE was undertaken, and reported in-line with CONSORT, SPIRIT-PRO and TIDieR checklists. Eligibility criteria were adults with chronic widespread pain, recruited at a UK secondary care centre. The NovoTHOR® device was used with 2400 LEDs to deliver red light (660nm) and near infra-red light (850nm) over 18 sessions (6-20 minutes) in 6-weeks. Participant-reported and performance-based outcome measures were utilised to assess secondary outcomes at baseline, 6-weeks, and 24-weeks. Analysis were conducted according to feasibility-based outcomes.

Results: Nineteen participants completed the intervention. Acceptability of treatment schedule and outcome measures was 100% and 89.5%, respectively. Treatment satisfaction was high, with desire for involvement in future placebo-controlled research. No adverse events were reported. Data at 6-weeks showed clinically and statistically significant improvement in multidimensional function. Pain, sleep, fatigue, stiffness, anxiety and depression demonstrated clinically significant improvements. Tenderness was reduced - the majority tolerated a fraction of the recommended pressure application. Self-reported dyscognition improved. Objective cognition showed non-significant positive change.

Conclusions: The current feasibility study identifies high acceptability of trial device and procedures. Findings suggest demonstrable efficacy of whole-body PBMT in treating pain and pain-related symptoms in patients with fibromyalgia. A further placebo-controlled double-blinded RCT is now required.

462

A NURSE-LED TRANSITIONAL PAIN SERVICE: TAPERING PATIENTS OF OPIOIDS AND EARLY POSTOPERATIVE SCREENING FOR PAIN WITH NEUROPATHIC CHARACTERISTICS, AN OBSERVATIONAL COHORT STUDY

J. van Dijk[1], H. Walravens[1], D. Vrinten[1], M. Rijsdijk[1]

[1]*University Medical Center Utrecht, Utrecht, Netherlands*

Methods: In this observational cohort study we describe the follow-up of postsurgical patients referred to the outpatient Transitional Pain Service with opioid doses exceeding 20 mg of oral Oxycodone equivalent. Neuropathic pain characteristics were assessed using the Douleur Neuropathic 4.

Results: From June 2019 to June 2022, 88 patients were counselled at the outpatient clinic. Opioids were ceased in 73% of patients. Tapering patients of opioids was accomplished in 22 patients (median 75 mg to 40 mg oral Oxycodone equivalent). In 20% of patients anti-neuropathic drugs were initiated as neuropathic pain characteristics had developed.

Conclusions: Patient counselling by nurses in a Transitional Pain Service is a safe and effective strategy for postsurgical opioid tapering. Additionally, screening for neuropathic pain may lead to more adequate pain treatment and aids in tapering patients of opioids.

463

EFFECTIVENESS OF INFLIXIMAB IN PATIENTS WITH COMPLEX REGIONAL PAIN SYNDROME

C. van den Berg[1], M. Dirckx[1], F. Huygen[1], J. Tiemensma[1]

[1]*Center for Pain Medicine, Erasmus University Medical Centre, Rotterdam, Netherlands*

Methods: CRPS patients treated with infliximab between January 2015 and January 2022 were approached to partake in this retrospective study. Medical records were screened for age, gender, medical history, CRPS duration, and CRPS severity score. Additionally, treatment effect, dose and duration, and side-effects were extracted from medical records. A short global perceived effect survey was completed by patients who still receive infliximab.

Results: Eighteen patients received infliximab and all but two gave consent. Trial treatment, containing three gifts 5mg/kg intravenous infliximab, was completed in fifteen (93,7%). Eleven patients (73.3 %) were categorized as responders, showing positive treatment effect. Treatment was continued in nine patients and today eight patients still receive treatment. Infliximab dose is 5mg/kg and the frequency is every 4 to 6-weeks. A global perceived effect survey was completed by seven patients. All patients reported improvement (median 2, IQR 1-2) and treatment satisfaction (median 1, IQR 1-2). Side effects, itching and rash, were described by one patient.

Conclusions: Infliximab appeared to be effective in almost 75% of treated CRPS patients and eight patients still receive treatment with success. Further research is needed to investigate place of infliximab in treating CRPS and to ascertain possible predictors of response to the treatment.

465

EFFECTS OF STIMULUS CONTROLLABILITY, PREDICTABILITY AND INTENSITY ON PAIN PROCESSING

M. Habermann[1], C. Büchel[1]

[1]*University Medical Center Hamburg-Eppendorf, Hamburg, Germany*

Methods: Participants rated pre-calibrated stimuli applied to their forearm using a visual analogue scale. One sample was tested in the behavioral lab (n = 55) and a second sample in the MR scanner (n = 61). Pain ratings were analyzed using LMEs in R and Stan. fMRI data will be analyzed using SPM12.

Results: The LMEs indicate interaction effects of condition and intensity on pain intensity ratings in both samples (Figure 1). The slope over intensity steps is steeper in condition C than in conditions P and U. The interaction is stronger between conditions C and U than between conditions C and P and between conditions P and U (see 95.8% highest probability density intervals (HDPIs) in Table 1).

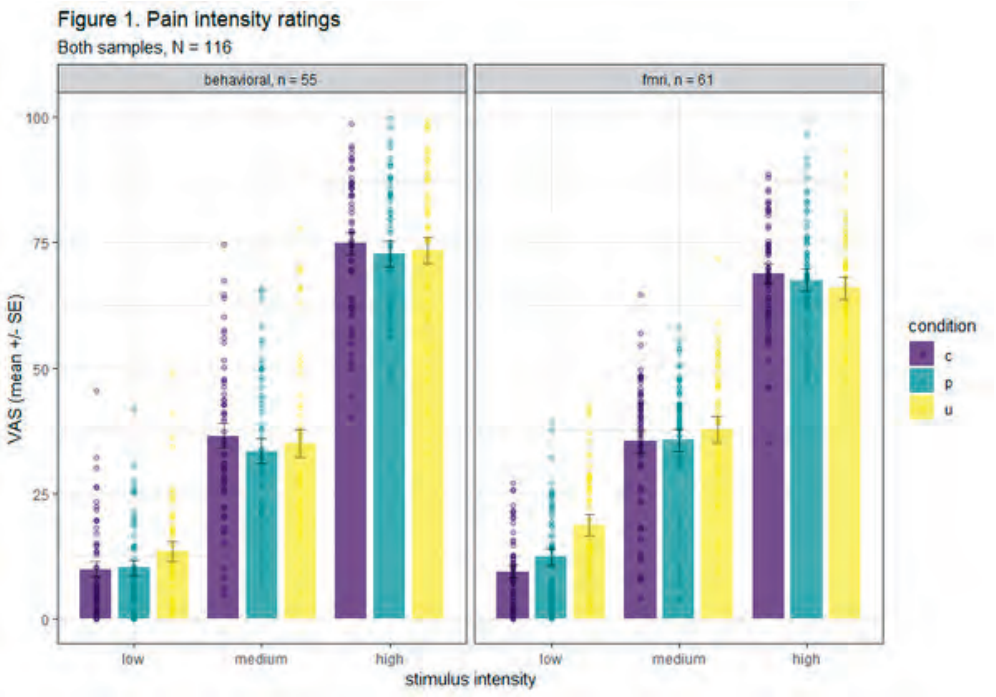


Table 1. Limits of 95.8% Highest Density Intervals (HDI) of Posteriors of Predictor Weights

Predictor	Sample	HDPI lower limit	HDPI upper limit
Interaction C:P:intensity	behavioral	-0.10	0.03
	fMRI	**-0.16**	**-0.04**
Interaction C:U:intensity	behavioral	**-0.17**	**-0.04**
	fMRI	**-0.35**	**-0.24**
Interaction U:P:intensity	behavioral	0.00	0.13
	fMRI	**0.14**	**0.26**

Note. Values between lower and upper limit cover 95.8% of the posterior distribution of predictor weight estimates. Values for each sample are displayed separately. HDPIs not including 0 are marked in bold.

Conclusions: We show in both samples that ratings of uncontrollable and unpredictable heat pain stimuli follow Bayesian magnitude estimation mechanisms (bias to the mean) and that the ability to control and predict a painful stimulus interacts with pain intensity in subjective pain ratings. In addition we will report neural correlates of the influence of controllability and predictability on pain processing.

466

PSYCHOSOCIAL FACTORS RELATED TO PAIN IN PATIENTS WITH NECK PAIN: A CROSS-SECTIONAL CASE CONTROL STUDY

E. Bocos-Corredor[1], F. Moggioli[1], T. Pérez-Fernández[1], S. Liébana-Sánchez-Toscano[1], J. Fernández-Carnero[2], A. Martín-Pintado-Zugasti[1]

[1]San Pablo CEU University, Madrid, Spain, [2]Rey Juan Carlos University, Madrid, Spain

Methods: This is a cross-sectional case-control study. Patients with neck pain had a score greater than 3 and 4 in the visual analog scale (VAS) and in the Neck Disability Index (NDI) respectively, while the control group included asymptomatic participants. Psychosocial outcomes included the following self-report questionnaires: Fear Avoidance Components Scale (FACS), Catastrophizing Scale (PCS), Central Sensitisation Inventory (CSI) and Tampa Scale of Kinesiophobia-11 (TSK-11).

Results: 71 subjects with chronic neck pain and disability and 68 healthy controls were included. Patients with neck pain and disability had significantly higher scores in all psychosocial outcomes compared to control group (FACS: p <0.001; d=17.72, PCS: p <0.001; d=9.56, CSI: p <0.001; d=12.10, TSK-11: p <0.001; d=6.08). All psychosocial variables presented moderate correlations with VAS (FACS: p <0.001; r=0.44, PCS: p <0.001; r=0.49, CSI: p <0.001; r=0.42, TSK-11: p <0.001; r=0.32) and severe or moderate correlations with NDI (FACS: p <0.001; r=0.62, PCS: p <0.001; r=0.6, CSI: p <0.001; r=0.65, TSK-11: p <0.001; r=0.46)

Conclusions: Psychosocial factors related to pain should be considered when addressing patients with non-specific neck pain. Neck disability showed severe correlations with psychosocial factors related to pain, while pain intensity (VAS) were moderate.

467

ELECTROPHYSIOLOGICAL AND BIOMECHANICAL CHARACTERIZATION OF THE EFFECTS OF DRY NEEDLING FOR TREATING CHRONIC UNILATERAL SHOULDER PAIN

L. Intelangelo[1], C. Mendoza[1], I. Lassaga[1], A. Carvalho Barbosa[2], J. Biurrun Manresa[3,4,5,6], C. Mista[7,4]

[1]University of Gran Rosario (UGR) - University Center for Assistance, Teaching and Research (CUADI) - Musculoskeletal Research Group (UIM), Rosario, Argentina, [2]Federal University of Juiz de Fora (UFJF) - Department of Physical Therapy - Musculoskeletal Research Group (NIME), Governador Valadares, Brazil, [3]Institute for Research and Development on Bioengineering and Bioinformatics (IBB) - CONICET, Oro verde, Argentina, [4]Center for Rehabilitation Engineering and Neuromuscular and Sensory Research (CIRINS) - National University of Entre Ríos (UNER), Oro Verde, Argentina, [5]Department of Bioengineering - National University of Entre Ríos (UNER), Oro Verde, Argentina, [6]Center for Neuroplasticity and Pain (CNAP), SMI® - Faculty of Medicine - Aalborg University (AAU), Aalborg, Denmark, [7]Institute for Research and Development on Bioengineering and Bioinformatics (IBB) - CONICET, Oro Verde, Argentina

Methods: For this double-blind, randomized, sham-controlled clinical trial, 30 volunteers with chronic unilateral shoulder pain were recruited. In the first session, active or sham (blunt needle) dry needling was performed. Pressure pain threshold, pain intensity, glenohumeral internal rotation angle, and muscle activity during isotonic shoulder tasks (shoulder flexion and extension) were assessed before, immediately and 72 hours after the intervention.

Results: Active dry needling reduced pain at 72 h in comparison with sham dry needling, even though no differences in sensitivity to pressure stimuli were observed between interventions. Dry needling increased the rotation angle, although no differences were observed in the EMG from the infraspinatus or deltoid muscle corresponding to any of the interventions.

Conclusions: The study provides an electrophysiological and biomechanical characterization of the effects of dry needling in the treatment of chronic unilateral shoulder pain. A single dry needling intervention is a well-established alternative for reducing pain in this condition. Furthermore, we observed a biomechanical correlation of this beneficial effect in the increase in the rotation angle, but no electrophysiological changes in the EMG were detected.

470

BIOPSYCHOSOCIAL APPROACHES FOR THE MANAGEMENT OF FEMALE CHRONIC PELVIC PAIN- A SYSTEMATIC REVIEW

S. Johnson[1,2], A. Bradshaw[2], K. Vincent[3], D. Hapangama[1]

[1]University of Liverpool, Liverpool, United Kingdom, [2]The Walton Centre NHS Trust, Liverpool, United Kingdom, [3]University of Oxford, Oxford, United Kingdom

Methods: A systematic review was conducted. Databases of MEDLINE, CINAHL, PsycINFO, EMBASE, Emcare, AMED and Cochrane trial registry were searched from inception to December 2022. Studies were included if they describe a study population with a primary diagnosis of chronic pelvic pain and reported biopsychosocial model-based treatments (defined as any intervention that cites that a biopsychosocial approach is utilised as the principal treatment modality). Prospero Registration: CRD42022374256.

Results: Data analysis is currently underway and key themes will be available from May/June 2023.

Conclusions: The review will provide first-time information describing which biopsychosocial-informed approaches are used for managing female chronic pelvic pain. It will report on which outcomes are commonly used to measure the effect and determine the quality and level of evidence to support these approaches.

471

THE USE AND EFFECTIVENESS OF THE INTRATHECAL PUMP CONTINUOUS INFUSION FOR PATIENTS WITH CHRONIC PAIN IN CYPRUS

P. Zavridis[1], M. Georgiou[1], H. Moditi[1], E. Asimakopoulou[2]

[1]Cyprus Pain Clinic, Nicosia, Cyprus, [2]Frederick University, Nicosia, Cyprus

Methods: Observational study with qualitative data. A recording was made of the use, the effectiveness and the complications that occurred. The team applied a holistic approach and at each meeting the patient›s personal needs were recorded.

Results: Most of the patients (78%) from the total (N=55) with chronic pain, having received the IPCI therapy, have Failed Back Surgery Syndrome (FBSS) and only 12% had complication with the use such as displacement or removal. After implanting the intrathecal catheter into the subarachnoid space in the lumbar spine, a combination of Morphine, Clonidine, and Ropivacaine has been administered in patients with FBSS and cancer. Baclofen is used to patients with spasticity. After successive dose adjustments, the effect and possibly side effects are critically evaluated by both the patient and the healthcare professionals. The adjustment of the dose and the refilling of the pumps is carried out at regular intervals by the pain team of the Clinic.

Conclusions: Despite the relatively small sample, the qualitative analysis showed that IPCI is a reliable treatment option for patients with chronic pain. As pain is a complex, unpleasant and subjective experience, its management requires personalized and multidisciplinary approach.

473

ASSESSMENT OF THE QUALITY OF LIFE IN PATIENTS WITH NON-CANCER CHRONIC PAIN BEFORE AND AFTER THE USE OF INTRATHECAL PUMP CONTINUOUS INFUSION IN CYPRUS

E. Asimakopoulou[1], M. Georgiou[2], H. Moditi[2], P. Zavridis[2]

[1]Frederick University, Nicosia, Cyprus, [2]Cyprus Pain Clinic, Nicosia, Cyprus

Methods: Pre- and post-intervention study using the EQ-5D-5L to assess the QoL in patients with non-cancer chronic pain before and 6 months after the implementation of IPCI.

Results: From the total 46 patients (61% women, 39% men) with non-cancer chronic pain having received the IPCI therapy, almost all have Failed Back Surgery Syndrome (FBSS). At the first visit to every patient, an assessment was performed and the EQ-5D-5L questionnaire was administered after informed consent. The five dimensions were

examined and decreased mobility, inability for self-care, severe problems with usual activities, severe to extreme pain, and severe anxiety or depression were observed. After 6 months administering a combination of Morphine, Clonidine, and Ropivacaine through IPCI, the EQ-5D-5L questionnaire was given again to the patients. Statistically significant improvement in all 5 dimensions of the questionnaire was observed and the pain assessment on the numerical scale (0-100) showed a statistically significant decrease after the IPCI therapy intervention ($p<0.001$).

Conclusions: IPCI therapy is a reliable treatment option for patients with non-cancer chronic pain in cases where the optimal medical treatment does not perform sufficiently. Minimally invasive techniques can demonstrably improve the Quality of Life of patients.

480

PRACTICE GUIDELINES FOR THE TREATMENT OF ACUTE MIGRAINE AND CHRONIC KNEE OSTEOARTHRITIS WITH PARACETAMOL: AN EXPERT APPRAISAL ON EVOLUTION OVER TIME BETWEEN SCIENTIFIC SOCIETIES

S. Perrot[1], A. Eschalier[2], J. Desmeules[3], M. Lanteri-Minet[4], N. Attal[5], J.-Y. Milon[6], R. Pegahi[6]

[1]Pain Center, INSERM U987, Hôpital Cochin, Université de Paris, Paris, France, [2]INSERM U1107, NEURO-DOL, Université Clermont Auvergne, Clermont-Ferrand, France, [3]cService de pharmacologie et toxicologie cliniques, Centre multidisciplinaire de la douleur, Département d'anesthésiologie de pharmacologie de médecine intensive et de médecine d'urgence, Hôpitaux Universitaires de Genève, Geneva, Switzerland, [4]Département d'Evaluation et Traitement de la Douleur et FHU InovPain, CHU Nice - Université Côte d'Azur, Nice, Nice, France, [5]Hôpital Ambroise Paré, APHP, Boulogne Billancourt, France; gUniversité de Versailles Saint Quentin en Yvelines (UVSQ, Paris Saclay), Versailles Cedex, Ersailles, France, [6]UPSA, Rueil-Malmaison, France

Methods: We focused on two common pain conditions for which paracetamol is widely used: acute migraine and chronic knee osteoarthritis (OA). In 19 guidelines (10 for acute migraine, 9 for chronic knee OA) from 10 scientific societies (AAN/AHS, ACR/AF, CHS, EFNS, EHF/LTB, ESCEO, EULAR, SFEMC, SRF, OARSI) published between 1997 and 2021, methods, results and conclusions were compared, between guidelines and over time.

Results: In acute migraine, there was a shift from no recommendation for paracetamol or recommendation only for mild attacks to recommendation for mild to moderate attacks in updated guidelines, without restriction for use for four of the five scientific societies. In knee OA, although updated guidelines generally used the GRADE system, recommendations remained heterogeneous between scientific societies: recommendation without or with restrictions, or not recommended. Consensus is lacking regarding long-course safety and efficacy in acute pain and pain at mobilization.

Conclusions: Most migraine guidelines now recommend paracetamol for mild to moderate pain. Knee OA guidelines vary on the use of paracetamol: a more holistic approach is needed for this condition, considering patient profile, disease stage, and pain management during physical activity to clarify its appropriate use.

482

CHRONIC MUSCULOSKELETAL PAIN AND COGNITIVE FUNCTION IN OLDER ADULTS: A SYSTEMATIC REVIEW

J. Guimaraes Reis da Costa[1,2], J.E. Alves[1], E. H. Pereira Nery[3], A. Gonçalves da Silva[1]

[1]University of Aveiro/School of Health Sciences, Aveiro, Portugal, [2]Federal University of Sergipe, Lagarto, Brazil, [3]University of Aveiro/ Department of Medical Sciences, Aveiro, Portugal

Methods: The review protocol was registered in PROSPERO. Four databases were searched using combinations of keywords related to pain, older adults, and cognitive function. Two researchers independently screened the references first and the full texts after against eligibility criteria and assessed study quality using The National Institutes of Health - Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) was also used. Meta-analysis per domain of cognitive functioning was performed.

Results: Ten articles were included and global cognition, language, attention, processing speed, executive functioning, memory and visuospatial skills were the cognitive domains assessed. Very low quality of evidence suggests that

older adults who were asymptomatic show better performance for global cognition (k=10; d= -0.19; CI= -0.37- -0.02, p<0.01) and language (k=8, d= -0.16; CI= -0.28- -0.05, p=0.16) compared to older adults with CMP.

Conclusions: Differences in cognitive performance between older adults who are asymptomatic and older adults reporting CMP might depend on the cognitive domain being studied. Further high quality studies are needed.

484

ADVERSE EFFECTS OF TRANSCUTANEOUS SPINAL DIRECT CURRENT STIMULATION: A PILOT STUDY IN HEALTHY VOLUNTEERS

H. Zhao[1], C. Gundlach[2], G. Hartwigsen[2], F. Eippert[1]

[1]Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, [2]University of Leipzig, Leipzig, Germany

Methods: Twelve healthy participants underwent a single session of anodal tsDCS at 2.5mA for 20 min. A pair of rubber-electrodes was placed over the eleventh thoracic vertebra and the suprascapular region. A tsDCS adverse effects questionnaire (adapted from *Brunoni et al., 2011*, Figure 1) was filled in by participants directly after tsDCS termination.

tsDCS Adverse Effects Questionnaire

Do you experience any of the following symptoms or side-effects?	Enter a value (1–4) in the space below (1, absent; 2, mild; 3, moderate; 4, severe)	If present: Is this related to tsDCS? (1, none; 2, remote; 3, possible; 4, probable; 5, definite)	Notes
Back Pain			
Non-back Pain			
Tingling			
Itching			
Burning sensation			
Skin redness			
Sleepiness			
Trouble concentrating			
Acute mood change			
Others (please specify)			

Additional questions:

1. If you had any above symptoms, when did it start?

   When: _____ (when did you firstly feel any sensation)

2. If you had any above symptoms, for how long did it last?

   Duration: _____ seconds / minutes

3. If you had any above symptoms, where did you feel it?

   Location: _____

Results: Several potential AEs and whether they were deemed to be associated with tsDCS were recorded. Skin redness (91.67%), burning sensation (66.67%) and tingling sensation (58.33%) were most reported, with a lower proportion of people (25%) reporting a brief itching sensation. Most AEs occurred within the first minute of tsDCS onset, lasted for 1-2 minutes and solely occurred within the skin area beneath the electrodes. We also observed a significant correlation between initial electrode impedance and the number of AEs reported.

Conclusions: This pilot-study provides a systematic recording of tsDCS AEs in healthy volunteers. While these initial results are based on a small number of volunteers and a single session of tsDCS, we will expand them with a larger sample, where a sham stimulation will also be included. The observed onset and duration of AEs might also serve as guidelines for designing sham conditions to allow participants to be properly blinded.

485

ACUTE PAIN SERVICE WITH NERVE BLOCKADE IS EFFECTIVE FOR POSTOPERATIVE PAIN RELIEF IN THE ORTHOGNATHIC SURGERY

Y. Oono[1], R. Kono[1], Y. Kiyohara[1], S. Ando[1], S. Takagi[1], H. Nagasaka[2], L. Arendt-Nielsen[3,4], H. Kohase[1]

[1]Division of Dental Anesthesiology, Department of Diagnostic and Therapeutic Sciences, Meikai University School of Dentistry, Sakado, Saitama, Japan, [2]Department of Anesthesiology, Saitama Medical University Hospital, Iruma-gun, Saitama, Japan, [3]Center for Neuroplasticity and Pain, SMI, Department of Health Science and Technology, School of Medicine, Aalborg University, Aalborg, Denmark, [4]Department of Gastroenterology and Hepatology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark

Methods: Retrospective review was performed for patients scheduled for orthognathic surgery (18 males and 26 females, age; 22.0[21.0–27.3]). The study included 3 groups. Nerve blockade was performed before extubation (Group 1), after extubation if the postoperative pain intensity was over 50/100 (Group 2), and without nerve blockade (Group 3). POP intensity was assessed (VAS) when returning to the ward in Groups 1 and 3 or before blockade in Group 2 (Evaluation 1) and 1-hour after returning to the ward (Evaluation 2). The VAS values at Evaluation 1 and VAS reduction ($VAS_{evaluation2}$-$VAS_{evaluation1}$) were statistically analyzed in three groups by ANOVA and post-hoc Tukey-Kramer tests (statistical significance: $p<0.05$). Values are presented as median [interquartile range]. In all groups, POP management was performed with acetaminophen and NSAIDs.

Results: The number of patients in Groups 1, 2 and 3 was 11, 16, and 17. Maxillary nerve block, mandibular nerve block, inferior alveolar nerve block, and infiltration anesthesia were performed. The VAS values at Evaluation 1 and VAS reduction were 2.0[0.1-32.5], 66.0[50.0-92.5], 40.0[20.0-60.0] (2.0<66.0; $p<0.001$), and 0.0[-5.0-10.0], 50.0[17.5-64.0], 15.0[-10.0-25.0] (50.0>15.0; $p<0.001$), in Groups 1, 2 and 3, respectively. No one complained POP were observed after 1-year follow-up.

Conclusions: Blockade before extubation leads to almost no POP. APS with nerve blockade is effective for POP relief in the orthognathic surgery with no residual problems at 1 year follow-up.

487

INTERDISCIPLINARY CHRONIC PAIN REHABILITATION PROGRAM WORKING UNDER INTERNATIONAL STANDARDS IN BUENOS AIRES, ARGENTINA.

C. Moltedo[1], C. Amuchastegui[1], F. Salvat[1]

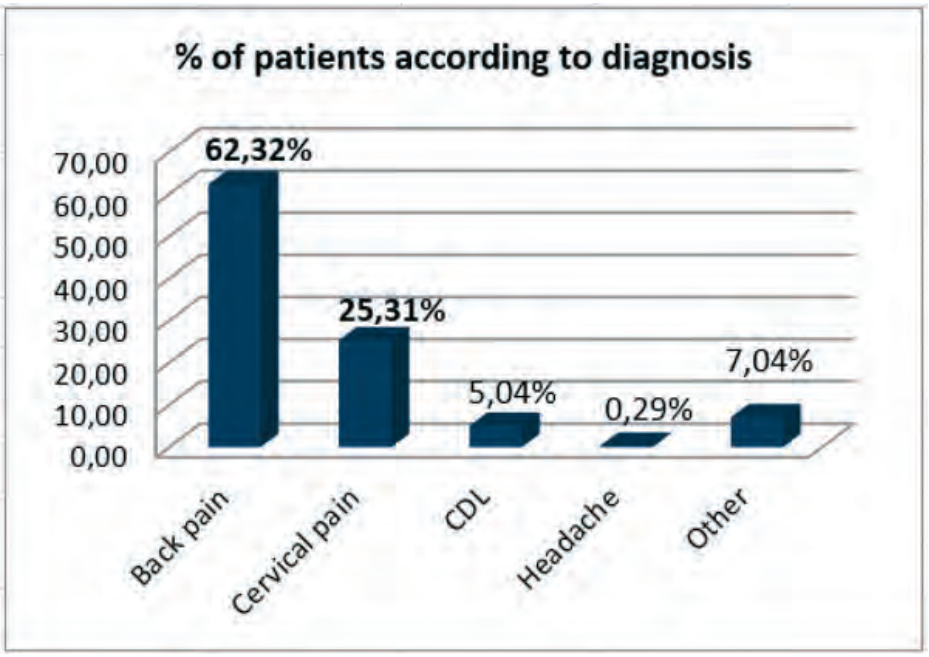
[1]Fleni, Buenos Aires, Argentina

Methods: A retrospective analysis of patients with non-malignant chronic pain treated between January 2015 to December 2021 was conducted.

A total of 1051 chronic pain patients enrolled in the IOPRP program (Table 1). This consisted of sixteen-sessions (from four to six-hour sessions conducted twice weekly) where patients underwent physiotherapy, exercise program, pharmacological treatment, psychological treatment, occupational therapy, as well as rehabilitation work to be completed at home.

Baseline (BL) questionnaires to assess a variety of patient health outcomes were completed at the start and the end of the program. These were: SF-36, Visual analogue Scale (VAS), Roland Morris Test (RM), Oswestry Disability Index (OSW), Beck Depression Inventory (BECK), Health Assessment Questionnaire (HAQ) and Insomnia Severity Index (ISI).

Table 1



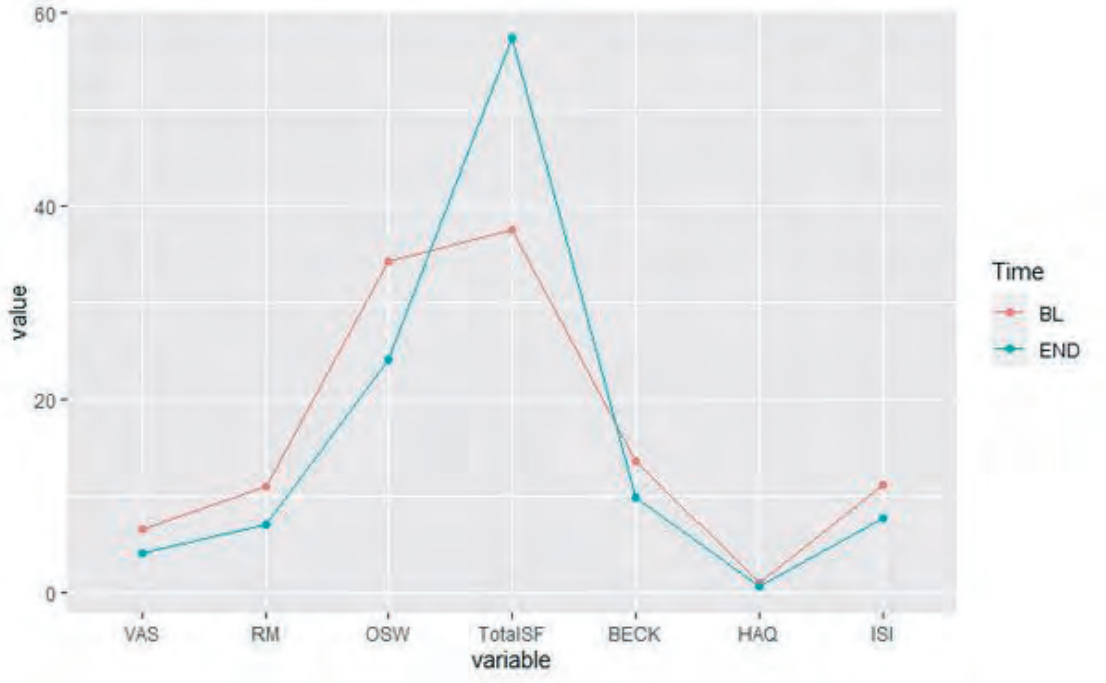
Results: At baseline, substantial levels of pain and disability and poor overall quality of life were identified, including subclinical insomnia and mild mood disturbances.

By the end of the program, statistically significant improvements ($p<0.05$) were found on SF-36 variables (at 8 domains), as well as VAS, RM, OSW, BECK, HAQ and ISI (Table 2 and Graphic 1).

Table 2

	Overall	BS	END	p
n	2102	1051	1051	
VAS (median [IQR])	5.00 [3.00, 7.00]	6.50 [5.00, 8.00]	4.00 [2.00, 6.00]	<0.001
RM (median [IQR])	9.00 [5.00, 14.00]	11.00 [7.00, 15.00]	7.00 [4.00, 11.00]	<0.001
OSW (median [IQR])	29.00 [18.00, 40.00]	34.00 [24.00, 46.00]	22.00 [13.00, 34.00]	<0.001
Total SF-36 (median [IQR])	45.73 [32.44, 62.16]	37.54 [27.50, 51.81]	57.33 [42.17, 71.75]	<0.001
BECK (median [IQR])	11.00 [6.00, 16.00]	12.00 [8.00, 18.00]	8.00 [4.00, 14.00]	<0.001
HAQ (median [IQR])	0.88 [0.50, 1.25]	1.00 [0.62, 1.38]	0.62 [0.25, 1.00]	<0.001
ISI (median [IQR])	9.00 [4.00, 14.00]	11.00 [6.00, 16.00]	6.50 [2.00, 12.00]	<0.001

Graphic 1



Conclusions: These results demonstrate that an interdisciplinary chronic pain rehabilitation program that meets international best-practice standards can benefit patients in health outcomes used in this study.

488

HEADACHE IN PHYSICIANS AND NURSES AND ITS IMPACT

A. Bytyqi[1,2], A. Bytyqi[1,2], F. Kryeziu[3,2], V. Kryeziu[3], S. Bytyqi[2]

[1]General Hospital, Prizren, Albania, [2]Professional Health Association - PHA, Pain Section, Kosovo, Prizren, Albania, [3]Regional Institute for Public Health, Prizren, Kosovo, Albania

Methods: The approach of the study was retrospective, where a random selection of physicians and nurse participants was made in the General Hospital of Prizren. Information was gathered on demographic data, occupational factors, and headache characteristics using a structured questionnaire.

Results: Regarding the type of headache, 24% of the participants reported being diagnosed with migraine, while 37% said they had a tension-type headache and the others had the headache as a result of cervical problems. Working more than 4-night shifts per month was associated with an increased prevalence of headaches. Participants who had more workloads (lack of staff, surgery, pediatrics) reported having more headaches. The results showed that awareness of the proper use of drugs was quite low among both doctors and nurses.

Conclusions: Headache causes job and financial loss to individuals and impairs quality of life. Preventing the overuse of medications by raising the awareness of health professionals is an important step in preventing the overuse/misuse of headache medications as well as combining non-pharmaceutical techniques.

495

SCALP NERVE BLOCK AFTER CRANIOTOMY OR CRANIECTOMY FOR PEDIATRIC PATIENTS: A CONTROLLED RANDOMIZED TRIAL

V. Skotelis[1], B.Y. Wehbe[1]

[1]Childrens Clinical University Hospital, Riga, Latvia

Methods: *Population.* Children scheduled for elective craniotomy or craniectomy were randomly assigned to either the control group (i.e. no infiltration) or the SNB group.

Intervention. Standartised anesthesia, analgesia protocol was used for all patients. SNB was performed with bupivacaine 0.25% at the end of operation.

Outcomes. Postoperative pain assessment was done using FLACC, Wong Baker face, VAS or NRS scores. Rescue analgesia (IV Morphine, 0.1 mg kg^{-1}) was given for a pain score>5.

Results: 44 children, aged 1 month to 13 years, were enrolled in the study with 21 assigned to control and 23 to SNB group. The SNB group showed significantly lower pain scores (mean 1.52, SD 1.3 vs 3.95, SD 1.78, $p<0.05$) and reduction in rescue medication (mean 0 vs 0.43, $p<0.05$) in neurosurgery ward. Time to successful feeding was shorter (mean 3.5, SD 0.73 vs 6.7, SD 2.1, $p<0.05$) and PPPM scores were significantly lower in SNB group (mean 4.3, SD 1.1 vs 6.7, SD 1.7, $p<0.05$). There were no SNB technique or medication caused complications.

Conclusions: Analgesia using SNB resulted in better postoperative pain management, decreased postoperative rescue analgesic requirements, earlier successful feeding and better parent satisfaction.

498

CREATION OF A HIGH RESOLUTION SYSTEM IN THE NURSING OFFICE OF THE PAIN UNIT FOR THE APPLICATION OF THE 8% CAPSAICIN PATCH

B. Expósito Gil[1], A. Cuadrado Mancy[1], G. Martín Merino[1], M.B. Rodríguez Campoó[1], M.D. Bédmar Cruz[1], A. Rincón Higuera[1], C. Ais Dávila[1], M.J. Guinaldo Elices[1]

[1]Hospital Universitario de Fuenlabrada, Fuenlabrada, Spain

Methods: A consultation system was created for the patch application in which other specialties (neurologists, rehabilitators, traumatologists) refer patients quickly and efficiently, after a diagnosis and evaluation on their part, to the nursing office for application and subsequent review. The commitment is to perform the technique in less than fifteen days from its referral.

Results: The consultation of these patients has been expedited with this solution. Being referred directly to the nurse for the patch application without needing a prior assessment by the pain unit doctor has much improved their pain control.

Conclusions: - Reduction of waiting lists, by shortening about three months the time between diagnosis and treatment.

- Better pain control in patients thanks to the immediate action from the nurses, who apply the capsaicin patch on a hospital outpatient basis in less than fifteen days from its indication

- Increased patient satisfaction.

- Greater adherence to pharmacological treatment and better trust in the healthcare system.

502

PAIN AFTER HERNIA SURGERY- A LESS SERIOUS CHALLENGE THAN EXPECTED

G.-K. Kindl[1], K. Teichmüller[1], F. Aulbach[1], J. Dreiling[2], D. Schwarzkopf[2], N. Rose[2], W. Meißner[2], H. Rittner[1]

[1]Center for Interdisciplinary Pain Medicine, Department of Anesthesiology, University Hospital of Würzburg, Würzburg, Germany, [2]Department of Anesthesiology, University Hospital of Jena, Jena, Germany

Methods: As part of the LOPSTER project, we included patients with inguinal and femoral hernia repair in 2018. Socio-demographic and healthcare parameters, such as pain medication, outpatient and multimodal pain therapy, psychiatric comorbidities, physical and occupational therapy were obtained one year before and after the indexed year. Since CPIP was not coded in the ICD-10, surrogate diagnoses like R10.2-4, or M79.25. were used.

Results: Out of over 9 million health insurance members, 11,221 patients underwent hernia closure in 2018. Three quarters had no pain in the year after hernia surgery; 8.5% had pain only after the surgery, 4.2% before and after and 9.6% only before. CPIP patients were younger and mainly female. In the group of pain before and after surgery,

more medication and non-medication therapies were prescribed, and more psychiatric comorbidities existed. Prescription of non-opioids was higher, of antineuropathic drugs was lower than expected.

Conclusions: Although in some patients inguinal pain dissolves after surgery, has a similar number pain afterwards. This should be taken into consideration. Patients with longstanding groin pain receive the most extensive care – although less antineuropathic drugs and multimodal therapy than expected. This could be less need or undertreatment.

504

CROSS-SECTIONAL STUDY OF START-BACK SUBGROUPS

L. Fischer-Grote[1,2], T. Kienbacher[1], A. Kienbacher[1], G. Ebenbichler[3], R. Habenicht[1], P. Mair[4], E. Fehrmann[1,2]

[1]Karl Landsteiner Institute for Outpatient Rehabilitation Research, Vienna, Austria, [2]Karl Landsteiner University of Health Sciences, Krems, Austria, [3]Medical University of Vienna, Vienna, Austria, [4]Harvard University, Cambridge, United States

Methods: A total of 625 (69% femaile; mean age (sd) = 53.0 (6.7)) back pain patients, who were referred to the outpatient rehabilitation center for a six-months training intervention, participated at this cross-sectional study. The patients completed the following questionnaire: demographic questions, a visual analogue scale, Start-back, Roland Morris disability questionnaire, pain disability questionnaire, 5-level European Quality of Life Questionnaire, Hospital Anxiety and Depression Scale, Avoidance-Endurance fast screen, Simbo-C, Stanford presenteeism scale-6, and took part in a semi-structured interview led by clinical psychologists. Furthermore, patients performed maximum back extension strength and trunk range-of-motion measures, as well as flexion-relaxation tests. Start-back subgroups will be compared in different variables using ANOVAS.

Results: It is expected that the start-subgroups will differ in the physical measures and their disability levels, as well as in psychosocial variables (depression, anxiety, quality of life, avoidance-endurance behavior, interview data).

Conclusions: These results will help to gain an even deeper understanding of pain chronification risk, and will be relevant to improve individualized therapy planning, and thus optimize therapy outcomes.

510

SPINAL ASTROCYTE ROLE IN HYPERALGESIA PRIMING IN CHRONIC MUSCLE PAIN MODEL

M.A. Abdelaziz[1,2], W.-H. Chen[1], S.-F. Tzeng[3], C.-C. Chen[1]

[1]Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan, [2]College of Medicine, National Cheng Kung University, Tainan, Taiwan, [3]Department of Life Science, National Cheng Kung University, Tainan, Taiwan

Methods: Pharmacological and chemogenetic approaches

Results: Chronic pain induced by dual acid injection were attenuated gradually by pharmacological and chemogenetic inhibition of astrocytes in the spinal cord before the priming formation, The involvement of astrocyte activation was evidenced by the findings that spinal Glial fibrillary acidic protein (GFAP) protein expression and number of activated astrocytes increased in the spinal dorsal horn of mice 4 hours after 1st acid injection, we found that chemogenetic activation of spinal astrocytes mimics the 1st acid induce priming.

Conclusions: The main conclusions of the thesis work indicate to the distinct transient activation of spinal astrocytes during hyperalgesic priming, the GFAP signal increased at 4 hours following the first intramuscular acid pH 4.0 injection, while astrocyte activation is not involved in triggering the transient hyperalgesia evoked by the first acid but still required for chronic state development by 2nd acid injection, so we discovered that it is necessary for the formation of the priming-induced persistent chronic phase.

511

DEVELOPMENT OF BEHAVIOR PATTERN SCALE FOR KOREAN PATIENTS WITH CHRONIC PAIN: PILOT STUDY

K. Moon[1], S. Oh[1], S. Jo[2], K. Lee[2], S. Cho[2]

[1]Chung-ang University, Seoul, Korea, Republic of, [2]Chungnam National University, Daejeon, Korea, Republic of

Methods: For the development of the draft scale, we analyzed and integrated the items of existing pain patient activity pattern scales. So far, five scales have been developed and used.

Label of Scale	# of factors	Sub Factors	# of Total Items
APS (the Activity Patterns Scale)	8	pain avoidance, resting, pacing for increasing activity levels, pacing for energy conservation, pacing for pain reduction, tssk-contingent persistence, exessive persistence, pain-contingent persistence,	24
POAM-P (the Patterns of Activity Measure-Pain)	3	avoidance, overdoing, and pacing	30
PARQ (the Pain and Activity Relations Questionnaire)	4	contingency, avoidance, pacing, and confronting	32
BRIQ (The Behavioral Responses to Illness Questionnaire)	4	all-or-nothing behavior, limiting behavior, emotional support seeking and practical support seeking	21
CPCI (the Chronic Pain Coping Inventory)	9	guarding, resting, asking for assistance, relaxation, task persistence, exercise, seeking social support, coping self-statements and medication use	64

Results: A total of 172 items were collected from the previous 5 scales, as a result of integrating similar items, the number of items was reduced to 76 with 5 factors such as avoidance, management, overdong, support seeking, and pacing.

Number	Integrated Factor	Name of Factors	Source
1	Avoidance	factor 1: avoidance	2. POAM-P
2		factor 1 : avoindance	3. PARQ
3		factor 1: limiting behavior	4. BRIQ
4		factor 1 : guarding	5. CPCI
5		factor 4 : contingency	3. PARQ
6	Management	factor 2 : resting	5. CPCI
7		factor 4 : relaxation	5. CPCI
8		factor 6 : exercise	5. CPCI
9		factor 8 : coping self-statements	5. CPCI
10	Overdoing	factor 2: overdoing	2. POAM-P
11		factor 3 : confronting	3. PARQ
12		factor 2: all-or-nothing behavior	4. BRIQ
13		factor 5 : task persistence	5. CPCI
14	Pacing	factor 3: pacing	2. POAM-P
15		factor 2 : pacing	3. PARQ
16		factor 6: pacing for increasing activity levels	1. APS
17		factor 7: pacing for energy conservation	1. APS
18		factor 8: pacing for pain reduction	1. APS
19	Seeking Support	factor 3: emotional support seeking	4. BRIQ
20		factor 4: practical support seeking	4. BRIQ
21		factor 3 : asking for assistance	5. CPCI
22		factor 7 : seeking social support,	5. CPCI

Conclusions: Although a draft questionnaire was developed through literature review, it is necessary to examine contents validity through chronic pain patients and pain experts, also, discriminant validity through factor analysis after conducting survey. In addition, the critera-realted validity to see if these factors are related to the psychological state and function of chronic pain patients.

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea(NRF-2022S1A5A2A03050752)

512

MULTIMOVE - A MULTIMODAL INTERVENTION DURING INPATIENT REHABILITATION ON CLINICAL AND FUNCTIONAL OUTCOMES IN CHRONIC LOW BACK PAIN PATIENTS

L. Schega[1], T. Nguyen[1], M. Behrens[1], K.-C. Broscheid[1], R. Bieltzki[1], K. Rohkohl[2], I. Rudolph[2], K. Meiler[3], J. Franke[3]

[1]Otto-von-Guericke-University Magdeburg, Magdeburg, Germany, [2]Waldburg- Zeil Kliniken Rehabilitationsklinik Bad Salzelmen, Schönebeck, Germany, [3]Orthopädie Klinikum Magdeburg, Magdeburg, Germany

Methods: For this prospective, two-arm, controlled pilot trial, 27 CLPB patients (17 females, 10 males) were assigned to either a classical 3-week inpatient rehabilitation program (control group [CG], *n*=12) or a similar program with an additional daily MultiMove intervention (dancing and motor-cognitive exercises) of 30 min (intervention group [IG], *n*=15). Beside other instruments, The Timed Up and Go (TUG) test, acute/chronic pain intensity, trunk range of motion (ROM), spatio-temporal gait parameters during single and dual task walking (ST, DT), Tampa Scale of Kinesiophobia, Oswestry Disability Index and the EuroQol EQ-5D-5L were assessed during the first (pre-test) and last day (post-test) of the rehabilitation.

Results: The ANCOVA with baseline-adjustment revealed significant improvements in TUG performance (p=0.003, 95%CI:[4.0,0.9s]), ROM (sagittal: p=0.031, 95%CI:[1.9,37.5°]; frontal: p=0.017, 95%CI:[3.9,36.2°]; transversal: p=0.030, 95%CI:[1.9,35.0°]) and a significant reduction in acute pain (p=0.040, 95%CI:[-4.0,-0.1]) in the IG compared

to the CG. The pain coping strategy ("praying or hoping": p=0.006, 95%CI:[-1.2,-0.2]) and quality of life ("selfcare": p=0.015, 95%CI:[-1.2,-0.1]) were significantly reduced and improved, respectively, in the IG compared to CG.

Conclusions: MultiMove is an easy-to-implement intervention, which may be effective to improve functional mobility, flexibility, strength, endurance and quality of life as well as to reduce pain.

514

THE ROLE OF PAIN-RELATED EXPECTANCIES AND AVOIDANCE IN INDIVIDUALS WITH CHRONIC LOW BACK PAIN: A TEMPORAL NETWORK ANALYSIS

P.G. Nadinda[1], A. van Laarhoven[1], L. Waldorp[2], M. Peters[3], J. Vlaeyen[3,4], A. Evers[1,5]

[1]Leiden University, Leiden, Netherlands, [2]University of Amsterdam, Amsterdam, Netherlands, [3]Maastricht University, Maastricht, Netherlands, [4]KU Leuven, Leuven, Belgium, [5]Medical Delta, Leiden University, TU Delft, and Erasmus University, Leiden, Delft, Rotterdam, Netherlands

Methods: We aim to include 30 individuals with CLBP in our study. Participants are asked to fill in daily questionnaires regarding their momentary pain, expectancy, avoidance and other related psychological factors, such as fear of pain, affect, and attention, five times per day, for a duration of two weeks. A multilevel vector autoregressive model will be used to estimate a temporal network.

Results: We expect to see a dense network in which there are connections between psychological factors and somatic symptoms, like pain and fatigue, over time. Particularly, we expect to see temporal connections between pain, expectancies, and avoidance behavior.

Conclusions: Findings of this study will improve our understanding of the expectancy and avoidance mechanisms at play behind CLBP as part of a temporal network analysis. Evaluating which mechanisms are strongly connected to pain and related symptoms will give us insight on possible temporal interactions that may inform better pain management.

521

THE IMPACT OF HEADACHE, BACK PAIN AND MYALGIA ON PUBLIC HEALTH

F. Kryeziu[1,2], A. Bytyqi[3,2], V. Kryeziu[1], B. Sylaj[2], A. Bytyqi[3,2]

[1]Regional Institute of Public Health, Prizren, Kosovo, Albania, [2]Professional Health Association - PHA, Pain Section, Prizren, Kosovo, Albania, [3]General Hospital „Prim. Dr. Daut Mustafa", Prizren, Kosovo, Albania

Methods: The approach of the study was retrospective type. There was a literature review on the epidemiological data on chronic pain (headache, back pain and myalgia). The protocols in the Main Center of Family Medicine in Prizren and in the General Hospital of Prizren were analyzed, specifically in the internal ward, rheumatology service, neurology ward, orthopedic ward and emergency service.

Results: According to the results obtained from the protocols of MFMC and the Hospital in Prizren, chronic pain has been the most common symptom of patient visits. Based on the data from the analysis, it was noticed that the female gender was more affected by chronic pain. From the identified chronic pains, headache has dominated, then back pain, neck pain, and muscle pain in general. There was no protocol for the treatment of chronic pain in either the MFMC or the hospital of Prizren.

Conclusions: Risk factors associated with headache, back pain, and muscle pain must be addressed by managing cause and effect. Development of chronic pain management protocols is needed. Counseling programs or sessions for patients and the population regarding lifestyle changes (physical activities, nutrition and habits) are very important.

523

PSYCHOMETRIC PROPERTIES OF THE KOREAN VERSION OF THE CURRENT OPIOID MISUSE MEASURE (COMM)

S. Jo[1], J. Kim[2], H.J. Park[2], K. Lee[1], K. Moon[3], S. Cho[1]

[1]Department of Psychology, Chungnam National University, Daejeon, Korea, Republic of, [2]Department of Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of, [3]Department of Psychology, Chung-Ang University, Seoul, Korea, Republic of

Methods: The English version of the COMM was translated and reverse translated into Korean. Participants were 91 patients with chronic pain receiving treatment in a tertiary pain center in Seoul, Korea. The internal consistency of the scale was calculated as Cronbach's alpha. Exploratory factor analysis was performed using the maximum likelihood method, and the factor structure of COMM was extracted.

Results: The internal consistency index of the entire scale was .90, which was excellent. Three factors were obtained through a parallel analysis; however, the fit of the entire model improved when a four-factor structure was established. The four sub-factors were (1) medication adherence, (2) additional opioid use, (3) mental health difficulties, and (4) emergencies, and showed acceptable internal consistency [.75, .90, .87, and .84, respectively].

Conclusions: The reliability and validity of the Korean version of COMM were sufficient. The Korean version of the COMM is expected to be helpful for assessing the proper use and management of opioid analgesics in Korean patients with chronic pain.

525

CROSS-SECTIONAL STUDY OF CHRONIC NON-CANCER PAIN, ASSOCIATED DEPRESSION AND QUALITY OF LIFE AMONG THE POPULATION OF USERS OF AGED CARE SERVICES OF THE GERONTOLOGY CENTER

S. Vickovic[1], T. Grubor[2]

[1]Faculty of Medicine Novi Sad, University of Novi Sad, Novi Sad, Serbia, [2]Pain Therapy Center, Novi Sad, Serbia

Methods: The research was conducted as a Survey questionnaire and included a sample population of 100 individuals of both sexes over 65 years of age. The questionnaire encompassed biological-demographic and sociological variables, *Numerical Rating Score, Pain Detect Test, The Geriatric Depression Scale-Short Version* and psychometric test CASP 19 – a summative scale composed of four domains: control over life, autonomy, pleasure and self-realization.

Results: The average age of the participants was 80.6±6.2 years. Chronic non-cancer pain was identified in even 75% of participants. The average value for pain intensity was 2.5±2.0. Positive finding on the presence of neuropathic pain component was recorded in 22.7% of participants. The average values at Geriatric depression scale and CASP 19 score were 4.9 and 35.9, respectively.

Conclusions: The prevalence rate for chronic non-cancer pain was significantly higher in the elderly as compared with the general population. The participants with chronic pain manifest with significantly pronounced depression and significantly lower quality of life.

526

NO CHANGE IN PAIN INTENSITY DURING PROVOCATIVE TESTING IN EXPERIMENTALLY INDUCED SHOULDER PAIN FOLLOWING HYPERTONIC SALINE INJECTIONS

N. D'hondt[1,2], W. Van den Hoorn[3], M. Midwinter[4], H. Kiers[1,2], D. Veeger[5], K. Tucker[4]

[1]HU University of Applied Sciences, Insitute for Human Movement Studies, Utrecht, Netherlands, [2]Vrije Universiteit Amsterdam, Faculty of Behavioural & Movement Sciences, Amsterdam, Netherlands, [3]Queensland University of Technology, ARC ITTC Joint Biomechanics, Brisbane, Australia, [4]The University of Queensland, School of Biomedical Sciences, Brisbane, Australia, [5]Delft University of Technology, Faculty of Mechanical, Maritime & Materials Engineering, Dept. of Bioengineering, Delft, Netherlands

Methods: 1-2mL hypertonic saline (5% NaCL) was injected in random order into the SSMb (n=10) or SASD (n=8) of 10 healthy participants (age 22.9±2.9years, 5-male) under ultrasound guidance. Participants were then exposed to 8 different active and passive provocative tests, in random order, at 20-second intervals. Pain intensity (VNRS-11) was reported in between and during each provocative test. Areas (body-diagram) and qualitative descriptors (Short-Form McGill Pain Questionnaire) of perceived pain were reported after completion of all provocative tests.

Results: Pain intensity was not significantly ($p>0.21$) altered by the provocative tests. SSMb-related pain was consistently perceived in the trapezius region but rarely in the deltoid region and predominantly described as "cramping" and "gnawing". SASD-related pain was perceived only in the deltoid region and predominantly described as "heavy" and "throbbing".

Conclusions: Hypertonic saline injection into the SSMb or SASD appears not suitable to mimic the mechanical pain response characteristic of affected tissue in shoulder conditions. This must be considered when interpreting the clinical significance of outcomes from previous studies on motor adaptations to hypertonic saline-induced shoulder pain, and when developing new research questions.

527

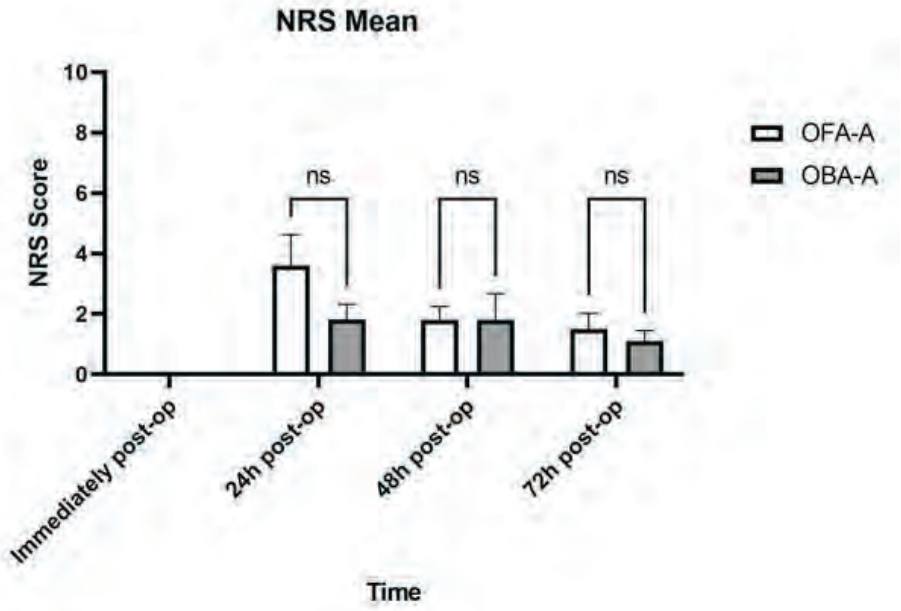
EFFECT OF A PERIOPERATIVE OPIOID-FREE ANAESTHESIA-ANALGESIA (OFA-A) STRATEGY ON POSTOPERATIVE PAIN IN ELECTIVE OPEN ABDOMINAL AORTIC ANEURYSM REPAIR: A PROSPECTIVE RANDOMIZED STUDY – EARLY FINDINGS

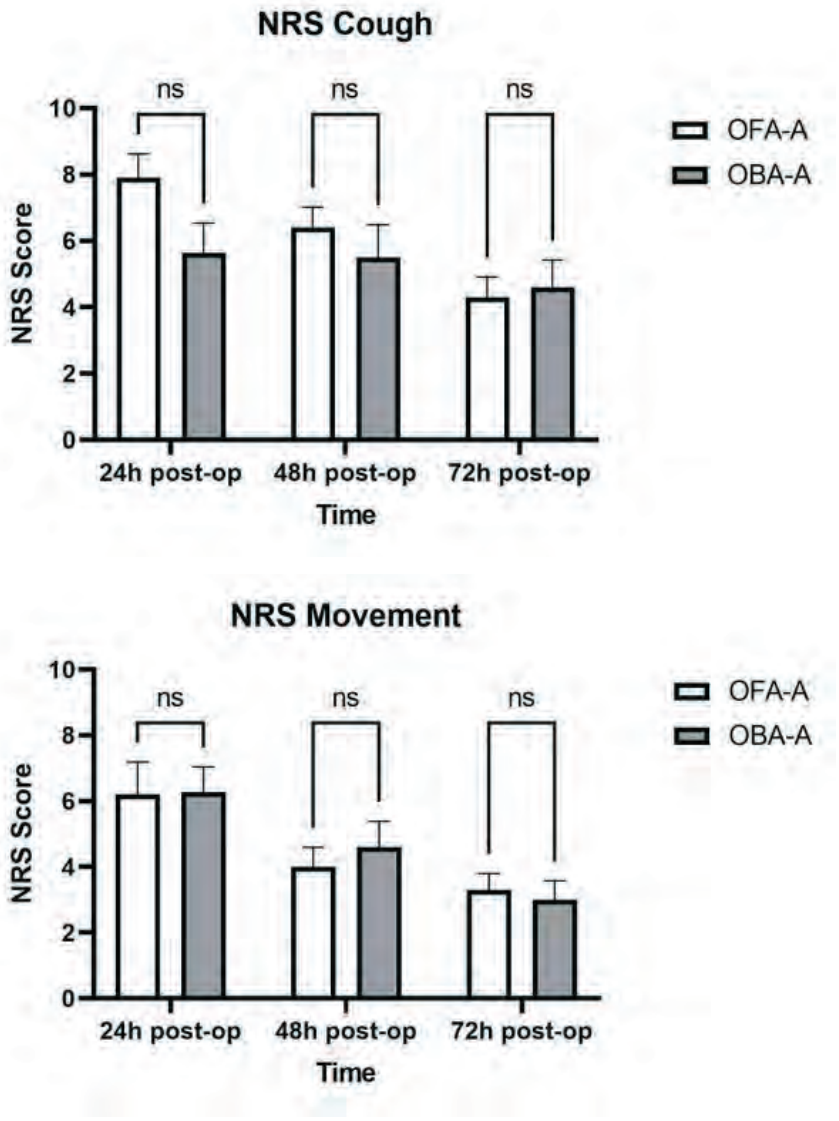
G. Papastratigakis[1], V. Nyktari[2,1], G. Stefanakis[1], E. Koutoulaki[1], P. Vasilos[1], N. Kontopodis[2,3], C.V. Ioannou[2,3], G. Chamilos[4,5], A. Papaioannou[2,1]

[1]University Hospital of Heraklion, Department of Anaesthesiology, Heraklion, Greece, [2]University of Crete, School of Medicine, Heraklion, Greece, [3]University Hospital of Heraklion, Vascular Surgery Department, Heraklion, Greece, [4]Laboratory of Clinical Microbiology and Microbial Pathogenesis, School of Medicine, University of Crete, Heraklion, Greece, [5]Institute of Molecular Biology and Biotechnology, Foundation for Research and Technology, Heraklion, Greece

Methods: This is a preliminary analysis of data collected so far in the course of a prospective randomized study, investigating the effect of a perioperative OFA-A strategy on surgical stress response in patients undergoing elective open AAA repair. No neuraxial or peripheral block was performed. OFA-A postoperative analgesic strategy does not rely on opioids. Comparison of postoperative pain is a secondary outcome of the study. Initial study design includes data collection from 40 patients (20 in each group, OFA-A and OBA-A). In both groups, patients' NRS and CPOT scores are documented postoperatively and every 24 hours during the first three postoperative days.

Results: Preliminary data (21 patients: 10 in OFA-A, 11 in OBA-A) were analysed. One patient in the OBA-A group had to be re-intubated and kept under sedation during the second and third postoperative days, and thus mixed-effects analysis models were used. No statistically significant difference was noted between the two groups regarding pain NRS (rest, cough, movement), at all timepoints. CPOT score was analysed with two-way ANOVA, and no statistically significant difference was noted at all timepoints.





Conclusions: Implementation of a perioperative OFA-A strategy for open AAA repair may be associated with equivalent acute postoperative analgesia when compared to a conventional OBA-A technique.

528

THE EFFECT OF OPIOID TAPERING ON LEVELS OF TESTOSTERONE AND ESTRADIOL – A LONGITUDINAL STUDY

T.F Kallman[1,2], E. Bäckryd[1,2]

[1]Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden, [2]Pain and Rehabilitation Center, Region Östergötland, Linköping, Sweden

Methods: Patients referred to the Pain and Rehabilitation Center in Linköping gave informed consent. Luteinizing hormone (LH), follicle-stimulating hormone (FSH), dehydroepiandrosterone (DHEA), and prolactin were measured in both sexes, and for men and women, testosterone and estradiol, respectively. Blood samples were collected when patients started tapering opioids (T0), and then one (T1), three (T3), six (T6), and twelve (T12) months after T0.

Results: The last blood samples of the study have recently been registered. Statistical analyses are ongoing (work in progress). 44 patients had complete data when opioid tapering started, and study data is based on these. 36% (n = 16) were women. Mean age was 59,3 years. Most patients received radiation towards the oropharynx (50%) or the hypopharynx (48%). Mean opioid dose at the start of tapering was 195 mg oral morphine equivalents. At T0, 32% of men had pathologic testosterone levels vs. none at T1 ($p < 0.001$). More detailed results will be presented at the conference.

Conclusions: This real-life longitudinal study gives new information on opioids' impact on gonadal hormones and rate of normalization after tapering is initiated.

530

PERCEIVED AND OBJECTIVE MEASURES OF STRESS AND THEIR ASSOCIATIONS WITH PAIN AND PLACEBO ANALGESIA: PRELIMINARY RESULTS FROM CHRONIC BACK PAIN PATIENTS

A. Shani[1,2], N. Rahamimov[2,3], M. Granot[1], R. Treister[1]

[1]University of Haifa, Haifa, Israel, [2]Galilee Medical Center, Naharia, Israel, [3]Bar Ilan University, Tsfat, Israel

Methods: Chronic back pain patients received a subcutaneous placebo (NaCl 0.9%) injection. As a baseline, the perceived stress level in the past month was recorded. Numeric pain score (NPS) and HRV measures of low-frequency(LF), high-frequency(HF), and LF-HF ratio, were assessed before and 30 minutes following injection. NPS was further assessed 24 hours post-injection.

Results: Participants (n=88) demonstrated a significant placebo response ($p<0.001$) with a post-injection NPS reduction (mean±SD) of 17.86±19.6 and 12.78±25.05, 30 minutes, and 24 hours respectively.

A significant decrease in LF-HRV($p=0.020$) an increase in HF-HRV ($p=0.001$) and a change in LF-HF ratio ($p=0.026$) were seen following injection. Perceived stress correlated with self-reported pain ($p=0.036$) but not with the placebo response. Placebo response after 24 hours (but not after 30 minutes) was correlated with changes in LF-HRV ($p=0.016$); HF-HRV ($p=0.017$) and LF-HF ratio ($p=0.026$).

Conclusions: Perceived stress is associated with self-reported pain intensity, but not with the placebo response. Changes in objective HRV measures, reflecting autonomic activity, were associated with delayed placebo response after 24 hours.

532

WITHIN- AND BETWEEN-SESSION RELIABILITY OF AN ELECTRICAL STIMULATION PARADIGM IN THE SUPERFICIAL AND DEEP SOMATIC TISSUE OF THE LOWER BACK

L. Nyirö[1], D. Streuli[1], J. Rosner[2], A. Schilder[3], M. Csato[4], P. Schweinhardt[1]

[1]Integrative Spinal Research, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [2]Spinal Cord Injury Center, Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [3]Department of Orthopedics and Trauma Surgery, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany, [4]Department of Radiology, Balgrist University Hospital, University of Zurich, Zurich, Switzerland

Methods: 20 healthy volunteers underwent two study visits separated by 28±2 days. Two isolated monopolar needle electrodes were placed ultrasound-guided at lumbar level L4/5 either in the erector spinae muscles or overlying superficial skin. The electrical detection (EDT) and pain thresholds (EPT) for each stimulation site were determined using a modified method of limits approach. Each staircase consisted of a series of single rectangular electrical impulses of 0.04ms duration. Mechanical detection threshold (MDT), mechanical pain thresholds (MPT) and pressure pain threshold (PPT) at the same lumbar level served as control measures. Reliability was determined within and between session.

Results: Excellent within-session reliability was shown for cutaneous and intramuscular electrical stimulations and all other measures (ICC: 0.76-0.93). Between-session reliability was good for MDT, MPT and PPT (ICC: 0.74-0.75) and poor for electrical stimulation (ICC: 0.08-0.36).

Conclusions: Cutaneous and intramuscular electrical stimulation may potentially close an important gap regarding the selective examination of deep somatic afferents and provide location-specific information for the excitability of non-nociceptive and nociceptive fibers.

533

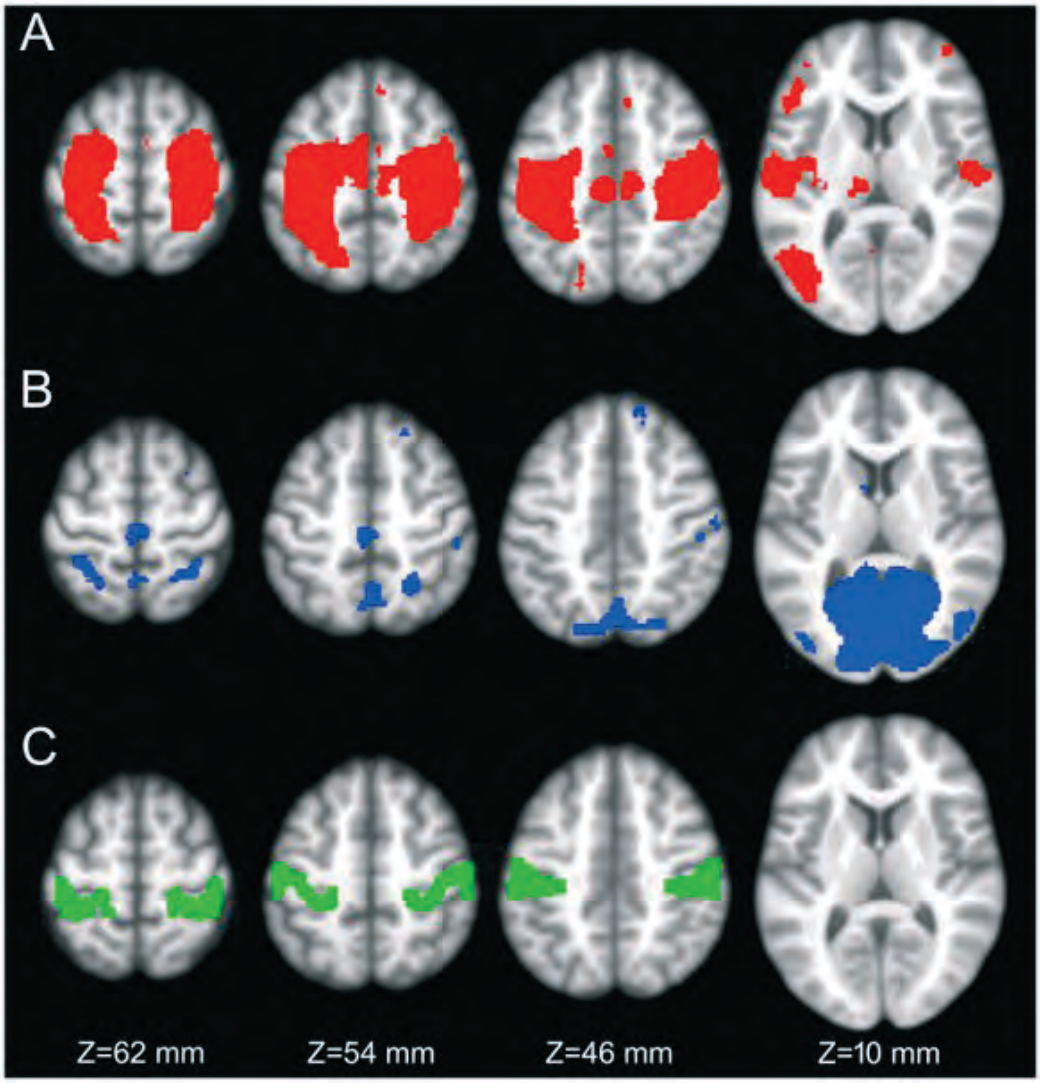
PREDICTION OF INDIVIDUAL PAIN SENSITIVITY FROM GREY MATTER STRUCTURE WITHIN THE SENSORIMOTOR NETWORK

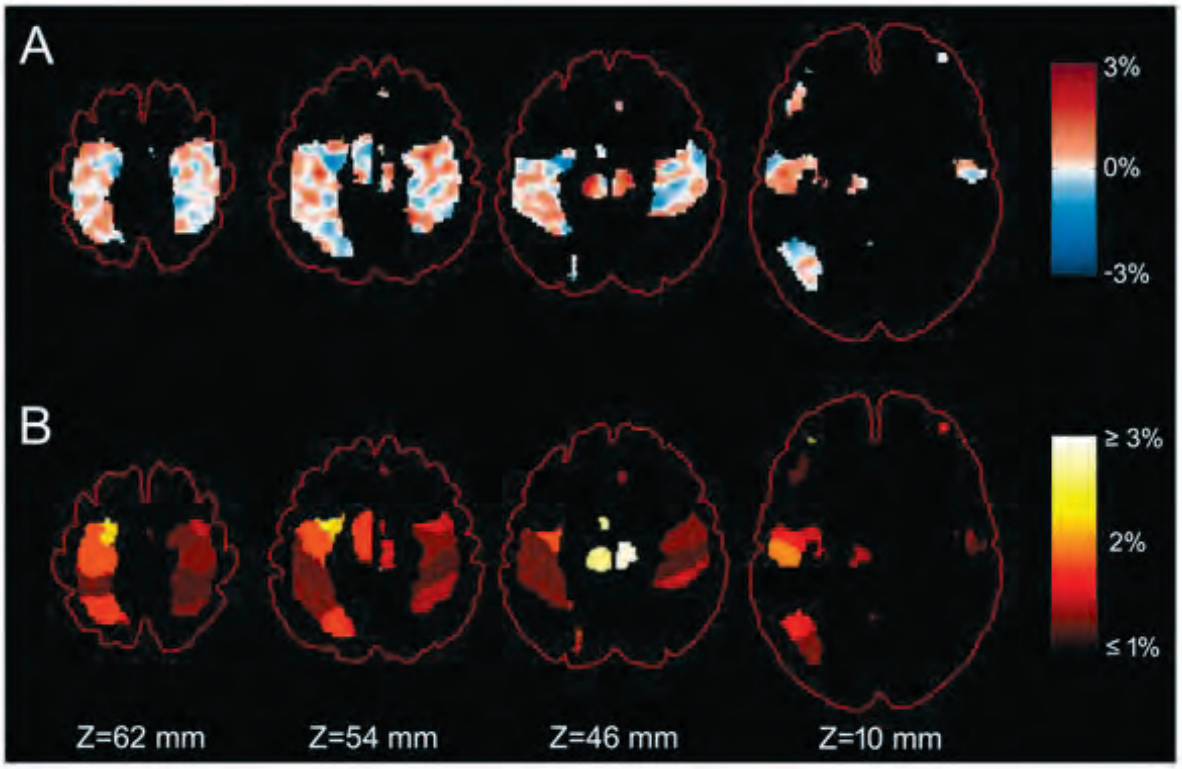
D. Niddam[1], Y.-T. Wu[1], L.-L.H. Pan[1], Y.-L. Chen[1], S.-J. Wang[1]

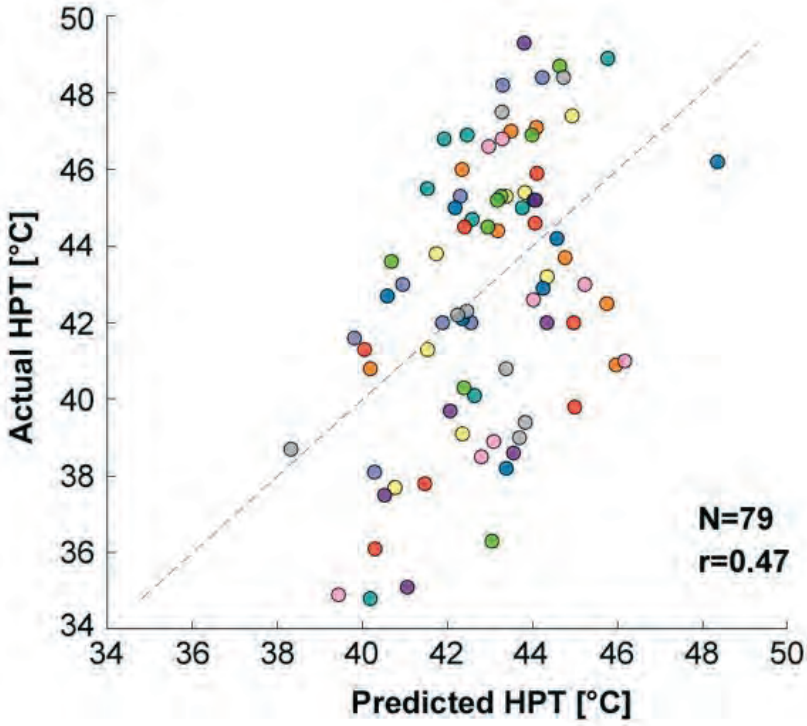
[1]*Brain Research Center, National Yang Ming Chiao Tung University, Taipei, Taiwan*

Methods: Structural magnetic resonance images and pain thresholds in response to contact heat stimulation of the left supraorbital area were obtained from 79 healthy participants. Segmented and normalized GM images were constrained to masks encompassing the resting-state SMN, the resting-state visual network and the primary somatosensory cortices (atlas defined). The masked images and pain thresholds entered into multivariate relevance vector regression analyses for quantitative prediction of the individual pain thresholds. The correspondence between predicted and actual pain thresholds was indexed by the Pearson correlation coefficient (r) and the mean squared error (MSE) and model generalizability was assessed by 5-fold cross-validation.

Results: GM structure within the SMN could predict pain sensitivity with significant accuracy (r=0.46, P=0.001, MSE=10.54, P<0.001). None of the other models resulted in significant predictions. The performance of the SMN model was significantly better than the other models (S1: P=0.001; VIS: P=0.009).







Conclusions: A multivariate pattern of GM structure within the SMN could accurately predict pain sensitivity at the individual level in healthy participants.

535

PAIN ASSESSMENT IN BRAIN-INJURED, NONCOMMUNICATIVE PATIENTS WITH AN ARTIFICIAL AIRWAY ADMITTED TO THE INTENSIVE CARE UNIT. PRELIMINARY DATA FROM THE ESCID-DC SCALE

C. López-López[1], F. Paredes-Garza[2], E. Romero de San-Pio[3], A. Castanera-Duro[4], M.-J. Frade-Mera[1], I. Latorre-Marco[5], C. Martín-Arriscado Arroba[6]

[1]Hospital Universitario 12 de Octubre, Madrid, Spain, [2]Hospital Universitario La Paz, Madrid, Spain, [3]Hospital Universitario Central de Asturias, Oviedo, Spain, [4]Hospital Universitario de Girona Doctor Josep Trueta, Girona, Spain, [5]Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain, [6]Instituto de Investigación Sanitaria Hospital 12 de Octubre (imas12), Madrid, Spain

Methods: Prospective, observational study. The two scales were administered at three time points by two independent evaluators: 5 minutes prior to nursing procedures (two painful, one non-painful); during the procedures; and 15 minutes post-procedure. The assessments were performed twice, once with the patient under deep sedation and once under moderate sedation. Pain severity, level of sedation, and level of consciousness were assessed with the SAPSII, RASS, and GCS scales, respectively.

Results: One-hundred patients were included (69% men). The mean(SD) SAPSII score was 46(15.4). On the first assessment (deep sedation), the median(IQR) RASS and GCS scores were 4 and 6(4 -7), respectively. On the second assessment (moderate sedation), the median(IQR) scores were -3(-3 to -2) and 9(7 - 9), respectively. Focal neurologic signs were observed in 57% of patients. Scores on both scales (ESCID-DC and NCS-R-I) increased significantly during the painful procedures versus the baseline and post-procedure assessments. There were significant differences on both scales between the first and second assessments for observers, time of assessment, and procedures. Correlation between the scales was positive for observers, assessment times, and measurements. Inter-observer agreement between the scales was excellent.

Conclusions: The ESCID-DC scale allows for the reliable detection of pain behavior during painful procedures in brain-injured patients. This scale correlates closely to the NCS-R-I scale, with excellent reproducibility.

536

ARE MUSCLES IN MUSCULOSKELETAL PAIN SYNDROMES OBJECTIVELY STIFFER THAN NORMAL? – AN EVIDENCE MAP

A. Haueise[1], G. Le Sant[2], A. Eisele-Metzger[3], A. Dieterich[1]

[1]Furtwangen University, Furtwangen, Germany, [2]University of Nantes, Nantes, France, [3]Cochrane Germany, Freiburg i. Br., Germany

Methods: Using the keywords “muscle stiffness”, “shear wave elastography”, “pain”, “asymptomatic controls”, and synonyms, a systematic search of the scientific literature was conducted in PubMed, CINAHL, and Google Scholar. Included articles were critically appraised with the AXIS tool and a list of items related to SWE methods. The quality-weighted evidence was visually mapped and narratively described.

Results: Of 137 identified articles, 31 were included. High-quality evidence was missing. The results comprise studies reporting lower stiffness in symptomatic participants, no differences between groups, and higher stiffness in symptomatic individuals. The methods and reporting of the use of SWE were inconsistent and often incomplete.

Conclusions: Existing evidence provides no answer to whether muscles in musculoskeletal pain conditions are objectively stiffer. Methodological shortcomings may explain most of the inconsistencies between findings. Standards for SWE measurements on muscles are urgently required.

537

PILOT STUDY FOR THE ASSESSMENT OF THE EFFECT OF NEURAXIAL ANAESTHESIA ON THE PAIN EXPERIENCE AND ENDOCANNABINOID LEVELS AFTER LOWER LIMB VASCULAR SURGERY

B. Bartos[1], Z. Kovács-Ábrahám[1], B. Rézmán[1], Z. Kriszta[1], R. Almási[1]

[1]PTE KK, Pécs, Hungary

Methods: The local Ethical Committee accepted the study protocol (9014PTE2021). Sixty patients, 25M/35F scheduled into reconstructive surgery were grouped into general or neuraxial anaesthesia. A method of liquid-chromatography mass-spectrometry developed at our university was used for the measurement of the concentration change in AEA; AA; 2-AG; NADA; OLDA; OEA; PEA; and SEA at the end and 12 hours after the surgery. A pain questionnaire focusing on the intensity, quality, and psycho-social factors was taken before, 1 month and 12 months after the surgery. The adjusted odds ratios (ORs; CI 95%) were estimated by multivariable logistic regression analysis.

Results: Differences in plasma concentrations of endocannabinoids regarding the AEA, OEA, PEA, 1-AG, and 2-AG were found at the end, and 12 hours after surgery between the two anaesthesia groups. A statistical difference in pain intensity after surgery between two groups can be determined by questionnaires, however, the long-term impact of neuraxial anaesthesia on the quality of life remains controversial.

Conclusions: The importance of the changes in endocannabinoid concentrations in the plasma in the two anaesthesia groups is unascertained yet. Assessments are necessary for further clarification.

538

DEVELOPMENT AND FEASIBILITY OF STRATIFIED PRIMARY CARE PHYSIOTHERAPY INTEGRATED WITH EHEALTH IN PATIENTS WITH NECK AND/OR SHOULDER COMPLAINTS: RESULTS OF A MIXED METHODS STUDY

M. van Tilburg[1], C. Kloek[1], M. Pisters[2], B. Staal[3], N. Foster[4], R. Ostelo[5], C. Veenhof[1]

[1]HU University of Applied Sciences, Utrecht, Netherlands, [2]Fontys University of Applied Sciences, Eindhoven, Netherlands, [3]HAN University of Applied Sciences, Nijmegen, Netherlands, [4]University of Queensland and Metro North Health, QLD, Australia, [5]VU University, Amsterdam Movement Sciences Research Institute, Amsterdam, Netherlands

Methods: This was a mixed methods study comprising the development of matched treatment options, followed by an evaluation of the feasibility of the developed Stratified Blended Physiotherapy approach for patients with neck and/or shoulder complaints.

Results: First, matched treatment options were developed. Recommendations for content and intensity of physiotherapy were matched to the patient's risk of persistent disabling pain (using the Keele STarT MSK Tool: low/medium/high risk). In addition, selection of mode of treatment delivery was matched to the patient's suitability for blended care (using the Dutch Blended Physiotherapy Checklist: yes/no). A paper-based workbook and e-Exercise app modules were developed as mode of treatment delivery options. Feasibility was then evaluated. Physiotherapists and patients were a little satisfied with the new approach. Usability of the physiotherapist dashboard to set up the e-Exercise app was considered 'OK' by physiotherapists. Patients considered the e-Exercise app to be of 'best imaginable' usability. The paper-based workbook was not used.

Conclusions: Results have informed amendments to the Stratified Blended Physiotherapy approach ready to use within a currently ongoing cluster randomized trial.

539

THE IMPACT OF HOSPITAL VISIT RESTRICTIONS ON PATIENT-REPORTED OUTCOMES BEFORE SURGERY AND ON POST-OPERATIVE ACUTE PAIN

C.M. Rinaudo[1], A. Mouraux[1], A. Steyaert[2]

[1]Université Catholique de Louvain (UCL) - Institute of Neuroscience (IONS), Bruxelles, Belgium, [2]Cliniques Universitaires de Saint-Luc (CUSL), Bruxelles, Belgium

Methods: 167 patients undergoing surgery (**thoracotomy**, **sternotomy**, **breast surgery**, **hysterectomy**, **cholecystectomy** or **inguinal hernia repair**) were included in the study, out of which **65** during the visit restriction period.

Patient-reported outcomes including **depression**, **anxiety**, **perceived stress** and **social support**, were assessed through questionnaires the day before surgery. Post-operative **acute pain intensity** was assessed the first three days after surgery.

A general linear model was applied to assess the impact of visit restrictions, as well as other notable variables that could influence results such as age and the type of surgery, on patient-reported outcomes before and after surgery.

Results: Only **Perceived Stress** was negatively impacted by **visit restrictions**. Depression, generalized anxiety and perceived stress had a negative correlation with age.

Conclusions: These results are consistent with previous studies reporting negative correlations between Social Support and Perceived Stress. Further longitudinal studies are needed to assess the impact of reduction of Perceived Stress on health (and pain) over time.

540

NLRP3 INFLAMMASOME ACTIVATION IN SENSORY NEURONS CONTRIBUTES TO OSTEOARTHRITIS PAIN

P. Silva Santos Ribeiro[1], H.LDM Willemen[1], S. Versteeg[1], C. Martin Gil[1], N. Eijkelkamp[1]

[1]University Medical Center Utrecht, Utrecht, Netherlands

Methods: C57BL/6 mice were injected intra-articular with monosodium iodoacetate (MIA, 10% w/v) to induce OA. Mechanical hypersensitivity was measured with the Von Frey test and deficits in joint loading with a weight bearing apparatus. NLRP3 inflammasome activation was quantified by measuring ASC specks, after ASC and pan neuronal staining. To inhibit NLRP3 inflammasome activation, mice received intraperitoneal (10 mg/kg) or intrathecal (5 µM) injection of MCC950.

Results: Intra-articular MIA injection induced pain-associated behaviors that lasted at least 28 days. At 21 days after OA induction, the number of dorsal root ganglia (DRG) neurons with ASC specks was increased. The number of neurons with ASC specks was significantly higher in male mice. Intraperitoneal administration of the specific NLRP3 inflammasome inhibitor MCC950 reduced the number of neurons with ASC specks and attenuated established mechanical hypersensitivity and weight bearing deficits for 7 days in males and 3 days in females. Intrathecal MCC950 injection, to inhibit NLRP3 inflammasome activity in the DRG and spinal cord, was also sufficient to inhibit OA pain.

Conclusions: NLRP3 inflammasome activation in sensory neurons contributes to established OA pain. Thus, NLRP3 inflammasome inhibition may represent a novel approach for treatment of OA pain.

543

CHARACTERISATION OF NEW-ONSET CHRONIC MUSCULOSKELETAL PAIN IN LONG COVID: A CROSS-SECTIONAL STUDY

O. Khoja[1], M. Mulvey[2], S. Astill[3], A.L. Tan[1,4], M. Sivan[1,4,5]

[1]Leeds Institute of Rheumatic and Musculoskeletal Medicine, University of Leeds, Leeds, United Kingdom, [2]Academic Unit of Palliative Care, Leeds Institute of Health Sciences, University of Leeds, Leeds, United Kingdom, [3]School of Biomedical Sciences, Faculty of Biological Sciences, University of Leeds, Leeds, United Kingdom, [4]NIHR Leeds Biomedical Research Centre, Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom, [5]COVID Rehabilitation Service, Leeds Community Healthcare NHS Trust, Leeds, United Kingdom

Methods: Adults with LC and nCMP underwent clinical examination, Quantitative Sensory Testing (QST), Timed Up and Go test (TUG), handgrip strength test, COVID-19 Yorkshire Rehabilitation Scale (C19-YRS), Brief Pain Inventory (BPI), International Physical Activity Questionnaire (IPAQ), EQ5D-5L and questionnaires for pain-related anxiety (GAD-7), depression (PHQ-9), self-efficacy (PSEQ) and catastrophising beliefs (PCS).

Results: 19 participants (12 female, 7 male) with mean age 50.6 years and mean duration of symptoms 508 days post-COVID-19 infection participated. nCMP was dull aching, widespread, worse in the joints, and neuropathic.

When compared to normative values reported in the literature: a) QST revealed decreased heat, mechanical and pressure pain thresholds, and higher mechanical pain sensitivity indicating peripheral sensitisation; b) TUG time was greater (13.4 sec) indicating risk of falling; c) mean handgrip strength was lower (18.8 kg men and 8.4 kg women) indicating weakness; d) and physical activity was lower indicating inactivity. LC symptoms severity (43.4/100), functional disability (22.6/50) and overall health (2.5/10) scores showed significant worsening of health compared to pre-COVID status. There were moderate levels of depression and anxiety with lower self-efficacy scores and higher levels of pain catastrophising.

Conclusions: This is the first study of the current literature to report on the characteristics, mechanisms and impact of LC nCMP on affected individuals.

545

TEST-RETEST RELIABILITY OF VON FREY FILAMENT'S INDUCED TEMPORAL SUMMATION IN A HEALTHY FEMALE POPULATION

A. Knezevic[1,2], L. Vojnovic[1,2], B. Savanov[1], T. Gostovic[1], E. Garipi[1,2], T. Aleksandric[1,2], D. Popovic[1,2]

[1]Faculty of Medicine University of Novi Sad, Novi Sad, Serbia, [2]Medical Rehabilitation Clinic University Clinical Centre of Vojvodina, Novi Sad, Serbia

Methods: The present study included 35 healthy women (mean age 25,8±6,0 years). TS was evaluated in the following manner. Firstly, each specified body location received a single pinprick stimulus using a von Frey filament weighing 300 g and the additional cycle of 10 stimuli. Pain intensity (0-100) was recorded for the first and 10thstimulus and the difference between the 10th and the 1st stimulus represented TS. Two trials were carried out on the dorsum of the hand and pectoral region ipsilaterally and finally on the dorsum of the foot on the contralateral side. The retest was performed after one week in order to investigate the reliability of the described testing procedure.

Results: Reported pain intensity after the 10 stimuli cycle was significantly higher from the single stimulus applied with von Frey filament. Average values of TS in the region of the hand were 14,4±12,3, in the region of the dorsum of the foot 14,9±12,8 and in the pectoral region 14,8±13,5. Retest assessment showed excellent reliability: on the dorsum of the hand PPT (ICC=0,887, 95%CI 0,776-0,943), dorsum of the foot (ICC=0,893, 95%CI -0,785-0,946), and on the pectoral region (ICC=0,895, 95%CI -0,794-0,947).

Conclusions: It is possible, with good reliability, to induce TS using Von Frey filament in healthy women.

546

SYSTEMATIC REVIEW OF TOPICAL INTERVENTIONS FOR THE MANAGEMENT OF PAIN ASSOCIATED WITH CHRONIC WOUNDS

C. Healy[1,2,3,4,5], C. Ffrench[6,3,4], C. McIntosh[7,8], S. Arshad[9], A. McLoughlin[7,9,10], S. Probst[11,12], P. Carr[6], D. Sezgin[6,7], K. Butler[7], J. Ivory[7,6,5], D. Finn[1,2,3,4], G. Gethin[6,7,11,12,4]

[1]Pharmacology and Therapeutics, University of Galway, Galway, Ireland, [2]Galway Neuroscience Centre, University of Galway, Galway, Ireland, [3]Centre for Pain Research, University of Galway, Galway, Ireland, [4]CÚRAM, SFI Research for Medical Devices, Galway, Ireland, [5]Irish Research Council, Dublin, Ireland, [6]School of Nursing and Midwifery, University of Galway, Galway, Ireland, [7]Alliance for Research and Innovation in Wounds, University of Galway, Galway, Ireland, [8]Discipline of Podiatric Medicine, School of Health Sciences, University of Galway, Ireland, [9]Department of Medicine, University of Galway, Galway, Ireland, [10]Centre for Diabetes, Endocrinology and Metabolism, Galway University Hospital, Galway, Ireland, [11]Geneva School of Health Science, HES-SO University of Applied Sciences and Arts, Geneva, Switzerland, [12]Faculty of Medicine Nursing and Health Sciences, Monash University, Clayton, Australia

Methods: This systematic review examined the effectiveness of topical interventions in the management of chronic wound-related pain of randomised-controlled trials (RCTs) where pain-reduction is the primary outcome. Adults (18+) with chronic venous, arterial, diabetic, or pressure ulcers where pain has been managed through topical administration of pharmacological/non-pharmacological agents were included. 8 major databases were searched and screened for eligibility; risk of bias and data were extracted by independent assessors.

Results: Searches retrieved 10,327 texts (7,760 post-deduplication). Nine papers (1,323 participants) examining: ibuprofen (*n* = 4), morphine (*n* = 2) BWD + PHMB [polihexanide-containing bio-cellulose wound dressing] (*n* = 1),

and EMLA (*n* = 2) were included. Risk of bias was assessed using the Cochrane Risk of Bias 2 tool. Meta-analysis was not possible but initial exploration suggests improved outcomes (reduced pain) for ibuprofen when compared with controls. Included studies often had small samples, and considering confounding factors (e.g., co-morbidities), results should be interpreted with caution. Reporting standards within the studies were inconsistent and made drawing robust conclusions challenging as studies often had no congruity in timepoints, measurement tools, or assessment criteria.

Conclusions: Review of included studies suggests that topical interventions may provide pain relief in individuals with chronic wounds. Further adequately powered RCTs are recommended to assess the efficacy of topical interventions for the management of chronic wound-related pain.

550

FEASIBILITY STUDY OF AN ONLINE FRENCH CHRONIC PAIN SELF-MANAGEMENT PROGRAM: AN OVERVIEW OF PRELIMINARY RESULTS

P. Marier-Deschenes[1,2,3], A.M. Pinard[1,4,3], A. LeBlanc[1,2]

[1]Laval University, Quebec, Canada, [2]VITAM - Centre de recherche en santé durable, Quebec, Canada, [3]CIRRIS, Quebec, Canada, [4]CHU de Québec - Université Laval, Quebec, Canada

Methods: We recruited adults with chronic pain awaiting services from a Center of expertise in chronic pain management. During eight weeks, participants completed self-directed lessons on pain, goal setting, stress management, pacing, physical activity, thoughts and emotions, sleep, nutrition, flare-up management, and planning. We assessed self-reported outcomes pre-intervention, post-intervention, and at a three-month follow-up. Outcome measures focused on self-efficacy, pain intensity, pain-related interference, depression, anxiety, catastrophizing, global impression of change, and acceptability.

Results: Sixty-three participants provided consent and information at baseline (73% female, mean age 54 ± 12.7 years). Ten dropped out before receiving the link to the program. Among the 53 individuals who accessed the program, 43 completed the post-intervention questionnaires. The mean score on the Acceptability E-scale was 25.2 (range 6-30, higher score reflecting higher acceptability). Participants perceived the program as easy to use and helpful in developing or deepening pain management strategies. They were generally satisfied with the program, enjoyed using it, and considered the time required to follow it acceptable. They thought it presented easy-to-understand information.

Conclusions: These findings provide preliminary evidence that the program is acceptable. Its potential effects are still under evaluation. To increase our understanding of the participant›s experience with the program, we will conduct semi-structured interviews with a subsample of the study›s participants.

551

DICAM IN THE EXTRACELLULAR VESICLES FROM ASTROCYTES ATTENUATES MICROGLIA ACTIVATION AND NEUROINFLAMMATION

D. Park[1], C.R. Kim[1], D.Y. Kim[1], N.Y. Joo[1], S.Y. Joo[1]

[1]Ulsan University Hospital, Ulsan, Korea, Republic of

Methods: To simulate central sensitization, we used the tibia fracture with 3-week-cast immobilization model of complex regional pain syndrome (CRPS) in 12-week-old male DICAM knockout (KO) mice and their wildtype (WT) littermates. Primary mixed glial cells and astrocytes were isolated from the brain cortices of 2- to 3-day-old pups, which were stimulated with lipopolysaccharide (LPS) and interferon-γ (IFN-γ). Subsequently, extracellular vesicles (EVs) were isolated from astrocytes by differential ultracentrifugation. Conditioned media from the stimulated astrocytes was treated to mixed glial cells to investigate the role of DICAM as an astrocyte-microglia coupling factor.

Results: In the results, DICAM KO mice revealed enhanced nociceptive behaviors and glial cell activation in the spinal dorsal horn of the CRPS model. Stimulated mixed glial cells from DICAM KO mice also showed proinflammatory and M1-like microglia phenotypes as compared to WT mice, which was attributable to the enhanced activation of p38 MAPK signaling. Furthermore, we found that activated astrocytes secreted DICAM through EVs and activated astrocyte-derived conditioned media from DICAM KO mice recapitulated the inflammatory phenotype in mixed glial cells.

Conclusions: In conclusion, our findings indicate that DICAM secreted from reactive astrocytes through EVs was involved in microglia activation suppression and subsequent attenuation of neuroinflammation during central sensitization.

555

SEX-RELATED PAIN BEHAVIORAL DIFFERENCES DUE TO ADOLESCENT STRESS CAN PREDISPOSE LOW BACK PAIN IN ADULTHOOD

D. Singhal[1], L. Li[1], S.K. Singaravelu[1], W. Greffrath[1], R.-D. Treede[1]

[1]Department of Neurophysiology, Mannheim Center for Translational Neuroscience, Medical Faculty Mannheim, Heidelberg University, Ruprecht-Karls-University Heidelberg, Mannheim, Germany

Methods:

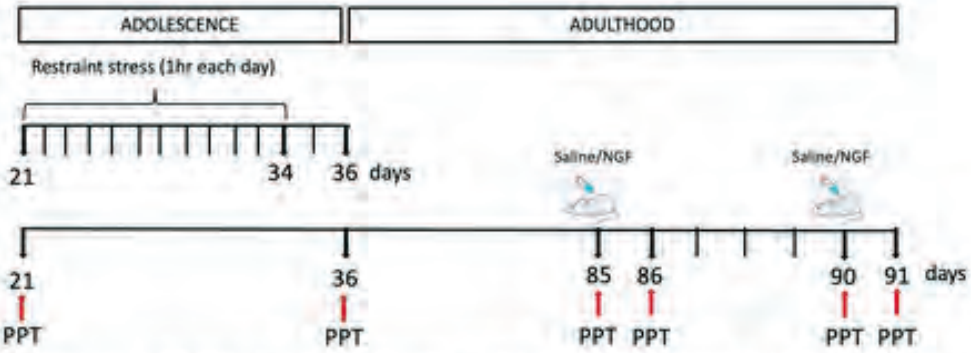


Fig.1. Experimental procedure for restraint stress and behavior test. The Wistar rats were stressed consecutively for 12 days, 1 hour daily for to establish the trauma during adolescence. PPT of the left multifidus muscle was measured at the vertebral level L5 at different time points. PD21 (baseline), after stress (PD34) in adolescence. PD85,86,90,91 in adulthood. All animals received two injections (NGF/Saline) at an interval of five days in their adulthood (PD85 and PD90) to check for latent vs. manifest sensitization of the dorsal horn neurons leading to the chronic low back pain.

Adolescent rats experienced restraint stress and controls were handled. In adulthood, two injections (NGF/Saline) were administered in the lumbar multifidus muscle at an interval of five days to establish the experimental model of low back pain. Pressure pain threshold (PPT) was measured for deep muscular hyperalgesia.

Results:

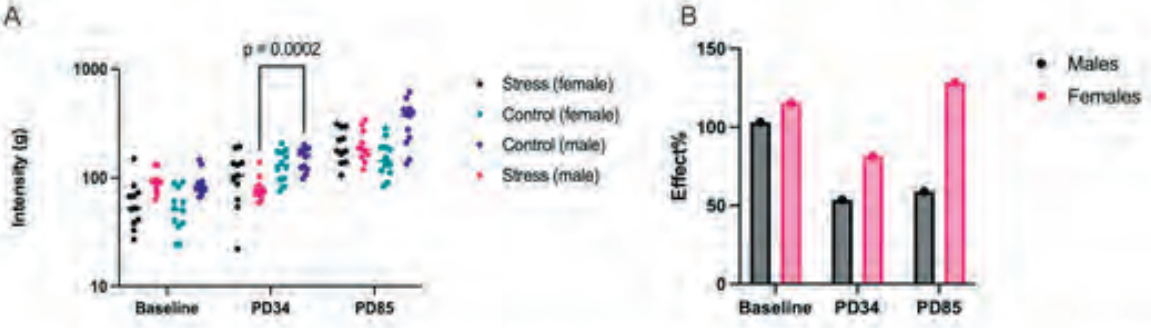


Fig.2. Pressure Pain Threshold before and after stress in male and female Wistar rats. Repeated restraint stress in early adolescence induces long-lasting mechanical hyperalgesia in males and habituation to stress in females. (A) Individual data points expressed in log10 scale, force (in 'g' on the y-axis) required to induce pain-related reaction (withdrawal behavior, vocalization) using a blunt probe (area of 3.46mm²) when applied to the multifidus muscle of the low back. Horizontal lines indicate the median of each group. (B) The stress-induced pain ratio (%) is the mean PPT of stress/controls.

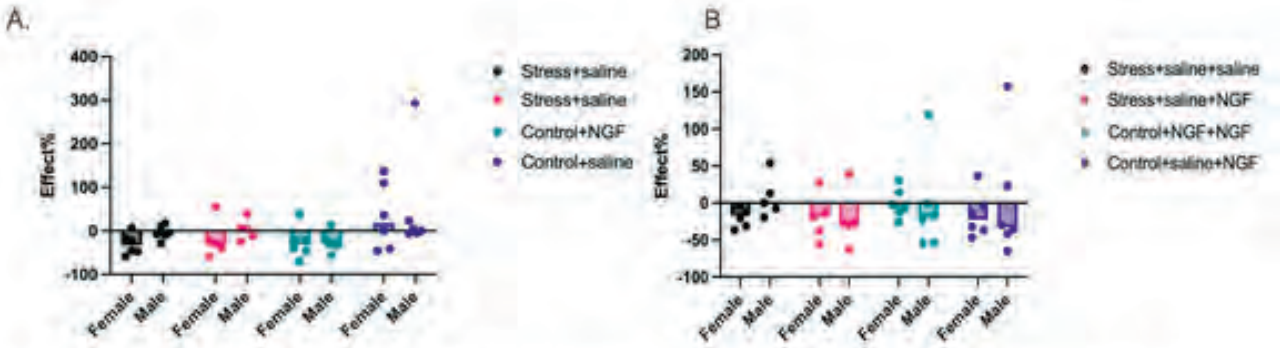


Fig.3. PPT pre and post saline/NGF injections. Intramuscular NGF injection leads to sensitization of the dorsal horn neurons when preceeded by stress during adolescence. (A) The relative effect % (pre/post-1) after the first saline/NGF injection on PD85 depicts females being sensitive to stress as a trend of lower PPT is maintained throughout even after saline injections. (B) The relative effect % after second saline/NGF injection on PD90. Both male and female rats show a lower PPT due to the sensitization to NGF (additional nociceptive input in adulthood, in this case).

Stress during adolescence moderately lowered PPT to 81% in females (Cohens d=0.6) and to 53% in males (d=8.2) of respective baselines, two days after the stress. In females, the PPT effect difference between stressed and control animals is small (d=0.3). In adulthood, females who received saline (first injection) post-stress show a reduced PPT with moderate to higher effect sizes (d=0.6-1.2) compared to males (d=0.3). However, the PPT was persistently lower in females compared to males post-second saline injection. A subsequent NGF injection lowered the PPT in both males and females.

Conclusions: Stress in adolescence induced moderate habituation in females over time compared to males as the female rats show the same trend in the PPT. Females are found to be sensitive to stress in general, causing lowered PPT upon any intervention. In conclusion, adolescent restraint stress causes long-lasting persistent muscle hyperalgesia in both male and female rats.

556

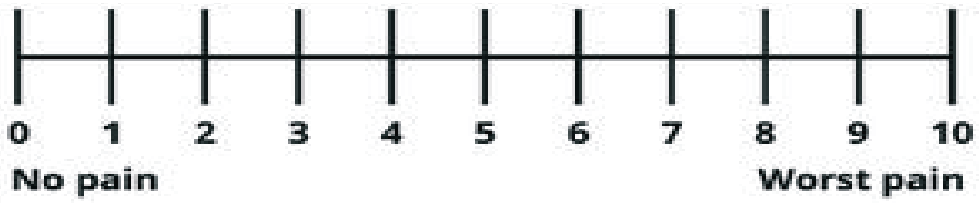
PAIN REPORT TRAINING AT BASELINE IN A RANDOMIZED DOUBLE BLIND PLACEBO CONTROLLED STUDY

B. Christensen[1], N.B.F. Finnerup[1], M.E. Carmland[1]

[1]*Danish Pain Research Center, Department of Clinical Medicine, Aarhus University, Aarhus N, Denmark*

Methods:

Patient report training performed at baseline in a study investigating a drug's effect on pain in patients with peripheral neuropathy. The primary outcome was the change in average pain intensity from baseline to the last week of treatment compared to placebo. We developed this pain report training and implemented it as a training session at baseline. We asked for average pain in four cases, with no pain, mild pain, moderate pain and severe pain. The study participants were also trained to distinguish between neuropathic pain and other types of pain. The study participants reported their own average pain before and after pain report training.



Results: Data are being analyzed and will be presented at the conference.

Conclusions: Data are being analyzed and will be presented at the conference.

558

IMPLICATION OF BIOPSYCHOSOCIAL DETERMINANTS IN THE CONTEXT OF ENVIRONMENTAL HEALTH FOR CHRONIC PAIN ASSESSMENT AND MANAGEMENT

N. Ninashvili[1], M. Shavdia[1], M. Giorgobiani[1], K. Tchaava[1], N. Gegeshidze[1]

[1]Tbilisi State Medical University, Tbilisi, Georgia

Methods: Cross-sectional survey was conducted in one of the outpatient institutions located in the capital city of the country. Study enrollment criteria were age >18 and existence of pain history more than 3 months duration. IASP pain questionnaire tailored to national cultural peculiarities was employed. Univariate analysis was conducted. Odds ratios with 95% confidence interval were estimated.

Results: Environmental risk factors appeared to be common in respondents; 35.6% were current smokers and 2.1% - ex-smokers. 66.7% consumed alcohol frequently, almost 40% were overweight and 46.8% - followed sedentary style of life. Prevalence of some environmental factors was significantly higher in subjects with pain over those without it (OR=3.9; 95%CI(1.09 to 13.66), p=0.0368).

Stress significantly prevailed (24.0%). Every forth patient reported complicated social interaction with family members or unfavorable attitudes and misunderstanding of pain suffering from the side of doctors, relatives/co-workers. About one in five felt lonely.

Conclusions: Prevalence of environmental risk factors and biopsychosocial determinants is high in chronic pain patients. it is important to study environmental risk factors and biopsychosocial determinants for better understanding, assessment, management and potential prevention of chronic pain.

559

MAXILLARY SINUSITIS RESEMBLING TRIGEMINAL NEURALGIA

J.W. Kim[1], Y.R. Hong[1], S.R. Kim[1], B.E. Kim[1], Y. Park[1], J.S. Kwon[1], S.T. Kim[1], J.H. Choi[1], H.J. Ahn[1]

[1]Yonsei University College of Dentistry, Seoul, Korea, Republic of

Methods: Clinical Case Report

Results: A 54-year-old male patient presented with intermittent, severe, electric-like pain in the upper left premolar and first molar. He was initially diagnosed with trigeminal neuralgia and treated with carbamazepine which was effective to relieve symptom.

He revisited the clinic two years later and complaining of recurrence of pain when bowing his head or blowing his nose. The maxilla cone beam CT showed left sinusitis and referred to otorhinolaryngologist for sinus surgery. After surgery, symptom was fully relieved.

Conclusions: Although various nonodontogenic toothaches have distinct pain characteristics, advanced imaging such as CT or MRI can be helpful to make an accurate diagnosis of accompanying atypical symptoms. Here, short-lasting, severe, lancinating pain and the effectiveness of carbamazepine are typical characteristics of trigeminal neuralgia, whereas stimulus-triggering pain was not. This is a case of maxillary sinusitis confused with trigeminal neuralgia due to pain characteristics overlooked in imaging. Thorough history taking and precise interpretation of imaging are needed to make correct diagnosis especially in newly developed or altered or atypical symptoms.

560

INVESTIGATION OF THE ASSOCIATION BETWEEN CONDITIONED PAIN MODULATION AND MANUAL THERAPY-INDUCED HYPOALGESIA

T. Szikszay[1], L. Luebke[1], H. Heitkamp[2], D. Dolotov[1], K. Rogosch[1], R. Erdmann[1], W. Adamczyk[3], G. Carvalho[1], K. Luedtke[1]

[1]Universität zu Lübeck, Lübeck, Germany, [2]INAP/O - Institut für angewandte Physiotherapie Osnabrück, Osnabrück, Germany, [3]The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland

Methods: Both CPM and TPMT protocols consisted of heat-based test stimuli (heat pain thresholds before and afterward) and pressure-based (conditioned) stimuli. Healthy, pain-free subjects (n=94) were randomly assigned to receive either moderate or intense or no pressure pain (between-group design) to both the fingernail and the myofascial trigger point of the infraspinatus muscle (within-group design). Pressure stimuli at both locations (fingernail, infraspinatus muscle) were applied continuously adjusted with a pressure algometer for 120 seconds. All thermal stimuli were applied with a thermal stimulator on the contralateral lower leg. Additional pain-associated characteristics regarding the pressure pain stimuli were assessed.

Results: Significant correlations were shown between CPM and TPMT effects (difference between the heat test stimuli before and after) for both moderate ($r=0.53$, $p=0.002$) and intense pressure stimuli ($r=0.73$, $p<0.001$). Interestingly, the reported pain quality, referred pain, expectation, pain adaptation could not explain the variance of the hypoalgesic response.

Conclusions: An association was shown between the hypoalgesic response of manual trigger point therapy and that of the CPM paradigm, suggesting comparable underlying neurophysiological mechanisms. Furthermore, pain-associated characteristics could not clarify the difference between CPM- and TPMT-induced analgesia.

562

INTERVENTIONAL PATHWAY IN THE MANAGEMENT OF REFRACTORY POST CHOLECYSTECTOMY PAIN (PCP) SYNDROME: A 6-YEAR PROSPECTIVE AUDIT IN 60 PATIENTS

H. Lee[1], Y. Kukreja[1], N. Gopinath[1]

[1]University Hospital Leicester NHS Trust, Leicester, United Kingdom

Methods: The prospective longitudinal audit was performed at a tertiary pain clinic in a university teaching hospital. Over a six-year period, patients with refractory abdominal pain following laparoscopic cholecystectomy were included in a structured interventional management pathway. The pathway included two interventions. Intervention I was a combination of abdominal plane blocks and epigastric port site trigger injection with steroids. Patients who failed to report durable relief (>50% pain relief at 12 weeks) were offered pulsed radiofrequency treatment to abdominal planes (Intervention II). Outcomes included patient satisfaction, change in opioid consumption and impact on emergency visits.

Results: Sixty patients who failed to respond to standard management were offered the pathway. Four patients refused due to needle phobia. Fifty-six patients received Intervention I. Failure rate was 14% (8/56). Forty-eight patients (48/56, 86%) reported significant benefit at 12 weeks while 38 patients reported durable relief at 24 weeks (38/56, 68%). Nine patients received Intervention II and all (100%) reported durable relief. Emergency admissions and opioid consumption were reduced.

Conclusions: AMPS is a poorly recognised cause of post cholecystectomy pain. The novel interventional management pathway could be an effective solution in patients who fail to benefit from standard management.

565

EXPERIENCES OF PATIENTS WITH CHRONIC LOW BACK PAIN AND COMORBID DEPRESSION IN VIDEO GROUP-DELIVERED ACCEPTANCE AND COMMITMENT THERAPY AND BEHAVIORAL ACTIVATION: A QUALITATIVE STUDY

J.V. Luciano[1,2], J.P. Sanabria-Mazo[1,2], A. Colomer-Carbonell[1,2], L.M. McCracken[3], X. Borràs[2], A. Feliu-Soler[2], S. Edo[2], A. Sanz[2]

[1]Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Spain, [2]Autonomous University of Barcelona, Cerdanyola del Vallès, Spain, [3]Uppsala University, Uppsala, Sweden

Methods: Qualitative study nested within a randomized controlled trial. This qualitative study was conducted from an interpretative phenomenological perspective. Fifty-five patients with CLBP plus depression were selected from 234 patients participating in a RCT. Twelve focus group sessions, each approximately 60-90 minutes long, were videotaped, transcribed verbatim, and then the text was examined using thematic analysis.

Results: All patients reported behavioral, affective, and cognitive improvements after completing the ACT and BATD sessions. In general, psychotherapy via Zoom was perceived as a safe and non-judgment place to express emotions and feel understood. The main barrier to implementation was the low digital literacy of some participants. In contrast, flexibility in the ability to connect from anywhere, avoidance of the need to travel, and savings in time and money were highlighted as key facilitators to increase attendance and adherence to both therapies.

Conclusions: Although this study identified some advantages of the videoconferencing format, some technical issues were perceived as a barrier. Initial support or training for both patients and therapists seems necessary for its implementation in real-world clinical practice.

567

EMPATHY AMONG HEALTH SCIENCE UNDERGRADUATES TOWARD THE DIAGNOSIS OF CHRONIC PAIN: AN EXPERIMENTAL STUDY

G. Sainero-Tirado[1,2], A.E. López-Martínez[1,2], E.R. Serrano-Ibáñez[1,2], R. de la Vega[1,2], C. Ramírez-Maestre[1,2], V. Barrado-Moreno[1,2], G.T. Ruiz-Párraga[1,2], R. Esteve[1,2]

[1]Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Facultad de Psicología y Logopedia, Universidad de Málaga, Málaga, Spain, [2]Instituto de Investigaciones Biomédicas de Málaga (IBIMA), Málaga, Spain

Methods: A total of 203 undergraduates performed an experimental task using vignettes depicting different diagnoses of chronic pain and completed questionnaires measuring dispositional and situational empathy. A MANCOVA analysis was conducted.

Results: The main effects of chronic pain diagnoses did not significantly affect situational empathy (p = .587, η2 = .007, d = 0.229). The dispositional empathy variables perspective-taking and personal distress affected the situational empathy scores (p = .002, η^2 = .072, d = 0.906, and p = .043, η^2 = .032, d = 0.547, respectively).

Conclusions: It would seem appropriate to foster intra-individual empathy factors among health science undergraduates such that they can more readily understand the process of individual adaptation to chronic pain and thus manage it more effectively.

570

ORAL KETAMINE USE FOR CHRONIC PAIN PATIENTS CAN PREVENT OPIOID ESCALATION – A RETROSPECTIVE STUDY

Z. Kovács-Ábrahám[1], B. Rézmán[1], N. Fenyvesi[2], B. Bartos[2], K. Boda[1], T. Aczél[3], L.C. Mangel[4], R. Almási[1]

[1]Pain Medicine, Inst. of Anaesthesiology and Int. Care, Clinical Centre, University of Pécs, Pécs, Hungary, [2]Inst. of Anaesthesiology and Int. Care, Clinical Centre, University of Pécs, Pécs, Hungary, [3]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [4]Department of Oncotherapy, Clinical Centre, University of Pécs, Pécs, Hungary

Methods: The medical records of patients with chronic cancer and musculoskeletal pain presented to our pain clinic between January 2022 and December 2022 were reviewed. Fifty-six patients aged 41-95 were enrolled in the present study. We assessed the efficacy of oral ketamine treatment (4-9mg/day) with analysing subjective evaluation scales. The opioid medication consumption per day was converted to Morphine Milligram Equivalents (MME) and was compared before and after ketamine administration.

Results: 87.5% of patients claimed improvement in active range of motion, sleep quality and mood after ketamine administration. Opioid escalation was detected in 21.43% of cases only. It was not necessary to change the opioid dosage in 48.24% of the cases and a slight reduction was applied in 30.36%. There was no significant difference between MMEs before and after ketamine intake.

Conclusions: This study underlines that ketamine might play a role in preventing further opioid dosage escalation.

571

PERINEURAL INJECTIONS OF BOTULINUM TOXIN TO TREAT PAINFUL POLUNEUROPATHY IN TWO TWINS

T.P. Enggaard[1], J.K. Danker[1], F. Bærentzen[1], R. Frederiksen[1]

[1]Zealand University Hospital, Køge, Denmark

Methods: Conventional treatments were unsuccessful, and both patients were offered ultrasound-guide unilateral perineural injections of 100 ie BoTn A.

Results: Two weeks after the first treatment in 2020, the pain levels were reduced to NRS less than 3 in both patients. The treatment effect has been maintained by regular injections every 3-4 months until now. Pain decrease was present bilaterally despite a unilateral injection. Both patients reported an increase in quality of life, and have been able to maintain work life. No adverse effects were reported.

Conclusions: We present two cases of successful perineural application of BoTn for the treatment of painful polyneuropathy. Future RCT's are warranted to confirm this finding.

The mechanism of the pain relief by perineural injection of botulinum toxin has not been determined, but the bilateral effect of unilateral injections may support a hypothesis of retrograde axonal transport of BoTn.

575

CHARACTERISTICS OF MIRRORED LIMB PERCEPTION DURING MIRROR THERAPY IN PATIENTS WITH COMPLEX REGIONAL PAIN SYNDROME

A. Mibu[1], T. Nishigami[2], A. Otomo[3], K. Kuriki[4], S. Tanaka[4], R. Imai[5], K. Miki[6,7]

[1]Konan Women's University, Kobe, Japan, [2]Prefectural University of Hiroshima, Mihara, Japan, [3]Sendai Pain Clinic Center, Sendai, Japan, [4]Fukuoka Orthopaedic Hospital, Fukuoka, Japan, [5]Osaka Kawasaki Rehabilitation University, Kaizuka, Japan, [6]Osaka Yukioka College of Health Science, Ibaraki, Japan, [7]Hayaishi Hospital, Osaka, Japan

Methods: This study recruited nine patients with CRPS of the upper limb and eight with hand osteoarthritis (HOA). The patients' perception score, pain intensity, and discomfort intensity were evaluated during six tasks: observing the unaffected limb (UL) at rest in the mirror, being touched on the UL by another person, having the UL moved by another person, moving the UL on their own, imagining the movement of the affected limb (AL) while moving the UL, and imagining the movement of AL without looking at the reflection of the UL in the mirror. Additionally, body perception (The Bath CRPS Body Perception Disturbance Scale), fear of movement (Tampa Scale for Kinesiophobia), and two-point discrimination threshold were assessed. All parameters were compared between the two groups, and correlation analyses were performed between the perception score and other parameters in each group.

Results: Pain intensity and discomfort scores were significantly higher in the CRPS group than in the HOA group, but there was no significant difference in perception scores. There was a significant correlation between perception and discomfort scores in the CRPS group ($rho = -0.67$, $P < 0.05$).

Conclusions: This study suggested that patients with CRPS may experience severe pain and discomfort during MT and that those with severe discomfort may have poor MLP.

576

COGNITIVE BEHAVIORAL THERAPY-BASED EXERCISE FACILITATION METHOD USING THE "IKIIKI REHABILITATION NOTEBOOK" IN PATIENTS WITH INTRACTABLE CHRONIC PAIN

S. Kimura[1], M. Kominami[1]

[1]Niigata University Medical and Dental Hospital, Niigata-shi, Japan

Methods: The subjects were 10 males and 16 females (19-77 years of age, mean age 51) with chronic low back (n=13), lower extremity (n=11), high back (n=1) or neck (n=1) pain without specific lesions. Indications for using the notebook were as follows: (1) Numerical Rating Scale (NRS) for pain > 3/10, (2) all patients had pain somewhere

in the body for more than 3 months, resulting in disability in ADL, and (3) the patients are eager to do rehabilitation. Patients were asked to write in their notebooks daily or once a week regarding their feeling, though, and exercise routine and gait distance. Once every 2 weeks, the patients returned to the clinic to go over the notebook. Each case was evaluated in terms of the NRS, the pain disability assessment scale (PDAS), pain catastrophizing scale (PCS), and EuroQol 5 Dimension (EQ-5D) which evaluate quality of life (QOL) at pretreatment and post-treatment.

Results: The NRS, PDAS, PCS, and EQ-5D were improved significantly 11 months after starting to use the notebook.

Conclusions: The Ikiiki Rehabilitation Notebook is a valuable tool to educate patients about the cause and treatment of pain and to actively facilitate CBT-based exercise, resulting in the improvement of ADL and QOL.

579

IMI-PAINCARE PROMPT: DON'T UNDERESTIMATE NECESSARY EFFORTS AND RESOURCES FOR CONDUCTING AN INTERNATIONAL MULTI-CENTER PROMS SURVEY

C. Weinmann[1], M. Komann[1], W. Meissner[1]

[1]Jena University Hospital, Jena, Germany

Methods: For implementing a study that uses various questionnaires in 18 hospitals in 8 different languages/countries, many prerequisites are necessary. Tasks before and during the study were: obtaining all copyright permissions for the selected tools, translating the questionnaires into 8 languages according to an elaborated, standardized translation process , implementing the survey technically in all languages, obtaining ethics approval and GDPR clearance in all 18 data collecting sites, recruiting study sites, concluding cooperation contracts, developing the study protocol, SOPs, training materials, and patient informed consent forms for all sites, registering the study, training, supporting and closely monitoring the data collectors, and remunerating them.

Results: 6 consortium and 12 non-consortium hospitals included 3,303 patients. 6 out of 18 sites included considerably fewer patients than planned. However, sufficient case numbers were reached and follow-up rates on M1, M3 and M6 are very good (70-80%).

Conclusions: Set-up and implementation of a large, international, multiple languages data collection is challenging and ambitious but feasible if sufficient resources (project management and technical/IT expertise, qualified staff, funding, commitment) are available and the time schedule for preparing the study is generously calculated.

581

FRACTALKINE RECEPTOR (CX3CR1) MEDIATES CHRONIC RESTRAINT STRESS-INDUCED PAIN BEHAVIOUR IN A MOUSE MODEL

B. Fülöp[1], Á. Hunyady[1], N. Bencze[1], V. Kormos[1], N. Szentes[1], Á. Dénes[2], N. Lénárt[2], É. Borbély[1], Z. Helyes[1,3,4,5]

[1]University of Pécs, Medical School/ Department of Pharmacology and Pharmacotherapy & Centre of Neuroscience, Pécs, Hungary, [2]Institute of Experimental Medicine/ "Momentum" Laboratory of Neuroimmunology, Budapest, Hungary, [3]University of Pécs/ Eotvos Lorand Research Network, Chronic Pain Research Group, Pécs, Hungary, [4]National Laboratory for Drug Research and Development, Budapest, Hungary, [5]PharmInVivo Ltd., Pécs, Hungary

Methods: Male fractalkine receptor-deficient (knockout: KO) and C57Bl/6J wildtype (WT) mice were restrained for 6 hours daily for two weeks. Mechanonociceptive threshold and cold tolerance were determined weekly. Iba1 immunohistochemistry was performed to determine microglia cell number and morphological changes due to immobilization in stress- and pain-related brain regions.

Results: Significant (15-20%) mechanonociceptive threshold-decrease and cold hyperalgesia (60-70%) developed in stressed WT mice, which were absent or significantly reduced in fractalkine receptor deficient ones. Stress significantly increased Iba1-positive microglia cell numbers in the central amygdala (CEA) and hippocampal CA3 region, as well as microglia activation in the CA3 and somatosensory cortex in WT mice. Stress-induced microgliosis in the CEA and activation in both regions were not detected in KO mice.

Conclusions: We provide here the first evidence for CX3CR1 mediating chronic stress-induced hyperalgesia and neuroinflammation-related microgliosis. This result suggests analgesic potentials of fractalkine receptor antagonists.

Acknowledgement: OTKA K-138046, RRF-2.3.1-21-2022-00015, TKP2021-EGA-16, Eotvos Lorand Research Network, National Brain Research Program-3, This work was supported by the 2017-1.2.1-NKP -2017-00002 (NAP-2; Chronic Pain Research Group), by the János Bolyai Research Scholarship of the Hungarian Academy of Sciences and the National Research, LJDKÖ 2022/23

583

THE NATURAL PRODUCT ARGENTATIN C ATTENUATES POSTOPERATIVE PAIN VIA INHIBITION OF VOLTAGE-GATED SODIUM AND T-TYPE VOLTAGE-GATED CALCIUM CHANNELS

R. Khanna[1]

[1]*New York University, New York, United States*

Methods: Fractions derived from the Native American medicinal plant, *Parthenium incanum*, were assessed using depolarization-evoked calcium influx in rat dorsal root ganglion (DRG) neurons. Further separation of these fractions yielded a cycloartane-type triterpene identified as argentatin C, which was additionally evaluated using whole-cell voltage and current clamp electrophysiology, and behavioral analysis in a mouse model of postsurgical pain.

Results: We found that argentatin C blocked the activity of both voltage-gated sodium and LVA calcium channels in calcium imaging assays. Docking analysis predicted that argentatin C may bind to NaV1.7-1.9 and CaV3.1-3.3 channels. Furthermore, argentatin C decreased Na^+ and T-type Ca^{2+} currents as well as excitability in rat and macaque DRG neurons. Consistent with these observations, argentatin C treatment reversed mechanical allodynia in a mouse model of postsurgical pain.

Conclusions: These results suggest that the dual effect of argentatin C on voltage-gated sodium and calcium channels supports its potential as a novel treatment for painful conditions.

584

DEVELOPMENT AND VALIDATION OF THE PLACEBO SENSITIVITY QUESTIONNAIRE (PSQ): CAN THE PSQ PREDICT PLACEBO ANALGESIA RESPONSIVENESS?

E.M. Camerone[1], G. Tosi[2], M. Di Magro[1], D. Romano[1]

[1]*Università degli Studi di Milano-Bicocca, Milan, Italy,* [2]*Università del Salento, Lecce, Italy*

Methods: 330 individuals completed the initial version of the PSQ along with 9 additional scales measuring psychological traits associated with placebo responsiveness. These data were used to reducing the dimension of the PSQ, identifying a shorter set of predictive items, and bringing evidence of construct validity. A second study tests the predictive validity of the PSQ using a classic placebo analgesia experimental paradigm.

Results: Principal component analysis revealed a 3-factor structure - Symptoms Exaggeration, Support Seeking, Alternative Medicine Beliefs - and the number of items was reduced from 40 to 19. Construct validity indicated that the PSQ correlates with most of the scales previously associated with placebo responsiveness. Predictive validity study is in due course at the time of the submission. We hypothesise that the PSQ will be successful in discriminating a priori placebo sensitivity and non-responders.

Conclusions: The PSQ has the potential to become an important tool for researchers and clinicians working with pain, moving us a step forward towards personalised pain management.

585

WIDESPREAD PROPRIOCEPTIVE ACUITY IMPAIRMENT IN CHRONIC PAIN

M. Pösl[1], G.F. Carvalho[2], W.M. Adamczyk[3], B. Schüßler[2], M. Richter[4], K. Luedtke[2], T.M. Szikszay[2]

[1]*Hanseatic Spine Center, Hamburg, Germany,* [2]*University of Lübeck, Lübeck, Germany,* [3]*The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland,* [4]*Hanseatic Spine Center / University of Münster, Hamburg, Germany*

Methods: Patients with chronic neck pain (n = 30), patients with chronic low back pain (n = 30) and age- and sex-matched asymptomatic control subjects (n = 30) completed a test procedure for the JPS at both the cervical spine, lumbar spine and ankle in a randomized order. Between group differences were analyzed with the General Linear Model and associations with Pearson's correlation coefficient.

Results: Both patients with chronic neck pain ($p < 0.001$) and patients with chronic low back pain ($p < 0.01$) differed significantly from asymptomatic controls in JPS of the cervical spine, lumbar spine and ankle joint. No difference was shown between patient groups ($p > 0.05$). An association of the JPS with clinical characteristics, however, could not be shown.

Conclusions: These results suggest widespread impairment of proprioceptive accuracy in patients with chronic and low back pain and a role for central sensorimotor processes in musculoskeletal pain conditions.

589

PHARMACIST'S ROLE IN CANCER PAIN MANAGEMENT: A SCOPING REVIEW

E. Aliferis[1], S. Garani-Papadatos[1]

[1]University of West Attica/ School of Public Health/ Departement of Public Health Policies, Athens, Greece

Methods: PubMed database was searched. Studies published between 2000 and 2022 were included using the following key words: pharmacist, palliative care, pain management, human rights, public health, cancer, new technologies, off label. The search language and the language of the sources were determined to be in English.

Results: A total of 1880 articles were found of which 193 met the eligibility criteria. However, a careful study of the abstracts led to a further exclusion of an additional 103 studies. Thus, 90 articles were finally selected which were categorized in thematic areas.

Conclusions: Most studies revealed that policies must be developed in which pharmacist would be an integral member of the interdisciplinary team. Many studies also pointed out that pharmacists should develop a special role through education in the matters of opioids. Finally, few studies touched upon the need for pharmacists to adopt new technologies and further exploit the potential of personalized treatments.

591

COMPARATIVE STUDY BETWEEN MORPHINE AND DEXMEDETOMIDINE FOR POSTOPERATIVE ANALGESIA IN PATIENTS UNDERGOING CANCER SURGERIES

W. Ahmed[1,2]

[1]Cairo University, Cairo, Egypt, [2]KAMC, Makkah, Saudi Arabia

Methods: Eighty four cancer patients under general anesthesia randomized blindly into 3 parallel groups : Low dose dexmedetomidine group (group A, n=28) received 30 minutes before anticipated end of surgery loading dose of dexmedetomidine 1 µg/kg in 100 mL normal saline over 20 minutes then infusion 0.5µg/kg/hour for 48 hours, high dose dexmedetomidine group (group B. n=28) received loading dose dexmedetomidine 1 µg/kg in 100 mL normal saline over 20 minutes then infusion 1µg/kg/hour for 48 hours, morphine group (group C, n=28) received immediately postoperative IV morphine 0.1 mg/kg then continuous IV infusion 0.02 mg/kg/hour for 48 hours. Postoperative analgesia assessed using visual analogue score recorded 30 min after surgery and every 4 hours for 48 hours. Heart rate and non-invasive arterial blood pressure measured 30 min, every four hours postoperatively for 48 hours, their mean compared with intraoperative one and between all groups.

Results: The VAS from 30 minutes till 12 hours and from 24 hours till 36 significantly lower in group C than group A and B. VAS at 16 hours, 20 hours and from 40 hours till 48 hours postoperatively wasn't statistically significant.

Conclusions: Morphine has better postoperative analgesia than dexmedetomidine during first 36 hours apart from 16 and 20 hours postoperatively. low dexmedetomidine better than high dose dexmedetomidine.

593

THE ROLE OF OPIOIDERGIC SYSTEM IN THE ANALGESIC EFFECT OF THE KETAMINE-MAGNESIUM COMBINATION IN THE FORMALIN TEST IN RATS

K. Savić Vujović[1], B. Medić[1], D. Srebro[1], A. Vujović[2], S. Vučković[1]

[1]Department of Pharmacology, Clinical Pharmacology and Toxicology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia, [2]Clinic for ENT, Clinical center Dragiša Mišović, Belgrade, Serbia

Methods: Experiments were performed on male Wistar albino rats (200-250 g). Antinociception was tested in the formalin test in rats. Animals were divided into groups: control, KT + MG, KT + MG + antagonist, antagonist. Antagonist such as naloxone (non-selective opioid antagonist), CTAP (selective mu opioid receptor antagonist) and nor-binaltorphimine (selective kappa-opioid receptor antagonist) were used in experiments.

Results: Naloxone (3 mg/kg) antagonized analgesic effect of KT-MG combination at all time points 0-45 min. CTAP (1 mg/kg) antagonized combination at all time points 0-45 min. Nor-binaltorphimine (1 mg/kg) in combination with KT-MG showed significant difference in pain relieving compared to combination without antagonist only at time points 15-25 min.

Conclusions: Analgesic effect of combination of KT and MG is mediated through opioid system especially through mu opioid receptor but partially through kappa-opioid receptors.

594

PSYCHOPHYSIOLOGICAL EFFECTS OF VIRTUAL REALITY ON PAIN PROCESSING: EFFECTS OF IMMERSION EXCEED THOSE OF MENTAL IMAGINATION ALONE AND OF THE NON-IMMERSIVE CONTROL CONDITION

J. Tesarz[1], J. Reichert[1], M. Meischner[1]

[1]Heidelberg University, Heidelberg, Germany

Methods: Using a randomized within-crossover design, pressure pain detection (PDT) and tolerance thresholds (PTT), spatial and temporal summation (SSP and TSP), and conditioned pain modulation (CPM) were measured in 30 individuals with chronic pain and 30 pain-free controls during the test condition using phasic cuff pressure on the legs.

Results: In pain-free individuals, all three conditions (VR, Imagery, and View) induced a significant increase in PDT and PTT relative to baseline in terms of reduced pain sensitivity and increased pain tolerance, with strongest effects under the VR-condition. In individuals with pain, only the VR-condition showed significant effects on PDT and PPT, but not View- or Imagery-condition. Regarding SSP, the VR-condition showed the strongest modulation compared to baseline, significantly larger than the Imagery or View. In the paradigms for TSP and CPM, there were no differences between VR, Imagery, and View.

Conclusions: These results demonstrate that immersion in a VR-environment has an inhibitory effect on the perception of acute pain in individuals with chronic pain and pain-free controls that exceeds the effects of mental imagery and a non-immersive control-condition.

598

TNED®: NOVEL TRIGEMINAL NEURALGIA ELECTRONIC PAIN DIARY - A VALIDATION STUDY IN THIRTY PARTICIPANTS

S.A Dodhia[1], S. Chotaliya[2], A.S Tahiri[3], H. Ansari[4], G. Garibaldi[3], J.M Zakrzewska[5]

[1]King's College Hospital, London, United Kingdom, [2]King's College London, London, United Kingdom, [3]Noema Pharma AG, Basel, Switzerland, [4]UC San Diego Health, San Diego, United States, [5]Royal National ENT & Eastman Dental Hospitals, Pain Management Centre, National Hospital for Neurology & Neurosurgery, UCLH NHS Foundation Trust, London, United Kingdom

Methods: The TnED® was developed by a multidisciplinary team and then validated using participants from the UK TN Association and US Facial Pain Association. After use of the E-diary for 14 days, virtual semi-structured interviews were carried out. These were transcribed and analysed using thematic analysis.

Results: Thirty participants completed the study. All found the TnED® easy to use after an initial training session. The content was appropriate, the questions were clear and additional questions on quality of life were important. The daily reporting and use of reminders was useful to reduce the risk of missing data. All participants provided accounts supporting its use for a longer time frame and 56% of UK participants reported it gave them further insight into their personal pain experience.

Conclusions: This validation study is the first of its kind with regards to a TN pain specific E-diary and can be used in future drug trials to assess daily pain frequency, intensity and importantly, impact on quality of life. Additionally, the feedback has highlighted its use for personal pain management, which has the potential to be used alongside medication in the management of TN, by both patients and their health care practitioners.

599

THE EVALUATION OF FEAR-AVOIDANCE, THE LEVEL OF CATASTROPHIZING AND THE FUNCTIONALITY OF PATIENTS WITH CHRONIC CERVICAL AND LUMBAR SYNDROMES WITH RADICULOPATHY

S. Tomasevic-Todorovic[1], S. Nikolic[2], D. Savic[2], D. Simic Panic[1], A. Knezevic[1], S. Pantelinac[1]

[1]University of Novi Sad, Faculty of Medicine, Medical Rehabilitation Clinic, Clinical Centre of Vojvodina, Novi Sad, Serbia, [2]Medical Rehabilitation Clinic, Clinical Centre of Vojvodina, Novi Sad, Serbia

Methods: The research was designed as a cross-sectional study that was conducted at the Medical Rehabilitation Clinic of the Clinical Centre of Vojvodina during the years of 2021 and 2022. The patients filled out a set of questionnaires: the Fear-avoidance Components Scale (FACS), Pain Catastrophizing Scale (PCS-SR), Pain Detect questionnaire (PD). The patients' functionality was examined with a six-minute walk test.

Results: The sample size was 180 patients (90 patients with cervicobrachialgia, 90 patients with lumboischialgia). In the group of patients with cervicobrachialgia, 71% were female, while in the group of patients with lumboischialgia, the percent of male patients was 64%. The results show that the values of the two observed groups of patients using the Pain Detect questionnaire (PD), are statistically significantly different (t= 2,243, p= 0,026). There was also a statistically significant difference using the PCS (t=-3,229, p= 0,002). The differences in the score of the FACS between the two groups were not shown to be statistically significant (t= -1,156, p= 0,249). The differences in functionality between patients with cervicobrachialgia and lumboischialgia were statistically significantly different with the six-minute walking test (512,34 vs 309,01, t= 12,39, p= 0,000).

Conclusions: The level of functionality and the level of catastrophizing was statistically significantly lower in patients with lumboischialgia, while no statistically significant differences were found in the level of fear avoidance.

605

HOMEOSTATIC PLASTICITY OF THE NOCICEPTIVE SYSTEM AFTER PRIMING THE MOTOR CORTEX: A PILOT STUDY

D. M. Zolezzi[1], D. B. Larsen[1], T. Graven-Nielsen[1]

[1]Center for Neuroplasticity and Pain, Aalborg University, Aalborg, Denmark

Methods: A randomized placebo-controlled pilot study was conducted with 9 healthy individuals. HP was induced in the left M1 by applying anodal tDCS at C3 and FP2 (return electrode). A capsaicin (pain) or placebo (control) patch was applied to the right hand dorsum. To assess the nociceptive response to HP induction, 60 trials of nociceptive evoked potentials using a concentric pin electrode on the right volar forearm were recorded at 62 channels. Four-time points were measured: baseline, 30min post-patch, post-HP, and 20min post-HP. The negative-positive complex (N-P) was extracted from Cz.

Results: After 30min post-patch, the mean capsaicin-induced pain remained above 5±1.75, while for placebo it remained 0±0.16. A two-way-mixed ANOVA of the N-P revealed a significant effect of time (p=0.001) and interaction (p=0.006), but not of groups (p=0.947). For placebo, N-P was increased post-HP (P=0.052) and decreased beyond

baseline post 20min (P=0.011). The capsaicin group decreased at every timepoint (P<0.002), except between patch and post (P=0.76).

Conclusions: Based on these pilot findings, no clear indication of an HP response is observed from the nociceptive system. Possibly suggesting that the assumed HP in M1 may be an isolated act.

606

IMPROVEMENTS OF HEAD REPOSITIONING ACCURACY AND PAIN RELATED TO CERVICAL FACET NERVE BLOCKADE IN PATIENTS WITH SUSPECTED FACET-MEDIATED CHRONIC CERVICAL PAIN

H. Heikkilä[1], A. Ristmägi[1], S. Välilä[1], T. Uusi-Kraapo[1]

[1]Satasairaala Department of Physical Medicine and Rehabilitation, Pori, Finland

Methods: We studied effects of facet nerve blocks (FNB) on head relocation accuracy (HRA), neck pain and quality of life in 99 consecutive patients who volentarily undervent FNB at the unit.

Results: Cervical proprioception for flexion movement improved significantly after the blocks and this positive effect was still seen at 1-month follow-up. Blocks of C2-C4 cervical spine facet nerves seem to affect proprioception more than blocks for lower segments. FNB improved HRA in sagital movements more than horizontal movements. Use of local anaestheticum >2 ml resulted in worsened HRA for horizontal movements. At follow up patient's also rated significant improvement of cervical pain, health related quality of life as well as improvement of Oswestry index.

Conclusions: Data from this research suggest there was uniform and longlasting improvement after a single FNB for head repositioning after active flexion.Facet joint arthrosis may affect head relocation accuracy and proprioceptive function in patients with chronic cervical pain.

607

LESS PAIN, BUT ONLY SMALL CHANGES IN SHOULDER KINEMATICS FOLLOWING TOPICAL ANESTHETIC IN PATIENTS WITH ONGOING SHOULDER PAIN

N. D'hondt[1,2], T. Leenen[2], H. Kiers[1,2], M. Hoozemans[2], T. Alta[3], N. Miedema[3], M. Van den Borne[4], M. Van der List[5], M. Van den Bekerom[6,2], D. Veeger[7]

[1]HU University of Applied Sciences, Insitute for Human Movement Studies, Utrecht, Netherlands, [2]Vrije Universiteit Amsterdam, Faculty of Behavioural & Movement Sciences, Amsterdam, Netherlands, [3]Department of Orthopaedic Surgery, Spaarne Hospital, Haarlem, Netherlands, [4]Department of Orthopaedic Surgery, Amphia Hospital, Breda, Netherlands, [5]Department of Orthopaedic Surgery, Bergman Clinics, Naarden, Netherlands, [6]Department of Orthopaedic Surgery, OLVG, Amsterdam, Netherlands, [7]Delft University of Technology, Faculty of Mechanical, Maritime & Materials Engineering, Dept. of Bioengineering, Delft, Netherlands

Methods: Symptomatic shoulders of 29 patients (age 59.0±12.8years;16-male) were injected with corticosteroids and lidocaine by their attending orthopedic surgeon. Immediately before and 5 minutes after, patients reached 10 consecutive times as high as possible to a target on the ceiling directly above. Pain intensity (VNRS-11) at each highest arm elevation, and shoulder and trunk kinematics (Xsens-DOT, wireless inertial measurement units) were recorded. Pre- and post-injection pain-scores and helical angles for thoracohumeral, scapulothoracic, humeroscapular and trunk contributions to the movement trajectory were compared.

Results: Generalized Estimating Equations analysis showed statistically significant pain reduction during the post-injection reach task (n=27). Statistical Non-Parametrical Mapping showed no differences in maximal shoulder and trunk helical angle contributions between conditions. Significant lower angles for the post-injection condition were found for part of the descending phase (thoracohumeral [75.3%, 92.9%]; p=0.0005; scapulothoracic [73.7%, 93.1%]; p=0.0031; humeroscapular [71.4%, 92.3%]; p=0.0008).

Conclusions: Acute pain relief following topical anesthetics does not induce immediate alterations of maximal shoulder and trunk range of motion during a semi-constrained painful overhead reach task in patients with ongoing shoulder pain. However, there are signs of small alterations in shoulder kinematics during the descending phase.

610

RELATIONSHIP BETWEEN QST, FUNCTIONAL AND SUBJECTIVE VARIABLES DURING RECOVERY FROM EXERCISE-INDUCED MUSCLE DAMAGE

V. Domenech-Garcia[1], J. Blasco-Abadia[1], P. Bellosta-Lopez[1]

[1]*Universidad San Jorge, Villanueva de Gállego, Zaragoza., Spain*

Methods: The study consisted of 5 assessment sessions (24h before and 24h, 48h, 96h, and 168h after an eccentric exercise protocol) in which subjective recovery (Likert scale), pain intensity (VAS 0-10), pressure pain thresholds (PPTs) at the epicondylar musculature, and maximal isometric strength (MIS), active range of motion (AROM) of the wrist were assessed in 31 healthy subjects (48% females). After the initial assessment, an eccentric-exercise protocol to induce pain (DOMS) was performed 24h later (second session).

Results: All variables were observed to be altered 24h after exercise. PPTs and MIS normalized at 48h ($p<0.05$), while AROM, pain intensity, and subjective recovery perception normalized at 168h ($p<0.05$).

Conclusions: The present study demonstrates that the variables altered during painful experimental injury have a heterogeneous normalization process, where some subjective variables tend to normalize later than others. Clinicians assessing and treating patients with acute musculoskeletal painful injuries should perform a multidimensional assessment without solely relying on single variables.

611

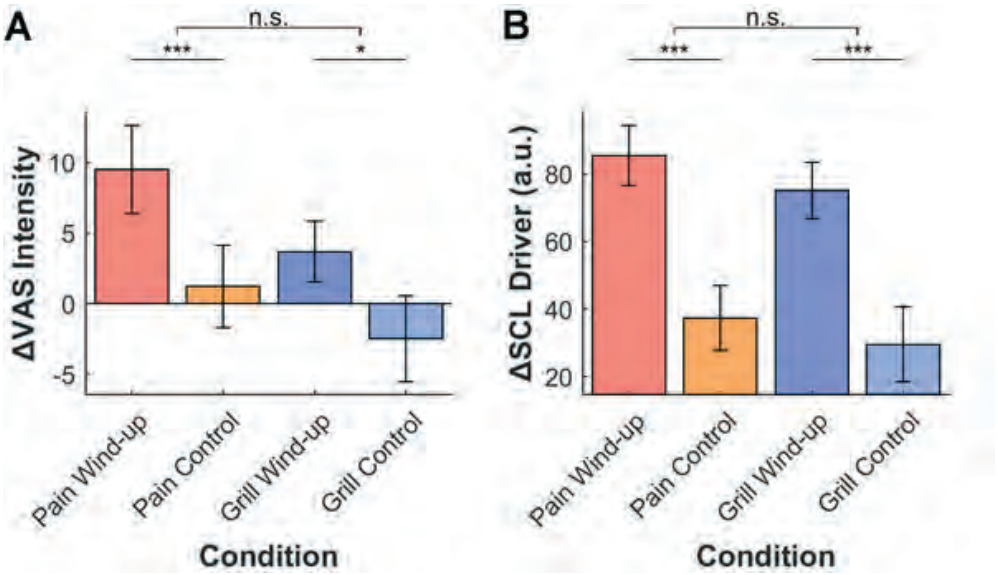
TEMPORAL SUMMATION OF THE THERMAL GRILL ILLUSION IS COMPARABLE TO THAT OBSERVED FOLLOWING NOXIOUS HEAT

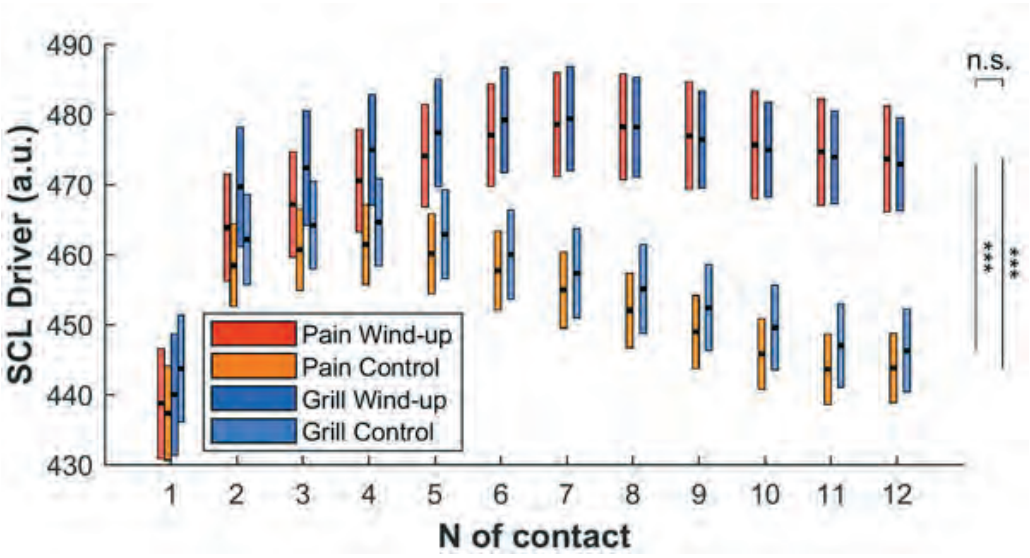
B. Horing[1], M. Kerkemeyer[1], C. Büchel[1]

[1]*University Medical Center Hamburg-Eppendorf, Department of Systems Neuroscience, Hamburg, Germany*

Methods: 36 healthy volunteers (gender 19f:17m, age 28.2±5.3) received repeated stimuli through a water-based thermode, either in a warm/cold thermal grill configuration, or an individually calibrated, noxious heat configuration. Both modalities were presented as sequences of 1 lead-in contact, followed by 11 consecutive contacts (each between 1.5 and 3 seconds), with either fast repetition (wind-up condition), or two slower control conditions. Main readouts were recorded ratings of stimulus intensity and skin conductance level (SCL). Main analyses concerned the relative changes pre- to post-sequence to quantify putatively wind-up-related effects.

Results: Ratings and SCL increased more strongly in wind-up than control conditions (Figure 1A/B). Interestingly, wind-up-related effects were of the same magnitude in TGI as compared to the pain control modality. Further, contact-by-contact SCL clearly tracked how the effect emerged during the sequences (Figure 2).





Conclusions: Results indicate that the TGI is amenable to wind-up or wind-up like processes. SCL proved an easy-to-measure correlate of intensity ratings. The protocol has potential to assess bottom-up and top-down effects on thermo- and nociceptive processing.

612

MOLECULAR PATHWAY ANALYSIS OF MORPHINE- AND PREGABALIN-MEDIATED EFFECTS FOR THE IMPLEMENTATION OF AN INNOVATIVE QUANTITATIVE SYSTEMS PHARMACOLOGY (QSP) PLATFORM TO PREDICT COMBINATIONAL ANALGESIC TREATMENTS

M. Baiula[1], E. Cuna[1], S. Spampinato[1], A. Bedini[1]

[1]*University of Bologna, Bologna, Italy*

Methods: MOR, DOR, KOR, cannabinoid CB1 receptor, dopamine D2 receptor, chloride-potassium symporter 5 (KCC2), α2δ subunit of voltage-gated calcium channels (Cacna2d) mRNA levels were detected by qPCR in rat cortical, striatal and DRG primary neurons, in mouse cortical and striatal primary neurons and in phorbol 12-myristate 13-acetate (PMA)-differentiated SH-SY5Y human neuroblastoma cells. Morphine-mediated inhibition of adenylyl cyclase was assessed by ELISA in the same cell models, both under basal conditions and following exposure to prolonged MOR activation or pregabalin.

Results: Morphine and pregabalin, administered as single agents, elicited distinct, CNS region-specific and species-specific changes on the selected target gene expression. Effects of morphine and pregabalin combination treatment on target mRNA levels and inhibition of adenylyl cyclase are being investigated.

Conclusions: Our findings will help implement a QSP platform to predict analgesic combinations with improved efficacy/safety profile.

613

SPANISH VERSION OF THE PAIN BELIEFS QUESTIONNAIRE: TRANSLATION, CROSS-CULTURAL ADAPTATION, VALIDATION, AND PSYCHOMETRIC PROPERTIES IN A WORKING POPULATION

J. Blasco[1], P. Bellosta[1], T.S. Palsson[2], V. Doménech[1]

[1]*Universidad San Jorge, Villanueva de Gállego, Spain,* [2]*Aalborg University, Aalborg, Denmark*

Methods: A translation and cultural adaptation process was based on a forward – and back – translation process. One hundred and fifty-one healthy volunteer workers were included. Participants completed the PBQ, the Pain

Catastrophizing Scale, and the Hospital Anxiety and Depression Scale. Finally, thirty participants completed the PBQ again two weeks later for test-retest reliability.

Results: The Spanish version of the PBQ showed adequate internal consistency according to the COSMIN criteria, with Cronbach›s alpha between 0.7 and 0.9. Regarding the reliability results after two weeks, item response stability was good and very good for all items according to the weighted Kappa coefficients (0.65 – 0.90). The «organic» subscale obtained a significant positive correlation with age, use of non-prescribed medication, presence of chronic pain, and pain intensity (r>0.21). As for the «psychological» subscale, there was a significant correlation with gender (r>0.19).

Conclusions: The Spanish version of the PBQ was linguistically accurate and acceptable for use by workers, both with pain and without pain.

614

AWARENESS OF MYTHS AND REALITIES ABOUT LOW BACK PAIN AMONG SPANISH PHYSIOTHERAPISTS: WHICH PROCEDURES DO THEY CONSIDER TO BE OF HIGH VALUE?

P. Bellosta-López[1], J. Blasco-Abadía[1], T.S. Palsson[2,3], S.W.M. Christensen[4,2], M. Hoegh[2], F. Langella[5], P. Berjano[5], V. Doménech-García[1]

[1]Universidad San Jorge, Villanueva de Gállego (Zaragoza), Spain, [2]Aalborg University, Aalborg, Denmark, [3]Aalborg University Hospital, Aalborg, Denmark, [4]University College of Northern Denmark, Aalborg, Denmark, [5]IRCCS Istituto Ortopedico Galeazzi, Milan, Italy

Methods: Physiotherapists working in Spain enrolled in an e-learning course that provided state-of-the-art knowledge of LBP management. Before starting the course, all participants had to complete an online test focusing on evidence-based knowledge about LBP (22 questions, true or false), comprehending socio-economic impact, characteristics, rehabilitation goals, the role of psychosocial factors, and high- and low-value interventions.

Results: A total of 913 physiotherapists completed the initial test. More than 55% of responders reported that imaging diagnosis was essential before starting any physiotherapy treatment and that glucocorticoids were recommended for persistent LBP. In addition, almost half of the responders considered ergonomic adjustments based on maintaining an upright back posture to be fundamental interventions in managing persistent LBP.

Conclusions: Despite considerable knowledge from the research literature, there are considerable gaps in the evidence-based knowledge of physiotherapists in Spain that may compromise the quality of the assessment and treatment of LBP patients. Promoting actions that favour the continuous learning and training of Spanish physiotherapists would improve the quality of LBP treatment.

615

RELATIONSHIP BETWEEN PERSONALITY TRAITS, COPING STRATEGIES, DEPRESSION AND INTENSITY OF PAIN IN CRONIC BACK PAIN PATIENTS

M. Radman[1]

[1]University of Applied Health Sciences, Zagreb, Croatia

Methods: The results were gathered on a sample of 94 participants (79 women and 14 me; mean age was 62,6) who suffer from chronic pain for 3,5 years in average and are treated in pain clinic at University Clinical Hospital “Sisters of Mercy”, Zagreb. They completed a set of questionnaires which gathered sociodemographic variables, personality traits (HEXACO PI-R), pain coping strategies (CSQ), depression (BDI) and perceived pain (SF-MPQ).

Results: A set of correlations and regression analysis was performed and results showed that participants who tend to catastrophize while coping with pain perceive on average higher pain intensities. Catastrophizing as a coping strategy has been shown to be significant on all components of pain (affective, sensory, and overall). Conscientiousness as the only facet of personality showed a significant correlation with pain intensity. Catastrophizing is significantly positively correlated with the facet of emotionality and depression.

Conclusions: In general, these findings suggest the importance of targeting specific coping strategies for modification in the treatment of patients with chronic pain. The results also showed the need for more richer understanding of the role of personality in the coping process.

620

ROLE OF THE FRACTALKINE RECEPTOR (CX3CR1) IN A COMPLEX REGIONAL PAIN SYNDROME MOUSE MODEL

N. Szentes[1,2,3], V. Tékus[1,3], K. Pohóczky[1,3,4], Á. Dénes[5], S. Sensi[6,7], H. Neiland[6,7], A. Goebel[6,7], Z. Helyes[1,2,3,8]

[1]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [2]ELKH-PTE Chronic Pain Research Group, University of Pécs, Pécs, Hungary, [3]National Laboratory for Drug Research and Development, Budapest, Hungary, [4]Faculty of Pharmacy, Department of Pharmacology, University of Pécs, Pécs, Hungary, [5]Momentum Laboratory of Neuroimmunology, Institute of Experimental Medicine, Budapest, Hungary, [6]Pain Research Institute, University of Liverpool, Liverpool, United Kingdom, [7]Department of Pain Medicine, The Walton Centre National Health Service Foundation Trust, Liverpool, United Kingdom, [8]PharmInVivo Ltd., Pécs, Hungary

Methods: Plantar skin-muscle incision mimicked micro injury, purified plasma IgG of CRPS patients was injected i.p. daily. The role of the CX3CR1 receptor was investigated by gene-deficient mice and the receptor antagonist AZD8797 (80µg/kg i.p/day). Paw mechanonociceptive threshold was measured by aesthesiometry, astrocyte and microglia markers in pain-related central nervous system regions by glial fibrillary acidic protein and Iba1 immunohistochemistry.

Results: CRPS IgG significantly increased plantar incision-induced mechanical hyperalgesia by 40-50% throughout the 7-day experiment, as well as microglia and astrocyte markers in the spinal dorsal horn, periaqueductal gray and somatosensory cortex at the end of the study. Both CX3CR1 deficiency and antagonist treatment significantly reduced CRPS IgG-induced mechanical hyperalgesia-increase. CRPS IgG-evoked microgliosis and astrogliosis in the investigated pain-related central nervous system regions were significantly diminished by CX3CR1 deletion, but not the antagonist treatment on day 7.

Conclusions: Inhibition of CX3CR1 activation might provide novel analgesic perspectives in CRPS-associated chronic pain.

Support: National Brain Research Program 3.0, OTKA K-138046; PTE ÁOK János Szolcsányi Research Fund: PTE ÁOK_KA-2020-18, TKP2021-EGA-16, RRF-2.3.1-21-2022-00015; AG was supported by the Pain Relief Foundation, Liverpool

---

621

PAIN ACCEPTANCE IS MAINLY INFLUENCED BY EXTERNAL FACTORS - A QUALITATIVE PILOT STUDY

C. Vaengebjerg[1,2], A. Geisler[1]

[1]Zealand University Hospital, Koege, Denmark, [2]Roskilde University, Roskilde, Denmark

Methods: In total 13 semi-structured interviews were conducted during the first months of 2022 including 8 persons with CP (some patients were interviewed twice). The participants were included when attending an interdisciplinary pain center at a large University Hospital in Denmark. The interviews were recorded, transcribed, and thereafter thematically analyzed using data-driven coding.

Results: The overall findings were pain acceptance for the participants largely seeming to include external factors. The external factors were classified into positive factors promoting acceptance 1) support and understanding from close relatives, 2) recognition from health professionals, social workers, and employers, and negative factors that may be barriers to acceptance 1) experience of violation from health professionals, social workers, and employers, 2) stigma from society in general. These findings led to the development of a model of acceptance, which illustrates that the responsibility for acceptance does not rely solely on the person with CP.

Conclusions: The findings of this study indicate that the responsibility for acceptance does not rely primarily on the individual, but the surroundings also have an impact. Further investigation in a larger scale is required. Implications for practice: the model will be tested in clinical practice in an interdisciplinary pain center.

622

POTENTIAL AND CHALLENGES OF THE MONOIODOACETATE-INDUCED OSTEOARTHRITIS MOUSE MODEL FOR ANALGESIC TESTING: INHIBITORY EFFECTS OF THE NOVEL MULTI-TARGET DRUG CANDIDATE SZV-1287

Á.I. Horváth[1,2], K. Bölcskei[1], N. Szentes[1,2,3], É. Borbély[1,2], V. Tékus[1,4], B. Botz[5], K. Rusznák[6], B. Czéh[6,7], P. Mátyus[8], Z. Helyes[1,2,3,9,10]

[1]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [2]National Laboratory for Drug Research and Development, Budapest, Hungary, [3]Eötvös Loránd Research Network, ELKH-PTE Chronic Pain Research Group, Pécs, Hungary, [4]Institute of Diagnostics, Faculty of Health Sciences, University of Pécs, Pécs, Hungary, [5]Department of Medical Imaging, Medical School, University of Pécs, Pécs, Hungary, [6]Structural Neurobiology Research Group, Szentágothai Research Centre, University of Pécs, Pécs, Hungary, [7]Department of Laboratory Medicine, Medical School, University of Pécs, Pécs, Hungary, [8]E-Group ICT Software Ltd., Pécs, Hungary, [9]PharmInVivo Ltd., Pécs, Hungary, [10]Algonist Biotechnologies GmbH, Vienna, Austria

Methods: Knee osteoarthritis was induced by intraarticular MIA injection (0.5 and 0.8mg). Spontaneous pain was assessed by weight distribution, referred pain by paw mechanonociception (esthesiometry), bone morphology by micro-CT, histopathological alterations by semiquantitative scoring, glia activation by immunohistochemistry. SZV-1287 (20 mg/kg/day, i.p.) or its vehicle was injected during the 21-day period.

Results: MIA induced significant weight bearing and mechanonociceptive threshold decrease, tibia and femur structural bone alterations (reactive sclerosis, increased trabeculation and cortical erosions), histopathological damage (disorganized cartilage structure, hypocellularity, decreased matrix staining and tidemark integrity, increased synovial hyperplasia, inflammatory cell infiltration and osteophyte formation) and astrocyte activation in the lumbar spinal cord. Significant differences were not observed between the two MIA doses in most outcome measures, but 0.8mg induced 30% mortality. SZV-1287 significantly inhibited MIA-induced weight bearing reduction and hyperalgesia without substantially affecting inflammatory parameters and tissue damage.

Conclusions: 0.5mg MIA is sufficient and safer for investigating OA pain-related mechanisms and testing compounds in mice. SZV-1287 inhibits pain behaviors in the late stage including neuropathic mechanisms presumably via decreasing central nociceptive processing and sensitization.

Acknowledgements: OTKA K-138046, RRF-2.3.1-21-2022-00015, TKP2021-EGA-16, Eotvos Lorand Research Network, National Brain Research Program3.0

637

THE ROLE OF NEGATIVE EXPECTATION ON AUTONOMIC RESPONSES IN A STATE OF EXPERIMENTALLY INDUCED SENSITIZATION

F. Allmendinger[1], J. Rosner[1,2], T. Egger[1], P.S. Scheuren[1,2], M. Hubli[1]

[1]Balgrist University Hospital, University of Zurich, Zurich, Switzerland, [2]Inselspital, Bern University Hospital, University of Bern, Bern, Switzerland

Methods: Forty healthy participants (age 18-40 years) will be recruited and divided into the NOCEBO-group or the CONTROL-group. Sympathetic skin responses (SSRs) will be recorded in response to 10 pinprick stimuli applied to both volar forearms. All stimuli will be applied before (PRE) and after (POST) an experimental pain model (EXP-arm) or control condition (CTRL-arm). On the EXP-arm, all stimuli will be applied in the area of secondary hyperalgesia. Pinprick pain ratings will be matched to a numeric rating scale 4 across all assessments to control for subjective pain perception. The NOCEBO-group will be instructed that the stimuli will be *more intense and painful* in the POST-assessment. The CONTROL-group will not receive any instructions.

Results: In the CONTROL-group, we hypothesize that SSRs will increase from PRE to POST after stimulation of the EXP-arm. In the NOCEBO-group, we expect increased SSRs from PRE to POST after stimulation of both arms, but higher increases on the EXP-arm. Lastly, the NOCEBO-group will show higher SSRs compared to the CONTROL-group on both arms.

Conclusions: This study could help to better understand the complex interplay of negative expectation and nociceptive sensitization on pain-autonomic responses and therefore better appraise their usefulness in clinical pain cohorts

---

638

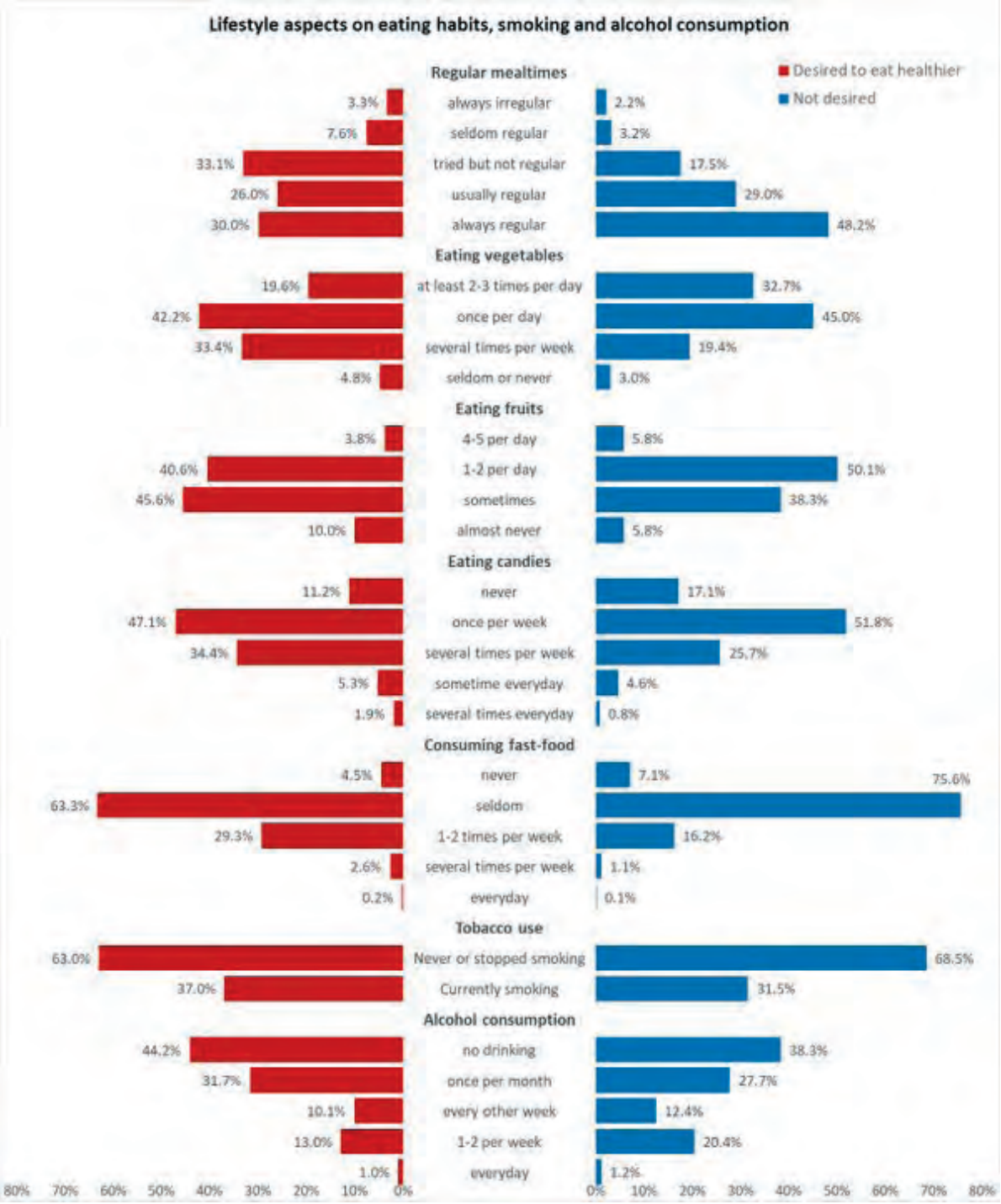
EATING HABITS AND DESIRE TO EAT HEALTHIER AMONG PATIENTS WITH CHRONIC PAIN: RESULTS FROM A 6-YEAR RETROSPECTIVE COHORT STUDY IN A SWEDISH PAIN REHABILITATION CENTER

H.-J. Dong[1], K. Brain[2], M. Max Olsson[1], B. Ghafouri[1], E. Dragioti[1], B. Gerdle[1]

[1]Linköping University, Linköping, Sweden, [2]School of Health Sciences, College of Medicine, Health and Wellbeing, the University of Newcastle, Newcastle, Australia

Methods: Data included in the Swedish Quality Registry for Pain Rehabilitation during the period 2016-2021 were used, in the areas of sociodemographic factors, body weight, pain aspects, and health experiences. Patients (N=2146) also answered a lifestyle questionnaire regarding eating habits and desire to lifestyle modifications. Univariate and multivariate regression analyses examined investigated factors associated with the desire to eat healthier.

Results: The mean (SD) patient age was 46.1±14.8 years, with 27.1 % classified as obese (BMI ≥ 30 kg/m²). The non-optimal eating habits were identified such as irregular mealtimes (27.2%), frequent consumption of candy (33.3%) and consuming fast-food (20.3%). Approximately 20% (n=426) reported the desire to eat healthier. In the multivariate model, increased frequency of candy intake (Odds Ratio (OR) 1.23, 95% Confidence Interval (CI) 1.04-1.47) and fast-food consumption (OR 1.58, 95% CI 1.24-2.02) were associated with the desire to eat healthier. Patients at younger age, being obese and suffering emotional distress were more likely to report the desire to eat healthier (OR 1.36-1.97).



Conclusions: While chronic pain patients are aware of non-optimal eating habits, nutrition support is especially desired by younger patients with comorbidities such as obesity and emotional distress.

640

IDENTIFYING THE BINDING SITES OF AN ORGANIC POLYSULFIDE, DIMETHYL TRISULFIDE (DMTS), ON TRPA1 RECEPTOR FOR TARGETED DRUG DESIGN

B. Nemes[1], S. László[1,2], B.Z. Zsidó[1], C. Hetényi[1], Á. Fehér[3], F. Papp[3], É. Szőke[1], Z. Sándor[1], E. Pintér[1]

[1]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [2]Department of Physical Chemistry and Materials Science, Faculty of Chemical Technology and Biotechnology, Budapest University of Technology and Economics, Budapest, Hungary, [3]Department of Biophysics and Cell Biology, Faculty of Medicine, University of Debrecen, Debrecen, Hungary

Methods: Preliminary calculations of agonist binding were performed by computational modelling (molecular docking). New TRPA1 mutant variants were generated by PCR based site-directed mutagenesis. The effects of DMTS, carvacrol and HC-030031 were measured by flow cytometry and whole cell patch clamp in CHO cells.

Results: Single mutation of C621, C641 and C665 and double mutation of C621 and C641 significantly reduced, but triple mutation of C621, C641 and C665 completely prevented the DMTS-evoked Ca^{2+} influx. Our data highlighted the key role of the C621. All mutants retained the sensitivity to the non-electrophilic agonist carvacrol and the antagonist HC-030031.

Conclusions: TRPA1 cysteine residues C621, C641 and C665 are involved in the binding sites of DMTS. Our results contribute to the molecular design of polysulfide-based analgesic and anti-inflammatory drugs targeting the TRPA1 receptor.

Support: National Brain Research Program 3.0 (NAP 3.0); RRF-2.3.1-21-2022-00015 National Laboratory for Drug Research and Development; TKP2021-EGA-16 National Research, Development and Innovation Fund of Hungary.

641

LONG-TERM FOLLOW-UP OF PATIENTS WITH CHRONIC NON-CANCER PAIN OR SPASTICITY LIVING WITH IMPLANTED DRUG DELIVERY SYSTEM

B. Rézmán[1], B. Bartos[2], Z. Kovács-Ábrahám[1], N. Fenyvesi[2], K. Boda[1], R. Almási[1]

[1]Clinical Centre University of Pécs, Department of Anaesthesiology and Intensive Therapy, Department of Pain Medicine, Pécs, Hungary, [2]Clinical Centre University of Pécs, Department of Anaesthesiology and Intensive Therapy, Pécs, Hungary

Methods: We collected data from 2014-2022 on 13 patients implanted with Medtronic SynchroMedII presented in Pain Clinic at the University of Pécs. The efficacy of IDDS was assessed by evaluating scales, patient satisfaction was appraised by questionnaires. During repeated observations, we focused on the elevations of daily doses and the annual frequency of dose modifications. ANOVA and mixed effect models were used for analysis.

Results: Thirteen patients, 7 with chronic non-cancer pain (5/Morphine; 1/Mo-Bupivacaine; 1/Mo-Bupi-Clonidine), six neurologic insult-induced spastic patients (5 Baclofen; 1 Baclofen-Morphine) were followed-up. The first patient received his device in 2002. The average lifespan of the pump was 7-years, the usual daily dose range were 1,05-15,21 mg (Morphine) and 154.4-1041.4 mcg/day (Baclofen). Infection was not ascertained. Two device malfunctions were detected due to leakage of catheter or motor stall.

The dose regimens of an immigrant patient received his pump elsewhere was reconsidered. The guided workflow approach to programming the device was simple. The dose regimens of an immigrant patient received his pump elsewhere was reconsidered. The guided approach to programming his device was simple, the filling procedure was the same which we accustomed to. Removal of pump was under consideration in one case. 5 chronic non-cancer patients returned to work.

Conclusions: In this longitudinal study, patients with refractory non-cancer pain or spasticity derived benefit from IDDS.

644

INDIVIDUAL DIFFERENCES AND TEST RE-TEST RELIABILITY OF HABITUATION AND SENSITIZATION TO PAIN

M. van der Miesen[1], J. Peters[1], C. Vossen[2], B. Joosten[1,2], D. Linden[1]

[1]Maastricht University, Maastricht, Netherlands, [2]Maastricht University Medical Centre, Maastricht, Netherlands

Methods: In the first part, participants (N = 60) received three runs of 25 painful electrical stimuli on the finger. Participants rated their pain intensity after each stimulus. Habituation and sensitization patterns were calculated within and across runs by fitting a slope to the individual data. In the second part, participants (N = 40) will receive the same protocol over two separate sessions to test for reliability of within and across-run habituation and sensitization.

Results: On average, pain significantly increased over stimuli within runs, although this sensitization effect diminished across the runs. Participants showed large individual variability in response to repeated painful stimulation. The

majority of participants (n=27) sensitized over the three runs, while a minority (n=13) habituated or remained stable (n = 20). For the second part, we expect higher test re-test reliability across runs than within runs.

Conclusions: Repeated painful stimulation results in large differences in habituation and sensitization patterns, both within and across stimulation runs. The description of these patterns based on the individual data allows the characterization of subgroups. The information of the test re-test reliability will influence the decision for personalized treatment options.

646

THE IMPACT OF CENTRAL POST-STROKE PAIN ON FUNCTIONAL OUTCOME AND LIFE QUALITY IN PATIENTS WITH STROKE

D. Simić Panić[1,2], A. Knežević[1,2], S. Pantelinac[1,2], T. Spasojević[1,2], L. Vojnović[2], S. Tomašević Todorović[1,2]

[1]Faculty of Medicine, University in Novi Sad, Novi Sad, Serbia, [2]Clinic for Medical Rehabilitation, Clinical Center of Vojvodina, Novi Sad, Serbia

Methods: Sixty patients with subacute stroke were enrolled and divided into two groups. The first group consisted of patients with central poststroke pain (mean age of 64.8±7.9 years; 16 males, 14 females). The second group consisted of age and gender-matched stroke patients without central poststroke pain (mean age of 65.3±8.7 years; 14 males, 16 females). The Visual Analogue Scale and Neuropathic pain Douleur Neuropathique 4 Questionnaire were used to evaluate pain. Barthel Index was used to assess functionality and the 36-Item Short-Form Health Survey was used to determine the quality of life.

Results: There were no significant differences in functional outcomes measured by Barthel Index between the two groups. Several 36-Item Short-Form Health Survey domains (physical scores, physical role limitations, and pain) were significantly higher in the second group. Moreover, we found that a unit increase in the Neuropathic pain Douleur Neuropathique 4 Questionnaire led to a 0.543 decrease in the physical score and a 0.423 decrease in the mental score.

Conclusions: In patients with central poststroke pain, the physical component of the 36-Item Short-Form Health Survey was negatively affected, while functional outcomes remained unaffected.

648

IMMIGRATION BACKGROUND AS A RISK FACTOR OF CHRONIC PAIN IN CHILDREN AND ADOLESCENTS: DIFFERENCES AS A FUNCTION OF AGE

J. Roman-Juan[1], E. Sánchez-Rodríguez[1], E. Solé[1], E. Castarlenas[1], M.P. Jensen[2], J. Miró[1]

[1]Universitat Rovira i Virgili, Tarragona, Spain, [2]University of Washington, Seattle, United States

Methods: Participants of this cross-sectional study were 1115 school children and adolescents (mean age = 11.67; 56% girls). Participants were asked to provide sociodemographic information and respond to a survey including measures of pain (location, extension, frequency, intensity, and interference).

Results: Having an immigration background was associated with a greater prevalence of chronic pain (OR = 1.91, p<.001) and this association was higher in children (OR = 6.92, p <.001) and younger adolescents (OR = 1.66, p <.05) than in older adolescents (OR = 0.72, p >.05). No significant association between immigration background and pain interference, was identified.

Conclusions: Children and adolescents with an immigration background, especially younger children, are at higher risk of having chronic pain. More resources should be allocated in the prevention of chronic pain in children and adolescents with an immigration background.

650

PSYCHOLOGICAL FACTORS AND PAIN MEDICATION USE IN ADOLESCENTS WITH CHRONIC PAIN

J. Roman-Juan[1], E. Sánchez-Rodríguez[1], E. Solé[1], E. Castarlenas[1], M.P. Jensen[2], J. Miró[1]

[1]Universitat Rovira i Virgili, Tarragona, Spain, [2]University of Washington, Seattle, United States

Methods: Cross-sectional data from 320 adolescents aged 12-18 years old with chronic pain were drawn from an epidemiological study on pediatric chronic pain conducted in Reus (Catalonia, Spain). Participants were asked to provide sociodemographic information and respond to measures assessing pain (location, frequency, intensity, and interference), pain medication use, anxiety, depressive symptoms, and pain catastrophizing. Point biserial correlations were conducted to examine univariate associations between the psychological variables and pain medication use. Hierarchical logistic regression analysis was used to examine these associations while controlling for demographic characteristics, pain intensity and pain interference.

Results: Anxiety, depressive symptoms, and pain catastrophizing were significantly associated with pain medication use in univariate analyses. Regression analysis identified pain catastrophizing as a unique independent predictor of pain medication use after controlling the effect of demographic variables (sex and age), pain intensity, and pain interference (OR = 1.1, p <.05). No moderation effects of adolescents' sex or age on the associations between psychological factors and pain medication use was found.

Conclusions: Adolescents with chronic pain with higher levels of pain catastrophizing use pain medications more often. Research to examine the impact of interventions targeting pain catastrophizing on pain medication use among adolescents with chronic pain would be an important next step.

653

A QUALITATIVE STUDY INTO THE EXPERIENCES OF PATIENTS BEING ASSESSED FOR AND ATTENDING AN ONLINE PAIN MANAGEMENT PROGRAMME DURING THE COVID 19 PANDEMIC

A. Bradshaw[1], C. Ainsley[1], A. Griffiths[2], T. Reynolds[2], M. Liptrot[1], S. Johnson[1,2], K. Herron[1]

[1]The Walton Centre NHS Foundation Trust, Liverpool, United Kingdom, [2]University of Liverpool, Liverpool, United Kingdom

Methods: A qualitative study was carried out to gather patients views and experiences. Four focus groups were conducted including patients that had both accepted and declined participation in an OPMP. Discussions were recorded and transcribed. Data analysis is guided by thematic analysis to establish key themes relating to participants experiences. IRAS project ID (286190), REC reference (21/NI/0106).

Results: Thematic analysis is underway and will be completed by May 2023. Initial key themes include service delivery, communication/information, social connection, confidentiality, and decision-making processes.

Conclusions: The outcomes will give new insight into patients' experiences during a time when there were significant changes to how treatment was delivered.

655

ZEBRAFISH AS A MODEL FOR THE STUDY OF THE OXIDANT-SENSITIVE TRANSIENT RECEPTOR POTENTIAL ANKYRIN 1 (TRPA1) IN OXALIPLATIN-INDUCED PAINFUL NEUROPATHY

E. Bellantoni[1], M. Marini[1], M. Chieca[1], L. Landini[1], F. De Logu[1], P. Geppetti[1,2], R. Nassini[1,2]

[1]Department of Health Science, Clinical Pharmacology and Oncology Section, University of Florence, Florence, Italy, [2]Headeache Center, Careggi University Hospital, Florence, Italy

Methods: We used 4-5 days post-fertilization (dpf) zebrafish larvae exposed to different concentrations of TRPA1 agonists: allyl-isothiocyanate (AITC, 0.1-1-10μM), hydrogen peroxide (H_2O_2, 100-500μM;1mM), and 4-hydroxynonenal (4-HNE, 1-10-100μM). CIPN was performed by the incubation of zebrafish larvae with oxaliplatin (10μM; from 1dpf to 5dpf). After stimulation, changes in the locomotor activity, interpreted as a nocifensive-like escape behavior in response to a noxious stimulus, were tracked with EthoVision® XT Version 17.

Results: AITC, H_2O_2 and 4-HNE increased zebrafish larvae locomotor activity in a concentration-dependent manner. The increase in locomotor activity was reduced after the pre-treatment with a selective TRPA1 antagonist (A967079). The incubation with oxaliplatin significantly increased zebrafish larvae locomotor activity, which was reduced by A967079 and by an antioxidant.

Conclusions: Oxaliplatin increases oxidative stress which targets TRPA1 to induce nociceptive locomotor behavior. Zebrafish may represent a suitable model to study TRPA1 in the nociceptive behavior evoked by oxaliplatin-induced CIPN.

656

DIFFERENTIAL ROLE OF PATIENT AND PARENTAL FACTORS IN PREDICTING THE SUCCESS OF PAIN MANAGEMENT AMONG ADOLESCENTS: A CROSS-SECTIONAL STUDY

K. Forgács-Kristóf[1], J. Major[2,3], A. Vargay[3,4], S. Ádám[5]

[1]Semmelweis University Doctoral School of Mental Health Sciences, Budapest, Hungary, [2]Semmelweis University, Institute of Behavioural Sciences, Budapest, Hungary, [3]HRC Bethesda Children's Hospital, Paediatric Pain Centre, Budapest, Hungary, [4]Institute of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary, [5]Semmelweis University, Faculty of Health and Public Services, Health Services Management Training Centre, Budapest, Hungary

Methods: We conducted a cross-sectional survey among 37 patient-parent dyads (adolescents mean age: 15.22, SD=1.85) participating in a randomized controlled trial (ClinicalTrials.gov ID: NCT05220384). The survey was administered prior to the interdisciplinary evaluation at a paediatric clinic. To explore potential predictors of ARC, we used the Pain Stages of Change Questionnaire Adolescent and Parent versions (PSOCQ-A, P), the Perceived Parental Autonomy Support Scale (P-PASS), and The Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS). Missing data were handled with multiple imputation method. We conducted multiple stepwise linear regression analyses to test the prediction models.

Results: Regression for precontemplation was statistically significant (R^2=.378, F (3.33)=6.687, p =.001). Parents' precontemplation (β =.280, p=.011), parents' contemplation (ß=-.219, p=.038) and adolescents' competence satisfaction (ß=-.392, p=.038) significantly predicted adolescents' precontemplation. Regression for contemplation was also significant (R^2= .252, F (2.34) = 5.715, p =.007). Mothers' autonomy support (β = .193, p =.004), and adolescents' competence frustration (ß= .487, p=.048) significantly predicted adolescents' contemplation.

Conclusions: Our results suggest that each stage of ARC before treatment intervention is predicted by distinct and different parental and patient factors. Our results may inform the development and/or customization of intervention plans for chronic pain management.

662

ANTERIOR CUTANEOUS NERVE ENTRAPMENT SYNDROME (ACNES) - A COMMON, BUT UNDERDIAGNOSED CONDITION: A CASE REPORT

J. Martinčević[1], L. Fumić Dunkić[1,2], A. Kustura[1,3], M. Ciglar[1]

[1]University Hospital Center Sestre milosrdnice, Zagreb, Croatia, [2]The Catholic University of Croatia, Zagreb, Croatia, [3]School of Medicine, University of Zagreb, Zagreb, Croatia

Methods: So far, the patient has been treated with ultrasound guided trigger point injections, which achieve therapeutic effect up to 3 days, and with acupuncture, which achieves no effect. The pain was refractory to various analgesic and adjuvant analgesics. The painDETECT questionnaire score was 14, the McGill Pain Questionnaire was 26.

Results: Due to suspicion of ACNES the patient was referred to a surgeon. On examination, the Carnetti sign is positive, and the patient is indicated for surgery. Anterior neurectomy of intercostal nerves is performed. Postoperative recovery was satisfactory and the patient reported a reduction in pain.

Conclusions: Although the ACNES has a 15-30% prevalence, this syndrome has been described as the “forgotten diagnosis”. Unfortunately, many patients undergo extensive diagnostic workup which is a huge financial and psychological burden, in addition to the unresolved pain. When examining patients with undifferentiated abdominal wall pain, it is important to suspect possible ACNES and carry out further processing and treatment.

663

ULTRASOUND-GUIDED SPINAL ERECTOR BLOCK: ANALGESIA IN BREAST SURGERY

W. Kouachi[1], K. Mohamed Ridha

[1]*Army Central Hospital, Algiers, Algeria*

Methods: This is a prospective, unicentric, descriptive study including 40 patients operated for mastectomy and/or axillary dissection in our department.

Technique:

All the patients undergo general anesthesia with a realization of an ESP block.

A standard protocol for all patients (Propofol, Sufentanyl, Dexamethasone and Paracetamol 1gr/6hr).

- The local anesthetic used is a 20ml dose of 0.25% Bupivacaine for all patients.

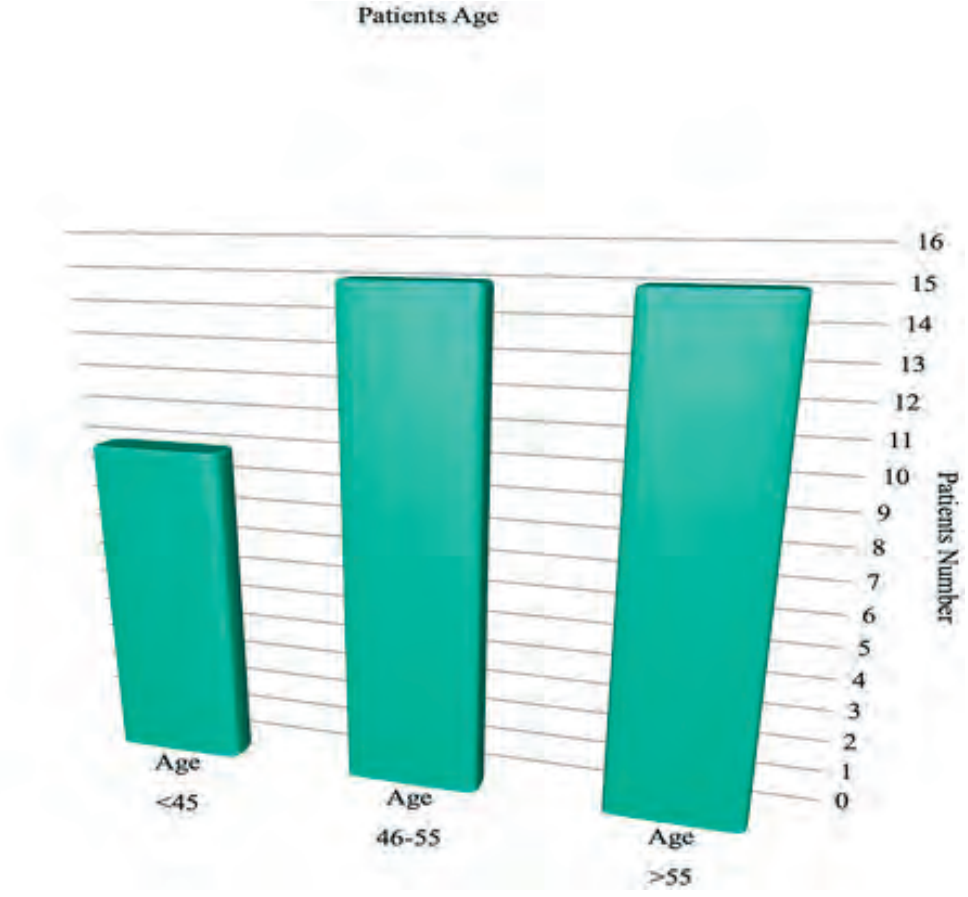
Data collected:

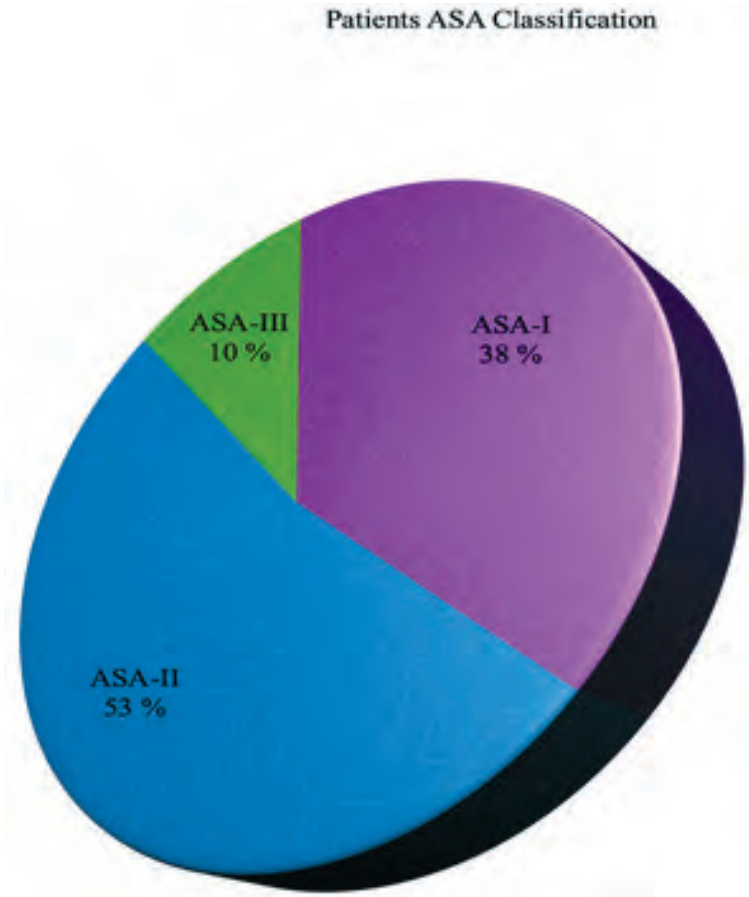
-Evaluation of postoperative pain by VAS, NS: each 6HRS, 12HRS, 24HRS and 48HRS.

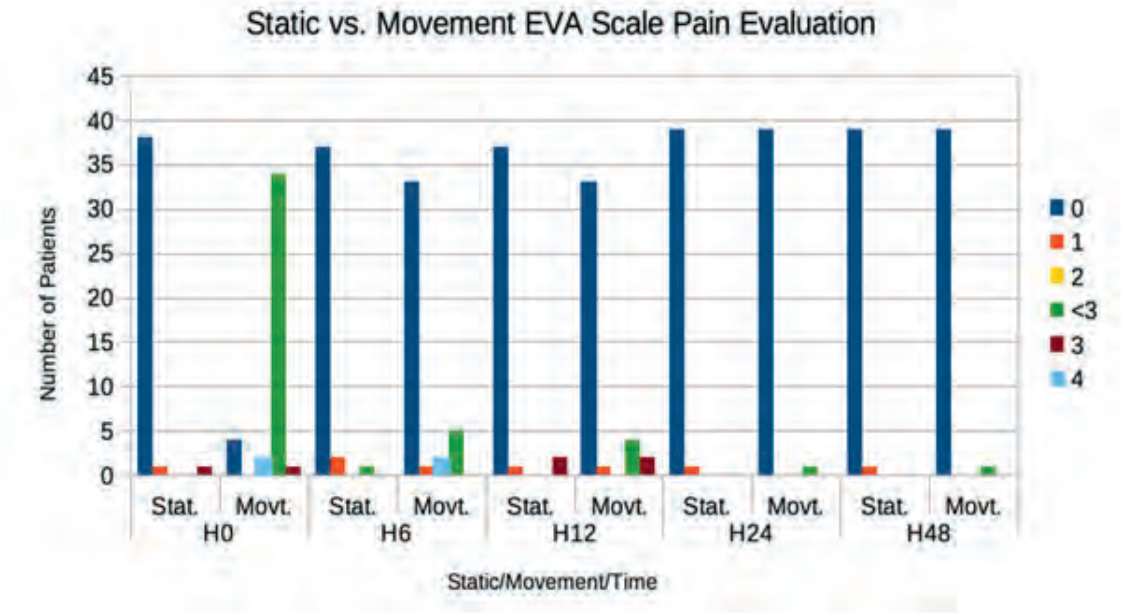
ESP block

Performed before the induction using a 50mm echoplex needle and an ultrasound guide with a linear probe at T4.

Results: An average of 95% of patients felt «0» pain when static after 0hrs, 6hrs,12hrs, 24hrs or 48hrs and with an average of 73% « 0» pain when in movement after 0hrs, 6hrs,12hrs, 24hrs or 48hrs. The highest pain felt <3 for 82% of patients in movement at 0hrs.







Conclusions: Advantage :

The simplicity of the technique, easiness to learn.

Limitations of the study:

Requires further comparative studies to conclude.

Effectiveness in chronic pain.

ESP can be a very interesting alternative for the management of peri-operative pain in senological oncological surgery.

666

CROSS-CULTURAL ADAPTATION AND VALIDATION OF SPANISH PAIN CATASTROPHIZING SCALE-CHILDREN (PCS-C)

G. Ceniza-Bordallo[1], A. Gómez Fraile[2], P. Martín-Casas[3], I. López-de-Uralde-Villanueva[3]

[1]Doctoral Program in Healthcare, Faculty of Nursing, Physiotherapy and Podiatry. University Complutense of Madrid, Madrid, Spain, [2]Head of Service, Surgery and Urology Pediatric Unit. University Hospital 12 Octubre of Madrid, Madrid, Spain, [3]Department of Radiology, Rehabilitation and Physiotherapy. Faculty of Nursing, Physiotherapy and Podiatry. University Complutense of Madrid. IdISSC, Madrid, Spain

Methods: This study was conducted in two steps, a) instruments translation, b) psychometric analysis. After forward and back translation of the Spanish version of PCS-C a convenience sample were collected from a pediatric hospital. This study followed the STARD checklist.

Results: 150 children and adolescents (mean age=12.45, 8-18 years, 63.8% male) and their parents were included. The exploratory and, then, confirmatory analysis showed a good adjust of model to original three-model structure with 13 items. In respect to convergent validity analysis, moderate correlation into the Spanish PCS-C showed a moderate correlation with pain interference (r = 0.400) and with health-related quality of life (r = 0.217—0.303). Finally, the study confirms Spanish version has an excellent Reliability (Cronbach› alpha coefficient = 0.904).

Conclusions: These results provide that the Spanish version of the PCS-C is a valid and reliable scale to assess pain catastrophizing in children and adolescents.

667

ALGERIAN AIR CREWS WITH PAIN SYNDROMES AND THEIR QUALITY OF LIFE

K. Mohamed Ridha[1], L. Nabila[2], B. Ali[1]

[1]National Aircrew Medical Centre of Expertise (N.A.M.C.E), Algiers, Algeria, [2]HCA ain naadja Kouba, Algiers, Algeria

Methods: Prospective cross-sectional study for descriptive and analytical purposes, spread over 18 months, carried out by questionnaire of clinicoepidemiological data.

Results: We note that 81.2% of crews have a regular sporting activity. 33.7% practiced specific navigation training. 87.24% of crews suffer from insomnia (12.76% hypersomnia). The latter and flight hours have a statistically significant association (p=10-3). Excessive fatigue (Pichot22 scale) at a rate of 5.2%. On the HADS scale, there is an inhomogeneous distribution, scores 1 and 2 are in the majority with respectively 50.6% and 48.3%. Temporary disability was attributed to 92.7% of crews. The evolutionary profile at the «Pichot» scores shows an increase of 71.4% from class2 to class5 (p=0.01). 75.9% of those had improvements through preventive measures, 10.6% saw no improvement and the remaining 13.5% were indifferent.

Conclusions: Aeronautical risk factors are likely to persist the pain of the air navigator and therefore the LQ is reduced. The personal and professional impact of low LQ has a direct impact on flight safety. The promotion of training specific to each aeronautical specialty, increased awareness of prevention with lifestyle, the use of physical means, ergonomics in the design of equipment are the key words for a better LQ of crews.

668

TRANSITIONAL PAIN CLINICS – NICE IDEA OR A NECESSITY?

G. Chumbley[1], I. Brickner Braun[1], E. Castillo[1], A. Kalbag[1]

[1]Imperial College Healthcare NHS Trust, London, United Kingdom

Methods: Patients attending pre-operative assessment were screened for regular opioid use (daily use, for at least 7 days, weak or strong opioids). Regular users were questioned about their dosage, who initiated them, longevity of their prescription and whether they were effective. Pain scores were recorded. Information about adjuvants, anxiety and depression were noted.

Results: Between June and September 2022, 1942 patients were screened. 54 (2.8%) patients listed for inpatient

surgery were taking opioids regularly. 31 patients were contacted and data for these patients are presented in Tables 1-3. Of the remainder, 8 had already had surgery, 4 refused, 4 spoke no English, 2 had stopped opioids, 5 were uncontactable. Mean age was 31 years (range 24 to 83), 16 participants were women. The mean daily dose in oral morphine equivalents (OME) was 46mg, range 3 to 320mg.

Question	Possible answers	n (%)
Surgical Specialty	Trauma & Orthopaedics	20 (65%)
	Neurology	7 (23%)
	Plastic surgery	2 (6%)
	Other	2 (6%)
Who started the opioids? (n=30)	General Practitioner	20 (67%)
	Hospital clinician	10 (33%)
Daily opioid dose in oral morphine equivalents	Less than 30mg	20 (65%)
	Between 30-89mg	5 (16%)
	90mg +	6 (19%)

Question	Possible answers	n (%)
How long have you been taking opioids?	Less than 12 weeks	1 (3%)
	3-12 months	4 (13%)
	Over 12 months	26 (84%)
Are opioids effective?	Yes	19 (61%)
	No/Don't know	12 (39%)
Worst level of pain in past 24 hours?	None	1 (3%)
	Mild	0 (0%)
	Moderate	7 (23%)
	Severe	23 (74%)

Question	Possible answers	n (%)
Are you taking an adjuvant? (gabapentinoid or tricyclic)	Yes	14 (45%)
	No	17 (55%)
Do you suffer with anxiety or depression?	Yes	22 (71%)
	No	9 (29%)
Are you taking an anti-depressant?	Yes	14 (45%)
	No	17 (55%)

Conclusions: The number of patients taking long-term opioids were relatively few, but these patients are complex and have the potential to experience uncontrolled pain peri-operatively and upon discharge. Many were taking opioids that were ineffective. Transitional pain clinics can reduce ineffective opioids and provide psychological strategies to manage anxiety and depression. This audit continues and we are following a sub-set of patients to identify their peri-operative needs (full data will be presented in the poster). We conclude that transitional pain clinics are a necessity.

671

IN-PERSON PAIN CARE ACCESS WAS UNAFFECTED FOR CANCER PAIN PATIENTS DURING THE COVID-19 PANDEMIC BUT NOT FOR PATIENTS AFFLICTED BY MUSCULOSKELETAL PAIN

R.G. Almasi[1], Z. Kovács-Ábrahám[1], K. Boda[1], Z. Kriszta[1], B. Bartos[1], L. Mangel[2], B. Rézmán[1], N. Fenyvesi[1]

[1]University of Pécs, Clinical Centre, Dept.Anaesth Int Care, Pain Med., Pécs, Hungary, [2]University of Pécs, Clinical Centre, Dept. Oncology, Pécs, Hungary

Methods: The Ethical Committee approved the retrospective study protocol. The policy of our department was to continue pain management services, at least to cancer pain patients, during COVID-19 surges. Data was collected on 6787 encounters from the 1st of March 2018 to the end of Dec 2022. Researchers observed the patient-physician encounters focusing on cancer pain patients, chemotherapeutic port implantations, and patients with musculoskeletal pain. During repeated observations, we compared the yearly and monthly numbers of days open for appointments. Biopsychosocial data were analysed. Descriptive statistics and variance analysis were performed for evaluation (*p<0.05).

Results: A dramatic decrease in office days/month (10*/19) with decreased visits/week (13*/33) during COVID-19 surges was detected. A significant decline in the office days/per month (12*/17) with continuing access per week (27*/33) was seen in the COVID era (2020-2022)/pre-COVID (2018-2020). Cancer pain visits and port insertions were statistically unaffected. Patients with chronic musculoskeletal pain visited the department infrequently.

Conclusions: The healthcare system didn't allow continuing patient access amid COVID-19 surges, so for better availability, we provided pain care for cancer pain patients in limited office days, with more daily visits. The restrictions in pain care services were not beneficial for patients with musculoskeletal pain.

672

DYNAMIC PAIN CHANGE IN A NOVEL FMRI-COMPATIBLE PARADIGM TO STUDY SPATIAL SUMMATION OF PAIN

W.M. Adamczyk[1,2], A. Sprenger[3], T. Szikszay[4], K. Luedtke[4]

[1]Laboratory of Pain Research, The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland, [2]Division of Behavioral Medicine & Clincial Psychology, Cincinnati Children's Hospital Medical Center, Cincinnati, Poland, [3]Center of Brain, Behavior and Metabolism (CBBM), University of Luebeck, Luebeck, Germany, [4]Institute of Health Sciences, Department of Physiotherapy, Universität zu Lübeck, Luebeck, Germany

Methods: Sixteen participants were included in this study. Electrical stimuli were applied to the foot using up to five electrodes attached in a line-like pattern. Participants were assessed in four experimental conditions: with different "stimulus intensity" (high vs. low) and "stimulus orientation" (horizontal vs. vertical). Each stimulation trial lasted 25s and was based on different spatial derivatives: ascending (activation from 1 to 5 electrodes), descending (5 to 1), random (random selection of number of electrodes), or control. Participants rated pain continuously over 25s in each trial. General Linear Models were applied to each condition separately.

Results: SSp was evoked in all experimental conditions as pain increased when more electrodes were co-activated (p<0.05). Different effect sizes were observed with the highest for the horizontal orientation of electrodes at a high intensity. The interaction between the number of electrodes and the type of spatial derivative was statistically significant (p<0.05).

Conclusions: This study showed that a dynamic SSp paradigm is capable to evoke robust behavioural SSp. Furthermore, the paradigm detects an interaction between the area of nociceptive stimulation and spatial derivative, indicating that pain evoked by the same nociceptive input is perceived differently depending on the sequence of the stimulation.

673

PAIN FUNCTIONAL MAGNETIC RESONANCE IMAGING IN DIFFICULT-TO-TREAT RHEUMATOID ARTHRITIS

G. Orsi[1,2], L. Gunkl-Tóth[3,4], G. Sütő[5], G. Kumánovics[6], Z. Vidnyánszky[7], G. Nagy[8,9,10], Z. Helyes[3,4,11]

[1]ELKH-PTE Clinical Neuroscience MR Research Group, Eötvös Loránd Research Network, Pécs, Hungary, [2]Department of Neurology, Medical School, University of Pécs, Pécs, Hungary, [3]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [4]Eötvös Loránd Research Network, University of Pécs, Chronic Pain Research Group, Pécs, Hungary, [5]Second Department of Medicine and Nephrology-Diabetes Centre, University of Pécs, Pécs, Hungary, [6]Department of Rheumatology and Immunology, Medical School, University of Pécs, Pécs, Hungary, [7]Brain Imaging Centre, Research Centre for Natural Sciences, Budapest, Hungary, [8]Department of Rheumatology and Clinical Immunology, Department of Internal Medicine and Oncology, Semmelweis University, Budapest, Hungary, [9]Department of Genetics, Cell and Immunobiology, Semmelweis

University, Budapest, Hungary, [10]Heart and Vascular Centre, Semmelweis University, Budapest, Hungary, [11]National Laboratory for Drug Research and Development, Budapest, Hungary

Methods: 14 D2T RA patients and 11 healthy controls (HCs) were included. The fMRI examinations were conducted with a Siemens 3T Magnetom Prisma^{Fit} machine. The protocol consisted of two resting state measurements with a standardized painful heat stimulation between them, non-painful heat was also tested in HCs for comparison.

Results: In HCs painful heat stimulation significantly reduced functional connectivity strength between the prefrontal and posterior cingulate cortices, within the default mode network and between the default mode and frontoparietal networks, as well as in several connections of the medial prefrontal cortex. By contrast, in D2T RA, pain stimulation rather led to decreased functional connectivity strength between the right middle frontal gyrus and bilateral postcentral gyri. Moreover, the left middle frontal gyrus showed a distinct, pain-related functional connectivity pattern including several brain areas, which was not observed in HCs.

Conclusions: Profound differences in connectivity and network changes in response to an acute painful stimulus processing in D2T RA compared to HC might explain central pain sensitization.

Acknowledgements: ELKH, OTKA K138046, National Brain Research Program3.0, TKP2021-EGA-16, RRF-2.3.1-21-2022-00015

674

NATURAL FLUCTUATIONS OF PAIN AND PSYCHOLOGICAL QUESTIONNAIRES IN UNTREATED CHRONIC LOW BACK PAIN PATIENTS: REGRESSION TO THE MEAN AND EFFECT OF CARE

M. Sean[1,2], A. Coulombe-Lévêque[1,3], W. Nadeau[1], M. Martel[1,2], G. Léonard[1,3], P. Tétreault[1,2]

[1]Université de Sherbrooke, Sherbrooke, Canada, [2]Centre de recherche du CHUS, Sherbrooke, Canada, [3]Research Centre on Aging, Sherbrooke, Canada

Methods: We conducted a 4-months observational study on 23 untreated chronic low-back pain patients. Eight standardized questionnaires (Brief Pain Inventory (BPI), Pain Disability Index (PDI), Pain Catastrophizing Scale (PCS), State and Trait Anxiety Inventory (STAI), Central Sensitization Inventory (CSI) etc.) were completed thrice at two-month intervals (0, 2 and 4 months). The average behavior of extreme (z>|0.66|) and normal (z<|.66|) scores from one visit to the next were categorized and quantified.

Results: High scores were likely to be followed by more average scores; for example, the six highest-scoring patients on the PCS showed an average decrease of 12 points from V1 to V2, suggesting a strong RTM and/or EC. Average scores were likely to be followed by average or slightly lower scores, suggesting a mild EC, and low scores were likely to be followed by slightly higher scores, suggesting that RTM was stronger than EC for those patients. These effects were variable between questionnaires, and were strongest in the PCS, PDI and BPI, and lowest in the STAI and CSI.

Conclusions: Overall, there are significant fluctuations in scores despite lack of treatment, attributable to RTM and/or CE , wherein high scores are especially likely to be followed by more average scores, especially in certain questionnaires. These effects should be further investigated and should be kept in mind by researchers during statistical analyses.

675

COGNITIVE AND EMOTIONAL CHANGES IN COMPLEX REGIONAL PAIN SYNDROME PATIENTS UNDERGOING COMPLEX REHABILITATION: A PROSPECTIVE LONGITUDINAL STUDY WITH HEALTHY CONTROL

J. Wiśniowska[1], A. Zalewski[1], B. Tarnacka[1]

[1]National Geriatrics, Rheumatology and Rehabilitation Institute, Warsaw, Poland

Methods: 21 patients with diagnosed CRPS were recruited from orthopaedic departments in Warsaw, during X 2021- XII 2022 period. Patients underwent physical examination and the CRPS was confirmed according to Budapest Clinical Criteria, then underwent a series of tests by a clinical psychologist: CVLT (California Verbal Learning Test), RCFT (Rey Complex Figure Test), CTT (Color Trail Test), BVRT (Benton Visual Retention Test), TUS (Attention and

Perceptiveness Tests), WAIS-R (Wechsler Adult Intelligence Scale – revised), BDI-II (Beck Depression Inventory), PCQ (Pain Coping Questionnaire). Second assessment was done after a 4-week rehabilitation programme consisting of physical therapy, mechanical desensitisation and elements of Graded Motor Imagery. The same psychological assessments were performed in sex, age and education-matched healthy (no chronic pain condition) control.

Results: Initial results show improvement in CRPS population in several parameters during the 4-week observation period, including visuospatial constructive cognition, information processing speed, decrease in depression and a change in pain-coping strategies. There is only a marginal improvement in visual omission errors.

Conclusions: Our study highlights the need for inclusion of psychological assessment to both study, understand and treat CRPS.

676

CHALLENGES IN CONDUCTING CLINICAL CRPS RESEARCH: A SCOPING REVIEW

A. Zalewski[1], J. Wiśniowska[1], B. Tarnacka[1]

[1]National Geriatrics, Rheumatology and Rehabilitation Institute, Warsaw, Poland

Methods: Following the PRISMA-ScR framework, we reviewed the PubMed database for original papers with CRPS as the main research interest published between 31.12.2017 and 21.06.2022 with at least 3 CRPS patients included, and describing challenges encountered. The protocol was registered on OSF.io (https://osf.io/2pcsh). Data on challenges encountered and methods used was collected by two reviewers using a data charting form, and synthesised in a qualitative and semi-quantitative analysis.

Results: In the time period reviewed we found 25 papers meeting the criteria, with 18 studies of interventional design. The studies were small, with a median of 30 CRPS patients involved. Most commonly reported challenges were those related to low statistical power (small number of patients, short studies, no control), high variability in clinical presentation, confounding factors influencing results and insufficient assessment tools. A very wide array of methods (81 total) were used to assess CRPS. Patient-reported questionnaires were the most common form of assessment, followed by clinician-reported and clinical measures.

Conclusions: Our study underlines the importance of ongoing efforts toward standardization of CRPS studies.

677

ELECTRO-ACUPUNCTURE EFFECT ON PAIN AND MECHANICAL HYPERALGESIA IN FIBROMYALGIA PATIENTS: A PROSPECTIVE OBSERVATIONAL STUDY: PRELIMINARY DATA

E. Koutoulaki[1], G. Papastratigakis[1], P. Vardakis[1], P. Vasilos[1], G. Stefanakis[1], G. Frantzeskos[1], A. Papaioannou[2,1], V. Nyktari[2,1]

[1]University Hospital of Crete, Heraklion, Greece, [2]School of Medicine, University of Crete, Heraklion, Greece

Methods: All patients were communicated the nature of their disease and management options. Emphasis was given on lifestyle modifications concerning mainly diet and exercise. Eligibility criteria for patient recruitment included patient's consent, age > 18 years old, diagnosis of primary fibromyalgia and occurrence of chronic diffuse pain> 6 months. Study design includes twelve electroacupuncture sessions in a six-week period followed by repeated sessions every 15 days until a period of 6 months is completed. Pain assessment at 4 time points (first visit, six weeks, three months and six months) included self-report in a numerical scale (NRS scale 0-10) and measurement of pressure pain thresholds (PPT) by the clinician using algometer at four tender points selected by the patient as most painful during first visit.

Results: Preliminary data from 10 patients were analysed. Two way ANOVA showed higher pressure pain thresholds over time ($p<0.0001$) (Figure-1). Self-reported pain scores on NRS scale were analyzed by one way ANOVA, showing a significant decrease in six weeks and 3 months ($p=0.0003$) (Figure-2).

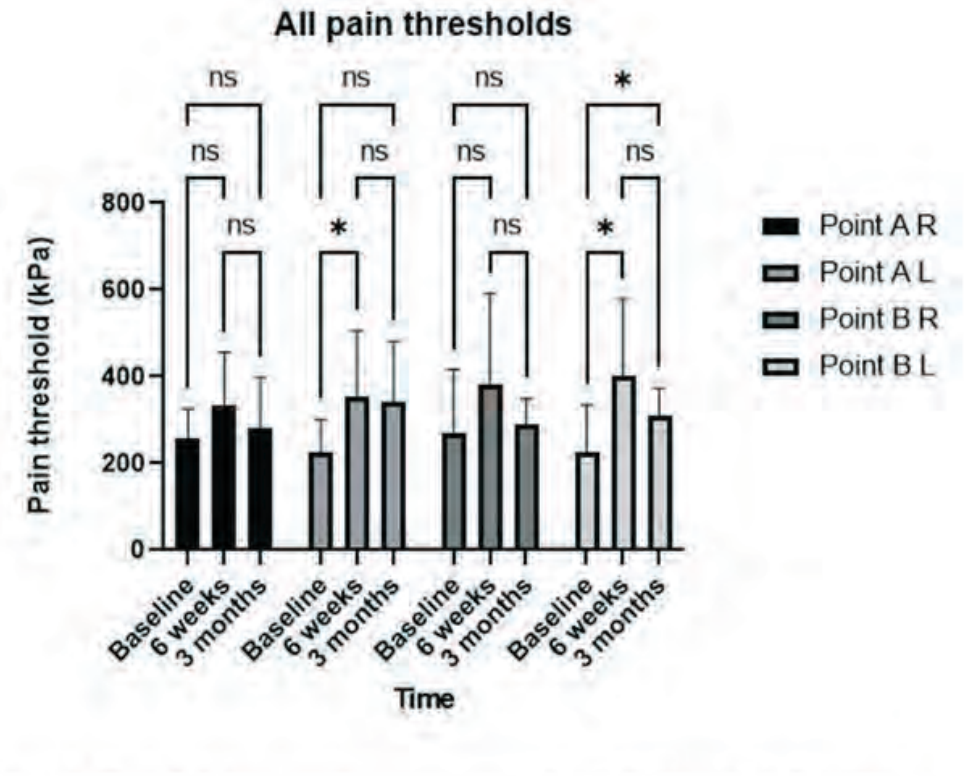


Figure 1. Effect of electroacupuncture on pressure pain thresholds over time in patients with fibromyalgia

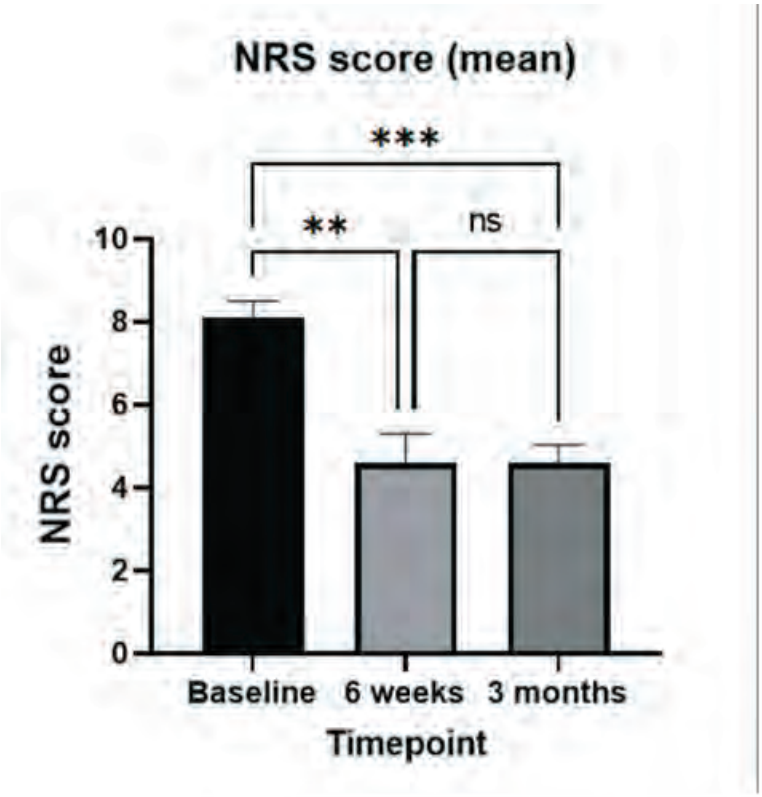


Figure 2. Effect of electroacupuncture on mean pain score (NRS) over time in patients with fibromyalgia.

Conclusions: Electroacupuncture resulted in significant increase of pressure pain thresholds and decrease of self-reported pain scores from baseline measurements in fibromyalgia patients.

679

ELECTRO-ACUPUNCTURE EFFECT ON EXPRESSION OF MU-RECEPTORS ON B-LYMPHOCYTES AND QUALITY OF LIFE IN PATIENTS WITH FIBROMYALGIA: PRELIMINARY DATA

E. Koutoulaki[1], P. Vardakis[1], G. Papastratigakis[1], G. Stefanakis[1], E. Diamantaki[1], P. Vasilos[1], C. Kalpadaki[2,1], A. Papaioannou[2,1], V. Nyktari[2,1]

[1]University Hospital of Crete, Heraklion, Greece, [2]School of Medicine, University of Crete, Heraklion, Greece

Methods: Eligibility criteria for patient recruitment included patient's consent, age > 18 years old, diagnosis of primary fibromyalgia and occurrence of chronic diffuse pain> 6 months. Study design includes twelve electroacupuncture sessions in a six-week period, followed by repeated sessions every 15 days until a six-month period is completed. Blood samples for immunophenotyping analysis and measurement of Mu- opioid receptor expression on B-lymphocytes were collected at first visit (baseline measurement), at six weeks, three and six months.

Results: Preliminary data from 10 patients were analysed. Two-way ANOVA showed higher absolute number of CD19+M lymphocytes (p=0.0014) and percentage of CD19+ M+(%) (p=0.0936) on total lymphocytes over time. Quality of life as assessed by FIQR questionnaire, was analyzed by one way ANOVA, showing a significant improvement (p<0.0001).

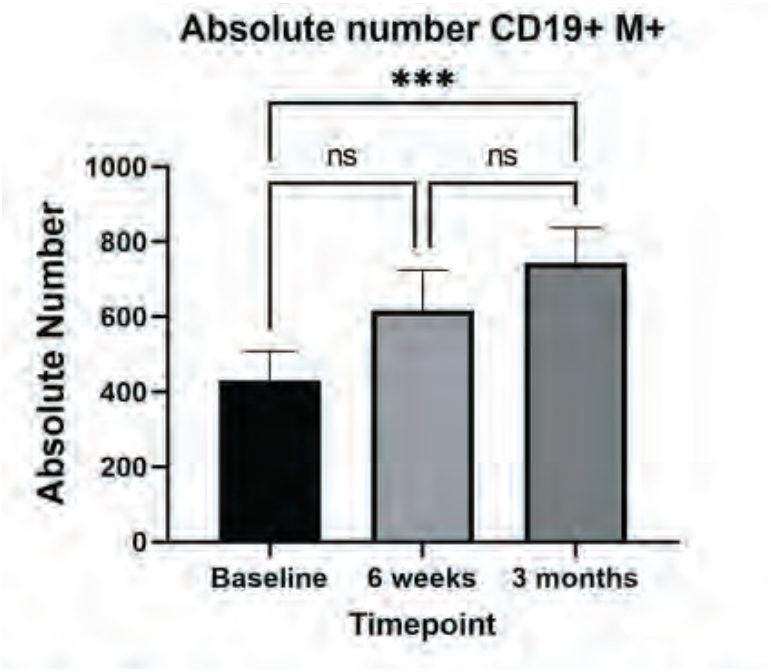


Figure 1. Effect of electroacupuncture on absolute number of CD19⁺ Mu+ lymphocytes in patients with fibromyalgia.

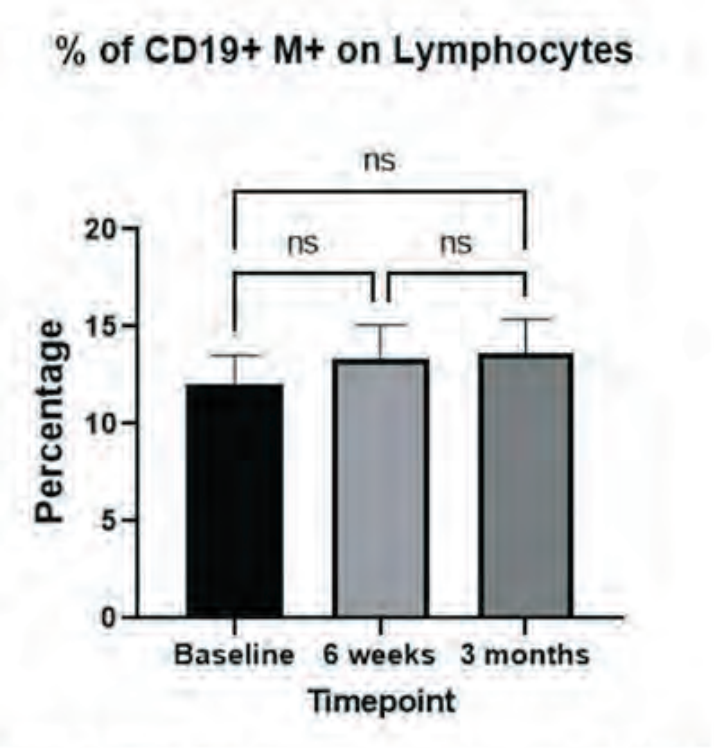


Figure 2. Effect of electroacupuncture on percentage of CD19 M+ lymphocytes over time.

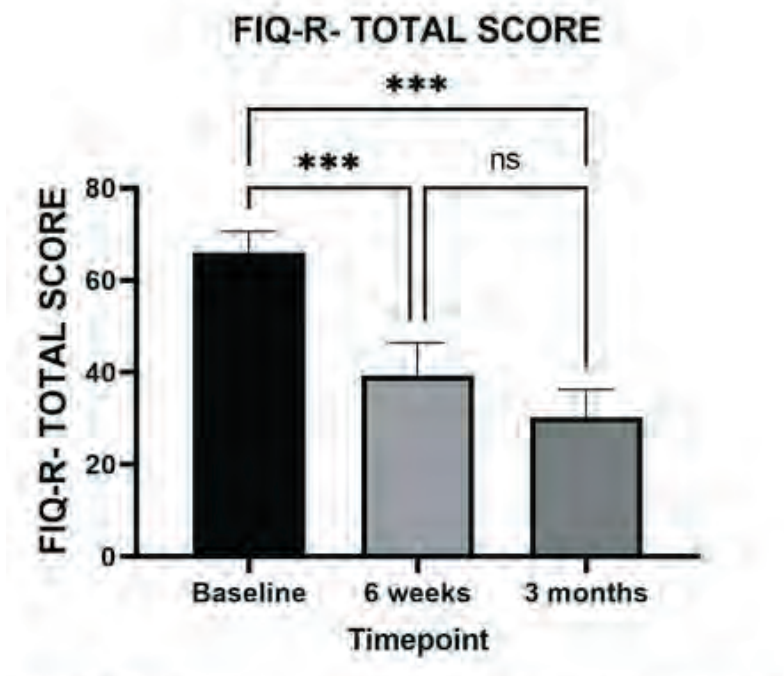


Figure 3. Effect of electroacupuncture on quality-of-life scores in fibromyalgia patients.

Conclusions: Electroacupuncture resulted in significant increase of mu-receptor expression on B lymphocytes and improvement of life quality (including pain control) in FM patients. Use of mu+ Lymphocytes as a biological marker for pain assessment and therapy response in clinical practice necessitates further research.

680

DOES INTRAEPIDERMAL ELECTRICAL STIMULATION ACTIVATE ALL TYPES OF NOCICEPTORS?

S. Uldry Júlio[1], P. Scheuren[1,2], M. Hubli[1], M. Schubert[1]

[1]Spinal Cord Injury Center, Balgrist Universitätsklinik, University of Zurich, Zurich, Switzerland, [2]Department of Neurology, University Hospital Bern, Inselspital, University of Bern, Bern, Switzerland

Methods: IES, pinprick, and contact heat stimuli were applied on the volar forearm in 26 healthy subjects (25 ± 5 years). For all modalities, assessments were made before (PRE) and after (POST) a repetitive heat model inducing a secondary hyperalgesia area (EXP condition). Within this area facilitation of AMH-I and HTM fibers activation is expected as was previously shown with a decrease in pain thresholds, increase in pain ratings, and peak-to-peak (NP) amplitudes of vertex potentials in response to pinprick. All measurements were also performed PRE and POST a control (CTRL) condition. The effects of stimulation modalities and conditions on pain qualities, thresholds, ratings, and NP-amplitudes were tested with general linear mixed models.

Results: Comparing CTRL to EXP. IES and pinprick stimuli were mostly described as «pricking» (N=16-18), whereas contact heat was described as “hot/burning” (N=21). Pain ratings increased significantly ($p<.0001$) for IES and pinprick, in contrast, to contact heat. Pain threshold decreased significantly for pinprick ($p<.0001$), while it remained constant for IES and contact heat. NP-amplitudes remained constant for all modalities.

Conclusions: These findings suggest a non-selective activation of nociceptors with IES. Hence, IEEPs may improve the assessment of peripheral small fiber damage.

681

ASSESMENT OF PATIENT SATISFACTION WITH ACUTE PAIN TREATMENT; PRELIMINARY DATA FROM LATVIAN PAIN-OUT STUDY GROUP

I. Cernavska[1,2], A. Plude[1,3], I. Golubovska[1,2], A. Miscuks[1,2]

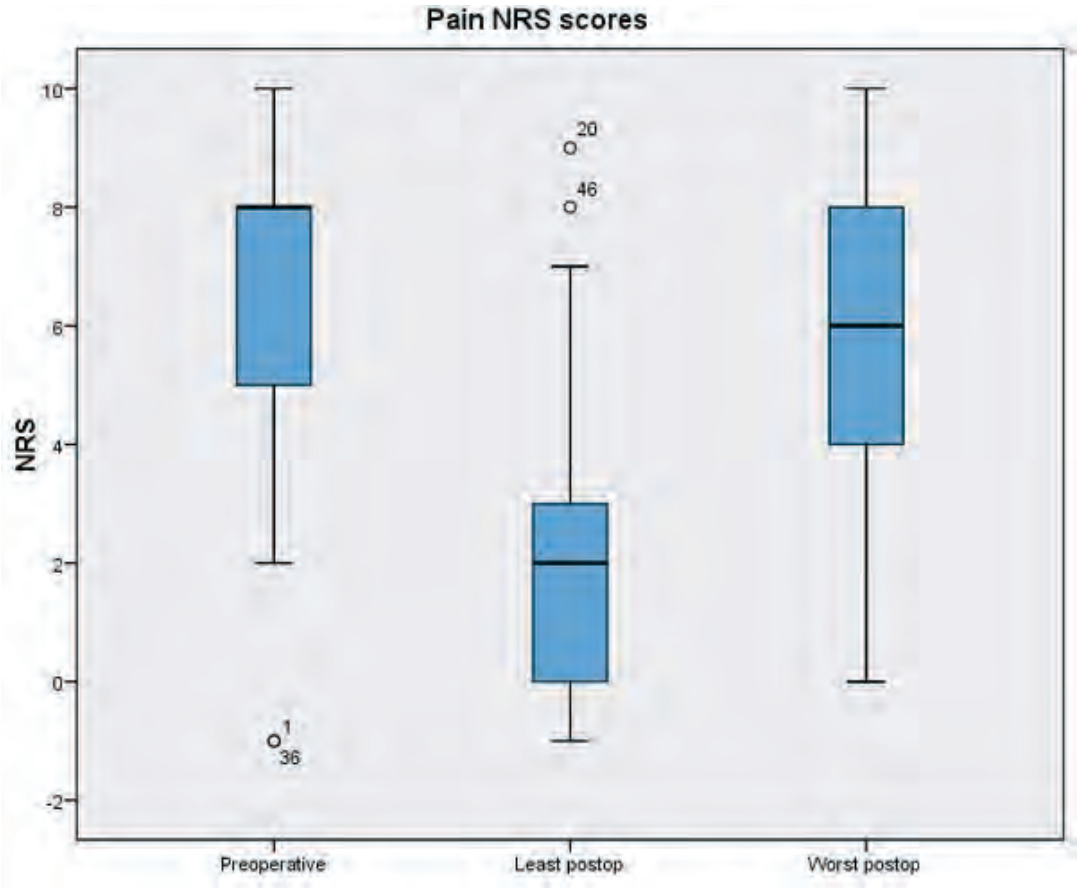
[1]Hospital of Traumatology and Orthopaedics, Riga, Latvia, [2]University of Latvia, Riga, Latvia, [3]DAP Pain Clinics, Riga, Latvia

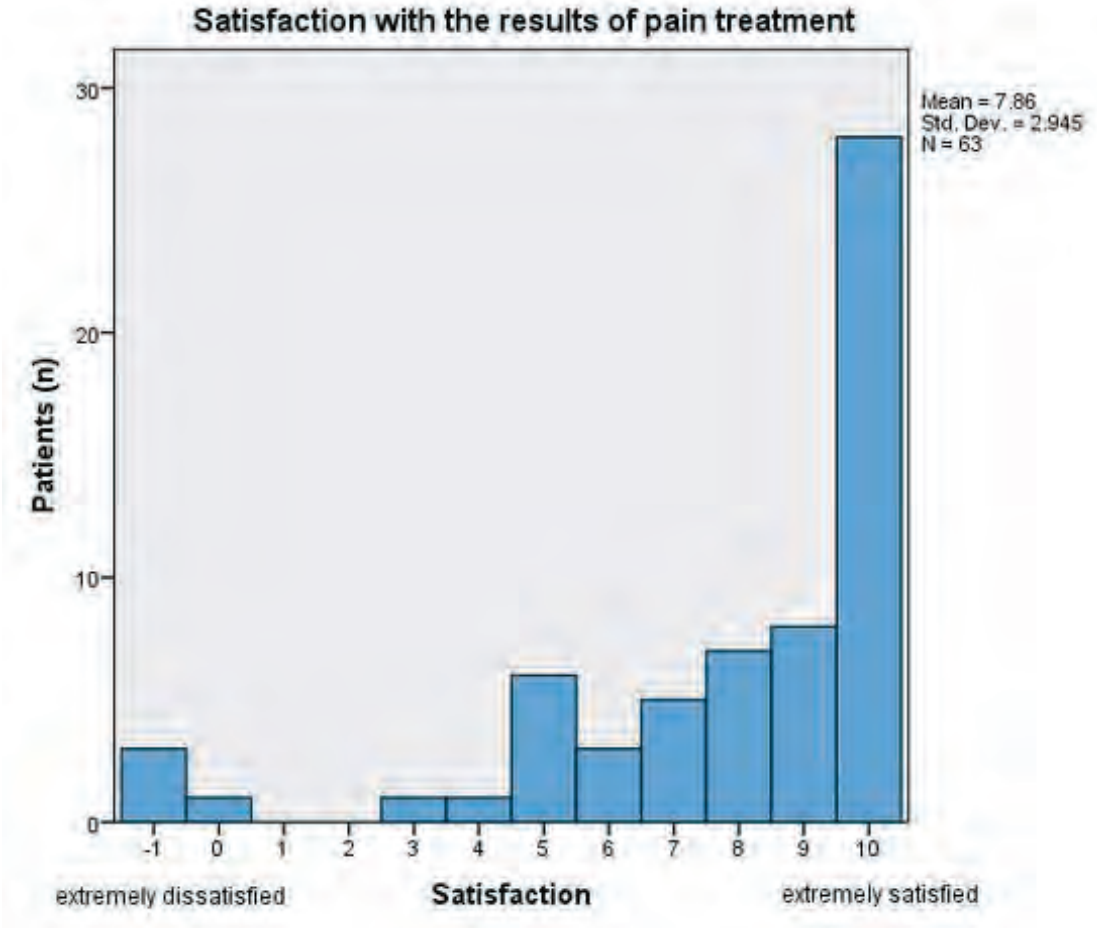
Methods: The PAIN OUT patient outcome questionnaire is filled regarding experienced maximal and minimal pain scores, level of pain relief, overall satisfaction with received pain treatment, wish for more pain treatment. Patients who had undergone orthopedic or traumatological surgery, were offered to fulfill a questionnaire on first postoperative day. Preliminary data from first 2 months was analyzed.

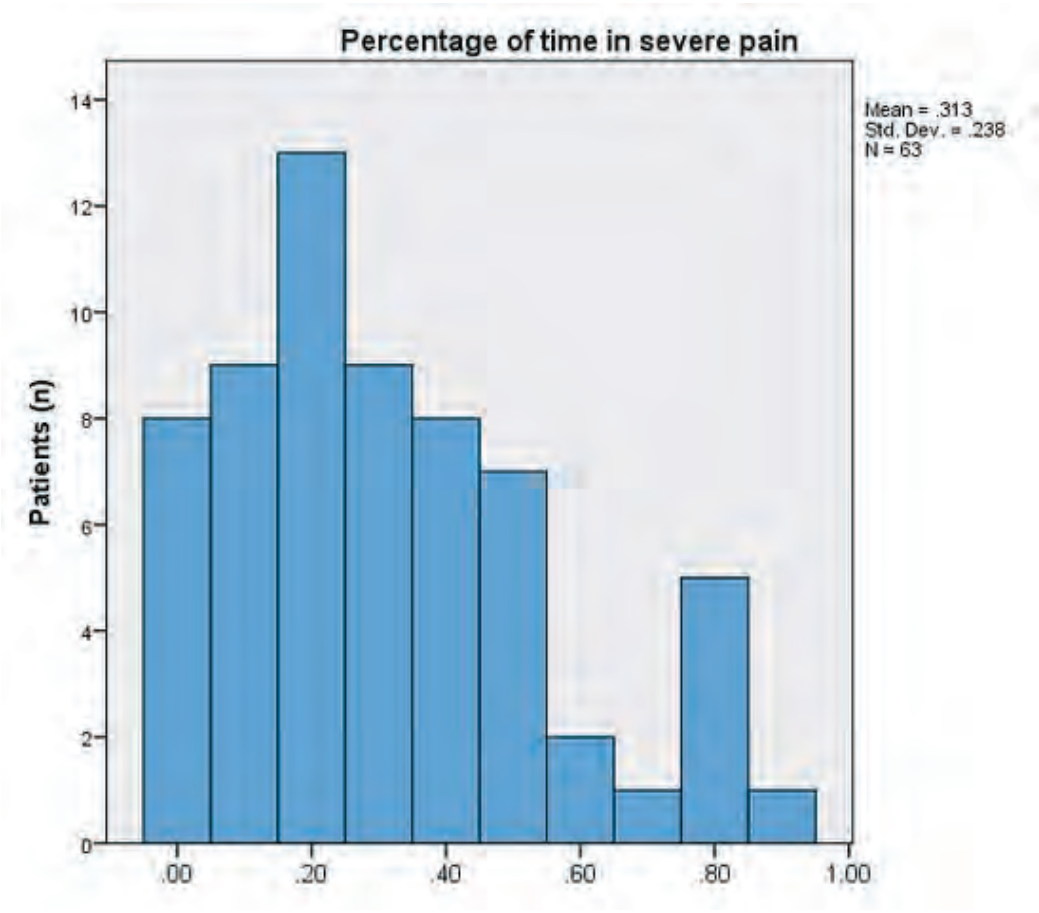
Results: Results from 63 patient questionnaires were analyzed.

The reported median worst pain was 7 [IQR 4] NRS, least – 2 [IQR 3] points NRS.

25% of patients rated being in severe pain 50% or more time since the surgery, the mean time spent in severe pain in the study group was 30% [IQR 40]. Despite relatively high worst pain scores and long reported time of being in severe pain, 80% of patients did not desire more pain treatment, 44% patients reported total (score 10 out of 10) satisfaction with received pain management. 68% of study patients marked suffering persistent pain for 3 months or more before surgery. Median preoperative pain levels were 8 [IQR 3] NRS.


Pain NRS scores
NRS
10
8
6
4
2
0
-2
20
46
1
36
Preoperative
Least postop
Worst postop


Satisfaction with the results of pain treatment
Mean = 7.86
Std. Dev. = 2.945
N = 63
Patients (n)
30
20
10
0
-1
0
1
2
3
4
5
6
7
8
9
10
extremely dissatisfied
Satisfaction
extremely satisfied



Conclusions: Even with severe pain during first postoperative day, many patients reported high treatment satisfaction scores and did not wish for more pain treatment.

682

RELIABILITY OF THE WITHIN - SUBJECTS VARIABILITY OF PAIN REPORTS AS ASSESSED BY THE FOCUSED ANALGESIA SELECTION TEST (FAST)

M. Agostinho[1,2], O. Shehab[1], S.H. Hijazi[1], R. Canaipa[2], R. Treister[1]

[1]The Cheryl Spencer Department of Nursing, Faculty of Social Welfare and Health Sciences, University of Haifa, Haifa, Israel, [2]CIIS, Centre for Interdisciplinary Health Research, Institute of Health Sciences, Portuguese Catholic University, Lisbon, Portugal

Methods: Healthy volunteers were invited to visit the laboratory twice within one week to perform the FAST. Pearson's correlation coefficients and intraclass correlation coefficients were calculated to assess reliability of the main FAST outcomes: the correlation coefficient (R^2), the intraclass correlation (ICC) and the coefficient of variation (CoV), reflecting different aspects of the within-subject variability of pain intensity reports. In addition, Bland Altman plots for limits of agreement were generated.

Results: To date, 29 participants competed the two-sessions. Pearson's correlation coefficients showed strong associations for the R^2 (r=0.499; p=0.006) and the ICC (r=0.463, p=0.012), and low correlations between the CoV (r=0.075; p=0.698). The intraclass correlation coefficients showed moderate reliability for the R^2 (0.501) and the ICC (0.463), while the CoV evidenced poor reliability (0.076).

Conclusions: These preliminary results support moderate to strong test-retest reliability of the FAST outcomes. Investigation is still ongoing. The final test-retest reliability values calculated at the end of data collection will determine the appropriateness of the FAST as a tool to assess the within-subjects variability of pain intensity reports.

Acknowledgments: research funded by FCT as PhD grant 2020.09061.BD.

683

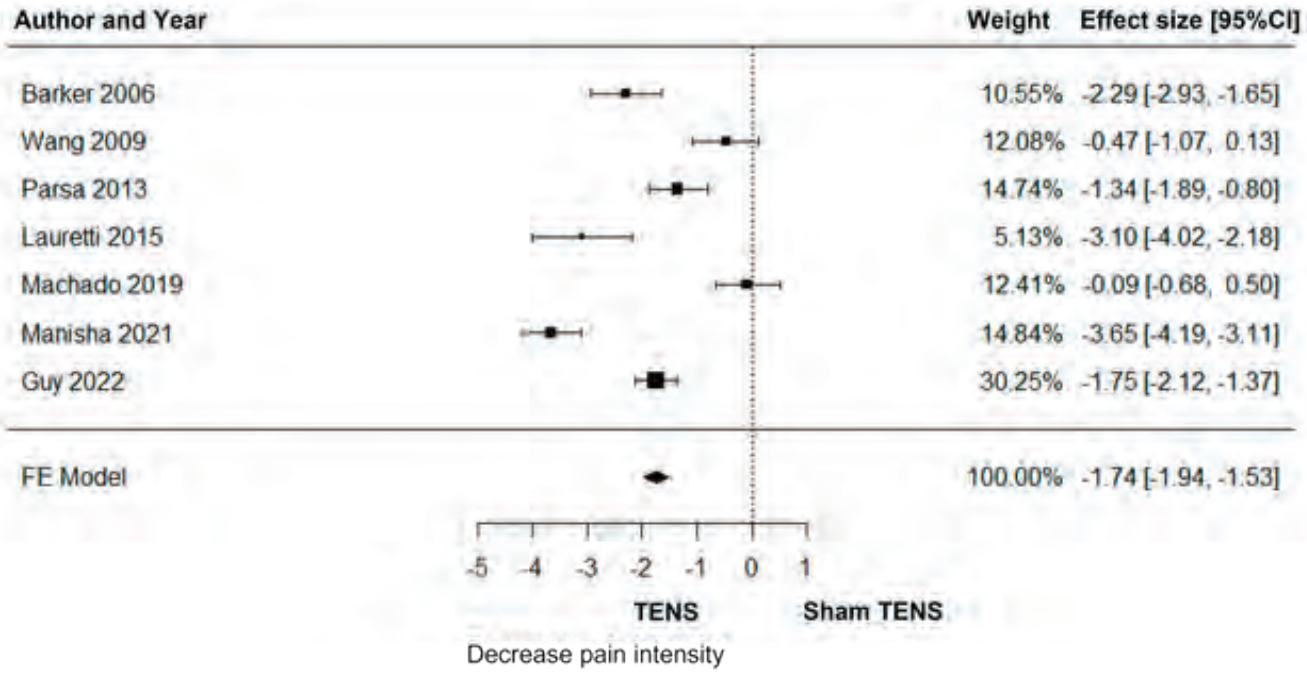
A META-ANALYSIS OF THE EFFECTIVENESS OF TENS FOR PAIN ALLEVIATION IN WOMEN WITH PRIMARY DYSMENORRHEIC SYMPTOMS

Z. Yin[1], H. Zhao[2]

[1]University of Leipzig, Leipzig, Germany, [2]Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

Methods: Two independent reviewers conducted a systematic literature search in PUBMED and Scopus according to PRISMA guidelines by using the combinations of the following search terms: 'dysmenorrhea', 'primary dysmenorrhea', transcutaneous electrical nerve stimulation', electrical stimulation', and 'TENS'. Database keyword searches included English-language studies and excluded studies that applied different stimulation techniques or were not peer-reviewed. Seven studies were finally included in the meta-analysis. The effect size of the difference between the pain intensity for the active TENS and sham TENS was calculated in R (metafor package).

Results: The first search yielded 171 relevant records, of which seven were eventually included in the meta-analysis. The included studies enrolled a total of 372 patients. The comparison intervention consisted of sham/placebo TENS in all included studies. The main outcome of interest was the pain intensity measured by visual analogue scale (VAS) or numeric rating scale (NRS). According to our analysis, TENS was statistically superior to sham TENS in reducing PD-related pain (Figure 1, SMD=-1.74; 95% CI=-1.94, -1.53; p <.0001).



Conclusions: Our meta-analysis results indicated that TENS is a safe and effective analgesic treatment in women with primary dysmenorrhea.

684

CENTRAL VENOUS ACCESS PORT IMPLANTATION RELATED COMPLICATIONS IN CANCER PATIENTS DURING COVID-19 PANDEMIC

N. Fenyvesi[1], Z. Kovács-Ábrahám[1], B. Rézmán[1], B. Bartos[1], K. Boda[1], Z. Kriszta[1], Z. Varga[2], E. Herendi[2], B. Pápai[1], R. Almási[3]

[1]Pain Medicine, Inst. of Anaesthesiology and Int. Care, Clinical Centre University of Pécs, Pécs, Hungary, [2]Pain Medicine, Department of Oncotherapy, Clinical Centre University of Pécs, Pécs, Hungary, [3]• Pain Medicine, Inst. of Anaesthesiology and Int. Care, Clinical Centre University of Pécs, Pécs, Hungary

Methods: In this retrospective single-centre clinical study, data was collected on patients attended the pain clinic at the University of Pécs between 03/01/2018 and 11/29/2022. The Ethical Committee approved the study protocol

(9013PTE2021). During repeated observations, we noted the quantity and quality of complications, analysed the frequency of patient-physician encounters after insertions. Descriptive statistics and variance analysis were performed (*p<0.05).

Results: 356 patients (124M/232F) scheduled for port implantations were recorded, between the ages of 19-85y. As a procedural complication, pneumothorax developed in 2 patients, 1 pocket bleeding, and 2 accidental arterial punctures were detected. As a long-term complication, 5 venous thromboses, 1 catheter obstruction, 1 leakage, 1 catheter malposition, 3 port migrations, 1 port-related bloodstream infection, and 40 cellulitis/infections were detected. 8 port removals and 14 transpositions were performed. Short-term complications were independent of COVID surges, however, cellulitis 14 with 74 visits; 26* with 188* visits were observed before and during COVID, respectively.

Conclusions: Proper care of a port is easy and simple without frequent complications. COVID-19 pandemic can compromise the immune state inducing pocket infections.

688

VINPOCETINE ALLEVIATES CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY VIA IMPROVING MITOCHONDRIAL BIOGENESIS

G. Nan[1,2], L. Lin[3], H. Bak[1], U.J. Kim[1], M. Cha[1], B.H. Lee[1,2]

[1]Department of Physiology, Yonsei University College of Medicine, Seoul, Korea, Republic of, [2]Brain Korea 21 FOUR Project for Medical Science, Yonsei University College of Medicine, Seoul, Korea, Republic of, [3]Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Seoul, Korea, Republic of

Methods: A mice model of CIPN was established by paclitaxel (2 mg/kg, i.p.) for 4 alternate days, and the treatment of vinpocetine was applied for 7 days after the end of paclitaxel injection. von Fray test and Hargreaves test were used to evaluate mechanical allodynia and thermal hyperalgesia, respectively. Western blot was used to examine mitochondrial biogenesis-related proteins in the spinal cord and dorsal root ganglia (DRG). To confirm mitochondrial function, ROS levels were detected and analyzed.

Results: In our study, repetitive administration of vinpocetine could attenuate CIPN symptoms. The expression of mitochondrial biogenesis-related proteins was restored, and ROS production was decreased after vinpocetine treatment.

Conclusions: We demonstrated the analgesic properties of vinpocetine in CIPN. It suggests that mitochondrial biogenesis with vinpocetine could be a novel therapeutic target of CIPN treatment.

This study was supported by the Basic Research Program through the National Research Foundation (NRF) funded by the Ministry of Science and ICT and Future Planning (2019R1I1A1A01059697 and 2020R1A2C3008481).

689

NEUTROPHIL DYSREGULATION IN FIBROMYALGIA: IMPLICATIONS FOR IMMUNE FUNCTION AND DISEASE PATHOGENESIS

S. Jahangiri Esfahani[1], M. Parisien[2], C. Meloto[2], L. Diatchenko[2]

[1]Mcgill University, Montreal, Canada, [2]Mcgill University, Montréal, Canada

Methods: We analyzed genome-wide transcriptomics data from the neutrophils isolated from FM patients and healthy control (HC). Pathway analysis results of the genes differentially expressed (DEGs) between FM and HC was indicative of the significantly higher inflammation levels in cases. We then tested the responsiveness of the neutrophils to the inflammatory stimuli using lipopolysaccharide (LPS). Pathway analysis showed 316 pathways significantly activated in HC, mostly inflammatory, while in the FM only 7 pathways were activated, mostly related to metabolism. The comparison of the LPS-activated neutrophil between cases and controls nevertheless indicated a much lower level of inflammatory pathways in the FM.

Results: Neutrophils were isolated from the fresh blood using magnetic beads and activated using 10 ng/µl LPS. Sequencing data were mapped on the GRCh38 genome using STAR. DEGs analysis was performed using DESeq2 R package. Pathway analysis was done using gprofiler R package and gene ontology database.

Conclusions: Although fibromyalgia patients have activated neutrophils, these neutrophils cannot be efficiently further activated by inflammatory stimuli relative to healthy individuals' neutrophils. Identifying the differences between the functioning of normal neutrophils and those of patients with chronic pain can point to the potential therapeutic targets for reactivation of the malfunctioning processes to trigger pain resolution.

693

RELIABILITY OF THE COMMANDER PRESSURE ALGOMETER IN GREEK PATIENTS WITH NON-SPECIFIC CHRONIC NECK PAIN IN A PRIMARY CARE URBAN SETTING

C. Skordis[1,2], C. Liaskou[1,2], E. Papagiakoumou[1,2], S. Sotiropoulos[1,3,2], T. Plavoukou[1,2], P. Karakasidou[2], G. Georgoudis[1,3,4,2]

[1]University of West Attica, Musculoskeletal Physiotherapy Research Lab, Athens, Greece, [2]University of West Attica, Physiotherapy Department, Athens, Greece, [3]Hellenic Physiotherapy Society of Algology, Athens, Greece, [4]PHYSIOPAIN GROUP, Athens, Greece

Methods: Thirty-three patients (66.7% women) suffering from non-specific chronic neck pain (>3 months), with the majority (42.4%) being between 50-59yrs and overweight. Bilateral measurements at the neck (Mastoid, trapezius head-insertion & mid-portion, C5-6 facet, insertion of levator scapula) and control areas (mid-deltoid and tibialis anterior), were taken twice 6 days apart, from two examiners, in a primary care setting. Intraclass Correlation Coefficient (ICC) statistics were used to detect the level of agreement (p set at 0.05).

Results: Intra-rater reliability was shown to be good to excellent for all measuring sites (ICC= 0.72 – 0.90, $p<0.001$). Inter-rater reliability was also good with ICC values extending from ICC=0.69, $p<0.001$ at the tibialis & levator-scapula measuring sites to ICC=0.89, $p<0.001$ to the mastoid & trapezius-insertion measuring sites.

Conclusions: This study supports the intra-rater and inter-rater reliability of the Commander algometer in detecting reliably mechanical PPT, in Greek patients with non-specific neck pain, measured in an urban primary setting according to the procedures and methodology followed in this study.

694

THE MECHANISM OF MUSCLE STRENGTHENING AND SUPPORT THERAPY (MEST) FOR THE TREATMENT OF OA-INDUCED PAIN

H. Bak[1], G. Nan[1,2], U.J. Kim[1], M. Cha[1], B.H. Lee[1]

[1]Department of Physiology, Yonsei University College of Medicine, Seoul, Korea, Republic of, [2]Brain Korea 21 FOUR Project for Medical Science, Yonsei University College of Medicine, Seoul, Korea, Republic of

Methods: Monosodium iodoacetate (MIA) was used to make an OA animal model. After 3 weeks, MEST was inserted into the femoral quadriceps. von Frey test was conducted for the mechanical withdrawal threshold (MWT) measure. Changes in torque and contraction of the muscles were measured through electrophysiological recordings. The levels of aspartate transferase (AST), lactate dehydrogenase (LDH), creatine kinase (CK), and myoglobin in the blood were measured using ELISA. The muscle recovery was identified using PAX7, MyoD with laminin. And CD86 and CD206, which show anti-inflammatory responses, were confirmed with CD68.

Results: After MEST treatment, MEST increased MWT. The torque and contraction value of the femoral quadriceps significantly decreased after OA, and MEST treatment could restore muscle strength. AST, LDH, CK, and MB concentrations in blood were significantly changed after MEST treatment.

Conclusions: The alleviation of OA-induced pain, reduced inflammatory response, and increased muscle strength after MEST treatment suggests that MEST may be an alternative treatment approach for OA patients.

696

CLINICAL PHENOTYPES AND PROGNOSTIC FACTORS FOR OUTCOMES IN PERSONS WITH HIP OSTEOARTHRITIS UNDERGOING TOTAL HIP ARTHROPLASTY: STUDY PROTOCOL FOR A LONGITUDINAL PROSPECTIVE COHORT STUDY (HIPPROCLIPS)

A. Sergooris[1], J. Verbrugghe[1], T. Matheve[1,2], M. Van Den Houte[1,3], B. Bonnechère[1], K. Corten[1,4,5], K. Bogaerts[1,3], A. Timmermans[1]

[1]Hasselt University, Hasselt, Belgium, [2]Ghent University, Ghent, Belgium, [3]KU Leuven, Leuven, Belgium, [4]Hospital East-Limburg, Genk, Belgium, [5]Centre for Translational Psychological Research (TRACE), Genk, Belgium

Methods: This prospective cohort study (ClinicalTrials.gov: NCT05265858) will investigate 200 individuals undergoing THA for hip OA. Phenotyping variables include pain-related fear-avoidance, perceived injustice, mental disorders, traumatic experiences, self-efficacy, and social support. Peripheral and central pain mechanisms will be assessed with thermal quantitative sensory testing. Outcome measures include the hip disability and osteoarthritis outcome score, performance-based measures, muscle strength, the patient-specific functional scale, pain intensity, global perceived effect, and treatment satisfaction. Measurements will be performed before surgery, as well as 6 weeks, 3 months, and 12 months after surgery. Pain-related cognitions and emotions will additionally be assessed in the early postoperative phase. Statistical methods that will be used include LASSO regression, decision tree learning, gradient boosting algorithms, and recurrent neural networks.

Results: Recruitment is ongoing: 102/200 participants have been included; 27 participants have completed a one-year follow-up. Results are expected in 2023.

Conclusions: Identification of clinical phenotypes and prognostic factors for outcomes after THA for individuals with hip OA will be the first step towards pre- and postoperative personalized medicine for these individuals.

698

EXPLORING THE USE AND PERCEPTION OF VIRTUAL REALITY FOR PAIN AND ANXIETY MANAGEMENT IN DENTAL ENVIRONMENTS: SURVEY OF SPANISH DENTAL STUDENTS AND PRACTITIONERS

C. Torres Martín[1], P. Bourdin Kreitz[1], R. Nieto Luna[1]

[1]Universitat Oberta de Catalunya, Barcelona, Spain

Methods: To address this gap in knowledge, we conducted an online survey to gather information on the use and perceptions of VR for managing pain and anxiety in dental environments. The survey was disseminated to dental associations, universities teaching dentistry, and social networks, and will remain open for 3 months, expecting to reach at least 200 responses.

Results: Our preliminary results, based on 54 responses, show that none of the non-specialized dentists has ever used VR in dentistry-related areas. Only 4.5% of the dental students have used VR in dentistry areas, as a way to study. On the other hand, 17.6% of specialized dentists and 25% of dentists who hold a PhD have ever used it during dental treatments, representing only 7.4% of the total participants. Even so, 62.3% of the participants agree in part (18%) or fully agree (44.3%) that VR could be used to relieve patient's discomfort or minor pain during dental treatments.

Conclusions: These findings suggest that VR is underutilized by Spanish dental practitioners and students compared to their expectations about its potential for pain management. Further research is needed to understand the barriers to the adoption of VR in dental settings and to identify effective strategies for promoting its use.

700

FEASIBILITY STUDY TO REDUCE OPIOID CONSUMPTION AT THE EMERGENCY DEPARTMENT

T. Groenveld[1], R. Arpots[1], E. van Eeten[1], M. de Vries[1], H. van Goor[1], V. Stirler[1]

[1]Radboud University Medical Center, Nijmegen, Netherlands

Methods: Adult patients were included when primarily seen by the Emergency Physician and presenting with a NRS pain score ≥4. Main objective was to identify the target population and evaluate outcome measures to sustain a trial incorporating the Oral Morphine Equivalent (OME) at the ED as the primary endpoint. Primary outcome was mean OME administered at the ED. Secondary outcomes included NRS pain scores, main symptoms and type of analgesics administered at the ED.

Results: 68 patients were included. Mean OME was 6mg for all patients, and 16.4mg for those that received opioids. Half of the patients received analgesics at the ED and one-sixth received opioids. Most frequent symptoms were pain related to the abdomen(35%), extremity injury(37%) and thorax(18%). Of these, patients with abdominal pain had the highest mean OME (9mg ±10.2). Five patients with non-acceptable pain were included. They received significant more often opioids (80% vs 5.9%, p=0.003) and had a higher mean OME (7.5 vs 0.6, p=0.008).

Conclusions: Patients with pain related to the abdomen, extremity injury, or thorax and those with non-acceptable pain, are the most suitable population for a Virtual Reality intervention at the ED.

701

HIGHER WORK-RELATED FEAR-AVOIDANCE BEHAVIOR INCREASES THE ODDS OF EXPERIENCING MULTI-SITE MUSCULOSKELETAL PAIN AMONG OFFICE WORKERS WORKING FROM HOME

M. Argus[1], D. Predbannikova[1], M. Pääsuke[1]

[1]University of Tartu, Tartu, Estonia

Methods: 224 office workers (74.11% female, age 22-60 years) participated, working from home 62.4% of their hours on average. An online questionnaire was used, including general and work-related information, Nordic Musculoskeletal Questionnaire, Baecke Physical Activity Questionnaire, and the Fear Avoidance Beliefs Questionnaire. Two multivariate logistic regression models were used with MSP experience and the number of painful body regions during the past 6 months as dependent variables, correcting for age, sex, and body mass index.

Results: Higher work-related fear avoidance behavior is associated with higher odds of MSP in multiple body regions (OR=1.118, p<0,001). There were no statistically significant associations between the dependent variables and work-related physical activity, overall physical activity, work experience at home, weekly hours, age, sex, and body mass index.

Conclusions: Work-related fear avoidance behavior is a significant contributor to the odds of experiencing multi-site MSP. Experience working from home, weekly hours, work-related, and overall physical activity were not significant contributors to the odds of experiencing multi-site MSP or to the overall prevalence of MSP. Ergonomic factors and other psychosocial variables should be considered in future research.

703

THE ROLE OF EXPECTATIONS IN THE INFLUENCE OF COLORS ON PAIN

K. Wiercioch-Kuzianik[1], J. Brączyk[1], S. Meeuwis[1,2], P. Bąbel[1]

[1]Institute of Psychology, Jagiellonian University, Kraków, Poland, [2]Health, Medical & Neuropsychology Unit, Leiden University, Leiden, Netherlands

Methods: In the study, participants were divided into 3 groups: congruent, incongruent, and color-control. Participants in the experimental groups (congruent and incongruent) received information regarding how red and white modulate pain perception. In the congruent group, participants were informed that red can aggravate and white alleviate pain, which is in line with previous research findings. In the incongruent group, the information was the opposite. Besides the manipulated colors, other hues were also used in the study. Colors were displayed before and during noxious stimulation, as well as during pain ratings. Both pain intensity and pain expectation were measured (VAS ratings) alongside the physiological responses to pain (ECG and EDA).

Results: Data collection is still ongoing. Detailed results will be presented on the poster.

Conclusions: The study has the potential to indicate the role of expectations in the effect of colors on pain perception. Additionally, the physiological measurements will extend the available knowledge on how colors and pain perception are associated.

704

THE EVOLVING LANDSCAPE OF PUBLISHING IN THE FIELD OF PAIN: A BIBLIOMETRIC ANALYSIS OF EUROPEAN JOURNAL OF PAIN

L. Arendt-Nielsen[1,2], J.T. Pedersen[1], A.L. Høj[1], L. Thomsen[1], S. Dreier[1]

[1]Aalborg University, Aalborg, Denmark, [2]Aalborg University Hospital, Aalborg, Denmark

Methods: The search resulted in a dataset of 3012 Eur. J. Pain. publications (from vol. 1, No. 1, 1997) and a gross list of 64 pain related journals from 1975 resulting in a dataset of 62,565 publications.

The nature of the publication profile for Eur. J. Pain was characterised and searches were conducted to identify and extract human and animal studies. Human studies were classified as: 1) clinical patients and 2) healthy volunteers.

Results: During the period pain related journals increased from 2 to 24, papers/year increased to around 4000, and authors/paper from 2 to over 7 (3 to 6 for Eur. J. Pain). The averaged sum of citations/paper/year over a 10-year period is around 60 for Eur. J. Pain (50 for the pain field in general) and the total number of published preclinical, human (experimental and clinical) and translational papers revealed a distribution of 15%, 76% and 8% with a steady decrease in preclinical studies over the years.

Conclusions: The generic model is applicable to characterize the profile of Eur. J. Pain over the years and show that the published papers have now gained more citations than the general field of pain publishing.

706

CREATION OF A HIGH RESOLUTION CIRCUIT IN THE PAIN UNIT FOR THE TREATMENT OF OMALGIA

B. Expósito Gil[1], M.B. Rodriguez-Campoo[1], G. Martin Merino[1], A. Cuadrado Mancy[1], C. Ais Davila[1], A. Rincon Higuera[1], M.D. Bedmar Cruz[1], M.J. Guinaldo Elices[1]

[1]Hospital Universitario De Fuenlabrada, Fuenlabrada, Spain

Methods: We created an interconsultation in which other specialties (traumatologists, neurologists, rehabilitators...), refer patients to us quickly and efficiently to the consultation for suprascapular radiofrequency. From our consultation there is a commitment to perform this technique in less than one month from its referral.

Results: With the implementation of this circuit, we have expedited the consultations of these patients (120 patients per year), which has improved their pain control, since it is referred directly to the radiofrequency application, without the need for prior assessment by the specialist of the Unit of the pain.

Conclusions: - Reduction of waiting lists, by reducing times between diagnosis and treatment.

- Patients with better pain control since derivation is immediate, less than one month from its indication and its application on an outpatient basis in the hospital setting.

- Increased patient satisfaction.

- Greater adherence to pharmacological treatment and trust with the health field by the patient.

708

COST-EFFECTIVENESS OF THE PERIOPERATIVE PAIN MANAGEMENT BUNDLE

S. Bojic[1,2], N. Ladjevic[1,3], I. Palibrk[1,3], I. Soldatovic[1], W. Meissner[4], R. Zaslansky[4], P. Baumbach[4], D. Stamenkovic[5,6]

[1]Faculty of Medicine, University of Belgrade, Belgrade, Serbia, [2]CHC Dr. Dragisa Misovic - Dedinje, Belgrade,

Serbia, [3]University Clinical Center of Serbia, Belgrade, Serbia, [4]University Hospital Jena, Jena, Germany, [5]Medical Faculty of Military Medical Academy, University of Defense, Belgrade, Serbia, [6]Military Medical Academy, University of Defense, Belgrade, Serbia

Methods: Costing accounts for the price of the analgesics, medication application procedures, and disposable materials. To assess effectiveness, the multi-dimensional Pain Composite Score (PCS) was calculated from the *pain intensity*, *interference,* and *side effects* domains of the International Pain Outcomes questionnaire. The incremental cost-effectiveness ratio (ICER) was calculated as the incremental change in costs divided by the incremental change in PCS.

Results: Increase in costs was associated with a reduction in PCS after thyroidectomy, cardiac and major abdominal surgery, laparoscopic cholecystectomy, nephrectomy, and fracture fixation (ICER (EUR): -2.84; -22.76; -1.64; -0.10; -34.88 and -74.46, respectively) and PCS increase after breast surgery, urological procedures and Cesarean section (ICER (EUR): 4.96; 12.91 and 0.83, respectively). Reduction of costs was associated with PCS decrease following appendectomy and hernia repair (ICER (EUR): 132.41 and 33.43, respectively) and PCS increase following gynecological procedures and joint replacement (ICER (EUR): -8.60 and -38.43, respectively).

Conclusions: Postoperative pain management bundle may be cost-effective following appendectomy and hernia repair. Better efficacy of postoperative pain management may also be achieved with additional costs in patients undergoing major abdominal, gynecological, cardiac and orthopedic surgery, thyroidectomy, laparoscopic cholecystectomy and nephrectomy.

709

EVOKED COMPOUND ACTION POTENTIALS AND CLOSED-LOOP SPINAL CORD STIMULATION IN NEUROPATHIC RATS: FEASIBILITY STUDY

I. Obara[1,2], E. Versantvoort[1,2], B.E. Dietz[3], D. Mugan[3]

[1]Newcastle University, Newcastle upon Tyne, United Kingdom, [2]Translational and Clinical Research Institute, Newcastle upon Tyne, United Kingdom, [3]Saluda Medical, Harrogate, United Kingdom

Methods: Neuropathic pain was induced in Sprague-Dawley rats (250-300g) using the spared nerve injury model. A custom-made six-contact electrode (0.3x1.0mm each) was implanted epidurally at T11/T12. Contacts spanned levels T12-L3 as confirmed by CT. Stimulation and recording were performed in unanesthetized animals. All protocols were approved by the UK Home Office.

Results: In all unanesthetized neuropathic animals ECAPs were recorded. An example recording using 50Hz and 200µs, determined from ECAP threshold (0.024mA) to motor threshold (0.049mA), consisted of a positive P1 peak followed by a negative N1 peak and a second positive P2 peak. The ECAP amplitude (P2-N1, mV) grew as higher currents (mA) were applied. ECAP-controlled closed-loop SCS was successfully applied using the same methodology utilized clinically in human subjects.

Conclusions: This is the first demonstration of both ECAPs recording from neuropathic rats as well as successful application of an ECAP-controlled closed-loop SCS system. The use of closed-loop control combined with ECAPs recording may enable development of improved model of SCS in rats that will better translate findings between rats and humans to elucidate mechanisms of SCS action.

711

CHANGES IN PRE-COVID PAIN SYMPTOMS IN PREVIOUSLY HOSPITALISED AND NON-HOSPITALISED COVID-19 SURVIVORS

B.D. Ebbesen[1], R. Giordano[1], J.A. Valera Calero[2], C. Fernández-de-las-Peñas[3], B. Steen Rasmussen[4], H. Nielsen[4], B. Schiøttz-Christensen[5], P. Lykke Petersen[6], M. Castaldo[1], L. Arendt-Nielsen[1]

[1]Aalborg University, Aalborg, Denmark, [2]Complutense University of Madrid, Madrid, Spain, [3]Universidad Rey Juan Carlos, Madrid, Spain, [4]Aalborg University Hospital, Aalborg, Denmark, [5]University of Southern Denmark, Odense, Denmark, [6]Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

Methods: This cross-sectional exploratory study was based on responses to pain related questionnaires from a national survey. The study was based on data from 1) 4.833 previously hospitalised patients and to 2) 132.427

non-hospitalised persons with a confirmed SARS-CoV-2 infection. The time from infection ranged between 8-30 months. From each group 1.000 people were randomly selected to participate. The questionnaire was designed to investigate pre-existing pain conditions, pre-existing pain condition changes after SARS-CoV-2 infection, and changes in the pain characteristics after SARS-CoV-2 infection.

Results: Data from 1.000 non-hospitalised (56.5% females; 50.4±15.9 years; 79.2±16.6 kg) and 1.000 previously hospitalised (48.8% females; 60.4±15.2 years; 85.6±18.5kg) COVID-19 survivors were evaluated. Pre-COVID pain symptomatology was more prevalent in the hospital group (16.6% vs. 8.1%, p<0.001). Post-infection pain intensity of the pre-COVID pain condition was higher in the hospital group (47.6%) compared to the non-hospitalised group (18.5%, p<0.001).

Conclusions: The prevalence of pre-COVID pain symptoms was more likely to occur in the hospitalised group as compared to the non-hospitalised group possibly reflecting difference in comorbidity. Pre-existing pain intensity increased more in the hospitalised group as compared to the non-hospitalised group.

712

PAIN AND RESILIENCE IN RELATIONSHIP TO ONSET OF FUNCTIONAL LIMITATIONS IN THE GENERAL SWEDISH POPULATION

K. Ahacic[1], R. Wicksell[1,2]

[1]Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden, Stockholm, Sweden, [2]Pain Clinic, Capio St. Göran Hospital, Stockholm, Sweden

Methods: Logistic regression models used a population representative survey sample (n=2793) of persons 28 years or older originating from The Level of Living Studies. Onset of limitations concerned difficulties with mobility, i.e., either running, stairs, or walking, which were assessed among persons without difficulty in a ten-year prior survey wave. Three items of musculoskeletal pain, i.e., light or severe pain in joints, back, and shoulders, and an index based on three items of resilience, concerning the sense of coherence, together with age and gender were used as predictors (odds ratios, ORs, refer to highest values in comparison to the lowest, p-level 0.05).

Results: Whereas joint pain (OR 2,09) and back pain (OR 1,57) predicted onset independently, higher sense of coherence (OR 0.43) was protective and shoulder pain (OR 1,38) nonsignificant in the model together with the other variables. The model's McKelvey & Zavoina pseudo-R2 was .33.

Conclusions: Resilience has role in the development of disability.

713

AMAZONE: PREVENTION OF PERSISTENT PAIN AFTER BREAST CANCER TREATMENT BY ONLINE COGNITIVE BEHAVIOURAL THERAPY – RESULTS OF AN INTERIM ANALYSES AFTER 6 MONTHS

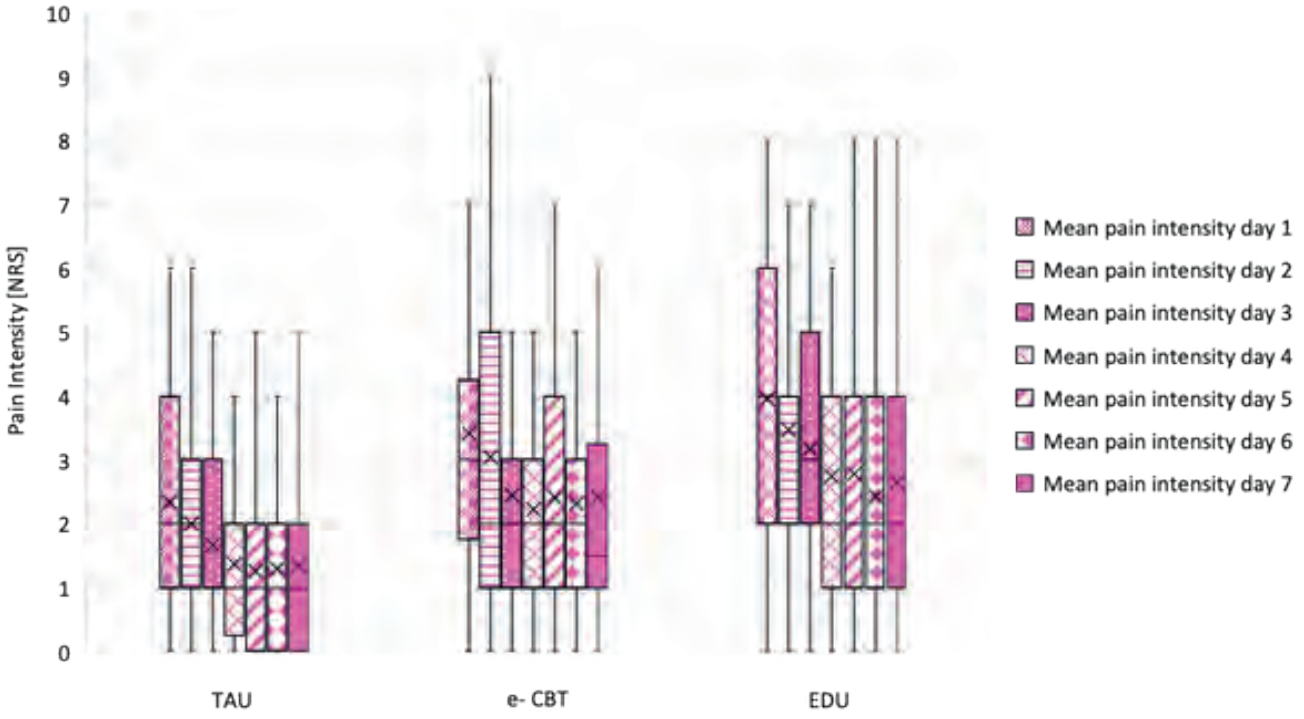
A. Lukas[1], M. Theunissen[2], S.M. van Kuijk[3], D. de Korte-de Boer[1], W. Mess[4], W.F Buhre[5], W. Magerl[6], M.L Peters[2]

[1]MUMC+ / Department of Anesthsiology and Painmedicine, Maastricht, Netherlands, [2]Maastricht University / Department of Clinical Psychological Science, Maastricht, Netherlands, [3]MUMC+/Derpartment of Clinical Epidemiology and Medical Technology, Maastricht, Netherlands, [4]MUMC+ / Department of Clinical Neurophysiology, Maastricht, Netherlands, [5]UMC Utrecht / Department of Anesthesiology, Utrecht, Netherlands, [6]Mannheim Center for Translational Neuroscience (MCTN), Ruprecht-Karls-University Heidelberg / Department of Neurophysiology, Mannheim, Germany

Methods: In a randomized controlled multicenter trial, patients scheduled for breast cancer surgery with PD [HADSa≥8, CARS≥5, SFI≥3, PCS≥18] were randomized to five sessions perioperative eCBT or education interventions (EDU). Patients with low PD received treatment as usual (TAU). Primary endpoint is the prevalence of PPBCT (NRS ≥3/10) at 6 months. Secondary endpoints are pain intensity, -interference, pain sensitivity and psychological distress.

Results: Until October 2022, 188 patients were included, 54 scoring high for PD and randomized to eCBT or EDU, 100 were TAU and 34 excluded. PD was mostly determined by anxiety and surgical fear (tab1). The majority of patients had low stage breast cancer and underwent breast conserving surgery. Only three patients had to undergo axillary dissection. The mean postoperative pain-intensity was higher in EDU and eCBT (n.s.) (fig1). The 6-month results on PPBCT prevalence, pain sensitivity, PD are not yet available and will be presented at the conference.

Group	Age [y] (med/min/max)	BMI [kg/m^2] (med/min/max)	Smoking [n]	Surgical fear ≥ 3 [n]	CARS ≥ 5 [n]	PCS ≥ 18 [n]	HADSa ≥8 [n]
eCBT (n=27)	52.0 (32/76)	24.2 (20.4/36.7)	3 (11%)	13 (48%)	5 (19%)	9 (33%)	22 (82%)
EDU (n=27)	53.0 (35/70)	25.5 (18.4/34.1)	4 (15%)	12 (44%)	4 (15%)	6 (22%)	24 (89%)
TAU (n=100)	58.5 (30/77)	25.4 (18.7/38.9)	6 (6%)	-		-	-



Conclusions: With peri-operative preventive eCBT targeting psychological distress, we expect to improve recovery and quality of life in breast cancer survivors by a reduction of PPBCT prevalence and severity.

714

TRANSIENT RECEPTOR POTENTIAL ANKYRIN 1 (TRPA1) CONTRIBUTES TO MECHANICAL HYPERSENSITIVITY IN A MOUSE MODEL OF ENDOMETRIOSIS

M. Titiz[1], L. Landini[1], F. De Logu[1], V. Seravalli[2], B. Pasquini[3], D. Souza Monteiro de Araujo[1], M. Di Tommaso[1], F. Petraglia[4], P. Geppetti[1], R. Nassini[1], S. Benemei[1]

[1]Clinical Pharmacology and Oncology Section, Department of Health Sciences, University of Florence, Florence, Italy, [2]Department of Health Sciences, Division of Obstetrics & Gynecology, University of Florence, Florence, Italy, [3]Department of Chemistry, School of Human Health Sciences, University of Florence, Florence, Italy, [4]Obstetrics and Gynecology, Department of Maternity, and Infancy, AOU Careggi Florence, Florence, Italy

Methods: To induce endometriosis-like-lesions without surgery,dissected uterus-horns of donor-female-mice,previously treated with estradiol-benzoate to stimulate endometrium growth,were injected intraperitoneally in recipient-female-mice.Mechanical-hypersensitivity in the abdomen(AMA),in the hind paw(HMA),and in the periorbital area(PMA) was assessed from day-7 to day-28 after the endometrium injection.TRPA1-selective-antagonist,A967079,TRPV1 ,TRPV4,or TRPA1-knockout mice and the free-radical spin-trap, N-tert-butyl-alpha-phenylnitrone(PBN) were used.

Results: Endometrial-tissue injection caused time-dependent(day 7-28)increase in the number of visible endometrial-like-lesions in the abdominal-cavity in C57BL/6J female-mice.The increase in endometrial-like-lesions was paralleled by a time-dependent(day 7-28)increase in AMA,HMA,and PMA.TRPA1 genetic-deletion(*Trpa1*$^{-/-}$)provided full-protection against AMA,PMA,and HMA compared to *Trpa1*$^{+/+}$.Deletion of TRPV1 and TRPV4(*Trpv1*$^{-/-}$,*Trpv4*$^{-/-}$)did not affect the development of AMA,PMA,and HMA compared to wild-type(*Trpv1*$^{+/+}$,*Trpv4*$^{+/+}$).Systemic (i.p.)-treatment

with A967079 transiently and completely reversed the AMA,PMA,and HMA, at day28.On day 28 after endometrium injection, the systemic-administration of PBN, also transiently and completely reversed the AMA, PMA, and HMA by targeting oxidative-stress molecules.

Conclusions: Present results confirm that oxidative-stress plays a major-role in AMA, HMA, and PMA in a mouse-model of endometriosis.Genetic-deletion and pharmacological-blockade of TRPA1 indicate that the channel is critically implicated in such allodynia.Thus, TRPA1 seems to have a critical-role in sensing oxidative-stress to sustain mechanical-hypersensitivity in endometriosis.

717

THE ROLE OF PHYSIOTHERAPY IN CANCER CARE: A FOCUS ON THE MANAGEMENT OF CANCER RELATED PAIN

G. Sheill[1,2], N. Adriaenssens[3,2], K. Grigorova-Petrova[4,2], N. Strimpakos[5,2], N. Rotem[6,2], M. Cannone[7,2], L. Gigli[8,2], L. Tiesnese[9,2], A. Descloux[10,2], A. MacKenzie[11,2], C. Suarez-Serrano[12,2]

[1]Trinity St James's Cancer Institute, Dublin, Ireland, [2]Cancer Cross Working group, Europe Region Physiotherapy, Brussels, Belgium, [3]Vrije Universiteit Brussel, Brussels, Belgium, [4]National Sports Academy, Sofia, Bulgaria, [5]University of Thessaly, Athens, Greece, [6]Tel Aviv Sourasky Medical Center, Tel Aviv, Israel, [7]Fondazione Centri di Riabilitazione Padre Pio Onlus, San Giovanni Rotondo, Italy, [8]ASL Roma 3, Rome, Italy, [9]Latvian Physiotherapy Association, Sofia, Latvia, [10]Physioswiss, Bern, Switzerland, [11]NHS Grampian, Aberdeen, United Kingdom, [12]University of Seville, Seville, Spain

Methods: This review was performed by eleven physiotherapists expert in oncology between March and October 2021 by using PubMed, PeDro and clinical guidelines databases. The document summarises role of physiotherapy in each phase of cancer treatment eg. prehabilitation, during treatment, and focusses on the management of common treatment related side-effects including cancer related pain. The document was reviewed by three external experts in the area of cancer care, who provided feedback which informed the final document.

Results: This review is summarised in 10 statements providing a general and graphic vision of the role of physiotherapy in cancer care, based on the evidence. Cancer related pain is a common side-effect of cancer treatment and is reported by patients with all stages of disease. Patients who receive many different treatment modalities to manage their cancer may experience pain, including those undergoing surgery, radiation therapy and chemotherapy. This review found that there are many indications for referral of patients to physiotherapy for example to manage acute and chronic post-operative pain or neuropathic pain post systemic treatment, for example chemotherapy induced peripheral neuropathy.

Conclusions: Patient should have access to rehabilitation in order to manage any side-effects that cause a deterioration in the patients› ability, including cancer related pain.

718

SCOPING REVIEW ON NEEDS-BASED EDUCATION OF PATIENTS AT RISK FOR CHRONIC POSTSURGICAL PAIN BY NURSES

S. Berger[1], N. Nestler[1], N. Schürholz[1], I. Gnass[1]

[1]Institute of Nursing Science and Practice, Paracelsus Medical University, Salzburg, Austria

Methods: The review was conducted in the databases PubMed, CINAHL and Web of Science. Inclusion and exclusion criteria such as literature published within the last 10 years and referring only to adults were set. Search terms like for example CPSP, education, self-efficacy and self-management were entered into the databases using various combinations. The literature was evaluated critically by using adequate Appraisal Tools.

Results: The poster will focus on the background and methodology of the present scoping review. The expected results show only a few concepts avoiding CPSP with regard to the nursing education of patients about surgery and extended care in the outpatient setting.

Conclusions: However, a combination with other available educational programs is conceivable and could be used to reduce postsurgical pain and the risk of developing CPSP.

References:

Glare et al. (2019). The Lancet, Vol. 393, 1537-1546.

Fredericks et al. (2010). Clinical Nursing Research, 19(2), 144-64.

719

REDUCING ANXIETY AND PROCEDURAL PAIN IN BURN PATIENTS USING VIRTUAL REALITY

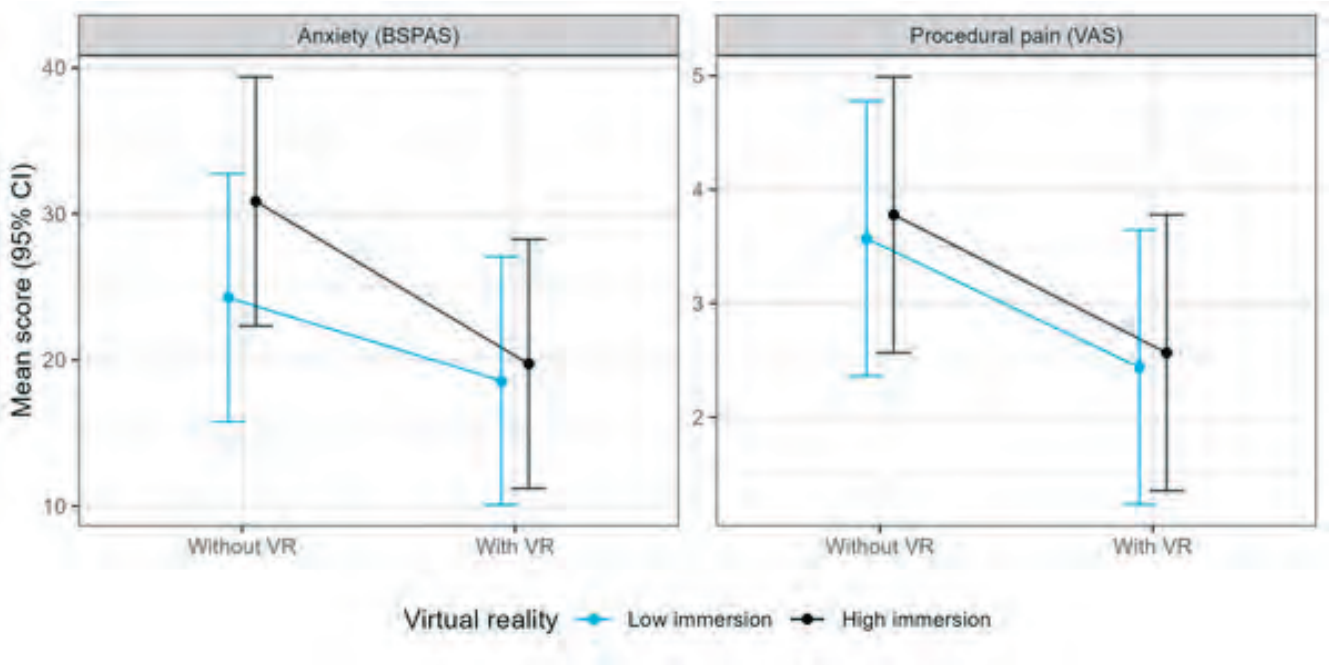
J. Raudenska[1], M. Zielina[2], J. Smahaj[3], D. Dostál[4], A. Javurkova[1,5]

[1]Department of Nursing, 2nd Faculty of Medicine, Charles University in Prague, Prague, Czech Republic, [2]Department of Medical Ethics and Humanities, 2nd Faculty of Medicine, Charles University in Prague, V Úvalu 84, Prague 5, Czech Republic, Prague, Czech Republic, [3]Department of Psychology, Palacky University, Olomouc, Czech Republic, [4]Department of Psychology, Faculty of Arts, Palacký University, Olomouc, Czech Republic, [5]Department of Clinical Psychology, 3rd Faculty of Medicine, Charles University and University Hospital KV, Prague, Czech Republic

Methods: We included n = 32 patients (26 men, 6 women) from Department of Burn Medicine of University Hospital Kralovske Vinohrady in Prague. Patients were aged 19-74 years (mean 45.719), burn area was 4%-24% (mean 9.47%). The differences in anxiety (BSPAS, Burns Specific Pain Anxiety Scale) and pain intensity (VAS, Visual analogue scale) scores were assessed using mixed effect linear models.

We focused on examining the difference between the without and with VR dressing exchange portion of the control group (with low-immersive VR) and the experimental group (with high-immersive VR) and their interaction. The model also included a random factor patients and covariates session number and whether the VR was deployed during the first or the second part of the dressing change. Patients evaluated VR using IPQ (Igroup presence questionnaire).

Results: Results show a decrease in anxiety (BPAS), $F(1,95.54) = 14.54$, $p < 0.001$ and pain intensity (VAS), $F(1,95.40) = 13.41$, $p < 0.001$ when using high-immersive VR. However, the subjectively perceived ability of immersion (IPQ) does not affect the results. There is no difference between the deep and low immersion group in the decrease in anxiety BSPAS $F(1,94.50) = 0.77$, $p = 0.3824$ nor in VAS pain intensity reduction, $F(1,93.35) = 0.06$, $p = 0.8030$.



Conclusions: High-immersive VR can decrease anxiety and procedural pain intensity related to burn trauma regardless of subjectively perceived ability of immersion.

723

CRPS CRITERIA AND THERAPY OUTCOME IN CHILDREN AND ADOLESCENTS

S. Dollinger[1,2], A. Schramm[2], J.-P. Haas[2,2], L. Höfel[2]

[1]Paediatric Clinic Garmisch-Partenkirchen / Center for Pain Therapy for Young People, Garmisch-Partenkirchen, Germany, [2]Paediatric Clinic Garmisch-Partenkirchen / German Center for Pediatric and Adolescent Rheumatology, Garmisch-Partenkirchen, Germany

Methods: Data were included from 105 patients (83% female; age 7-18, mean 13,2) with CRPS (98% CRPS I). We aimed to evaluate the Budapest criteria, psychological aspects and further measures from the German pain questionnaire for children and adolescents. Interactions and changes were analyzed within a three-week inhouse treatment.

Results: In contrast to data from adults, CPRS in young patients is more often triggered by minor incidences (84%), with the feet more often affected (79%), and the affected body part most frequently cooler (57% cold, 33% warm, 10% neutral). Most prominent criteria were deviations in function, hyperalgesia, allodynia, weakness, edema, and discoloration. All of the criteria receded over the treatment (p<.0001). Pain intensity decreased (p<.001), temperature adjusted (p<.001 if cold, p<.001 if warm). Psychological disorders were observed in 54%. The comorbidity of psychological issues interfered with some of the criteria and their improvement (i.e. the less psychological issues, the better the improvement of pain (r = -.247), weakness (r = -.224)).

Conclusions: Although CRPS differs in some aspects comparing adults and young people, the Budapest criteria may be used in young people. Whilst CRPS in adults is very persistent, the potential for improvement seems to be better in young patients.

725

CONCEPT ELICITATION FOR MEASUREMENT OF ACUTE POSTOPERATIVE PAIN: A QUALITATIVE STUDY

K.T. Bjørnholdt[1], C.W.G. Andersen[1]

[1]Horsens Regional Hospital, Horsens, Denmark

Methods: Descriptors of pain intensity were elicited by 3 methods:

1. Literature: Words and visual cues of existing pain intensity measures were collected from a recent review and search of the COSMIN database, PubMed and Google. The resulting collection was categorized through familiarization.

2. 10 patients were recruited for semi-structured interviews regarding present pain, which were audio recorded and transcribed verbatim. Thematic content analysis was made for categories of intensity descriptors.

3. 10 clinicians were also recruited for semi-structured interviews regarding pain intensity communication, with transcription and matrix analysis as for the patients.

Results: 1. Literature: 322 words/phrases were sorted, resulting in 10 categories: Intensity, affective, evaluative, cognitive impact, sleep impact, activity impact, treatment, discriminative, associated symptoms, and general recovery.

2. Patient interviews: Rest/movement, timing, and recent analgesics were important to consider when phrasing the scale and questions.

3. Clinician interviews: Further categories found were: exemplification and physical observations.

Conclusions: Pain intensity can be communicated in many categories and terms. This study provides a comprehensive library from which to select the most suitable categories and wording to include in a measure of acute postoperative pain.

727

A SYSTEMATIC REVIEW OF PSYCHOSOCIAL FACTORS INVOLVED IN THE TRANSITIONS TO AND FROM CHRONIC PAIN

A. Gibby[1], E. Begley[1], E. Fisher[1], A. Lillywhite[1], C. Eccleston[1], E. Keogh[1]

[1]University of Bath, Bath, United Kingdom

Methods: We searched 4 databases to March 2022 for all records of quantitative longitudinal, observational, and trial studies that investigated individual mechanisms contributing to pain transitions. Transitions were defined as onset, maintenance, worsening and resolution of pain, whilst individual mechanisms were categorised broadly into behavioural, affective, and cognitive. Title and abstracts were screened, and full texts retrieved that met the inclusion criteria. We extracted demographics, pain conditions, individual mechanisms, and pain transitions. Extraction was prioritised by sample size, beginning with papers >500 participants.

Results: We found 19,150 papers and excluded 18,089 on abstract and title. We included 96 studies with a sample >500 participants. 33 papers looked at the onset, 16 at maintenance, 13 at worsening and 17 at the resolution of pain. Mechanisms identified most frequently were primarily depression and anxiety, followed by distress, sleeping difficulties, pain catastrophizing and satisfaction.

Conclusions: This is the first comprehensive systematic review to investigate individual mechanisms involved in the transitions between pain states. Depression and anxiety in chronic pain onset populations were most commonly investigated. Studies with <500 participants will be analysed next.

731

ROCCO PROJECT : A ONE-YEAR FOLLOW UP STUDY OF POST-COVID PAIN SYNDROME

M. Allegri[1], M. Vitali[2], M. Maggioni[3], M. Sacchelli[4], D. Bugada[5]

[1]Ensemble Hospitalier de la Cote, Morges, Switzerland, [2]Centro Italiano Pavimento Pelvico, Bergamo, Italy, [3]Accademia Internazionale Odontostomatologica laser Assistita - AIOLA (Ondontoiatric International laser Academy), Bergamo, Italy, [4]Centro Terapia Riabilitativa, Reggio Emilia, Italy, [5]Papa Giovanni XXIII Hospital, Bergamo, Italy

Methods: After IRB approval, we have prospectively enrolled patients (starting date september 2011) who had COVID in Bergamo's region (Italy) in the last 6 months evaluating for one year pain (VAS and Pain Detect) and quality of life (SF-12) every three months

Results: We have enrolled 650 patients (56.3% male – mean age 58 years/old) : 54% wit ho severe symptoms and not hospitalized and 46% hospitalized during acute phase. 39% at T0 referred a VAS >3 (78% of them without neuropathic features), while after 1 year 28% continues to refer VAS >3 (85% of them without neuropathic features). Nevertheless of pain, after one year 60% of all patients reported a reduction of quality of life and 70% a reduction in work ability.

Conclusions: Despite the fact that more than 50% of patients enrolled had a mild COVID acute phase, our study shows that incidence of post-COVID pain is 39% after few months remaining still high (28%) eve after one year. Our study is the first study that demonstrates that post-covid chronic pain syndrome can last even more than one year with a long-lasting great impact on quality of life

---

732

TWO SIDES OF THE SAME COIN? EXPERIMENTAL PAIN HABITUATION AND CONDITIONED PAIN MODULATION

I. De Schoenmacker[1], P.S. Scheuren[1], L. Sirucek[1], P. Schweinhardt[1], M. Hubli[1]

[1]Balgrist University Hospital, Zurich, Switzerland

Methods: A total of 45 healthy individuals (49±16y) underwent two blocks of 20 contact-heat stimuli applied to the hand. Habituation of (1) pain ratings, (2) contact-heat evoked potentials (CHEP), and (3) palmar sympathetic skin responses (SSR) were assessed from the first to the second stimulation block (% change). A sequential

sham-controlled CPM paradigm was conducted using pressure pain threshold as test and cold-water bath as conditioning stimulus. Pain habituation was correlated (Spearman) to the CPM capacity (% change) as well as the Pain Catastrophizing Scale and the Hospital Anxiety and Depression Scale.

Results: Pain habituation showed extensive variability (pain rating: -11±20%; CHEP: -17±15%; SSR: -44±25%) but none of these readouts correlated with CPM capacity (pain rating: rho=0.09, p=0.8; CHEP: rho=-0.04, p=0.9; SSR: rho=0.15, p=0.3). Furthermore, psychological factors did not correlate with pain habituation (p>0.05).

Conclusions: The two measures of endogenous pain modulation, i.e., pain habituation and CPM, potentially reflect different aspects of anti-nociceptive mechanisms. Moreover, psychological factors do not seem to explain the variability of pain habituation observed in healthy individuals.

733

PATIENTS' EXPERIENCE OF AN OPIOID-FREE VERSUS OPIOID-BASED CARE PATHWAY FOR BARIATRIC SURGERY - A QUALITATIVE STUDY

A. Olausson[1], E. Angelini[1], B. Heckemann[1,2], P. Andréll[3,2], P. Jildenstål[4,1,5], S.-E. Thörn[2], A. Wolf[1,2,6]

[1]Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [2]Department of Anaesthesiology and Intensive Care Medicine, Sahlgrenska University Hospital/Östra, Region Västra Götaland, Gothenburg, Sweden, [3]Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [4]Department of Health Sciences, Lund University, Lund, Sweden, [5]Institute of Medical Sciences, Örebro University, Örebro, Sweden, [6]Department of Nursing and Health Promotion, Faculty of Health Sciences, Oslo Metropolitan University, Oslo, Norway

Methods: A qualitative approach with semi-structured interviews analysed using content analysis was used. Twenty patients participating in an ongoing RCT investigating the effects of OFA during bariatric surgery (NCT03756961) were included. In the RCT participants received either opioid-based standard treatment or OFA, including pharmacological treatment and transcutaneous nervous stimulation (TENS). The interviews were conducted three months post-surgery.

Results: Before surgery, the participants described anticipations for a healthier life and prerequisites that encouraged confidence, yet apprehensions and feelings of failure. There were similar experiences of anaesthesia induction with diminished memories and confidence being in a vulnerable situation. However, some participants receiving OFA expressed accentuated memories of the induction causing discomfort and stress when waking up from anaesthesia. After surgery, participants had similar experiences of manageable to severe acute postoperative pain. The initial experience of TENS was described as either helpful or uncomfortable.

Conclusions: These findings highlight the need for improvement in patient preparation and care based on individual needs, to facilitate the implementation of opioid-free treatment strategies and improve the patient experience.

735

IGNORING PAIN IN ATHLETES

O. Petrak[1], V. Krka[1]

[1]University of Applied Health Sciences, Zagreb, Croatia

Methods: 90 participants from Croatia were included (63 female and 27 male) with an average age of 20.3 years. The instrument we used was the scale with 35 reasons for ignoring pain, along with questions about pain intensity and the importance of sports.

Results: The participants have been in the sport for an average of 10.7 years, the training load per week is 11 hours (range 4-25). In the last three months, all of them experienced pain with dominant intensity of 5 and 7 (17.87% each) on the VAS. 63.3% of the participants mostly or completely ignore the pain. The main reasons for ignoring the pain are that they do not want to give up, they consider pain as an integral part of sports, the result is important to them, they have already survived such pain, and this is how they push the limits of their endurance. Ignoring pain is significantly correlated with thinking that the pain will pass anyway, and with the score on the subscale *minorizing pain*, but not with the importance of sport, sports experience and the training hours.

Conclusions: The results confirm that sports ethic *No pain, no gain* is also presented in our culture. Given that such behavior can have negative long-term consequences, it is important to recognize when ignoring pain becomes counterproductive.

737

SYSTEMIC INFLAMMATORY MARKERS IN PATIENTS WITH POLYNEUROPATHIES

P. García Fernández[1], K. Höfflin[1], A. Rausch[1], K. Strommer[2], A. Neumann[2], N. Cebulla[1], A.-K. Reinhold[1], H. Rittner[1], N. Üçeyler[1], C. Sommer[1]

[1]University Hospital of Würzburg, Würzburg, Germany, [2]Bionorica Research GmbH, Innsbruck, Austria

Methods: To test our hypothesis, we collected blood and CSF from patients with PNP and controls and performed a comprehensive analysis of the protein, lipid and gene expression of different pro- and anti-inflammatory markers through Ella™ technology, LC-MS/MS and RT-qPCR.

Results: We found higher levels of CCL2 and oleoylcarnitine in PNP patients in comparison to controls. Furthermore, high IL-10 and CCL2 levels correlated with axonal damage and neuropathic pain. Lastly, we described a strong interaction between inflammation and neurodegeneration at the nerve roots in a specific subgroup of PNP patients with blood-CSF barrier dysfunction.

Conclusions: We conclude that in patients with PNP, systemic inflammatory markers in blood or CSF do not differ from controls in general, but there are several indications of a correlation between inflammation and the neuropathy severity and symptoms. Furthermore, the interaction between inflammation and neurodegeneration at the nerve roots highlights the importance of CSF analysis in patients with PNP.

739

REPORTING GUIDELINES FOR CLINICAL TRIAL PROTOCOLS AND REPORTS OF IMPLANTABLE NEUROSTIMULATION DEVICES: SPIRIT-INEUROSTIM AND CONSORT-INEUROSTIM EXTENSIONS

R. Bresnahan[1], R. Duarte[1], S. Copley[2], S. Eldabe[2], S. Thomson[3], R. North[4], G. Baranidharan[5], R. Levy[6], R. Taylor[7,8]

[1]University of Liverpool, Liverpool, United Kingdom, [2]The James Cook University Hospital, Middlesbrough, United Kingdom, [3]Mid and South Essex University Hospitals NHSFT, Basildon, United Kingdom, [4]Johns Hopkins University School of Medicine, Baltimore, United States, [5]Leeds Neuromodulation Centre, Leeds, United Kingdom, [6]International Neuromodulation Society, San Francisco, United States, [7]University of Glasgow, Glasgow, United Kingdom, [8]University of Exeter, Exeter, United Kingdom

Methods: SPIRIT-iNeurostim and CONSORT-iNeurostim extensions were developed through a staged consensus process involving literature review and expert consultation. An initial list of candidate items was generated from previous systematic review findings, published protocols and reports of clinical trials of implantable neurostimulation devices. Participants were invited to complete a two-round Delphi survey. In the first round, participants voted on the importance of each item and suggested additional items. In the second round, participants re-scored the items considering feedback and additional items suggested. The Delphi survey results were discussed at a consensus meeting and stakeholders voted on items for inclusion in the extensions.

Results: The initial list included 42 candidate items relevant to both SPIRIT- and CONSORT-iNeurostim extensions and 7 items relevant to CONSORT-iNeurostim only. We received 132 responses to the first round of the Delphi survey and 99 responses to the second round. Participants suggested an additional 34 candidate items during the first round of the survey (14 for SPIRIT-iNeurostim and 20 for CONSORT-iNeurostim). Additional findings and final versions of the iNeurostim extensions will be presented.

Conclusions: SPIRIT-iNeurostim and CONSORT-iNeurostim extensions will increase transparency and improve the reporting of clinical trial protocols and reports of implantable neurostimulation devices.

740

A THREEDIMENSIONAL ANALGESIC STRATEGY TO OPTIMIZE MULTIMORPHIC CANCER PAIN MANAGEMENT

A. Lemaire[1], J. Rodriguez[1]

[1]*Valenciennes General Hospital, Valenciennes, France*

Methods: Literature review and model of care conception

Results: The COVID crisis has provided us with many lessons that we should use as inspiration for optimizing management of cancer pain. The permanent interactions and synergies between patients, healthcare professionals, and the health system can make it possible to define the optimal analgesic balance. This can be achieved through three means: understanding the various aspects of multimorphism in cancer pain, managing this multimorphism, and systemically organizing the supportive care pathway.

Conclusions: We propose a threedimensional analgesic strategy to optimize multimorphic cancer pain management, including the latest scientific data available. Cancer pain management remains priority for optimizing the quality of life of our patients through the entire care pathway.

745

ACTIVATING WAITLISTS: IDENTIFYING BEHAVIOUR CHANGE TECHNIQUES TO ADDRESS BARRIERS AND FACILITATORS OF PAIN SELF-MANAGEMENT WHILE WAITING

L.V. Tidmarsh[1], R. Harrison[1], D. Ravindran[2], S. Norwood[3], H. Wilkinson[2], K.A. Finlay[1]

[1]*University of Reading, Reading, United Kingdom,* [2]*Royal Berkshire NHS Foundation Trust, Reading, United Kingdom,* [3]*Berkshire Health Care NHS Foundation Trust, Reading, United Kingdom*

Methods: Semi-structured interviews with patients (*N*= 20) waiting for a Pain Management Programme were conducted. A 17-iteminterview schedule was created, informed by the COM-B model. To identify pathways for waitlist intervention design, transcripts were deductively analysed using the COM-B model. Thereafter, the Behaviour Change Technique Taxonomy Version 1(BCTv1) was used to identify possible Behaviour Change Techniques(BCTs) that could facilitate change in pain self-management.

Results: Deductive analysis identified that barriers and facilitators to pain self-management were aligned with five COM-B components: Psychological Capability, Physical Opportunity, Social Opportunity, Reflective Motivation and Automatic Motivation. Coding to the BCTv1 identified 44 BCTs as potential active components to increase pain self-management behaviour. The most prevalent BCTs were: Reduce negative emotions; Self-monitoring of behaviour; Action planning; Instruction on how to perform a behaviour; and Social support (practical). Self-talk and Valued self-identity were also pertinent to increasing motivation.

Conclusions: These findings provide a novel behaviour change approach to optimising chronic pain treatment waitlists, and a foundation for intervention development. Psychological capability and lack of emotional or practical support can dynamically impact self-efficacy and motivation to engage in pain self-management. Clinical recommendations for waitlist intervention are provided.

748

INVESTIGATING THE PAIN PROFILE IN FIBROMYALGIA COMPARED TO CHRONIC NECK AND SHOULDER PAIN AND WIDESPREAD PAIN PATIENTS. ARE THERE DIFFERENCES IN PAIN INTENSITY AND SENSITIVITY?

B. Ghafouri[1], F. Gustafsson[1], B. Gerdle[1], K. Wåhlén[1]

[1]*Linkoping University, Department of Health, Medicine and Caring Sciences, Linkoping, Sweden*

Methods: Data from several cohorts of patients with FM (n=53), CWP (n=23), CNSP (n=37) and including healthy pain-free controls (n=122) were included in this study. The data included were age, gender, BMI, systolic and diastolic blood pressure, pain intensity and sensitivity, psychological distress, and pain catastrophizing (PCS). Pain sensitivity

was measured using bilaterally pressure pain threshold (PPT) in the trapezius muscles. The measurement was performed by applying a pressure of 30 kPa/s using an algometer. Univariate and multivariate statistical analyses were performed.

Results: FM patients showed significant ($p < 0.001$) decreased pain sensitivity in both right and left trapezius muscle compared to patients with CNSP and CWP. FM patients reported significant ($p = <0.001$) higher score in PCS helplessness compared to CNSP. Higher BMI was associated with FM and correlated to higher pain intensity.

Conclusions: This study showed that pain sensitivity in trapezius muscles significantly differed between patients with FM compared to CNSP and CWP. Furthermore, it showed that high BMI is associated with increased pain intensity in FM patients. These findings give new insights in investigating the mechanisms behind chronic pain in FM that might contribute to improvement of diagnosis and treatment plan for patients with FM.

749

ACTIVE PLACEBOS INCREASE TREATMENT EXPECTATIONS AND PLACEBO ANALGESIA

L. Schenk[1], T. Fadai[1], C. Büchel[1]

[1]*University Medical Center Hamburg-Eppendorf, Hamburg, Germany*

Methods: A 2x2 design with the factor expectancy and side effect (nasal spray with capsaicin/without capsaicin) was employed. During the experiment, participants received nasal sprays with the belief that 50% contain pain relief medication before receiving thermal pain stimuli that were rated on a VAS scale.

Results: During the initial reinforcement phase when all participants expected the possibility of a real pain relief treatment, we observed a significant main effect of capsaicin, indicating that participants report less pain when the nasal sprays had a noticeable side effect. During the subsequent test phase, when only half of the participants expected a real pain relief treatment, we observed a significant interaction. Only the pain relief expectancy group showed less pain when a side effect was experienced as compared to the no-expectancy group. Future analyses will focus on acquired fMRI data.

Conclusions: Together, this shows that even negative side effects (e.g. burning feeling) can increase treatment expectation effects, which is highly relevant for randomized clinical trials.

751

PSYCHOLOGICAL RISK FACTORS FOR THE DEVELOPMENT OF CHRONIC NON-MALIGNANT PAIN IN CHILDREN AND ADOLESCENTS

B. Horvat Rauter[1], K. Groleger Sršen[1]

[1]*University Rehabilitation Institute RS Soča, Ljubljana, Slovenia*

Methods: We included 30 participants, who were 9 – 18 years old. All of them were examined by the physical and rehabilitation medicine specialist and meet criteria for chronic pain.

We assessed the risk factors with an extensive psychological interview, assessed their intelligence capacities with the (The Wechsler Intelligence Scale for children – III, WISC-III, their psychological wellbeing through self-evaluation (The Revised Children's Anxiety and Depression Scale – RCADS) and parent reported behaviour (Child Behavior Checklist for ages 6–18 years - CBCL).

Results: The results were compared against the normative data. We found anxiety, copping with stress deficits, avoidant style, low self-esteem, weak social skills, lower attention capacities, female gander as individual psychological risk factors. The interpersonal risk factors, that stood out are: divorced parents, parents` (chronic) illness, unsecure attachment style, bullying.

Conclusions: The awareness of psychological risk factors in long term chronic pain is crucial for planning further psychological treatment and therapy.

752

A STUDY OF ACD440 GEL FOR THE TREATMENT OF PATIENTS WITH PERIPHERAL NEUROPATHIC PAIN WITH SENSORY HYPERSENSITIVITY

M. Segerdahl[1], M. Halldin[1], A. Miclescu[2], K. Ellström[3], R. Karlsten[2]

[1]AlzeCure Pharma AB, Huddinge, Sweden, [2]Uppsala University, Uppsala, Sweden, [3]SDS Life Science, Stockholm, Sweden

Methods: Male and female patients, age 18-85, with peripheral neuropathic pain with hypersensitivity (irritable nociceptors) on bedside sensory testing were included in this placebo-controlled double-blind crossover trial. The sample size was estimated based on a previous study in healthy volunteers. Primary endpoint was reduction of evoked pain intensity in the most sensitive quality at baseline bedside QST assessment. Other variables included spontaneous pain (NRS 0-10), NPSI, PGIC. Patients applied study medication twice daily for 7 days, with a minimum two-week washout between treatment periods.

Results: Fourteen male and female patients, age 18-85, were enrolled in the study. Results will be described in detail in the poster. All patients had a pre-study verified diagnosis of probable neuropathic pain, with a spontaneous pain rating of NRS 4-9. Etiologies were varied, including PHN, peripheral nerve injury.

There have been no treatment related adverse events reported.

Conclusions: ACD440 Gel is safe and well tolerable as a topical treatment for patients with neuropathic pain with hypersensitivity (irritable nociceptors). Efficacy results will be presented in detail at the congress.

754

BLOOD PROTEIN BIOMARKER PROFILE IN FIBROMYALGIA COMPARED TO OTHER CHRONIC PAIN STATES

B. Ghafouri[1], J. Tödt[1], K. Wåhlén[1], M. Jönsson[1], B. Gerdle[1], E. Bäckryd[1]

[1]Linkoping University, Department of Health, Medicine and Caring Sciences, Linköping, Sweden

Methods: This study analyzed 71 known inflammatory cytokines and chemokines in plasma in 152 subjects using multiplex immunoassay in four different chronic pain groups, neuropathic pain (NeuP) (n=17), fibromyalgia (FM) (n=32), chronic neck- and shoulder pain (CNSP) (n=26), other pain states (n=17) and healthy controls (n=60). Data was analyzed using multivariate data analysis (MVDA) including principal component model (PCA) and an orthogonal partial least square regressions discriminant analysis (OPLS-DA).

Results: Twenty-nine biomarkers significantly contributed to group separation in the OPLS-DA model. The sex most important proteins (IL17C, I309, MCP4, IL8, FLT3L, TRAIL) were identified to contribute to group differentiation between FM and NeuP, five (TNFa, IL21, GCSF, IL17F, IL13) between FM and CNSP and six (YKL40, MCSF, MIF, VEGFA, GROalpha, IL2Ra) between FM and other chronic pain states.

Conclusions: FM displayed a different biomarker profile compared to NeuP, CNSP and other chronic pain states. This finding may indicate a different mechanism in FM compared to the other chronic pain groups which might contribute to further improvement of diagnostic and treatment of patients with FM.

758

THE STAR CARE PATHWAY FOR CHRONIC PAIN AFTER TOTAL KNEE REPLACEMENT: TRANSLATING FINDINGS FROM A RANDOMISED TRIAL INTO UK NATIONAL HEALTH SERVICE (NHS) PRACTICE

J. Bruce[1], W. Bertram[2], N. Howells[3], V. Wylde[2], T. Peters[2], S. Noble[2], A. Moore[2], A. Beswick[2], R. Gooberman-Hill[2]

[1]University of Warwick, Warwick, United Kingdom, [2]University of Bristol, Bristol, United Kingdom, [3]North Bristol NHS Trust, Bristol, United Kingdom

Methods: Findings from the STAR Trial informed development and roll-out of the STAR Care Pathway into usual care. Trial documentation was adapted using the COM-B model for behaviour change and evidence-based approaches to

increase postal questionnaire returns. Trial sites were contacted to understand their capacity for local implementation.

Results: Trial findings, including clinical and cost effectiveness evidence were presented to hospital managers along with a business case for delivery. An implementation pilot was delivered at a single centre. Screening response rate was 83% and all eligible patients engaged with the care pathway, which is now permanently part of usual care at this centre. Lessons learned from the pilot informed adaptations to the delivery manual.

Availability of clinicians trained to deliver the care pathway presented a barrier to implementation at trial sites. An e-learning training package is under development to enable national implementation.

Conclusions: The STAR care pathway can successfully be delivered in usual care and provides benefit to people with pain after knee replacement. Our implementation work addresses key uncertainties translating trial findings into practice.

761

PAIN-DETACT: EXPLORING DETERMINANTS OF PHYSICAL ACTIVITY LEVELS IN POPULATIONS WITH PERSISTENT PAIN

S. Van Dijck[1], M. Meeus[1,2], N. Roussel[1], A. De Groef[1,3]

[1]University of Antwerp, Antwerp, Belgium, [2]University of Ghent, Ghent, Belgium, [3]KUL, Leuven, Belgium

Methods: A cross-sectional observational design is used. Demographic data, condition-specific characteristics, physical activity levels, beliefs on illness and exercise and pain-related emotional factors are collected using questionnaires through an online survey. The aim is to present data on the associations between collected data and physical activity levels within each population and to compare these relationships between both populations.

Results: Recruitment was started in January 2022 and will be ongoing until end of 2023. We hypothesize that significant associations will be found between the collected psychosocial factors and self-reported physical activity levels. We hypothesize that the found associations will differ between these two populations. Preliminary results will be shown.

Conclusions: The understanding and comparison of the relationship between researched factors and physical activity can lead to more optimal interventions to promote physical activity in these populations.

762

ALTERED MOBILITY IN THE SPINE AS A PREREQUISITE FOR CHRONIC NON-SPECIFIC LOW BACK PAIN

V. Dimitrova[1]

[1]National Sport Academy, Sofia, Bulgaria

Methods: A cohort study of 60 patients who complained of chronic nonspecific low back pain was performed. The indicators on which they were studied are the measurement of the mobility of the thoracic spine according to Ott, and the measurement of the mobility of the lumbar spine according to Schober. The relationship between the change in mobility in the different parts of the spine and the presence of chronic pain was studied.

Results: The results of the study showed statistically significant data that the change(alternate) in the mobility of each of the sections in the spinal column leads to an increase or decrease in mobility in the adjacent parts. In this study, in 2/3 of cases with chronic non-specific low back pain, there is an increase in the mobility of the lumbar region.

Conclusions: We presume that instability and overwhelming of soft tissues in the area lead to pain and the altered mobility of the different parts of the spine could be a predictor for chronic low-back pain.

763

DIAGNOSIS AND TREATMENT OF PAINFUL DIABETIC NEUROPATHY: COMPARISON OF PATIENT EXPERIENCES IN FOUR EUROPEAN COUNTRIES

S. Brill[1], M. Eerdekens[2], M. Maderuelo Labrador[3], G. Petersen[2], A. de Rooij-Peek[4], D. Ryan[5], A. Reta[6], N. Schaper[7], S. Tesfaye[8], T. Tölle[9], A. Truini[10], D. Ziegler[11]

[1]Institute of Pain Medicine, Tel Aviv Medical Center, Tel Aviv, Israel, [2]Medical Affairs Grünenthal GmbH, Aachen, Germany, [3]Spanish Federación Española de Diabete (FEDE), Fuenlabrada, Spain, [4]Diabetesvereniging Nederland, Leusden, Netherlands, [5]Pain Alliance Europe, Brussels, Belgium, [6]Pain Unit of the Son Llàtzer Hospital, Palma Baleares, Spain, [7]School for Cardiovascular Diseases, Fac. Health, Medicine and Life Sciences, Maastricht University, Maastricht, Netherlands, [8]Endocrinology at the Royal Hallamshire Hospital, Sheffield, United Kingdom, [9]Neurologische Klinik und Poliklinik der TU München, München, Germany, [10]Università Sapienza Piazzale Aldo Moro, Rome, Italy, [11]Deutsches Diabetes-Zentrum DDS, Düsseldorf, Germany

Methods: A multi-disciplinary expert team prepared and analyzed a web-based survey. Adults consenting to participate and diagnosed with diabetes were screened for symptoms of neuropathic pain. Respondents who met three or more of the DN4 (Douleur Neuropathique 4) criteria were enrolled and reported on their experiences living with pDPN.

Results: 576 respondents met the inclusion criteria and completed the survey, thereof 60% males, 72% ≤ 65 years and 76% with diabetes type II. 79% of respondents experienced daily moderate to severe pain. Diagnosis and treatment of pDPN varied by country as well as treatment satisfaction:

Parameter (% of respondents)	Total (n=576) %	UK (n=174) %	Germany (n=145) %	Spain (n=150) %	NL (n=107) %
Formal diagnosis of pDPN	50	32	62	39	77
Prescribed/prescription-free medication	44/36	36/39	40/26	43/41	67/37
Satisfaction with current prescribed treatments	67	44	66	71	92

Diabetes specialists are key in diagnosing pDPN (41%) compared to general practitioner (26%) and neurologists (17%). Patients who were informed that they could develop pDPN, received an earlier diagnosis and had a better treatment experience.

Conclusions: Although varying by country - pDPN remains often undiagnosed and undertreated. Changes in patient care and better education of healthcare professionals and patients are needed for better diagnosis and treatment outcomes. Perceived differences in adequacy of health care in Europe should be further explored.

References:

Gylfadottir SS et al. J Diabetes Investig. 2019 Sep;10(5):1148-1157.

Ziegler D et al. Diabetes Res Clin Pract 2018; 139: 147–154.

764

EMDR: A GROUP SETTING FOR CHRONIC PAIN PATIENTS

S. Vock[1], E. Beiner[1], J. Tesarz[1]

[1]Heidelberg University Hospital, Heidelberg, Germany

Methods: Providing EMDR in a group setting would be a suitable option here to treat multiple patients at the same time. Therefore, an experimental group setting for chronic pain patients using EMDR therapy has been developed for the first time. Eight patients with various chronic pain syndromes, predominantly fibromyalgia syndrome, took part in this group on three days within one week. Four patients dropped out due to concerns about EMDR and increased emotional stress and pain symptoms.

Results: The remaining patients completed a comprehensive baseline questionnaire (T0), including a broad range of self-rating instruments on various domains of relevant symptomatology, physical and emotional functioning. After the group therapy, patients answered a post-treatment questionnaire (T1) and two follow up questionnaires 4 weeks later (T2) and 3 months later (T4).

Conclusions: The purpose of this poster is to present the therapeutic group concept for the implementation of EMDR group therapy in patients with chronic pain and to discuss initial exploratory results on the effects of the therapy. In summary, it can be concluded that EMDR in a group therapeutic format is feasible in patients with pain, but that this setting entails special features and difficulties that should be considered when selecting patients and planning therapy.

766

ANTINOCICEPTVE ACTION OF BOTULINUM TOXIN TYPE A IN THE SPINAL CORD – A POSSIBLE ROLE OF TRANSCYTOSIS?

D. Vađunec[1], I. Matak[2], L. Bach-Rojecky[1]

[1]University of Zagreb, Faculty of Pharmacy and Biochemistry, Department of Pharmacology, Zagreb, Croatia, [2]University of Zagreb, School of Medicine, Department of Pharmacology, Zagreb, Croatia

Methods: After behavioural experiment, animals (Figure 1) were sacrificed, and immunohistochemistry of c-Fos (marker of neural activation) and cleaved SNAP-25 (marker of BoNT-A activity) were performed in the lumbar spinal cord sections. Two-way ANOVA and post hoc Bonferroni test were used to analyse the data, with $p<0.05$ considered as significant. Experiments were approved by Ethical Committee of University of Zagreb School of Medicine.

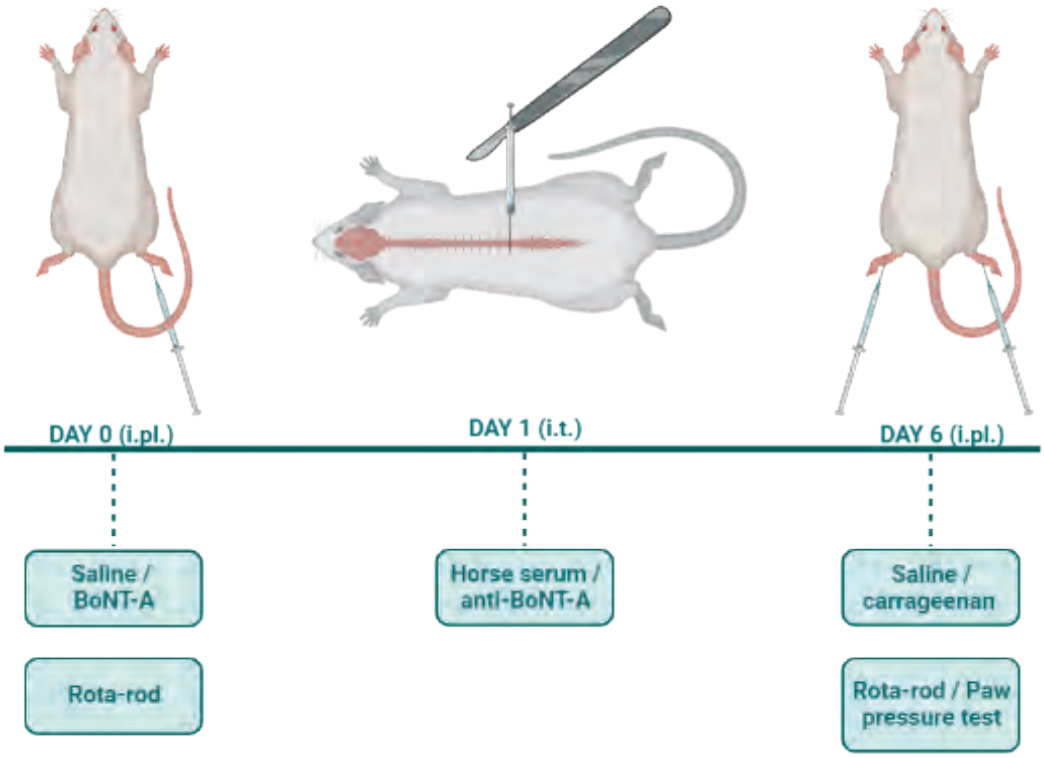


Figure 1: Experimental protocol.

Male Wistar rats were unilaterally intraplantarlly (i.pl.) injected with BoNT-A (7 IU/kg) 1 day before intrathecal (i.t.) application of BoNT-A antitoxin (2 IU/10µL). 6 days later carrageenan (2%) was injected i.pl. bilaterally; 3 hours later mechanical sensitivity was measured.

Results: Unilateral BoNT-A significantly reduced the mechanical hypersensitivity on ipsilateral and contralateral paws. Antitoxin prevented this effect on both sides. Accordingly, immunohistochemical data showed reduction of c-Fos positive neurons bilaterally at L4/L5 segments in BoNT-A pre-treated animals, which was prevented by antitoxin. Cleaved SNAP-25-positive neurons were detected bilaterally in BoNT-A-treated rats, which was reduced in antitoxin-treated group (Table 1).

Table 1. Results of behavioural testing and immunohistochemical analysis

	Measurements					
	Paw pressure (n=7) / percentage		Expression of c-Fos positive neurons (n=5/6) / percentage		Surface of cl-SNAP-25 immunoreactivity (n=5) / percentage	
Treatments	Ipsilateral side	Contralateral side	Ipsilateral side	Contralateral side	Ipsilateral side	Contralateral side
Sal. i.pl. / H.S. i.t. / Sal. i.pl. (Negative control group)	100	100	0	0	N/A	N/A
Sal. i.pl. / H.S. i.t. / Carr. i.pl. (Positive control group)	-59 **+**(p<0.0001)	-49 **+**(p<0.0001)	100	100	N/A	N/A
BoNT-A i.pl. / H.S. i.t. / Carr. i.pl. (Experimental group 1)	+88 **#**(p<0.0001)	+63 **#**(p<0.0001)	-76 **#**(p<0.005)	-72 **#**(p<0.001)	100	100
BoNT-A i.pl. / A.T. i.t. / Carr. i.pl. (Experimental group 2)	-38 **¥**(p<0.001)	-44 **¥**(p<0.0001)	+333 **¥**(p<0.001)	+250 **¥**(p<0.005)	-70 **¥**(p<0.001)	-89 **¥**(p<0.05)
Abbreviations: Sal.=Saline; **Carr.**=Carrageenan; **H.S.**=Horse serum; **A.T.**=Antitoxin against BoNT-A; **i.pl.**=intraplantar; **i.t.**=intrathecal; **N/A**=non applicable; **+=**statistically significant compared to the negative control group**; #=**statistically significant compared to the positive control group; **¥=**statistically significant compared to the experimental group 1						

Conclusions: Here we demonstrate complex BoNT-A's central antinocicepive action, with its possible transsynaptic transport within the spinal cord. Further in-depth studies are needed to resolve this possibility.

767

QUALITATIVE EVALUATION OF THE BIS-BAS MODEL IN ADULTS WITH COMORBID CHRONIC PAIN AND OBESITY: PRELIMINARY RESULTS

C. Moniz Galvão[1], F. Pimenta[1], A. Ferreira-Valente[1,2,3]

[1]William James Center for Research, Ispa - Instituto Universitário, Lisboa, Portugal, [2]Department of Rehabilitation Medicine, University of Washington, Seattle, WA, United States, [3]Research Center for Human Development, Faculty of Education and Psychology, Universidade Católica Portuguesa, Porto, Portugal

Methods: Participants are adults (≥18 years old) with CP (self-reported significant recurrent/persistent pain experienced at least half of the days, the past 3 months) and obesity (self-reported BMI≥30 kg/m^2). Individual semi-structured interviews are being conducted and analysed using directed content analysis.

Results: Preliminary results are under analysis. We expect to find clear BIS vs. BAS categories (with codes pertaining to cognitions, emotions, and behaviours).

Conclusions: We expect to shed light on the mechanisms underlying people's responses to pain and weight, thus better informing individual assessment and the development of personalised care.

Acknowledgments: CMG is supported by national funds through FCT – Fundação para a Ciência e Tecnologia, I.P. (grant number UI/BD/153096/2022). AFV is supported by national funds through FCT, and when eligible, by COMPETE 2020 FEDER funds, under the FCT Post-doctoral grant (grant SFRH/BPD/121452/2016), as well as Scientific Employment Stimulus – Institutional Call (CEECINST/00070/2021; public notification Edital/0030/2022). The William James Center for Research, Ispa – Instituto Universitário is supported by FCT funding (reference UIDB/04810/2020[CMG3]). The Research Centre for Human Development is funded by FCT funding (reference UIDB/04872/2020).

770

VALIDITY OF A LOW-COST INERTIAL MEASUREMENT UNIT FOR THE ASSESSMENT OF RANGE OF MOTION AND QUALITY OF MOVEMENT OF CERVICAL AND THORACIC SPINE

P. Bellosta-López[1], M.B. Simonsen[2], T.S. Palsson[2,3], C. Djurtoft[2,4], S.W.M. Christensen[2,5]

[1]Universidad San Jorge, Villanueva de Gállego (Zaragoza), Spain, [2]Aalborg University, Aalborg, Denmark, [3]Aalborg University Hospital, Aalborg, Denmark, [4]Center for General Practice at Aalborg University, Aalborg, Denmark, [5]University College of Northern Denmark, Aalborg, Denmark

Methods: Thirty-three healthy, pain-free individuals took part in the study. Each participant performed neck (cervical flexion, extension, and lateral flexion) and trunk (thoracic flexion, extension, rotation, and lateral flexion) movements, which were recorded simultaneously using a 3D camera system and an inertial measuring unit (*MOTI, Aalborg, Denmark*). For ROM and QOM (quantified as the jerk index), agreement and consistency were assessed using intraclass correlation coefficients ($ICC_{3.1}$), mean bias, and Bland-Altman plots.

Results: The reliability of ROM was excellent for all movements ($ICC_{3.1}$ between 0.91 and 1.00) and good to excellent for QOM ($ICC_{3.1}$ between 0.84 to 0.95). The average bias for all motions was less than the minimum acceptable difference between devices (0.1-0.8°). According to the Bland-Altman plot, MOTI measured higher ROM and QOM than the 3D camera system for all neck and trunk motions.

Conclusions: This study showed that MOTI was a reliable and valid method for assessing ROM and QOM for neck and trunk motions in experimental and clinical settings.

774

XYLOCAINE PATCH VERSUS INTERCOSTAL NERVE BLOCK FOR CONTROL OF PERI-OPERATIVE PAIN IN PATIENTS UNDERGOING THORACOTOMY FOR MINIMAL THORACIC PROCEDURES

M. Eltantawy[1]

[1]Cairo University, Giza, Egypt

Methods: Study groups: - Control intercostal group (Group I, n=30):

Patient in this group will receive a dose of 5 ml bupivacaine 0.5% peri-neurally.The process is repeated at each space.(www.nysora.com).

3- Xylocaine patch (Group xylo, n=30):

Patients in this group will receive xylocaine patch to be applied very close to the operative site after closure of the wound. Two patches to applied for each patient .The patches will be applied for 24 hours then to be removed.

pain and sedation scores will be conducted at 2, 4, 6, 8, 12, 16, 24 hours postoperatively. The time to the first request of rescue postoperative analgesic will be: “the time interval between the onset of recovery and the first request to postoperative analgesia”. Breakthrough pain will be managed with incremental intravenous 2 mg doses of morphine to maintain a resting VAS at 3. Cumulative 24 hours analgesic consumption of and morphine will be recorded. Ramsay score for assessment of sedation at the same intervals for VAS.

Results: There was no significant difference in time for first rescue analgesia between the two groups, there was increased total 24 hours morphine consumption in intercostal nerve block group

Conclusions: Xylocaine patch is an effective method for control of post thoracotomy pain

---

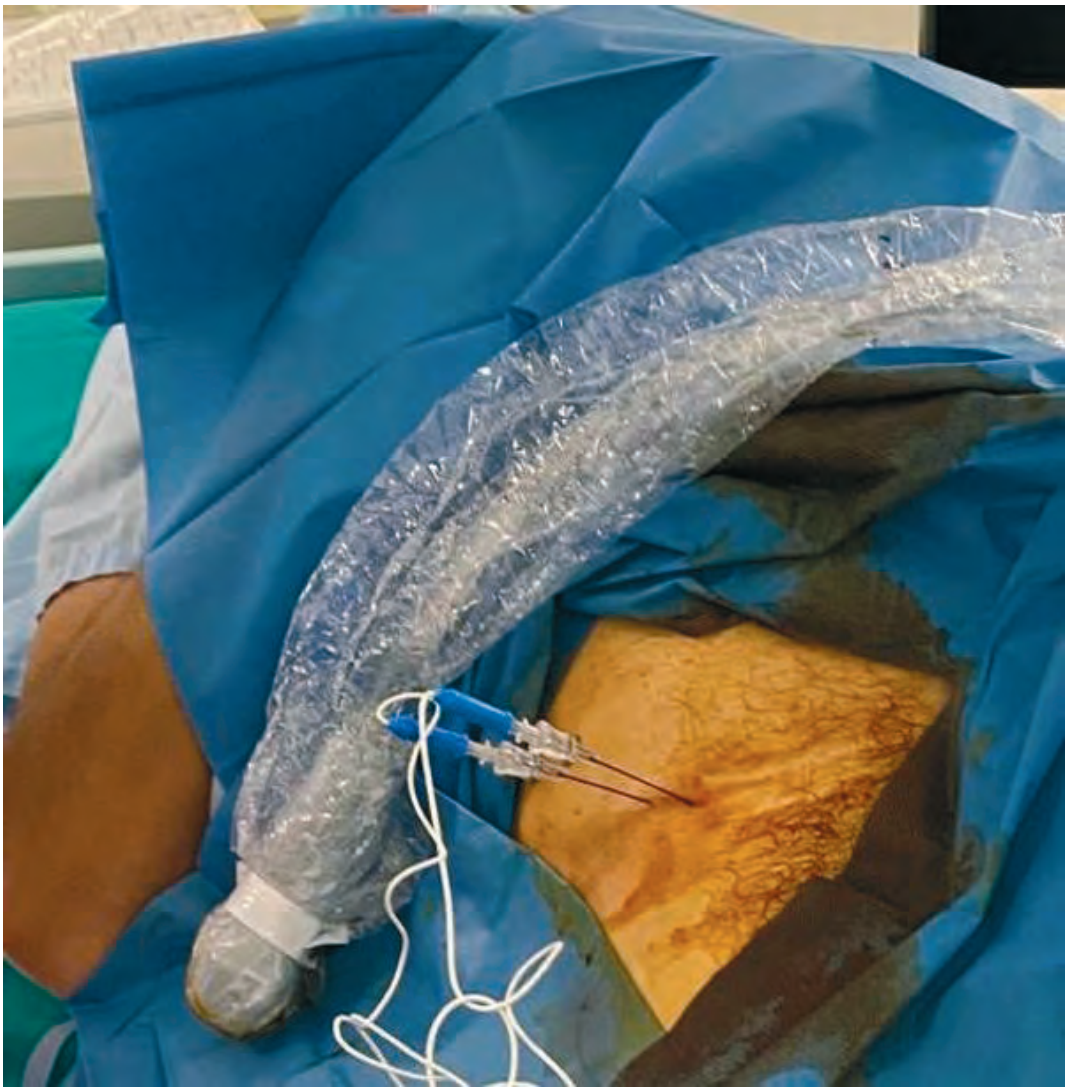
776

SAFETY OF ULTRASOUND-GUIDED CONVENTIONAL RADIOFREQUENCY OF PERICAPSULAR NERVES GROUP (PENG) IN CHRONIC HIP PAIN: A RETROSPECTIVE STUDY

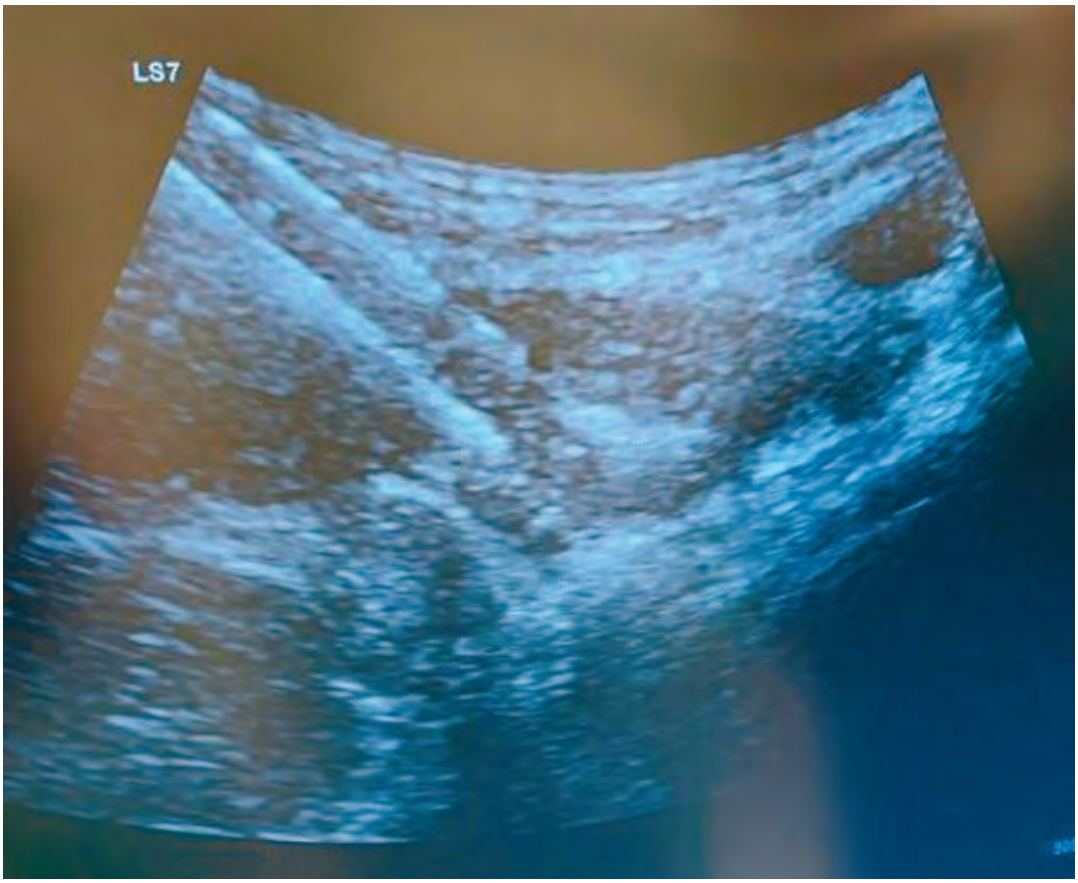
A. Melendez Laborda[1,2,3], P. Melendez Laborda[4], A. Rodriguez Pérez[1,3], A. García Londoño[3], M.Á. Polo Ostáriz[1], J. Argüelles Luis[2]

[1]Hospital de Calahorra, Calahorra, Spain, [2]Oviedo University, Oviedo, Spain, [3]Clínica del Dolor de La Rioja, Logroño, Spain, [4]Centro de Salud, Cintruénigo, Spain

Methods: We evaluated 28 patients who underwent a PENG radiofrequency ablation (80ºC for 80 seconds) and a posterior block. The presence of complications during the procedure, the existence of side effects and the patient's satisfaction, as well as an assessment of the results in terms of pain reduction, have been evaluated.



Results: 28 patients between 41 and 91 years old (65.5 on average), 17 male (60%) and 11 female (40%), with chronic hip pain were evaluated.2 patients experienced a post-procedural complication: A 83-year-old woman who noticed motor weakness with a full recovery over a few hours and a 43-year-old woman who experienced worsening pain for 7-10 days after the procedure.We did not identify delayed complications All the patients were in overall satisfied with the technic.



Improvement

Severity Kellgreen-Lawrence	Nothing	A little better	Much Better	A Lot of	Asymptomatic	
0*	0	0	0	1	2	3
1	0	0	0	0	1	1
2	0	0	2	0	3	5
3	0	2	1	3	0	6
4	2	2	0	8	0	12
NA**	0	0	1	2	0	3
						30

* Impingment Femoroacetabular

** Painful Total Hip Replacement

Conclusions: In our study, the ultrasound-guided PENG radiofrequency ablation is a safe and well-tolerated procedure and may be useful in treating patients with chronic hip pain.

778

THE EFFECTS OF INDUCED STATE ANXIETY ON THE MAGNITUDE OF NOCEBO HYPERALGESIA

D. Rubanets[1], E.A. Bajcar[1], P. Bąbel[1]

[1]*Jagiellonian University Institute of Psychology, Cracow, Poland*

Methods: Healthy volunteers are randomized to one of 3 groups: 1) classical conditioning of nocebo hyperalgesia; 2) classical conditioning preceded by anxiety induction; 3) no-manipulation control. The hidden conditioning procedure is performed in the nocebo and anxiety-nocebo groups. During the conditioning, the white circle (a placebo) is

paired with pain stimuli of high intensity, while the pain stimuli of moderate intensity are provided without any visual cues. Anxiety is induced by the anticipation of electric shock in the anxiety-nocebo group. Pain intensity ratings are collected as a primary outcome. Pain expectancies and physiological parameters (heart rate, skin conductance) are assessed as secondary outcomes. The study is funded by National Science Centre in Poland (grant no.2020/39/B/HS6/03551)

Results: Data collection is ongoing and the results will be presented on the poster.

Conclusions: The knowledge about the role of anxiety in nocebo hyperalgesia could be helpful in clinical practice, for instance, to develop the methods for eliminating or minimizing the nocebo effect via reducing state anxiety.

780

SELECT TERPENES FROM *CANNABIS SATIVA* INCREASE THE ANTI-NOCICEPTIVE EFFECTS OF MORPHINE AND DECREASE MORPHINE REWARD IN MICE

A. Schwarz[1], T. Bui[1], J. Streicher[1]

[1]*University of Arizona, Tuscon, United States*

Methods: Antinociception was measured via von Frey assay in male and female CD-1 mice which underwent chemotherapy-induced peripheral neuropathy (CIPN). Mice were given α-Humulene (100mg/kg) with morphine (3.2mg/kg), β-Caryophyllene (100mg/kg) with morphine (3.2mg/kg), as well as each drug alone with its matched vehicle; paw withdrawal threshold was measured. Reward behavior was measured using CPP; male and female CD-1 mice associated the effects of the drugs with one chamber and the matched vehicle with the other. The amount of time the mice spent in each chamber was used to determine the rewarding/aversive nature of α-Humulene (200mg/kg) with morphine (10mg/kg) and β-Caryophyllene (200mg/kg) and morphine (10mg/kg). Morphine alone was used as the control.

Results: Combining α-Humulene and β-Caryophyllene with morphine increased antinociception more than the terpenes or morphine alone. β-Caryophyllene with morphine negated reward behavior, while α-Humulene did not. This suggests that despite the similar structure of these terpenes, they likely have different mechanisms of action.

Conclusions: These findings expand our work on terpene compounds› pharmacological properties and suggest that β-Caryophyllene could be given alongside opioid medications to enhance antinociception while decreasing reward.

784

OBSERVATIONAL LEARNING AND PLACEBO AND NOCEBO EFFECTS IN PAIN: THE ROLE OF STATE EMPATHY

S. Meeuwis[1,2], J. Kłosowska[2], S. Bucki[2], D. Rubanets[2], J. Badzińska[2], E. Bajcar[2], P. Bąbel[2]

[1]Leiden University, Leiden, Netherlands, [2]Jagiellonian University, Kraków, Poland

Methods: Healthy volunteers are randomized to 1 of 6 groups: 1) placebo-OBL; 2) placebo-OBL preceded by a high-state empathy induction; 3) nocebo-OBL; 4) nocebo-OBL preceded by a high-state empathy induction; 5) random-ratings OBL control; 6) no-observation control. Pain is evoked by heat stimuli on both arms at baseline and post-OBL. An ointment is applied to one of the participant's arms. Next, participants observe a person rate pain in response to heat stimuli as either high, low, or randomly (depending on group allocation) after application of the ointment, relative to the control arm. State empathy is increased in two experimental groups by an imagination exercise, in which participants are asked to identify with the observed person. Pain ratings are collected as primary outcome, and pain expectations, state empathy, and physiological data as secondary outcomes.

Results: Data are currently being collected and will be presented at the conference.

Conclusions: Unravelling how OBL induces placebo and nocebo effects could be relevant, for instance as online (social) information about pain treatments could trigger nocebo effects. Moreover, insights can be gained on how to enhance placebo effects in clinical practice, for instance, by highlighting other patients' positive experiences with treatment.

785

LIPID RAFT DISRUPTION INFLUENCES MEMBRANE FLUIDITY IN CHO CELLS AND DECREASES ACTIVATION OF TRANSIENT RECEPTOR POTENTIAL MELASTATIN 8 ION CHANNEL IN *IN VIVO* MOUSE MODEL

É. Szőke[1,2], Á. Horváth[1], A. Nehr-Majoros[1], G. Berenkei[1], R. Kerekes[1], J. Erostyák[1], Z. Helyes[1,2]

[1]University of Pécs, Pécs, Hungary, [2]National Laboratory for Drug Research and Development, Budapest, Hungary

Methods: In *in vivo* experiments, mice injected intraplantarly with MCD, SMase, Myr and C1 before the TRPM8 agonist icilin injection into the hindpaw of animals and we measured the duration of the pain reaction for 20 minutes. In *in vitro* studies, native CHO cells were treated with lipid raft disruptors, then they were incubated with Laurdan and the decay curves of the time-lapse emission spectrum were recorded. The microviscosity and the membrane fluidity were determined.

Results: The duration of the icilin-induced acute pain reaction was significantly reduced by MCD and SMase, but Myr and C1 were not effective. We investigated the generalized polarization (GP), characteristic time of the GP values change, and rotational mobility of LAURDAN molecules. MCD appeared to increase, while SMase and Myr treatment appeared to decrease the membrane fluidity.

Conclusions: Hydrophobic interactions between the TRP channel and lipid rafts modulate the channel opening, therfore, targeting this interaction might be a promising drug developmental tool.

789

SPANISH CHILD PAIN ANXIETY SYMPTOMS SCALE (CPASS): TRANSLATION AND CROSS-CULTURAL ADAPTATION

G. Ceniza-Bordallo[1], A. Gómez Fraile[2], I. López-de-Uralde-Villanueva[3], P. Martín-Casas[3]

[1]Doctoral Program in Healthcare, Faculty of Nursing, Physiotherapy and Podiatry. University Complutense of Madrid, Madrid, Spain, [2]Head of Service, Surgery and Urology Pediatric Unit. University Hospital 12 Octubre of Madrid, Madrid, Spain, [3]Department of Radiology, Rehabilitation and Physiotherapy. Faculty of Nursing, Physiotherapy and Podiatry. University Complutense of Madrid. IdISSC, Madrid, Spain

Methods: The CPASS was translated to Spanish according to the translation recommendations scale. Then, psychometric properties were evaluated in a paediatric surgical sample. Children and adolescents were invited to complete questions on the CPASS, including child pain catastrophizing, health-related quality of life, pain interference, pain intensity, medical consultations in the last year, and the number of surgeries.

Results: We included 160 children and adolescents in the study (female 49.37%), with a mean age of 14.5 (±2.3) years. In the exploratory factor analysis, the final 18-item version (without items 18 and 19) of the CPASS was the best fit, with all items encompassed in the assumed theoretical factor and showing optimal factor loading. The confirmatory factor analysis showed an 18-item 4-factor final model for the scale structure: χ^2 (131) = 150.56, p = .116; comparative fit index = 0.973; Tucker-Lewis index = 0.969; root-mean-square error of approximation = 0.030, 95% CI 0.001–0.050; standardized root-mean-square residual = 0.056.

Conclusions: The Spanish CPASS shows good psychometric proprieties, and it can be used to assess pain anxiety in the paediatric population.

790

DEVELOPMENT OF A CLINICAL PREDICTION MODEL TO FACILITATE DECISION MAKING IN INTERDISCIPLINARY MULTIMODAL PAIN TREATMENT (IMPT) OF PATIENTS WITH CHRONIC PAIN AND OSTEOARTHRITIS (OA)

R. Smeets[1,2,3], L. Breugelmans[1], S. van Kuijk[4], B. Winkens[5], L. Beckers[1], S. Vervullens[1,3,6]

[1]Department of Rehabilitation Medicine, Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, Netherlands, [2]Centre of Integral Rehabilitation (CIR), Eindhoven, Netherlands, [3]Pain in Motion International Research Group (PiM), Antwerpen, Belgium, [4]Department of Clinical Epidemiology and Medical Technology

Assessment, Maastricht University Medical Centre, Maastricht, Netherlands, [5]Department of Methodology & Statistics, Care and Public Health Research Institute (CAPHRI), Faculty of Health, Life Sciences and Medicine, Maastricht University, Maastricht, Netherlands, [6]Research Group MOVANT, Department of Rehabilitation Sciences and Physiotherapy (REVAKI), University of Antwerp, Wilrijk, Belgium

Methods: Routinely collected data of 599 patients with chronic OA pain treated with IMPT at the Centre for Integral Rehabilitation during 2019-2021 was used. Candidate predictors were selected by consensus of experts in IMPT (including patients) and existing literature. Treatment success was defined by the minimal change of 9 on the Pain Disability Index. Multiple imputation was used for missing data. The number of predictors was reduced using a backwards selection method (cut-off p-value=0.2).

Results: Thirty-four potential predictors were identified, and the final model consisted of 15 variables (age, sex, PDI-baseline and number of pain locations (both as a quadratic function), maximal pain intensity last week, use of pain medication, use of alcohol, self-rated work-capacity, Brief Illness Perception Questionnaire items consequences, treatment control and identity, pain catastrophizing, and pain-self-efficacy.

The area under the receiver operating characteristic (ROC) curve was 0.742 [0.702, 0.781]. The predicted probability distributions overlapped partly, indicating that there is no full separation of the two groups. A cut-off point of 0.2 probability seems best to predict no treatment success.

Conclusions: This model showed a moderate ability to discriminate and has to be externally validated before it can be used to develop a clinically useful decision tool.

791

PREVALENCE OF MUSCULOSKELETAL PAIN AS A LONG-COVID SYMPTOM AFTER HOSPITALISATION IN COVID-19 SURVIVORS

B.D. Ebbesen[1], R. Giordano[1], U. Varol[2], C. Fernández-de-las-Peñas[2], B. Steen Rasmussen[3], H. Nielsen[3], B. Schiøttz-Christensen[4], P. Lykke Petersen[5], M. Castaldo[1], L. Arendt-Nielsen[1]

[1]Aalborg University, Aalborg, Denmark, [2]Universidad Rey Juan Carlos, Madrid, Spain, [3]Aalborg University Hospital, Aalborg, Denmark, [4]University of Southern Denmark, Odense, Denmark, [5]Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

Methods: This cross-sectional exploratory study was based on responses to pain-related questionnaires from a national survey including data from 1) 4.833 previously hospitalised patients with a confirmed SARS-CoV-2 infection and from 2) a population of 132.427 non-hospitalised SARS-CoV-2 infected persons. Time from confirmed infection to response was 8-30 months. The questionnaire was designed to focus specifically on the type of post-COVID persistent pain, pain intensities, and quality of life.

Results: Data from 1.000 randomly selected previously hospitalised (51.2% males; 60.4±15.2 years; 85.6±18.5 kg) and 1.000 randomly selected non-hospitalised COVID-19 survivors (43.5% males; 50.4±15.9 years; 79.2±16.6 kg) were included. Long-COVID pain symptoms were more prevalent within the hospital group (38.8% vs. 12.7%, $p<0.001$). When analysing specifically for *de novo* musculoskeletal pain, the prevalence was likewise highest in the hospital group (20% vs. 4.2%, $p<0.001$). A higher proportion ($p<0.001$) of previously hospitalised survivors (20%) reported presence of widespread pain when compared with non-hospitalised patients (4.2%). Long-COVID pain intensities were not different between groups ($p<0.329$).

Conclusions: This study showed that long-COVID musculoskeletal pain was more prevalent in the hospital group compared to a non-hospitalised group. The high prevalence of long-COVID musculoskeletal and widespread pain symptoms following SARS-CoV-2 infection highlights the need of attention to this new group of pain patients.

795

PAIN TREATMENT AMONG THE BURNS BY EMERGENCY MEDICAL TEAMS

L. Marzec[1], G. Skotnicka-Klonowicz[2]

[1]Faculty of Medical and Public Health, State Vocational University Prof. S. Tarnowski, Tarnobrzeg, Poland, [2]Faculty of Public Health Sciences and Medical Science, Ignacy Moscicki State Vocational University, Ciechanów, Poland

Methods: The demographic and clinical data as well as medical procedures regarding the intensity and the method of pain-relief were analysed. The data was obtained from the National EMS Monitoring Center. The obtained results were statistically analyses chi-square test. The statistically significant results were considered those ones where p ≤0.05.

Results: 1029 EMS calls were due to burns, which accounted for 0.01% of all. Most often they intervened in Jan and March and the least often in Sept. The EMS were intervening mostly in the afternoon and evening hours. The largest number of burns were recorded in the Śląskie Voivodeship. Regardless of age, thermal burns were in the majority (p≤0,05), then the electrical and chemical ones. The age of the injured was specified in 54% of the medical records (from 2 months to 97 years). Administering of the painkillers was recorded in the case of 46 people (4,47%), including 4 children. The pain was relieved with the dressing (9). A few of the painkillers wern›t indicated in the documentation of 3/46 people, and the route of the administration in 7 people. The painkillers were most often administered intravenously-25/46.

Conclusions: Although the pain treatment among the burns is the primary task of emergency services, it's not fully implemented.

796

DEVELOPMENT OF A PILOT MACHINE LEARNING CLINICAL DECISION SUPPORT FRAMEWORK FOR INTERDISCIPLINARY MULTIMODAL PAIN TREATMENT (IMPT) OF PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN (CMP)

R. Smeets[1,2,3], F. Zmudski[4]

[1]Department of Rehabilitation Medicine, Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, Netherlands, [2]Centre of Integral Rehabilitation (CIR), Eindhoven, Netherlands, [3]Pain in Motion International Research Group (PiM), Antwerpen, Belgium, [4]Social Policy Research Centre (SPRC), University of New South Wales, Sydney, Australia

Methods: A framework of 13 outcomes was developed using Centre for Integral Rehabilitation data from 2019-2021 (n=2,364). As no single reliable outcome measure exists, 10 clinical endpoints were defined across 5 domains including activity, pain, fatigue, coping and quality of life, plus 3 composite metrics. Machine learning models for each endpoint used the most important 30 of 55 demographic and baseline variables based on minimum redundancy maximum relevance feature selection. 5-fold cross validation identified best performing algorithms which were rerun on deidentified source data to verify prognostic accuracy.

Results: Individual algorithm accuracy ranged from 0.49 to 0.63 area under the curve reflecting patient outcome variation and unbalanced training data. As expected, no single outcome provided a reliable indicator, however the set of algorithms established a stratified prognostic patient profile across the 5 clinical dimensions, with a summary indicator of positive versus negative measures. Patient level validation achieved consistent prognostic assessment to original outcomes for 75.3% of the study group (n=1,953). Clinician outcome validation review of a sample (n=81) verified predictive results appeared to be valuable for patient selection and goal setting.

Conclusions: Although no single machine learning model was conclusive individually, the combined stratified profile of algorithms consistently identified validated patient outcomes.

797

CARE PATHWAYS FOR PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN IN GENERAL PRACTICE

J. Bie Larsen[1], P. Borregaard[1], J.L. Thomsen[1], M.S. Rathleff[1], S.K. Johansen[1]

[1]Aalborg University, Aalborg, Denmark

Methods: We conducted a future workshop with 8 GPs to uncover current challenges and potentials for improving the care pathway. The workshop included a critiquing-, an ideation-, and an implementation phase. A case vignette and inspiration cards were designed and included to facilitate workshop discussions. Audio recordings were transcribed, and data was analyzed via thematic text analysis.

Results: The GPs highlighted patient's expectations of anatomical explanations as challenging. Therefore, GPs

were concerned that increased focus on psychosocial factors would make patients feel that their pain is not taken seriously. Proposed solutions were emphasis on pain management and early focus on biomedical and psychosocial factors. The GPs emphasize the need for a multidisciplinary examination to support patients. The GPs envisioned having the possibility to refer patients that does not respond to initiated treatments to a multidisciplinary setup, focusing on biopsychosocial factors.

Conclusions: It remains a challenge that patients focus on finding biomedical reasons for their chronic musculoskeletal pain. The GPs envisioned that a multidisciplinary setup, addressing the biopsychosocial factors could optimize future care pathways.

798

ENHANCING MEDICAL STUDENTS' UNDERSTANDING OF CHRONIC PAIN MANAGEMENT THROUGH AN INTERDISCIPLINARY ELECTIVE

S. Sunba[1], S. Jawad[1], K. Shinkaruk[1]

[1]*University of Calgary, Calgary, Canada*

Methods: Fourteen medical students participating in a chronic pain clinic elective were interviewed in 2018 and 2019 using semi-structured interviews. Themes were identified through line-by-line coding and deductive content analysis. Two medical students, who were not participants in the study, conducted the secondary analysis, providing a unique perspective on the perceptions of interdisciplinary pain management.

Results: Two main themes emerged: 1) greater understanding of interprofessional roles and scope of practice for chronic pain management and 2) the complexity of chronic pain management. All 14 (100%) participants gained a better understanding of the multidisciplinary team's role in caring for chronic pain patients. Nine (64%) were unaware of differences between kinesiology and physiotherapy in patient management. All 14 (100%) discussed how a better understanding of these roles will influence their future practice and enable them to make effective referrals. Conflict resolution among healthcare members with the shared goal of improving patient outcomes was also observed. Examples of interview responses are included in Table 1.

Question	Domain	Selected Response
Can you think of an occasion during this elective when the role of a team member was different than what you had expected?	Role clarification	*"perhaps the role of the Nurse Coordinator was a bit different than I expected. The nurse herself had dedicated time with the patient to um further delineate aspects of the patient's history or do the medication reconciliation." – Participant 5*
Describe an interaction during which a patient was involved in his or her care. How was this the same or different from previous clinical experiences that you've observed?	Patient-centred care	*"after discussing some of the side effects of the medications, [the patient] decided that it would be better for them just not take the medication because they didn't want to swap one symptom for another. This was different from the hospital setting, sometimes you just prescribe the medications for the patient, and then they don't always have a say. Whereas in this clinic here, the patients have a lot more say in terms of what medications they want to start or wouldn't, so that was different." – Participant 12*
Can you describe an interaction during which a family member was involved in a patient's care in this setting? If so, how was that the same or different from previous clinical experiences that you've had?	Family-centered care	"*This comes back to the timing of appointments. So having the 45-minute follow up sessions or the three-hour initial assessments gave a lot more time to to focus on family. It gave a lot more time to incorporate the family members' ideas and feelings, and get their perspective on thepatient's situation, which was really helpful in incorporating family members who are often caregivers or support systems. So having that time was really helpful in incorporating [their family] into the patient's plan because it of course does influence them a lot of the time." – Participant 6*

Question	Domain	Selected Response
Do you feel like this elective has expanded your knowledge in terms of service providers and types of practitioners that are available?	Team functioning	*"In terms of knowing the difference between those [physiotherapy and kinesiology] and when you may want more of a pure assessment by physiotherapy versus just an exercise plan or how to move well from kinesiologist. So clarifying that was good because I didn't really have much exposure to kinesiology before so that was definitely good." Participant 11*
Frequently there's an assumption that physicians will lead medical teams. However, this isn't always optimal for patient care. Can you describe an example of a situation where another team member played a leadership role?	Collaborative Leadership	*„I noticed that the nurse coordinator took a big leadership role, which I thought was great because they were coordinating patient appointments and doing all the referral letters for a specific consult services. I think it gave them a good overall outlook on the patient and the patient's needs and the patient's wants. And I think that having them lead the team was really beneficial because they were the ones communicating with the patient over the phone a lot of the time, they were the ones kind of liaising between different healthcare professionals and I thought it was beneficial. It was a great example of it's not always the physician that kind of leads the patient care." – Participant 6*
Were you ever in a situation in which there was conflict or disagreement amongst team members? If so, can you describe what you observed?	Conflict resolution	"I did have a patient tell my preceptor and I that [the patient] was very confused because [the patient] was hearing different things from the physiotherapist and the kinesiologist. One was telling her to do particular exercises and the other was saying [the patient] shouldn't do those exercises. That's where I think that having rounds to sit and discuss patients is very beneficial, because it didn't sound like the most professional situation." – *Participant* 8

Conclusions: Medical students improved their ability to holistically care for patients with chronic pain by gaining insight into collaboration with allied healthcare professionals and understanding the complexity of pain management.

799

REVIEW OF WHOLE-BODY HYPERTHERMIA USING WATER-FILTERED INFRARED-A RADIATION FOR THE TREATMENT OF FIBROMYALGIA AND GENERALIZED PAIN

N.S. Molinski[1]

[1]*Von Ardenne Institute of Applied Medical Research, Dresden, Germany*

Methods: The study synthesizes findings from a literature search as well as reports from treating physicians. Their feedback was gathered in German clinics and hospitals between March and September 2022.

Results: The results of several clinical studies as well as the interviewed physicians all show a significant decrease in pain directly after the first WBH treatment. Particularly noteworthy is that the pain sensation after a treatment series of 6 (respectively 9) sessions was significantly lower compared to the pre-treatment values even months after end of the treatment series. Furthermore, moderate whole-body hyperthermia increases the expression of cytokines like interleukin 6 (IL-6), interleukin 10 (IL-10), interferon-gamma (IFN-γ), and heat shock proteins. During WBH, an increase in natural killer cells could also be observed.

Conclusions: Generally, whole-body hyperthermia shows beneficial clinical effects and is a well-tolerable therapy for fibromyalgia and pain syndromes. Since the current literature on WBH is still rudimentary, further clinical studies are needed to sustain the promising results.

800

RELIABILITY AND VALIDITY OF THE IASP CRITERIA FOR CHRONIC NOCIPLASTIC PAIN

P. Bilika[1], E. Billis[2], J. Nijs[3,4], Z. Dimitriadis[5], A. Paliouras[1], K. Savvoulidou[1], E. Kapreli[1]

[1]Clinical Exercise Physiology and Rehabilitation Laboratory, Physiotherapy Department, University of Thessaly, Lamia, Greece, [2]Physiotherapy Department, School of Health Rehabilitation Sciences,University of Patras, Patra, Greece, [3]Pain in Motion Research Group (PAIN), Department of Physiotherapy, Human Physiology and Anatomy, Faculty of Physical Education & Physiotherapy, Vrije Universiteit Brussel, Belgium, [4]Chronic pain rehabilitation, Department of Physical Medicine and Physiotherapy, University Hospital, Brussels, Belgium, [5]Health Assessment and Quality of Life Research Laboratory, Department of Physiotherapy, School of Health Sciences, University of Thessaly, Lamia, Greece

Methods: 32 vignettes were created including information about CMPP. Five main characteristics (score of Central Sensitization Inventory/comorbidities, diffuse pain, psychological distress, disproportionate pain experience, and gender) were identified from the literature and randomly selected for the vignettes' construction. An expert panel reviewed the vignettes and priory classified them into either presenting nociplastic pain or not. Afterward, 2 physiotherapists with clinical experience evaluated the vignettes based on the IASP criteria twice with an interval of one month. The study was registered at clinicaltrials.gov (NCT04730791).

Results: The agreement of both raters between the repeated measurements (intra-rater reliability) for each criterion as well as for the final decision was moderate to excellent (k=0.714-1.0), whereas the agreement between the raters (inter-rater reliability) was weak to excellent (k=0.524-1.00). Furthermore, the agreement between experts' opinion, which was considered a reference standard, and physiotherapists (criterion validity) was moderate (k=0.683).

Conclusions: This is the first study to assess the reliability and validity of the new criteria for identifying patients with nociplastic pain. The criteria have satisfactory reliability and criterion validity. Further studies are necessary to evaluate the psychometric properties of the criteria regarding validity or factors influencing reliability.

801

EPIDURAL ADHESIOLYSIS IN THE MANAGEMENT OF NEUROPATHIC LOW BACK PAIN - EXPERIENCE OF UNIVERSITY HOSPITAL CENTER SESTRE MILOSRDNICE, CROATIA

L. Fumić Dunkić[1,2], S. Babić[1], A. Kustura[1,3], J. Martinčević[1], T. Böhm[1]

[1]University Hospital Center Sestre milosrdnice, Zagreb, Croatia, [2]The Catholic University of Croatia, Zagreb, Croatia, [3]School of Medicine, University of Zagreb, Zagreb, Croatia

Methods: The retrospective study included 50 patients (14 men and 36 women, aged 28-85) treated with the epidural adhesiolysis at the Pain Clinic of University Hospital Center Sestre milosrdnice (Zagreb, Croatia). Patients for whom sufficient data were available in the information system and who were treated in the last 5 years were included. Data on the experience of neuropathic pain was collected with international standardised and validated questionnaire painDETECT.

Results: The results showed that experience of neuropathic pain is significantly decreased after the epidural adhesiolysis ($p < 0.01$). 3 weeks after the procedure the neuropathic pain is significantly lower than before the procedure. 6 months after the procedure the pain is scored higher than 3 weeks after, but still significantly lower than the value before the procedure ($p < 0.05$).

Conclusions: Considering the small sample size, our results in short-term pain relief suggested that epidural adhesiolysis could be an effective method with a significant decrease in neuropathic pain in the treatment of patients with chronic low back pain.

804

CORRELATING PSYCHOLOGICAL CHARACTERISTICS OF DIFFICULT-TO-TREAT RHEUMATOID ARTHRITIS PATIENTS WITH PAIN INTENSITY

N. Császár-Nagy[1,2], S. Takács[3], Z. Nagy[2], E. Szigedi[2], Z. Hodovány[2], L. Duzsik[2], R. Nagy[2], G. Nagy[4,5,6], Z. Helyes[7,8], L. Gunkl-Tóth[8,7], G. Sütő[9], G. Kumánovics[10]

[1]National University of Public Services, Budapest, Hungary, [2]Psychosomatic Outpatient Clinics, Budapest, Hungary, [3]Department of Psychology, Karoly Gaspar University, Budapest, Hungary, [4]. Department of Rheumatology and Clinical Immunology, Department of Internal Medicine and Oncology,Semmelweis University, Budapest, Hungary, [5]Department of Genetics, Cell and Immunobiology, Semmelweis University, Budapest, Hungary, [6]Heart and Vascular Centre, Semmelweis University, Budapest, Hungary, [7]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [8]ELKH-PTE Chronic Pain Research Group, Eötvös Loránd Research Network (ELKH), Pécs, Hungary, [9]11. Second Department of Medicine and Nephrology-Diabetes Centre, University of Pécs;, Pécs, Hungary, [10]Department of Rheumatology and Immunology, Medical School, University of Pécs;, Pécs, Hungary

Methods: 21 D2T RA patients and 20 healthy controls filled the validated biopsychosocial questionnaires (31 surveys), and participated in the clinical psychological examination including the Rorschach inkblot test. Patient groups were divided into subgroups according to inflammation and pain severity based on the Visual Analog Scale.

Results: Illness Intrusiveness (IIRS), kinesiophobia (TSK), emotional and sensory pain showed significantly higher values in the patient group. Values related to resilience, physical functions, and gender roles were significantly lower in RA patients. Patients with severe pain demonstrated significantly higher values in 7 subscales (i.e., abandonment, dependency, social isolations, pessimism) of Young›s scheme questionnaire. These results correspond with the Rorschach test results, which lead to a further step in the personality prone to rheumatism. Subjective pain level did not significantly correlate with high inflammation values.

Conclusions: Psychosocial factors strongly influence pain perception and personality characters can be susceptibility factors development of RA.

Acknowledgements

ELKH, OTKA K138046, National Brain Research Program 3.0, TKP2021-EGA-16, RRF-2.3.1-21-2022-00015

806

INFLUENCE OF DIFFERENT MUSIC PRESENTATIONS ON PAIN PERCEPTION OF MUSICALLY AND NON-MUSICALLY ACTIVE STUDENTS - AN EXPERIMENTAL STUDY

R.-C.K.-R. Eschke[1], P.J. Gouverneur[1], T.M. Szikszay[1], M. Grzegorzek[1], C. Klein[1], K. Lüdtke[1]

[1]University of Lübeck, Lübeck, Germany

Methods: Healthy, pain-free musically and non-musically active students (n=61) received 10 individual calibrated noxious heat stimuli while consecutively listening to a varyingly presented music piece and a control condition in randomized order: Live music (LM), Audio (A), Video & Audio (VA) and Brownian-noise (BN). The music piece was specifically composed for this study to ensure its neutrality and avoid effects induced by familiarity. All music presentations lasted 300 seconds. Noxious stimuli started after a 30-second adjustment period and lasted for 10 seconds, with interstimulus breaks jittering between 10-20 seconds. A repeated-measurement ANOVA was used to analyse the primary end points.

Results: No significant interaction between groups and presentations could be observed $F(3,177) = 0.439$, $p = 0.725$. However, there was an effect of music presentations $F(3,177) = 3.696$, $p = 0.013$, which could not be confirmed in the post-hoc analysis with Bonferroni correction $p > 0.125$.

Conclusions: Musically and non-musically active students do not show different pain ratings when listening to diverse music presentations. Furthermore, the altered music presentations as well as the control noise do not differ from each other in their analgesic effect.

809

NON-NEURONAL TRPA1 ENCODES MECHANICAL ALLODYNIA EVOKED BY NEUROGENIC INFLAMMATION AND PARTIAL NERVE INJURY IN RATS

G. De Siena[1], F. De Logu[1], L. Landini[1], M. Marini[1], D. Souza Monteiro de Araujo[1], A. Romitelli[1], L.F. Iannone[1], P. Geppetti[1], R. Nassini[1]

[1]Department of Health Sciences, Clinical Pharmacology and Oncology Section, University of Florence, Florence, 50139, Italy, Firenze, Italy

Methods: Acute nociception and mechanical hypersensitivity associated with neurogenic inflammation and sciatic nerve injury (pSNL and CCI) were investigated in rats with TRPA1 pharmacological antagonism or genetic silencing. TRPA1 presence and function was analyzed in cultured rat Schwann cells.

Results: Hind paw mechanical allodynia (HPMA), but not acute nociception, evoked by local injection of the TRP vanilloid 1 (TRPV1) agonist, capsaicin, or the TRPA1 agonist, allyl isothiocyanate, was mediated by calcitonin gene related peptide (CGRP) released from peripheral nerve terminals. CGRP-evoked HPMA was sustained by a reactive oxygen species (ROS)-dependent TRPA1 activation, probably in Schwann cells. HPMA evoked by pSNL, but not that evoked by CCI, was mediated by ROS and TRPA1 without the involvement of CGRP.

Conclusions: As found in mice, TRPA1 mediates mechanical allodynia associated with neurogenic inflammation and moderate nerve injury in rats. The channel implication in mechanical hypersensitivity following inflammation and partial nerve damage is a common rodent feature and might be explored in humans.

810

OPTIMIZATION AND VALIDATION OF PROFILING EFFORTS WITHIN THE NINDS PRECLINICAL SCREENING PLATFORM FOR PAIN (PSPP) TO ACCELERATE THE DEVELOPMENT OF NOVEL NON-OPIOID, NON-ADDICTIVE PAIN THERAPEUTICS

S. Iyengar[1], M. Varney[2], M. Urban[2], E. Dugan[2], D. Budac[2], T. Hanania[2], S. Woller[1]

[1]NINDS/NIH, Rockville, United States, [2]PsychoGenics Inc., Paramus, United States

Methods: Male and female SD rats (Envigo, Indianapolis, IN, 180-250 g), were acclimated for a week, maintained on a 12/12 light/dark cycles (20-23°C) and Chow and water provided *ad libitum*. Tests were performed during the animal's light cycle phase between 8 am – 4 pm. All experiments were conducted in a blinded manner in both sexes.

PK studies guided experiments. The modified Irwin (n=4) and rotarod tests (n=10) evaluated potential neurologic, physiologic, and fine motor effects. Efficacy was evaluated in the plantar incisional (n=10) and L5/L6 spinal nerve ligation (SNL; n=10) models. Data are presented as mean +/- s.e.m.

Results: Duloxetine levels were maintained through 8 hours post-administration in plasma and brain, in both sexes after 60 mg/kg, PO. Duloxetine (10, 30, 60, 100 mg/kg PO) did not affect rotarod performance Duloxetine, 60 mg/kg PO, robustly reduced mechanical allodynia and guarding behaviors in the plantar incision model and reduced mechanical allodynia and acetone cold sensitivity in the SNL model.

Conclusions: In summary, results demonstrated the comprehensive evaluation of a clinically used drug, duloxetine, in the PSPP program. The NINDS PSPP program strives to accelerate the development of novel non-opioid, non-addictive therapeutics for pain.

812

QIGONG VS STRENGTHENING EXERCISES FOR CHRONIC LOW BACK PAIN (CLBP) SIGNIFICANTLY REDUCES KINESIOPHOBIA: A DOUBLE-BLIND RANDOMISED CONTROLLED-TRIAL

T. Plavoukou[1], S. Sotiropoulos[1], C. Skordis[1], G. Georgoudis[1,2,3]

[1]University of West Attica, Musculoskeletal Physiotherapy Research Lab, Athens, Greece, [2]PHYSIOPAIN GROUP, Athens, Greece, [3]Hellenic Physiotherapy Society of Algology, Athens, Greece

Methods: A double-blind RCT was designed, involving 42 cLBP patients (44,5±11,7), in two experimental groups, a group(1) of standard physiotherapy with additional strengthening exercises (abdominal-back-glutei muscles) (N=21) and a group(2) of standard physiotherapy with additional modified Qigong exercises (Ba-Dua-Jin) (N=21). A total of 8 sessions (twice/week) were provided and the recorded pre- and post-treatment outcome measures included pain (Short-form McGill-Pain-Questionnaire - SFMPQ), Disability (Oswestry Questionnaire-OSWQ) and Kinesiophobia (Tampa Scale Kinesiophobia-TSK). Paired t-tests and ANOVA were used to test for differences within and between groups. Significance was set at p=0.05.

Results: Within-groups differences for both groups [(1)–(2)] showed significant results for all outcome measures (SFMPQ: t=(9.13)-(11.36), p<0.001, OSWQ: t=(5.19)-(5.87), p<0.001, TSK: t=(5.97)-(5.25), p<0.001). Between-groups differences showed significance only for the Kinesiophobia (TSK: F=2.12, p*<0.05 *p=0.0475).

Conclusions: Qigong (modified Ba-Dua-Jin) as an add-on to a standard physiotherapy program in cLBP patients, proves to be more effective in treating Kinesiophobia rather than an abdominal-back-glutei strengthening program, in the short-term (1 month). Further research is warranted for longer-term results.

813

TEN-YEAR COURSE OF POST-AMPUTATION PAIN PREVALENCE AND THE IMPACT OF THE COVID-19 PANDEMIC: LONGITUDINAL DATA FROM A CONVENIENCE SAMPLE OF LOWER LIMB AMPUTEES

R. Bekrater-Bodmann[1]

[1]*Central Institute of Mental Health, Mannheim, Germany*

Methods: The data of n=55 unilateral lower limb amputees, collected between 2009 and 2022, were included. Three-month PLP and RLP prevalence was assessed at T1 (between 2009 and 2013), T2 (2019-2020, pre-pandemic; average time since T1: 8.7 ± 1.3 years), and T3 (2021-2022, peri-pandemic; average time since T2: 1.8 ± 0.5 years). Data were analyzed using the Cochran's Q test.

Results: PLP prevalence significantly differed between the three points in time, with post-hoc tests indicating a significant decrease from T1 to T2. The same pattern was found for RLP prevalence. Interestingly, there was a significant (RLP) and a tendential (PLP), respectively, increase in prevalence from pre- to peri-pandemic points in time. The effects cannot be attributed to reported pain treatments.

Conclusions: The results suggest a decrease of post-amputation prevalence over time which at least partly reversed in pandemic times. Further studies still have to elucidate the mechanisms (e.g., altered attention to pain; psychosocial stress) underlying the reported effects.

820

HOW WE (UN)LEARN PAIN FROM OTHERS: A REVISED SOCIAL LEARNING MODEL OF PLACEBO EFFECTS IN PAIN

E.A. Bajcar[1], P. Bąbel[1]

[1]*Jagiellonian University, Kraków, Poland*

Methods: The findings from experimental studies on observationally induced placebo hypoalgesia and hyperalgesia published after the original model was proposed were critically reviewed, and a revised model was proposed.

Results: The model represents the involvement of different types of modeling (i.e., behavioral modeling, symbolic modeling, and verbal modeling) in shaping placebo hypoalgesia/analgesia and nocebo hyperalgesia. The model explains the role of these three types of modeling in shaping pain-related expectancies. It also considers the role of individual characteristics of the observer (empathy trait and state) and the observed person (sex, self-confidence, social status) as moderators of placebo effects shaped through modeling.

Conclusions: The model shows that pain information provided by other people is effective and can be used, for example, to shape responses to medical procedures. Even limited information about the intensity of pain experienced by other people can effectively modify subsequent pain-related expectancies of the individual and generate placebo effects. Notably, the magnitude of placebo effects induced by social learning may be modulated by individual features of the participants of social interaction.

822

LOW-DOSE NALTREXONE COMPARED TO PLACEBO IN THE RELIEF OF FIBROMYALGIA PAIN: STUDY PROTOCOL OF A SINGLE-SITE RANDOMIZED CLINICAL TRIAL (INNOVA STUDY)

J.V. Luciano[1,2], J. Navarrete[1,2], J.P. Sanabria-Mazo[1,2], A. Colomer-Carbonell[1,2], C. Rodríguez-Freire[1,2], J. Younger[3], X. Borràs[2], A. Feliu-Soler[2], A. Rozadilla-Sacanell[1]

[1]Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Spain, [2]Autonomous University of Barcelona, Cerdanyola del Vallès, Spain, [3]University of Alabama, Birmingham, United States

Methods: This is the study protocol for a single-site, prospective, randomized, double-blinded, placebo-controlled, parallel design phase III trial. Eligibility criteria include being adult, having a diagnosis of FMS and experiencing pain of 4 or higher on a 10-point numerical rating scale. A total of 120 participants are ranzomized to LDN (4.5 mg/day) or to placebo. Clinical assessments are performed at baseline, 3 months, and 6 months. The primary endpoint is pain intensity. Assessment also includes daily ecological momentary evaluations of FMS-related symptoms and side effects via ecological momentary assessment during the first three months. Costs and quality-adjusted life years will be also calculated. Half of the participants in each study arm are scanned with magnetic resonance imaging at baseline and at 3-months follow-up for changes in brain metabolites related to neuroinflammation. Inflammatory biomarkers in serum are also measured.

Results: Results at 3 months are expected for end-March 2024, and 6-months follow-up in June 2024.

Conclusions: This is the first randomized, double-blinded, placebo-controlled phase III trial examining the add-on efficacy, cost-effectiveness, and neurobiological effects of LDN in patients with FMS. NCT04739995.

826

THORACIC PARAVERTEBRAL NEUROLYSIS FOR THE TREATMENT OF INTRACTABLE CHEST WALL PAIN CAUSED BY NEOPLASMS

Y.-C. Arai[1], M. Nishihara[1], T. Ikemoto[1], H. Saisu[1], K. Owari[1]

[1]Aichi Medical University, Nagakute, Japan

Methods: CT-guided thoracic paravertebral neurolysis with alcohol was performed for 8 patients suffering from intractable chest wall pain caused by neoplasms invading the chest wall and pleura. A numerical rating scale (NRS) of pain was recorded in order to investigate the effect of the thoracic paravertebral neurolysis on the intractable chest wall pain.

Results: Almost all patients experienced sound pain relief after the CT-guided paravertebral neurolysis. NRSs of the baseline ranged from 3 to 8 (Median, 6). The NRS significantly decreased in three weeks (Median of Day 1, 2.5; median of Day 7, 3; median of day 21, 2.5; Friedman test, $P<0.001$).

Conclusions: Thoracic paravertebral neurolysis with alcohol appears valuable for the treatment of intractable chest wall pain caused by neoplasms invading the chest wall and pleura.

828

SINGLE INTERVENTION, INTRAVENOUS LIDOCAINE FOR THE TREATMENT OF FIBROMYALGIA AS MEASURED WITH QUANTITATIVE SENSORY TESTING

T. Wodehouse[1], H. Scott[1], V. Mehta[1], K. Ullrich[1], S. Snidvongs[1]

[1]Barts NHS Trust, London, United Kingdom

Methods: In this case study we investigated the effect of a single intervention, intravenous infusions of lidocaine 2-4mg/kg body weight, using QST before and 3 weeks post treatment in eight patients with fibromyalgia.

Results: Patients with FM showed impaired conditioned pain modulation (CPM) prior to lidocaine, reverting to an efficient CPM response at three weeks following intravenous lidocaine (mean 54.3kPa vs 152.0 kPa cuff inflated). Four patients had an improvement in pressure pain thresholds (PPT).

Conclusions: This is the first reported observation highlighting the effects on CS following lidocaine infusion as measured by QST. A consistent and sustained improvement in CPM was observed and four patients had improvement in PPTs. Normalisation of the CPM response following lidocaine infusion indicates that the treatment may reduce CS in the FM population.

837

(PAIN) CATASTROPHIZING THROUGH THE EYES OF THE BEHOLDER: STORIES FROM BREAST CANCER PATIENTS

M.T.S. Holter[1], S.E. Reme[1]

[1]*University of Oslo, Oslo, Norway*

Methods: Participants (N = 8) were recruited from an RCT of pre- and post-surgical psychological interventions for preventing chronic pain and fatigue in women with breast cancer. Four participants were selected based on high or low "pain catastrophizing"-scores. Data were collected through interviews and diaries. The data were analysed as narratives and condensed into analytic poems, which were validated with the participants in follow-up interviews. The narratives were then categorized and analysed for preconditions, consequences, and (possible) turning points.

Results: The women lived in very different "stories", through which the trauma of breast cancer took on very different meanings. I describe how the type of stories might be partly shaped by life circumstances and events and contribute to pain catastrophizing, persistent fatigue, and pain. Changes to stories could be triggered by events such as the RCT interventions or memorable encounters with health care personnel.

Conclusions: Pain catastrophizing is not just a cognitive "style", but an understandable prediction based on a person's lived experience, embedded in his or her life story. A deeper understanding of catastrophizing, related stories, and how these stories may develop and change, may advantageously impact pain, suffering, and quality of life in those affected.

840

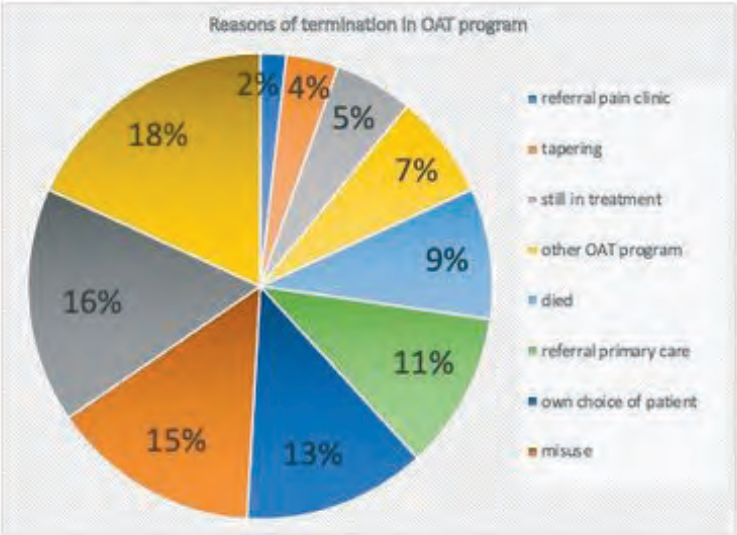
CARDIOVASCULAR DISEASES ARE THE MOST PREVALENT CAUSES OF DEATH IN CHRONIC PAIN PATIENTS WITH SUBSTITUTION THERAPY FOR OPIOID USE SYNDROME

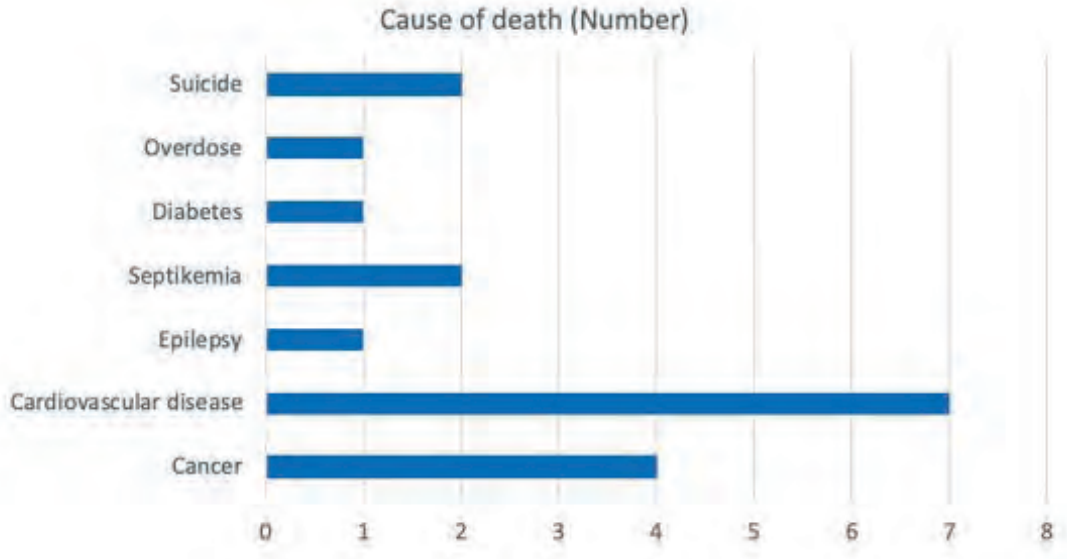
L. Katila[1], R. Karlsten[1], A. Rhodin[1]

[1]*Uppsala University Hospital, Dept. of Surgical Sciences, Uppsala, Sweden*

Methods: Observation study. All CPP accepted for OAT since 1993 were identified through journal notes and a previous study database. Data considering the reason of termination of treatment and cause of death were analyzed descriptively.

Results: In total, 232 persons (48,7% female) were identified. Average admission age was 48,57 y(19-75) SD 12,43. More than one third,(37%) of patients, are still treated. The most common reason for termination of treatment was opioid tapering (13%) or dose minimizing and referral to general practitioner (2%) or pain clinic (16%). In total, there were only 18 patients who died (8%) and of those majority died of cardiovascular diseases. Overdose was ascertained only in 1 case and suicide in 2 cases.





Conclusions: Cardiovascular diseases are the most prevalent causes of death in çhronic pain patients with substitution therapy of opioid use syndrome.

Substitution therapy with methadone or buprenorphine is mostly terminated because of the total opioid tapering or dose minimizing.

841

TRPA1 FUNCTIONALITY ASSESSMENTS AS NOVEL TOOL FOR PATIENT STRATIFICATION IN PERIPHERAL NEUROPATHY?

H. Marynissen[1], D. Bamps[1], H. Wildiers[2], P. Neven[2], E. Van Cutsem[2], J. de Hoon[1]

[1]KU Leuven, Leuven, Belgium, [2]UZ Leuven, Leuven, Belgium

Methods: Patients with CIPN, 1-12 months after paclitaxel (n=25) or oxaliplatin (n=33) treatment, were included, together with healthy controls (n=55). Neuropathic symptoms were recorded using the PainDETECT questionnaire. Thermal and mechanical detection/pain thresholds were determined using a thermode and von Frey filaments. TRPA1 functionality was assessed by measuring the vascular response for 60 minutes after topical application of cinnamaldehyde 10% on fingers with Laser Speckle Contrast Imaging. An unpaired t-test or Mann-Whitney-U-test evaluated statistically significant differences.

Results: The painDETECT questionnaire indicates similar pain phenotypes in both patient groups (Figure 1). Upon sensory profiling, both groups display mechanical allodynia, and mechanical and thermal hyposensitivity (Figure 2).

Whereas the vascular response to 10% cinnamaldehyde tends to be lower in paclitaxel-treated patients, it increases with oxaliplatin (AUC±SEM of 5561±262 PUs*min in controls vs. 7510±680 PUs*min after oxaliplatin, p<0.001 and 5014±259 PUs*min after paclitaxel, p=0.20, Figure 3).

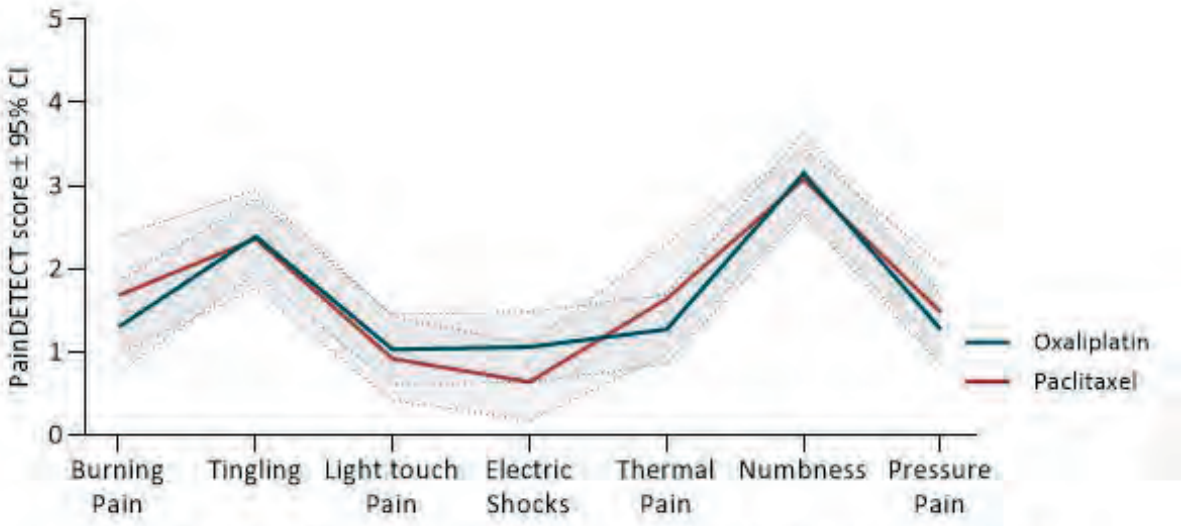


Figure 1. PainDETECT mean score ± 95% confidence interval (CI) of each item (scale 0-5) of patients with CIPN after oxaliplatin (n=33) or paclitaxel (n=25).

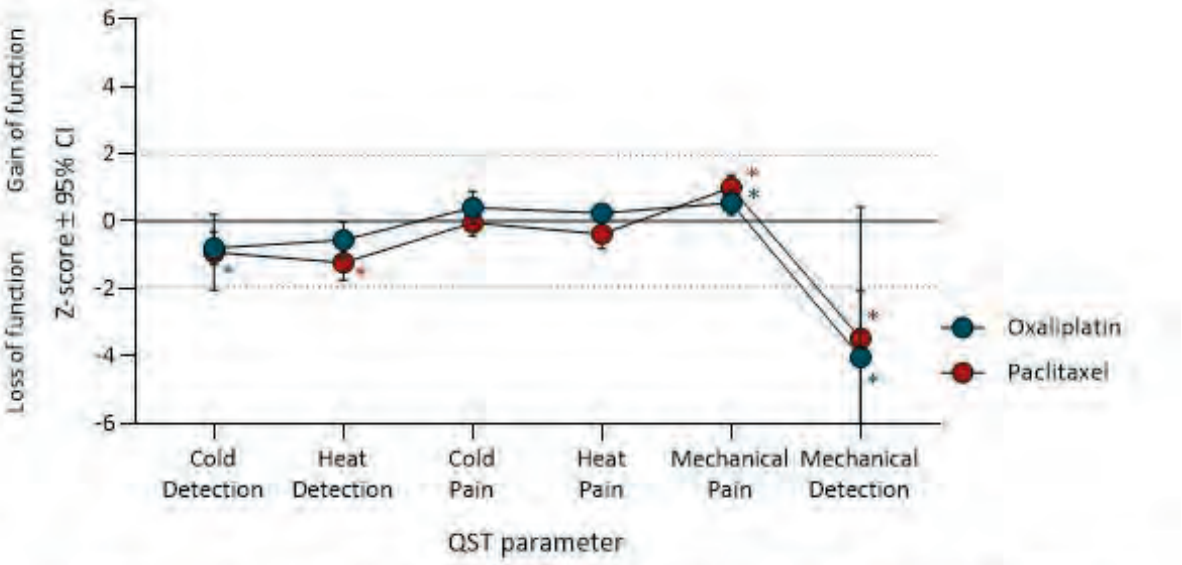


Figure 2. Sensory profile of patients with CIPN after oxaliplatin (n=33) or paclitaxel (n=25) using a thermode (method of limits) and von Frey filaments (up-and-down method) to assess the thermal and mechanical sensitivity, respectively. Z-scores are normalized to a control group of sex- and age-matched healthy volunteers (n=31 and n=24 for oxaliplatin and paclitaxel controls, respectively). Statistical analysis using a Mann-Whitney-U test, *p<0.05 is considered statistically significant.

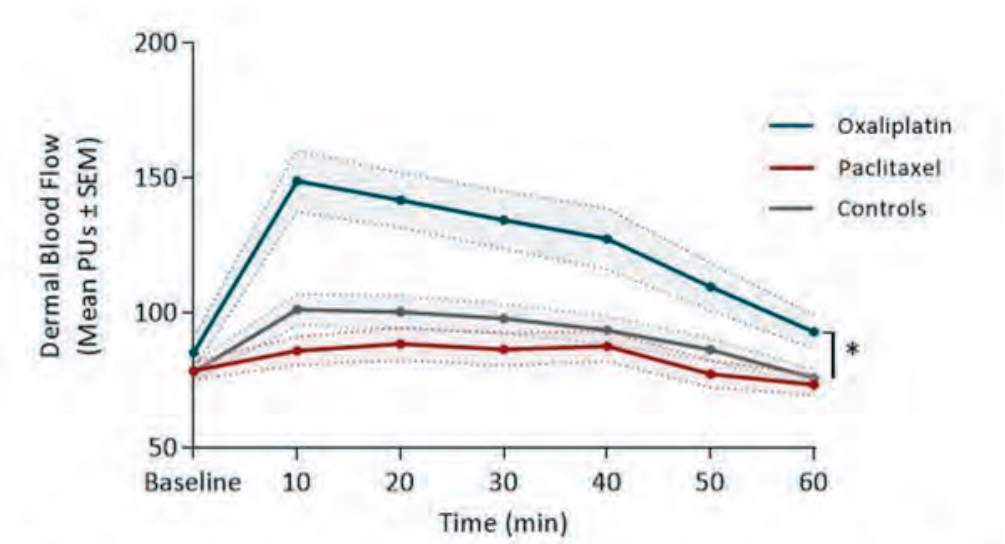


Figure 3. TRPA1-mediated vascular response to topical cinnamaldehyde 10% application in patients with CIPN after oxaliplatin (n=32) or paclitaxel (n=25), compared to age-matched healthy controls (n=55) expressed in perfusion units (PUs). Statistical analysis of the area under the curve (AUC) using an unpaired t-test, *p<0.05 is considered statistically significant.

Conclusions: Despite similar pain phenotypes, the TRPA1 functionality strikingly differs between patients with CIPN after oxaliplatin vs. paclitaxel. This suggests differences in pathophysiology and possibly predicts different treatment responses to TRPA1 antagonists. Therefore, TRP functionality assessments could enable additional patient stratification in peripheral neuropathy.

845

PAIN CONTROL MODALITY OF PANCREATIC CANCER PATIENTS: ANALYSIS OF THE HEALTH INSURANCE REVIEW AND ASSESSMENT SERVICE NATIONAL PATIENT SAMPLE DATABASE

J. Oh[1], J. Yeo[1]

[1]*Kyungpook National University Chilgok Hospital, Daegu, Korea, Republic of*

Methods: Evaluation of claims from 2009 to 2020 with the diagnosis of pancreatic cancer(ICD-10 code: C25) was conducted based on Korean healthcare in-hospital claims. After categorizing the claim data by year, the annual numbers of claims were analyzed. The numbers of opioid prescriptions and procedures claims were calculated by summation by year. Finally, we observed the trends of year-by-year change in each procedure by the graphs and calculated compounded annual growth rate of the claims of opioid prescriptions and each procedure.

Results: The rate of claims for pain management out of total claims also continued to increase. Opioid prescriptions accounted for most of the claims for pain management. With the increase in the cases of opioid prescriptions, the prescription dose for opioids also increased. The number of interventional procedures also increased over the years.

Conclusions: Claims for pain management in patients with pancreatic cancer are increasing, most of which are opioid prescriptions. Claims of opioids and interventional treatments have seen a higher rate of increase in claims since 2016. Our results provide primary data.

847

MEDIATION OF THE EFFECT OF ADVERSITY EXPOSURE ON CHRONIC PAIN BY BIOMARKERS

E. Beiner[1], S. Vock[1], J. Reichert[1], J. Tesarz[1]

[1]University Hospital Heidelberg, Heidelberg, Germany

Methods: Data of 115 FMS patients and 30 healthy controls was collected in a cross-sectional study, PerPAIN. Childhood trauma was assessed using the Childhood Trauma Questionnaire (CTQ). Biomarker were collected at baseline, including blood biomarkers, salivary cortisol and hair cortisol.

Results: A mediation analysis will be performed investigating whether childhood trauma mediates the relationship between chronic pain and HPA-dysregulation.

Conclusions: The HPA-axis is an important regulator of the stress response and of the adaption of biological processes to meet physiological challenges to homeostasis and evidence suggests changes in the stress systems through the experience of adverse life events in the childhood, resulting in long-term adaptions favoring the development of certain diseases, including chronic pain.

848

THE USEFULNESS OF DISEASE SPECIFIC SCREENING TOOLS OR SINGLE-ITEM GENERAL HEALTH MEASURES WHEN PREDICTING FUTURE DISABILITY IN PATIENTS WITH LOW BACK PAIN

C.R. Budtz[1], M.M. Rønnow[2], T.A.B. Stæhr[2], N.-B.d.V. Andersen[3], D.H. Christiansen[1,4]

[1]Regional Hospital Silkeborg, Silkeborg, Denmark, [2]Gødstrup Hospital, Herning, Denmark, [3]Central Denmark Region, Viborg, Denmark, [4]Aarhus University, Aarhus, Denmark

Methods: This longitudinal cohort study included 354 patients with low back pain from primary care physiotherapy. Information was collected on socio-demographics, common clinical factors, The STarT Back Screening Tool (SBT) and general health perceptions measured as a single item from the SF-36 (GH-1). Disability at 6-month follow-up, measured by the Roland-Morris Disability Questionnaire, was predicted using multiple linear regression models.

Results: Clinical factors and baseline disability level explained 28.3% of the variance in 6-month disability scores. With SBT and GH-1 risk subgroups added separately to the baseline model, the explained variance increased by 1.9 % ($p=0.01$) and 3.2% ($p<0.001$), respectively.

Conclusions: The added value of the disease specific screening tools or the single-item general measure when predicting disability in patients with low back pain was generally small. Moreover, the predictive value of the single-item general measure seems comparable to and slightly better than the disease specific screening tool. Overall these findings may question the clinical utility of such measures.

855

PROGNOSTIC MODEL WITH AN EMPHASIS ON MODIFIABLE FACTORS TO PREDICT CHRONIC PAIN AFTER A NEW EPISODE OF (SUB)ACUTE NONSPECIFIC NECK PAIN PRESENTING IN PRIMARY CARE

M. Verwoerd[1], H. Wittink[1], F. Maissan[1], S. van Kuijk[2], R. Smeets[3]

[1]University of Applied Sciences Utrecht, Utrecht, Netherlands, [2]University Maastricht, Maastricht, Netherlands, [3]Maastricht University, Maastricht, Netherlands

Methods: A prospective cohort study is conducted by physiotherapists in 30 primary physiotherapy practices between January 26, 2020, and August 31, 2022, with a 6- month follow-up until March 17, 2023. Patients who consult a physiotherapist with a new episode of (sub)acute neck pain completed a baseline questionnaire including candidate prognostic variables regarding their neck pain symptoms, prior conditions, work-related factors, general factors, psychological and behavioral factors. Follow-up assessments will be conducted at 6 weeks, 3 months, and 6 months after the initial assessment. The primary outcome measure is the Numeric Pain Rating Scale to examine

the presence of chronic pain. If the pain is present at 6 weeks, 3 months, and 6 months with a score of NPRS ≥3, it is classified as chronic pain.

An initial exploratory analysis will use univariate logistic regression to assess the relationship between candidate prognostic factors at baseline and outcome. Multiple logistic regression analyses will be conducted. The discriminative ability of the prognostic model will be determined. Internal validation will be performed using bootstrapping-resampling to yield a measure of overfitting and the optimism-corrected AUC.

Results: We included 600 patients.

Conclusions: Our analyses will be done before September 2023 and can be presented at the conference.

857

IDENTIFYING PH-SPECIFIC MU-OPIOID RECEPTOR AGONISTS BY DIFFERENTIAL MOLECULAR DOCKING

C. Secker[1], K. Fackeldey[1,2], M. Weber[1]

[1]Zuse Institute Berlin, Berlin, Germany, [2]Technische Universität Berlin, Berlin, Germany

Methods: We present a virtual drug discovery pipeline using constant pH molecular dynamics simulations, high-throughput ligand preparation, and binding affinity estimations for the identification of pH-specific drug candidates. We employ this pipeline to identify candidate molecules, which are predicted to strongly bind to the MOR at acidic pH, as found in inflamed tissue, but show lower predicted binding affinities to the MOR at neutral pH, as in healthy tissue.

Results: We confirm that NFEPP, a previously described fentanyl derivative with reduced side effects, shows an increased specificity for the MOR at acidic pH when compared to fentanyl. Additionally, we identify a morphine-like molecule with similar chemical modifications as NFEPP, which also demonstrates higher predicted binding affinities to the MOR at low pH compared to neutral pH.

Conclusions: Our results identify morphine and fentanyl derivatives as wells as structural analogs, which exhibit pH-specific binding to the MOR and could thus present novel opioid alternatives with the potential for reduced side effects and adverse events.

862

TOXICITY AND SAFETY TESTING OF PN6047 A DELTA OPIOID RECEPTOR AGONIST

K. Kenne[1], D. Kendall[1], B. von Mentzer[1], P. von Mentzer[1]

[1]Medicon Village, Lund, Sweden

Methods: Sixteen male and 16 female beagle dogs and a total of 124 male and female Wistar rats were allocated to the study. Rats were administered doses up to 500mg/kg and dogs up to 60mg/kg twice daily for 28 days. General health observations, body weight and food intake were monitored daily and blood samples taken for toxicokinetic assessment. At the end of the treatment period, all animals were subject to necropsy when the internal organs were examined for macroscopic and microscopic abnormalities. Separate groups of 4 dogs were monitored by telemetry for effects of the same dose levels on cardiovascular function. Groups of 6 rats were tested for behavioural effects (Irwin test) and groups of 8 for respiratory function (plethysmography).

Results: Twice daily administration of PN6047 HCl, by gavage, was well tolerated at all dose levels. Based on the above, the NOAEL (No Observed Adverse Effect Level) was considered to be 60 mg/kg BID in the dog, 100 mg/kg BID in the male rat and 500 mg/kg BID in the female rat. There were no significant behavioural, respiratory, or cardiovascular effects.

Conclusions: The results indicate that PN6047 is safe to enter human clinical testing.

863

ASSESSMENT TOOLS FOR PAINFUL CONDITIONS IN CHILDREN

T. Sanni[1], N. Shinde[2]

[1]Reckitt, Hull, United Kingdom, [2]Reckitt, Slough, United Kingdom

Methods: A systematic literature search was conducted in EMBASE and Pubmed using the Population, Intervention, Comparison and Outcome method. Clinical studies assessing pain in children within the last 10 years were included.

Table 1 - Summary of Search Strategy	
Patient, problem or population	Children (aged ≤18 years) experiencing pain, with a focus on acute and mild/moderate pain; **excluding** pre-term infants, neonates, procedural pain, cancer pain, palliative care, rare diseases, sickle cell, cerebral palsy, burn/scalding
Intervention	Any type of pharmacological interventions (analgesic, pain medication, pain killers, NSAIDs, paracetamol, etc) Over-the counter (OTC) or non-OTC at any dose and any formulation, including fixed-dose combinations (e.g., with caffeine, paracetamol, decongestants, expectorants, etc), **excluding** all studies where narcotics/opioids are the only intervention Any type of non-pharmacological or multimodal therapy for pain
Comparator	Ibuprofen, paracetamol, ibuprofen/paracetamol, other NSAIDs, narcotics/opioids, placebo, no treatment, non-pharmacological treatment, multimodal therapy
Outcome	Direct comparisons or ratings of the effectiveness of assessment tools in the diagnosis of pain; efficacy of interventions vs comparators according to pain type/location; differences between self-care vs primary vs secondary care; options and availability; treatment patterns and preferences
Timing	Citations published in the last 10 years
Publication	Full publications in English; excluding conference abstracts and posters
Study type	Any study design or duration, excluding case studies/reports with only one patient
Common reasons for exclusion	Studies that did not mention pain assessment Condition/pain type not relevant to this review (e.g., sickle cell disease, cerebral palsy, cystic fibrosis, haemophilia, burns, Rett syndrome, neuronal ceroid lipofuscinosis, spina bifida, neonatal pain, Ehlers-Danlos) Prevalence study Safety/tolerance study Not an intervention study Efficacy study not focusing on effectiveness of NSAIDs No comparator Pain outcomes not reported

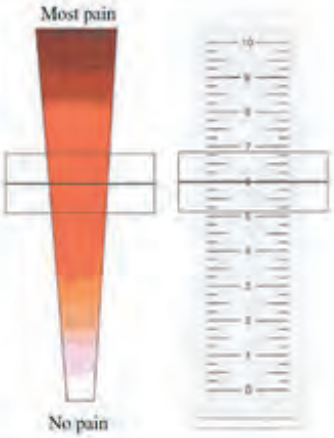
Results: Of the 2286 papers identified, 40 were included in this analysis. A number of assessment tools were identified; key findings are summarised in Table 2.

Table 2 - Summary of 40 studies assessing pain in children

Age group	N	Summary of study results
0 – 18 years	26 studies	There was heterogeneity in patient populations, age ranges, pain types, study design and methodology, and assessment tools used. Although most scales correlate with one another, disagreement exists between some self-report pain scales. • NRS: tends to produce the highest scores of pain intensity compared with the other to the VAS, CAS. FPS-R scales. • Bai et. al (2012) showed FLACC has high sensitivity (~98%) and good specificity (~88%) for the prediction of pain; better than COMFORT-B which showed good sensitivity (86%) and specificity (83%). • Da Silva et.al (2011) showed FLACC also had good internal consistency (Cronbach α coefficient = 0.76). • Voepel-Lewis T, et.al (2011) showed changes in pain score associated with specific pain scales are useful when evaluating pain-relieving interventions. NRS scores >4 had good sensitivity (0.81) and specificity (0.70) to discriminate "no need" for analgesia, but with a large number of false positives and negatives (e.g., 42% of children with scores >4 did not need analgesia) Von Baeyer et.al (2011) study showed parents rated the youngest age at which children aged 3-7 yrs undergoing day surgery could understand the FPS-R scale to assess postoperative pain was 4.4 years.
0 -18 years	2 systematic reviews	• The cognitive and psychological development of adolescents requires multidimensional and specific pain assessment scales • No tools for the evaluation of adolescent pain were validated in the Italian language • NRS-11, FPS-R and CAS have the strongest recommendations for the assessment of acute pain • The NRS-11 now has the greatest number of studies assessing its measurement properties in children younger than 18 years, closely followed by the FPS-R. The Pieces of Hurt and Oucher scales have little or no new evidence over the past decade • The value of self-report of pain must be emphasised, given the subjectivity of pain experience and the lack of regular pain assessment and documentation in clinical care • No self-report pain intensity measures were recommended for children younger than 6 years, identifying a need for further measurement refinement in this age range
0 – 3 years	5 studies	• The expression of pain in children younger than 3 years is essentially nonverbal and inferred from behavioural responses • There are sensitive and specific indicators of persisting pain in hospitalised children under the age of 3 years • Behavioural pain scales involve observing the child to assess pain. Facial expressions, bodily movements and physiological modifications can be present when a child experiences pain • Pain scales might be more appropriate for parents to detect pain in young children than parental interviews • Without pain scales, parents may underestimate and thus undertreat their child's pain
Special need children	7 studies	• These studies provide unique insights into everyday pain in special needs populations • Pain is a neglected problem in children with special needs, and they may have a limited capacity to self-report or explain their symptoms; as such, their pain may be undertreated • The significance of pain in this population must be recognised • Although specific pain scales are available for children with special needs, few studies compare their clinical use • Self-report assessment tools may be appropriate for use in certain groups of children with developmental disability, but the needs of individual children must be considered and may dictate which assessment tools can be effectively used • Student, parent and teacher perspectives are needed to develop a comprehensive understanding of pain in students with special needs and varying abilities to self-report pain experiences • Pain must be assessed regularly – children with motor disabilities may experience pain during daily care activities, and it is feasible to integrate continuous monitoring of their pain into daily clinical practice using existing pain assessment scales • Pain assessment should take into account pain behaviour, such as body movements or facial expressions, changes in levels of activity, sleep behaviour and function, and maladaptive behaviour, to assist with effective pain detection • Feedback from parents and nurses on existing pain assessment tools has indicated that although some are more useful and can provide a more accurate measure of a child's pain than others, an ideal tool may be a composite of the best features from currently available methods of pain assessment to better identify the child's pain signs and symptoms • To improve practice, special needs school nurses call for additional education, evidence-based guidelines and smaller caseloads to increase time spent with their students

N = Number of studies, NRS= Numeric Rating Scale, VAS= Visual Analogue Scale, CAS = Colour Analogue Scale, FPS-R= Faces Pain Scale – Revised, FLACC= Face, Legs, Activity, Cry, Consolability

All types of assessment tools identified in the studies are summarised in Figure 1.

Tool	Target population	Scoring system	Scale
Visual scales (self-reported)			
Visual Analogue Scale (VAS)[71]	5 years and older	Child selects a point on a line representing pain intensity; start of the line indicates no pain and end of the line indicates worst possible pain	Typically, 0–10 cm or 0–15 cm (no pain 0, very strong pain 10 or 15, whichever is the maximum) and cm or mm units can be used 
Numerical Rating Scale (NRS)[59,71]	7 years and older	Ask the patient to assign a number to their pain, with 0 being no pain and 10 the worst pain ever	0–10 (mild 0–3, moderate 4–6, severe 7–10) 
Faces Pain Scale—Revised (FPS-R)[59,71,72]	4–12 years old	Picture-based scale where child selects one of six faces to represent their pain experience	0–10 (mild 0–3, moderate 4–6, severe 7–10) 
Colour Analogue Scale (CAS)[73,74]	8 years and older	Pocket-sized measure (10 cm in length) with colour gradations from small and white to wider and deep red reflecting increases in pain intensity	
Observational/behavioural scales (reported by observer)			
Revised Face, Legs, Activity, Cry, Consolability (rFLACC)[59]	2 months–7 years old, or non-verbal/ cognitively impaired patients of any age	Five behaviour items, each scored from 0 to 2 to a total of 10 points	0–10 (mild 0–3, moderate 4–6, severe ≥7)
Objective Pain Scale (OPS)[71]	8 months to 13 years, for postoperative pain	Observational scale including five categories of pain behaviour: crying, movement, agitation, posture and verbal	A score from 0–2 is assigned to each activity, for a maximum score of 10
Children's Hospital of Eastern Ontario Pain Scale (CHEOPS)[71]	1–7 years old, for postoperative pain	Observational scale including six categories of pain behaviour: cry, facial, verbal, torso, touch and legs	A score from 0–2 or 1–3 is assigned to each activity, for a total score of 4–13

Conclusions: Many tools are available for pain assessment, however, a consistent approach in terms of which tool should be used for which age group, type of pain and developmental need is lacking.

Given the subjectivity of the pain experience, the ability of a child to accurately self-report their pain is invaluable. Child and parent reporting of pain may not always align, as a child may report pain when the parent does not. Although proxy reports still provide valuable information, children's self-reports are always preferred.

The ideal pain assessment tool should be sensitive and free from bias, have good internal consistency across scale items, have good inter-rater reliability, have good construct validity, have good specificity and be reproducible.

864

PAINTOO PROJECT: DIFFICULTIES AND NEEDS OF CAREGIVERS AND HEALTH PROFESSIONALS IN THE ASSESSMENT OF PAIN IN CHILDREN WITH SEVERE INTELLECTUAL DISABILITIES

E. Solé[1,2], R. Martínez-Leal[3,2], J. Miró[1,2]

[1]Universitat Rovira i Virgili, Unitat per a l'Estudi i Tractament del Dolor – ALGOS, Investigació en Dolor, Centre d'Investigació en Avaluación i Mesura de la Conducta (CRAMC), Department of Psychology, Tarragona, Spain, [2]Institut d'Investigació Sanitària Pere Virgili, Universitat Rovira i Virgili, Tarragona, Spain, [3]Intellectual and Developmental Disorders Research Unit (UNIVIDD), Fundació Villablanca, CIBERSAM, Reus, Spain

Methods: Four focus groups are being conducted: two with 6 to 8 caregivers of these children and two with 6 to 8 health professionals who usually care for children with severe intellectual disabilities. A caregiver is any individual acting as the child's primary caregiver, whether or not is one of her or his parents. The group of health professionals includes professionals with different educational backgrounds and training: pediatricians, anesthesiologists, nurses, physiotherapists, and psychologists. The focus groups are conducted online on Microsoft Teams and video recorded. These recordings are transcribed verbatim, and the data are qualitatively analyzed using Atlas.ti. This study has received the approval of the Ethics Committee of the Universitat Rovira i Virgili (CEIPSA-2021-PR-0025).

Results: We are finishing up with data collection. The data will describe what are the main difficulties and barriers, and needs, as perceived by caregivers and health professionals to identify whether children with severe intellectual disabilities are in pain.

Conclusions: The findings from this study will help improve pain assessment in children with severe intellectual disabilities. The data will be used to develop a mobile app-based training program to help caregivers and healthcare professionals caring for this population.

866

CHARACTERIZATION OF THE EFFECTS OF SPARED NERVE INJURY ON PAIN AND SLEEP ARCHITECTURE IN MICE

W. Dai[1], T. Kilpeläinen[1], A. Lundén[1], M.-K. Koskinen[2], H.-K. Wigren[2], E. Kalso[3,4], V. Palada[1]

[1]Department of Physiology & SleepWell Research Program, Faculty of Medicine, University of Helsinki, Helsinki, Finland, [2]SleepWell Research Program, Faculty of Medicine, University of Helsinki, Helsinki, Finland, [3]Department of Pharmacology and SleepWell Research Programme, University of Helsinki, Helsinki, Finland, [4]Department of Anaesthesiology, Intensive Care and Pain Medicine, Helsinki University Hospital, Helsinki, Finland

Methods: Experiments were performed for sham, SNI, EEG+SNI and EEG+sham female and male mice (n=7 animals/gender/group). HD-X02 implants (DSI, Harvard Bioscience) simultaneously recorded the EEG, EMG, temperature and locomotor activity. Recordings were done for 72h at the baseline and at 7, 14 and 21 days after the SNI. Sleep scoring was performed by Spike 2. Mechanical and thermal hyperalgesia were assessed using Von Frey filament test, dynamic test, hot and cold plate testing.

Results: Total amount of wakefulness was increased in SNI mice at 7 and 14 days after nerve injury compared to sham controls. Number of REM sleep epochs was reduced in SNI mice during the light phase compared to sham controls. Power density analysis revealed a significant reduction in delta waves (0-4 Hz) in male SNI mice 21 days after nerve injury.

Conclusions: Our results provide a detailed insight into the effects of neuropathic pain on sleep-wake cycle in mice and might be highly relevant to better understand the mechanisms behind the comorbidity between sleep and pain.

870

UNDERSTANDING DECISION-MAKING IN PAIN THROUGH THE EXPLORATION-EXPLOITATION DILEMMA

M. Alves[1,2], B. Seymour[3], G. Crombez[2], J. Vlaeyen[1,4], A. Krypotos[1,5]

[1]KU Leuven, Leuven, Belgium, [2]UGhent, Ghent, Belgium, [3]Oxford University, Oxford, United Kingdom, [4]Maastricht University, Maastricht, Netherlands, [5]Utrecht University, Utrecht, Netherlands

Methods: Individuals experiencing chronic pain (n= 100) and healthy controls (n= 100) completed an online 4-armed bandit task. At each trial, four squares were displayed on the edges of a computer-screen and participants had to freely select one square by using a mouse. Each square was associated with independent and non-stationary probabilities of receiving a reward (i.e., points) and/or punishment (i.e., pain-related pictures).

Results: We used computational models to decompose the behavioural data into mathematical parameters (e.g., learning rate). Our results revealed no differences between groups in terms of model parameters suggesting that individuals experiencing chronic pain and healthy individuals similarly solve the EED. Nevertheless, some individual characteristics (e.g., fear of pain) impacted differently the EED according to the group.

Conclusions: This study provides evidence of how individuals experiencing chronic pain and healthy controls solve the EED. The combination of behavioural data, individual differences, and computational models helps to understand decision-making in pain context.

871

CENTRAL SENSITIZATION AND PAIN SENSITIVITY ARE ASSOCIATED TO BALANCE CONTROL IN PATIENTS WITH MIGRAINE

G.F Carvalho[1], T.M Szikszay[1], A. Sennholz[1], T. Marusich[1], K. Luedtke[1]

[1]University of Lübeck, Lübeck, Germany

Methods: Demographic and clinical information were obtained (n=50), further than central sensitization inventory (CSI) and pain catastrophizing (PCS) scores. Patients undergo to a standardized protocol assessing their pain thresholds for cold, heat, mechanical punctuate and pressure in V1 and C6 dermatomes. Balance was assessed in an upright position over a foam surface and closed eyes. Person's correlation, linear regression models, and contrasting presence and T-tests were used to analyze the data.

Results: Mild to moderate correlations were observed between balance and mechanical pain threshold in V1 (r= -0.24, *p*= 0.046) and C6 (r= -0.41, *p*= 0.002), cold pain threshold in V1 (r= 0.31, *p*= 0.026), CSI scores (r= 0.27, *p*= 0.029) and migraine frequency (r= 0.25, *p*= 0.040). Patients' balance is explained by cold pain threshold in V1 and mechanical pain threshold in C6 and V1 (R^2= 0.32, $F_{4,45}$= 5.40, p= 0.001). Patients' central sensitization inventory scores is explained by PCS scores (0.44) and by balance (R^2= 0.28, $F_{2,47}$= 8.97, p= 0.001). Patients with CSI>40 presented a greater balance impairment in contrast to patients with CSI<40 (*p*= 0.044).

Conclusions: Balance impairment is associated with reduced pain thresholds and higher central sensitization levels. These results can help to elucidate the etiology of balance alterations among chronic pain conditions.

872

IS THERE A DIFFERENCE IN THE ANALGESIC RESPONSE TO INTRA-ARTICULAR BUPIVACAINE INJECTION IN KNEE OSTEOARTHRITIS PAIN WITH OR WITHOUT CENTRAL SENSITISATION?: A FEASIBILITY RCT PROTOCOL

Y. Zedan[1,2,3], R. Knaggs[4], D. Cooper[5], T. Kurien[3,6], D.A. Walsh[3,7], D. Auer[1,2,3], B. Scammell[3,6]

[1]Radiological Sciences, Mental Health & Clinical Neurosciences, School of Medicine, University of Nottingham, Nottingham, United Kingdom, [2]Sir Peter Mansfield Imaging Centre, School of Medicine, University of Nottingham, Nottingham, United Kingdom, [3]Pain Centre Versus Arthritis, School of Medicine, University of Nottingham, Nottingham, United Kingdom, [4]Clinical Pharmacy Practice, School of Pharmacy, University of Nottingham, Nottingham, United Kingdom, [5]School of Allied Health Professions, Keele University, Keele, United Kingdom, [6]Academic Orthopaedics, Trauma and Sports Medicine, School of Medicine, University of Nottingham, Nottingham, United Kingdom, [7]Academic Rheumatology, School of Medicine, University of Nottingham, Nottingham, United Kingdom

Methods: The study is a feasibility, double-blinded, placebo-controlled randomised parallel study in participants with chronic knee OA pain. It involves: 1) psychometric questionnaires; 2) Quantitative Sensory Testing; 3) brain and knee MRI scans; 4) a 6-Minute Walk Test; and 5) an intra-articular injection of bupivacaine or placebo (sodium chloride 0.9%) into the index knee. Assessments will be repeated post intra-articular injection apart from the knee MRI scan.

Results: Recruitment was initiated in late 2022. ClinicalTrials.gov identifier: NCT05561010.

Conclusions: This protocol describes a trial design that is expected to provide proof-of-concept and to power a mechanistic trial investigating the analgesic response to intraarticular bupivacaine. This work is supported by Versus Arthritis Pain Centre.

873

COMPARISON OF TWO PAIN ASSESSMENT TOOLS

E.Ø. Rotevatn[1], M. Engan[1], E. Stensaker[1], K.O. Hufthammer[1], L.J. Rygh[1]

[1]Haukeland University Hospital, Bergen, Norway

Methods: To compare GRASP and vNRS, 102 healthy adult volunteers were invited to undergo two subsequent standardized tests of cold-triggered pain by a cold pressor test (CPT) at 3 degrees centigrade. Pain intensity was in a randomized manner reported by vNRS (scale 0-10) or by squeezing GRASP (millivolt) during the two CPTs. To study the association of repeated GRASP measurements, a third CPT was conducted one to fourteen days later and participants reported pain by GRASP a second time. The subjects reported their experience of using GRASP in a purpose-made questionnaire.

Figure 1. GRASP

Results: In total, 99 subjects completed all three tests (59 females). The association of pain intensity reported by GRASP and vNRS was moderate with mean Kendall's *τ* coefficient (*τ*) of 0.53 (95% confidence interval (CI) 0.47-0.58). The association between the repeated GRASP measurements was also moderate with a mean *τ* of 0.43 (95% CI 0.37-0.48). Most participants reported that GRASP was intuitive and easy to use.

Conclusions: Pain intensity reported by squeezing GRASP showed a moderate association with pain intensity reported by vNRS during CPTs. The association between pain intensity reported by GRASP during two CPTs on separate days was also moderate, but lower than that between GRASP and vNRS.

878

DECREASED CORTICAL EXCITABILITY IN THE FRONTAL CORTICAL AREAS DURING EXPERIMENTAL PAIN: A TMS-EEG STUDY

E. De Martino[1], A. Casali[2], S. Casarotto[3,4], G. Hassan[3], M. Rosanova[3], T. Graven-Nielsen[1], D. Ciampi de Andrade[1]

[1]Center for Neuroplasticity and Pain, Aalborg University, Aalborg, Denmark, [2]Institute of Science and Technology, Federal University of São Paulo, São Paulo, Brazil, [3]Department of Biomedical and Clinical Sciences University of Milan, Milan, Italy, [4]IRCCS Fondazione Don Carlo Gnocchi, Milan, Italy

Methods: TMS-EEG was used in 24 healthy individuals in the M1 and DLPFC. TMS-EEG was recorded before (BASELINE), during noxious heat (PAIN) and innocuous warm (WARM) stimuli for 8 minutes at the right forearm, in a randomized sequence. A last round of TMS-EEG measurements was performed after the interventions (POST). Cortical excitability was evaluated by measuring the first EEG component triggered by TMS. This component comprised a negative deflection at 13±4ms in both cortical areas and a positive deflection at 22±3ms for DLPFC stimulation and 40±7ms for M1 stimulation, detectable at the electrodes close to the TMS coil.

Results: Compared with WARM, decreased peak-to-peak amplitude was observed during PAIN in the DLPFC and M1 (both $P<0.05$). No significant changes were found in the peak-to-peak amplitude from BASELINE to POST in the DLPFC and M1 ($P>0.05$).

Conclusions: These data show that acute heat pain is associated with decreased cortical excitability in M1 and DLPFC and may pave the way for developing novel non-invasive cortical stimulation protocols to treat pain.

880

SENSORY NEURON-ENRICHED PROTEOMICS OF MURINE DORSAL ROOT GANGLIA (DRG)

J.R. Sondermann[1], F. Xian[1], D. Gomez-Varela[1], M. Schmidt[1]

[1]Department of Pharmaceutical Sciences, University of Vienna, Vienna, Austria

Methods: Mice expressing a modified version of BioID (biotinylation identification), a biotin ligase, under the sensory neuron-specific promotor Advillin (and controls not expressing BioID) were fed with biotin for 7 days. Subsequently, DRG were excised and lysed. All biotinylated proteins were captured via streptavidin-mediated purification and analysed by quantitative mass spectrometry. Identified and quantified proteins were subjected to pathway analysis to check for enrichment of neuronal proteins/functions.

Results: Proteins found to be enriched in BioID samples were annotated to a variety of cellular locations and functions. Many were associated with neuronal functions, like nociceptor-enriched ion channels (e.g. Nav1.8) as well as Piezo2, characteristic for mechanoreceptive sensory neurons. Importantly, we could delineate these neuronal signatures from known constituents of non-neuronal cell types of DRG, such as glial cells, validating our methodology.

Conclusions: We present for the first time a sensory neuron-enriched proteome of murine DRG. These results and the here applied methodology pave the way towards the future identification of neuron subtype-specific proteome dynamics induced by pain – knowledge of high significance for mechanism-based preclinical pain research.

885

WHAT ARE THE STRATEGIES USED BY PEOPLE WITH CHRONIC LOW BACK PAIN VERSUS HEALTHY CONTROLS TO SOLVE THE LEFT-RIGHT JUDGMENT TASK?

N. García-Dopico[1,2,3], O. Velasco-Roldán[1,2,3], A.M. González-Roldán[1,4,3], J.L. Terrasa[1,4,3], F. Parmentier[1,4,3], C. Sitges[1,4,3]

[1]University of the Balearic Islands, Palma, Spain, [2]Department of Nursing and Physical Therapy, Palma, Spain, [3]Fundación Instituto de Investigación Sanitaria Islas Baleares (IdISBa), Palma, Spain, [4]Deparment of Psychology, Palma, Spain

Methods: A one-session of the LRJT was performed (240 images of the back, 120 contextual and 120 non-contextual, 30 for each rotation angle (0º, 90º, 180º, 270º)). Participants had to determine the laterality of the images. Afterward, they answered a self-reported questionnaire reporting the strategies used to solve the LRJT.

Results: Of the CLBP participants (N=31, 58% women, aged 44.4±8.85), 3.2% declared using exclusively MR strategies, whereas 41.93% only imagined movements to solve the task. None of the HC (N=32, 56.3% women, aged 36.6±14.9) relied exclusively on MR, but 28.1% did on imagining. Combined MR-imagining strategies were used by 54.8% of CLBP participants and 28.1% of HC. “I have imagined myself performing movements” was the most endorsed strategy for both groups (70.9% and 78.1%, respectively).

Conclusions: Preliminary results suggest motor imagination processes are involved in solving the LRJT. Further analyses on the accuracy and reaction times of the LRJT must be performed.

888

ADJUNCTIVE USE OF HYPNOSIS FOR CLINICAL PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

H. Jones[1,2], R. Rizzo[3,4], F. Braithwaite[2], A. Grant[2], J. McAuley[3,4], M. Jensen[5], L. Moseley[2], A. Rees[2], T. Stanton[2]

[1]Kings College London, London, United Kingdom, [2]IIMPACT, University of South Australia, Adelaide, Australia, [3]Centre for Pain IMPACT, Neuroscience Research Australia, Sydney, Australia, [4]School of Health Sciences, University of New South Wales, Sydney, Australia, [5]University of Washington, Seattle, United States

Methods: Seven databases (MEDLINE, Embase, PsycINFO, Emcare, SCOPUS, CENTRAL, Cochrane) were searched from inception–October 22, 2022. Randomised controlled trials comparing analgesic effects of adjunctive hypnosis (hypnosis + primary intervention) to those of the primary intervention alone in adults with pain (any type/duration) were included. Meta-analyses (random-effects model) calculated Mean Differences (95% Confidence Intervals) for pain intensity (0-100).

Results: Seventy-nine studies (n=6412) were included with 61 (n=4847) pooled. Hypnosis adjunctive to usual care had a small additional analgesic effect for chronic pain (MD:-5.2 [-8.5, -1.9]; n=768), medical procedures/surgical pain (MD:-7.4 [-11.2, -3.7]; n=2665), and wound care (MD:-8.8 [-13.8, -3.9]; n=252). Hypnosis adjunctive to education had a medium additional analgesic effect for chronic pain (MD:-11.5 [-19.7, 3.3]; n=109), but not post-surgery pain (MD:-2.0 [-7.8, 3.7]; n=341). Hypnosis adjunctive to psychological interventions did not increase analgesia in chronic pain.

Conclusions: Adjunctive hypnosis appears promising for enhancing analgesia for some interventions/populations, although conclusions are limited by moderate-high risk of bias. Clarification of proposed therapeutic targets of adjunctive hypnosis to evaluate underlying mechanisms is warranted.

891

SEX DIFFERENCES IN THE RISK OF CHRONIC PAIN AT MID-LIFE: A SYSTEMATIC REVIEW AND META-ANALYSIS

C. Borra[1,2], J. Pawson[2], N. Rich[1], R. Hardy[3,1]

[1]University College London, London, United Kingdom, [2]Barts Health NHS Trust, London, United Kingdom, [3]Loughborough University, Loughborough, United Kingdom

Methods: We conducted a systematic review of the existing literature to investigate CP prevalence by sex and the difference in CP between sexes at mid-life (age 40-60). The literature search was conducted on MEDLINE, EMBASE, AMED and PSYCHinfo. Random effects meta-analysis was used to estimate the relative risk (RR) for sex difference in CP.

Results: Eighteen eligible articles provided information on CP prevalence and demonstrated substantial variation in prevalence for both sexes. All but two studies found a higher prevalence of CP in females than in males. Based on a meta-analysis of seven studies, the overall RR was 1.19 (95% CI 1.13-1.26) for females compared with males with no evidence of heterogeneity. In subgroup analyses, the RR was lower for generic CP (1.19, 95%CI 1.13-1.25) than for fibromyalgia (FM) (3.13, 95%CI 1.22-8.04) although there were only two FM studies of small sample size.

Conclusions: Our review found that females are more likely to experience CP at mid-life and that there is little heterogeneity in the sex difference despite great variation in prevalence. The sex difference may be greater for FM but larger studies of FM are needed to provide more precise estimates.

897

COMPLEX REGIONAL PAIN SYNDROME DURING REHABILITATION OF A PATIENT WITH MULTIPLE SCLEROSIS – A CASE STUDY

G. Fazekas[1,2], E. Papp[1], E. Dudas[3], K.A. Béres-Molnar[3]

[1]National Institute of Locomotor Diseases and Disabilities – National Institute for Medical Rehabilitation, Budapest, Hungary, [2]University of Szeged, Szeged, Hungary, [3]Szent Janos Hospital, Budapest, Hungary

Methods:

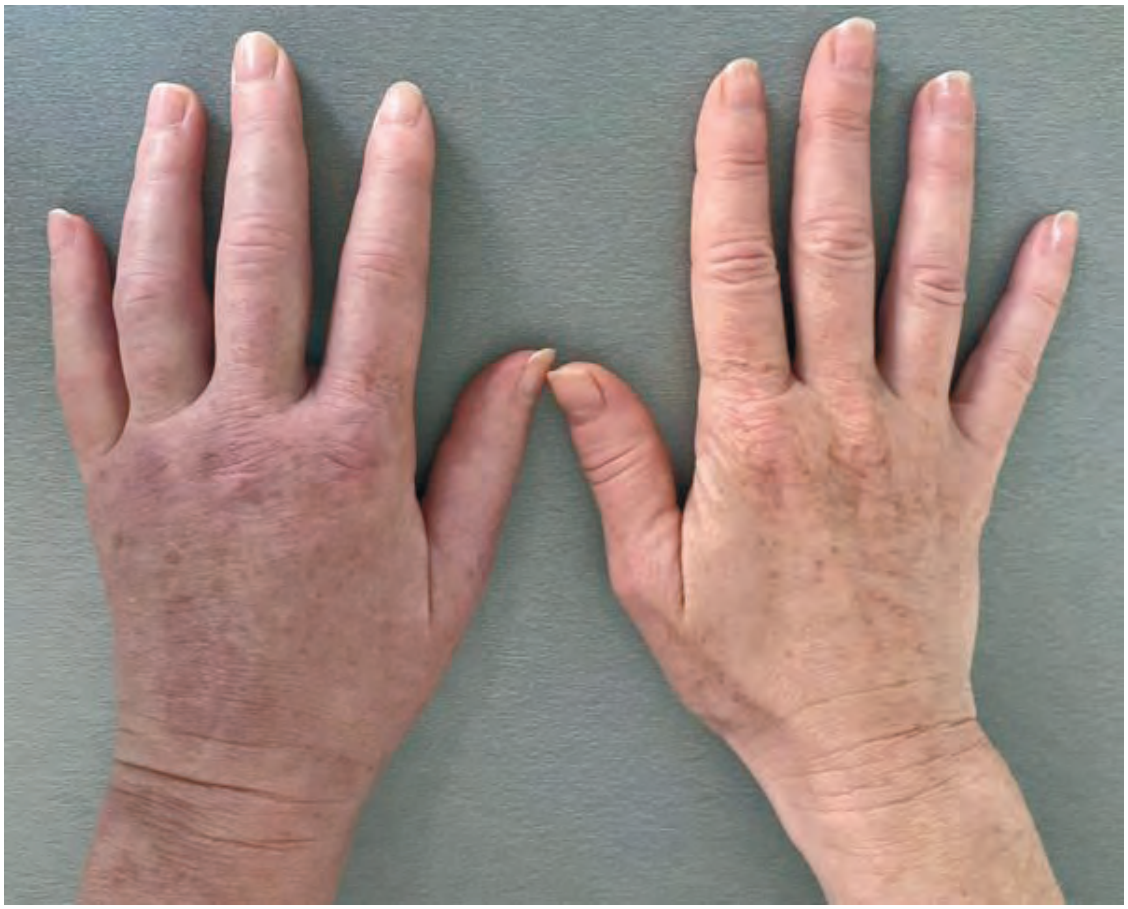


Fig. 1.

The 46-year-old woman was admitted to the Neurological Department due to tetraparesis, vomitus, incontinence, consciousness disturbance. Her first MS episode was diagnosed. She received high dose steroid, without effect. Then she got plasmapheresis and alemtuzumab. She was transferred to the Rehabilitation Unit in a stabilized state. In the 4th week of the rehabilitation programme her left hand became swollen, livid, painful (Fig.1). According to the Budapest criteria CRPS was diagnosed.

Results: By the 5th week of rehabilitation the patient became able to walk without aid, regained the right upper limb function and executed activities of daily living independently. Nevertheless, the signs and symptoms on the left hand still remained, in spite of the administration of non-steroids, bisphosphonate, Vitamin D3, Ca-pills, pregabalin and physiotherapy. Due to the lack of improvement, she received a steroid cure per os, after it the oedema and pain decreased. The steroid was stopped and the previously described medication was continued. 3 months later taking medicines could be discontinued except for the Vitamin D3 and Ca-pills. 6 months after the onset of the CRPS there were no symptoms or functional deficit in the left hand.

Conclusions: Management of the CRPS requires individual solutions. To improve the therapeutic effect a short, intensive steroid cure is a considerable choice even nowadays.

898

CHARACTERISTICS OF PAIN AND SLEEP QUALITY OF CANCER PATIENTS: AN OBSERVATIONAL STUDY FROM TERTIARY HOSPITAL IN BALI, INDONESIA

E.H. Tedyanto[1], I.A.S. Wijayanti[1], IP.E. Widyadharma[1]

[1]Department of Neurology, Faculty of Medicine, Udayana University, Denpasar, Bali, Indonesia

Methods: This is an observational analytical study. The data was obtained from cancer patients hospitalized in Professor Ngoerah General Hospital in Denpasar, Bali, Indonesia, from January 2022 to June 2022.

Results: There were 48 males and 96 females with a mean age of 53.92 (51.8 – 56.01) in this study. About 111 patients had chronic pain, and 105 patients experienced breakthrough pain. During the examination, 57 patients (39.6%) had moderate pain intensity, and 48 patients (33.3%) had mild pain intensity, with a mean pain scale of 3.73. Of 144 patients, only 67 (46.5%) who prescribed opioids. Ninety-nine patients had poor sleep quality assessed by PSQI, 96 patients with mild sleep difficulty, and three with moderate sleep difficulty. There was a significant positive correlation between the pain scale and sleep quality. Patients with metastases tumor and bone metastases were more likely to experience breakthrough pain (OR 3.02 and OR 3.3)

Conclusions: This study provides information about pain characteristics in cancer patients, which is helpful for clinical and future research. Comprehensive management of cancer pain is needed to improve the quality of life of cancer patients

---

899

POSTOPERATIVE OPIOID USE IN NORWAY – PATTERNS OF PROLONGED USE

S.M. Vambheim[1,2], V. Hjellvik[3], I. Odsbu[3], A. Stubhaug[1,4], S. Skurtveit[3,5], P.-J. Samuelsen[6]

[1]Department of Pain Management and Research, Oslo University Hospital, Oslo, Norway, [2]Department of Research and Development, Division of Emergencies and Critical Care, Oslo University Hospital, Oslo, Norway, [3]Department of Chronic Diseases, Division of Mental and Physical Health, The Norwegian Institute of Public Health, Oslo, Norway, [4]Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Oslo, Norway, [5]Norwegian Centre for Addiction Research (SERAF), Institute of Clinical Medicine, University of Oslo, Oslo, Norway, [6]Regional Medicines Information and Pharmacovigilance Centre (RELIS), University Hospital of North Norway, Tromsø, Norway

Methods: Complete data from central registries were extracted and linked. The study period was set to January 1st 2010 - December 31st2019. Data on surgery and diagnoses was based on the NOMESCO Classification of Surgical Procedures and the ICD-10. We included all patients that had at least one opioid dispensation (ATC N02A) within the 14 days following surgery.

Results: In total 660 022 patients were detected, whereof 73% were opioid-naïve (= no opioids 1-365 before surgery). Among all the surgery patients that were dispensed opioids, 3,9% were long-term opioid users at day 90, 180, and 365 after the surgery. Among new opioid users, 0.3% were long-term users, compared to 13,3% among previous users. Patients undergoing surgery in the eye region, the heart region, and in endocrine organs had the highest prevalence of long-term opioid use.

Conclusions: The long-term use of opioids after surgery in Norway is in general low. However, the prevalence of long-term opioid use is substantially higher among previous users compared to opioid naïve patients. Further investigation should examine if specific surgical procedures in the eye, heart, and endocrine organs are associated with the higher prevalence detected in the present study.

901

CANNABIS AFFECTS AUTONOMIC AND SUPRASPINAL PAIN MODULATION IN CHRONIC NEUROPATHIC PAIN

H. Sharon[1,2], L. Weizmann[2], J. Giris[1]

[1]Tel Aviv Sourasky Medical Center, Tel Aviv, Israel, [2]Tel Aviv University, Tel Aviv, Israel

Methods: Twelve chronic neuropathic pain patients participated in a randomized, double-blind, placebo-controlled trial. Low/high frequency (LF\HF) Heart Rate Variability (HRV) ratio and Conditioned Pain Modulation (CPM) were measured and resting-state functional MRI was performed at baseline and after sublingual administration of either δ-9-tetrahydrocannabinol (THC) or placebo.

Results: THC significantly reduced LF/HF ratio compared with placebo (Interaction effect $F1,11 = 20.5$, $p < 0.005$), and significantly improved CPM (Interaction effect $F(1,9) = 5.2$, $p = 0.048$). The THC induced reduction in LF/HF ratio correlated with increased functional connectivity between the rostral ventrolateral medulla and the dorsolateral prefrontal cortex ($T(10) = 6.4$, cluster p-FDR < 0.005).

Conclusions: THC shifts the autonomic balance towards increased parasympathetic tone and improves CPM in chronic pain. The increase in vagal tone correlates with connectivity changes in higher-order regulatory brain regions, suggesting THC exerts top-down effects. These changes may reflect a normalizing effect of THC on multiple domains of supraspinal pain dysregulation.

905

PATTERNS OF ORAL KETAMINE PRESCRIBING FOR INPATIENTS AT A UNIVERSITY HOSPITAL IN LIVERPOOL, UK

S. Siew[1], A. Patrick[1], C. Thomson[1], H. Davis[1], H.K. Tsang[1]

[1]Liverpool University Hospitals NHS Foundation Trust, Liverpool, United Kingdom

Methods: A retrospective analysis of electronic and paper patient records on the prescribing of oral Ketamine to patients admitted to Aintree University Hospital Liverpool between October 2021 and October 2022.

Results: 88 patients who were prescribed oral Ketamine for pain management were included in the review with a ratio of 54 males to 34 females and a mean age of 46 years old. 98.7% of patients were post-surgery of which 64% were trauma patients; 23.8% had opioid use prior to admission; 11% with chronic pain; 21% with of depression or other mental health disorder; 18% with a history of alcohol or substance misuse.The dose of oral Ketamine ranged from 10mg to 50mg TDS to QDS. The mean total oral morphine equivalent consumption in the first 24 hours post ketamine commencement was 164.5mg. 4% of patients experienced mild cognitive side effects.

Conclusions: Oral Ketamine is mainly prescribed for management of post-surgical pain with 64% of prescriptions for trauma patients with low levels of side effects. Majority of patients were prescribed and maintained on low doses with some trauma patients requiring higher doses. Further collaborative work in prescribing oral Ketamine between the medical specialties is recommended.

907

THE DYNAMIC OF PAIN ON VAS, ALGO-FUNCTIONAL INDICES LEQUESNE AND WOMAC UNDER THE INFLUENCE OF COMPLEX THERAPY OF PATIENTS WITH MUSCULOSKELETAL DISORDERS

I. Starodubtseva[1], V. Chulkov[2]

[1]NN Burdenko Voronezh State Medical University, Voronezh, Russian Federation, [2]South Ural State Medical University, Chelyabinsk, Russian Federation

Methods: 140 pts with secondary OA in RA with the mean age 48.8±14.2 and I-II stages of RA activity on DAS 28 were included in the trial. The diagnosis of RA was made according to criteria of ACR/EULAR 2010. Pts were divided into 2 groups. Pts of group 1 (n=70) took basic therapy (methotrexate-10-15 mg/week) in combination with diacerein (the inhibition effect of IL-1) 50 mg twice per day in comparision with pts from group 2, who took only methotrexate. The clinical effect of therapy was assessed in 3 and 6 months on the dinamic of indices of pain on VAS, Lequesne and WOMAC.

Results: The maximum therapeutic effect was achieved by the end of 6 months of therapy. In 1 group the difference of pain on VAS was 43.6% ($p<0.05$) in comparision with 2 group -25% ($p<0,05$). The similar statistically significance tendency ($p<0.01$) was observed in the dynamic of indices Lequesne and WOMAC ($p<0.05$). The analysis of the model quadratic surfaces established the relationship between the activity on DAS 28 of RA and the algo-functional indices.

Conclusions: The inclusion of diacerein in the complex therapy of patients with secondary OA in RA contributes to a stable decrease in pain according to the dynamics of algo-functional indices after 6 months of observation.

910

COMPETENCE OF THE EMERGENCY SERVICES IN POLAND TO PROVIDE PRE-HOSPITAL CARE TO BURNS VICTIMS - PAIN MANAGEMENT

A. Marzec[1], L. Marzec[1]

[1]Faculty of Medical and Public Health, State Vocational University Prof. S. Tarnowski, Tarnobrzeg, Poland

Methods: The study analysed the regulations governing the eligibility, competencies and equipment of police officers, firefighters and paramedics from the national rescue and fire-fighting system, as well as

paramedics and nursing staff working in medical rescue teams in Poland between 2010 and 2022.

Results: Emergency staff in Poland have the ability to alleviate pain with non-pharmacological methods - hydrogel dressing, moist compress with 0.9% NaCl solution and immobilisation of the limb. Paramedics and nurses working on ambulance additionally have a pain-relief procedure and are authorised to apply 8 different analgesics.

Conclusions: Police officers and firefighters can relieve pain with non-pharmacological methods. Medical personnel were authorised to apply analgesics according to the intensity of pain.

911

CPM AND ANI IN THE EVALUATION OF RTMS TREATMENT EFFECT IN CRPS

J. Ojala[1], T. Rissanen[2], H. Harno[1], S. Jääskeläinen[2], E. Kalso[1]

[1]University of Helsinki, Helsinki, Finland, [2]University of Turku, Turku, Finland

Methods: 60 CRPS patients (type I/2) were recruited from two university hospital pain clinics (Helsinki and Turku). Theiy were randomized to receive either sham or S2 (dx) nrTMS. CPM and ANI were performed before and 1 month after the 2-week TMS stimulation period. CPM was assessed with pressure as the test stimulus and cold water bath as the conditioning stimulus. ANI was recorded using the Mdoloris-monitor (Medical System, Lille, France).

Results: The data are currently being analysed and will be presented in the poster.

Conclusions: See results.

912

THE EFFECT OF STIMULUS INTENSITY AND DURATION ON PARESTHESIA AND PAIN INDUCED BY A CUFF-BASED STIMULATION

J. Skalski[1], P. Wodarski[2], A. Bieniek[2], T.M. Szikszay[3], K. Ludtke[3], S. Swoboda[1], W.M. Adamczyk[1]

[1]Academy of Physical Education in Katowice, Katowice, Poland, [2]Silesian University of Technology, Gliwice, Poland, [3]University of Lubeck, Lubeck, Germany

Methods: 40 healthy participants took part in this within-subject experiment. Participants were exposed to mechanical stimuli of three intensities (100, 150, and 200 mmHg). Each intensity was applied with three different stimulus durations (90, 120, and 150 seconds) using a cuff-based algometer. During each stimulus, subjects rated both symptoms (pain and paresthesia) continuously and simultaneously using a computerized visual analogue scale (CoVAS).

Results: General Linear Model applied to pain ratings revealed a significant effect of stimulus duration ($p < 0.001$) and intensity ($p < 0.001$). Posthoc comparisons showed that participants perceived different pain levels in response to stimuli of different intensities ($p < 0.001$) but not duration ($p = 0.14$). A similar analysis applied to paresthesia ratings showed a significant effect of stimulus duration ($p < 0.001$) as well as intensity ($p < 0.001$), however, posthoc comparisons showed that the paresthesia symptoms were more time- ($p < 0.01$) than intensity-dependent ($p > 0.05$).

Conclusions: The proposed technique used to induce pain and paresthesia was successful such that participants were able to discriminate stimuli durations and intensities. However, duration and pressure affected both symptoms differently.

920

MULTIMODAL INTERNET-BASED GROUP REHABILITATION FOR POST COVID-19 CONDITION AFTER MILD INFECTION – RESULTS ON ICF PAIN CATEGORIES FROM A RANDOMIZED STUDY

I. Bileviciute-Ljungar[1,2], J.-R. Norrefalk[1], A. Apelman[2], S. Östhols[2], L. Braconier[2], K. Borg[1,3]

[1]Dept. of Clinical Sciences, Karolinska Institutet, Stockholm, Sweden, [2]Multidisciplinary Pain Clinic, Capio St. Göran Hospital, Stockholm, Sweden, [3]Dept. of Physical and Rehabilitation Medicine, Danderyd University Hospital, Stockholm, Sweden

Methods: An internet-based 8 weeks multimodal rehabilitation program included weekly 6 hours of rehabilitation group sessions (3 days/week) and 3 hours individual exercise by using ExorLive application under supervision of a physiotherapist. Psychoeducation by team members (physician, psychologist, physiotherapist and ergotherapist), physical exercises, ACT-based psychological interventions in combination with compassion, mindfulness, relaxation, yoga and breathing exercises as well as ergotherapeutic interventions were offered during online sessions. Weekly individual sessions were also offered for formulating individual rehabilitation goals.

Results: Among 109 individuals who completed 8 weeks scorings, 67 participated in the program and 42 were controls. Participants were mainly middle aged (mean 45 years, 82% women) after mild SARS-CoV-2 infection (mean symptom duration 54 weeks). International Classification of Functioning and Disability (ICF) questionnaire was used for pain outcomes (b280 problems with pain, b280 problems with pain last week, b280 severe pain, b280 moderate pain, b2801 pain in body part, b2800 generalized pain, b2802 pain in multiple body parts, b2804 radiating pain in a segment or region). Six of them were significantly improved, while two showed strong tendency to improvement in the rehabilitation group. Only b2802 (pain in multiple body parts) was improved and b280 (problems with pain last week) showed tendency towards improvement in controls.

Conclusions: Eight-week internet-based multimodal rehabilitation program improves pain functions compared with the waiting list after mild SARS-CoV-2 infection.

924

THE ROLE OF EDUCATION IN AN INTERDISCIPLINARY CHRONIC PAIN REHABILITATION

K. Pavlin[1]

[1]University Rehabilitation Institute Republic of Slovenia Soča (URI Soča), Outpatient Service for Non-malignant Pain, Ljubljana, Slovenia

Methods: We analyzed triage questionnaire data of 200 patients with widespread chronic pain that attended an outpatient assesment of chronic pain and their ability to partake in an interdisciplinary rehabilitation programme. The questionnaire asked which information on living with chronic pain they were already familiar with and which additional information they would wish to have. Full data sets were available for 108 patients. 50 percent of them already received a 4-hour pain education before attending the outpatient assessment.

Results: Our preliminary results show that patients who received pain education have significantly more information about chronic pain in comparison to the waitlist control group. Patients have more information about development and course of chronic widespread pain, chronic pain management and the role of stress on chronic pain flare ups.

There were no significant differences between both groups of patients in regard to how much new information about chronic pain they wish to receive.

Conclusions: The results suggests that pain education plays an important role in interdisciplinary chronic pain rehabilitation and facilitates knowledge about chronic pain.

925

THE EFFECT OF EXPERIMENTAL PAIN ON BODY IMAGE

A. Budzisz[1], W.M. Adamczyk[1], K. Luedtke[2]

[1]Laboratory of Pain Research, Institute of Physiotherapy and Health Science, The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland, [2]Institute of Health Science, University of Luebeck, Luebeck, Germany

Methods: This experiment is designed as a between – and within – subjects› comparison. Healthy subjects will be randomly assigned to one of three groups: pain induced by a (real) hypertonic saline injection, pain induced by a sham injection (without piercing the skin), and a control group with no intervention. Subjects will be assessed regarding their body image and pain sensitivity just before the experimental manipulation (pain induction), during acute pain and after the pain has subsided.

Results: The data collection is ongoing. The results will be presented at the 13th Congress of the European Pain Federation (Budapest, Hungary).

Conclusions: Conclusions will be presented at the 13th Congress of the European Pain Federation.

926

A NEW SPECIFICATION: A POSSIBLE WAY TO TRAIN A CHRONIC PAIN SPECIALIST

E. Budai[1]

[1]Ferenc Jahn South-Pest Hospital, Oupatient Dep. of Pain Management, Budapest, Hungary

Methods: Based on many years of practice, I realized that we should not only train pain specialists but also chronic pain specialists. The chronic pain specialist knows all the symptoms associated with chronic pain, and with a detailed, targeted questioning and physical examination of the patient creates the pattern of the chronic pain in question and confirms or excludes it with a targeted diagnostic blockade if possible.

Results: Properly trained chronic pain specialists can determine the cause or the causes of chronic pain very quickly and can further clarify them with targeted tests. Because of their training, they are aware of possible pharmaceutical, non-pharmacological, non-invasive and invasive therapy options, so they can start the appropriate therapy immediately.

Conclusions: The chronic pain specialist training provides an opportunity to reveal the exact cause of chronic

pain early, thereby cutting the cycle of pain early. Finally, we could prevent the greater and longer unnecessary suffering with all its consequences.

929

PERSISTENT NON-SPECIFIC LOW BACK PAIN CASE SERIES: EVALUATION OF PATIENTS' MINDSET CHANGE AND TREATMENT ENGAGEMENT AS KEY ELEMENT TOWARDS EFFECTIVE SELF-MANAGEMENT STRATEGIES

A. Celso[1]

[1]Azienda sanitaria Friuli Occidantale AsFO - Distretto delle Dolomiti Friulane, Maniago (PN), Italy

Methods: n. 50 with non-specific low back pain (NSLBP) patients (29 M, 21 F) was consecutively enrolled in one-year period and evaluated under a multidimensional framework with initial Örebro Musculoskeletal Pain Screening Questionnaire administration and consequent further psychosocial assessment.

Under a dispositionalist patient-centred approach, the therapeutic process was multidimensional in nature, encompassing biomedical, psychological, social, and experiential components, and enables the construction of an intersubjective space between the clinician and the patient, where the characteristics of both can find a space headed towards a narrative shared sense-making process and an appropriate engagement to foster the therapeutic alliance.

Therapeutic encounters were highly individualized and timed on single-patient progress, lasting from few to longer timeframe. Outcomes measures to evaluate patient's mindset change and self-management empowerment were Coping Strategies Questionnaire, Pain Self-Efficacy Questionnaire, and the score reduction of others administered.

Psychologically informed practice guided the therapeutical journey, with a merging of motivational interviewing framework in lower irritability clinical presentations, and acceptance and commitment therapy in much complex scenarios, in order to improve psychological flexibility and enhance personal self-management activation.

Results: After therapeutic encounters, patients' mindset changes and personal engagement in self-management strategies improved at outcomes re-evaluation comparing to baseline

Conclusions: A true and multidimensional patient-centred approach under a dispositionalist causal framework of reference, with the aim of whole person scrutiny, may representing a good viaticum that prompt patients' recovery and thrive

930

PLASMA METABOLOMIC ANALYSIS REVEALED ABNORMAL LIPID METABOLISM IN A COMPLEX REGIONAL PAIN SYNDROME MOUSE MODEL

V. Tékus[1,2,3], N. Szentes[1,3,4], J. Kun[5], Á. Dénes[6], S. Sensi[7,8], A. Goebel[7,8], Z. Helyes[1,4,3,9]

[1]Department of Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Pécs, Hungary, [2]Faculty of Health Sciences, Department of Laboratory Diagnostics, University of Pécs, Pécs, Hungary, [3]National Laboratory for Drug Research and Development, Budapest, Hungary, [4]ELKH-PTE Chronic Pain Research Group, University of Pécs, Pécs, Hungary, [5]Bioinformatic Research Groups, Genomics and Bioinformatics Core Facility, Janos Szentágothai Research Centre, University of Pécs, Pécs, Hungary, [6]Momentum Laboratory of Neuroimmunology, Institute of Experimental Medicine, Budapest, Hungary, [7]Pain Research Institute, University of Liverpool, Liverpool, United Kingdom, [8]Department of Pain Medicine, The Walton Centre National Health Service Foundation Trust, Liverpool, United Kingdom, [9]PharmInVivo Ltd., Pécs, Hungary

Methods: Plantar skin-muscle incision mimicked micro injury, purified plasma IgG of CRPS patient was injected i.p. daily for 7 or 14 days. The paw mechanonociceptive threshold was measured by dynamic plantar aesthesiometry and hyperalgesia was calculated in comparison with the baseline values. Metabolites were quantified from 10 ml plasma by mass spectrometry using the Biocrates MxP Quant 500 kit for 630 molecules, evaluation was performed by bioinformatics.

Results: CRPS IgG significantly increased incision-induced mechanical hyperalgesia by 40-50% throughout the 7- or 14-day experiments. In the plasma of CRPS IgG-treated mice 19, mainly lipid mediators including SM C18:0; SM C18:1; DG16:1_18:0 and PCaa C38:5 elevated significantly at both timepoints. In a time-dependent manner, 277 metabolites such as DG 16:1_20:0, CE225, and PCaa C38:5 changed significantly.

Conclusions: Metabolomics helps to understand CRPS mechanisms possible related to neuronal lipid metabolism disorders which might open new perspectives to identify novel therapies.

931

COMPLEX REGIONAL PAIN SYNDROME TYPE-I (CRPS-I) AFTER COLLES' FRACTURE IN AN ATTORNEY'S SECRETARY: EXPANDING RECOVERY FROM THE HAND TO THE WHOLE PERSON

A. Celso[1]

[1]*Azienda sanitaria Friuli Occidantale AsFO - Distretto delle Dolomiti Friulane, Maniago (PN), Italy*

Methods: 43-year-old woman, after removing soft-cast for left distal radial fracture, started to experience typical signs and symptoms, suspected of a CRPS scenario.

The clinical presentation was confirmed by the application of Budapest Diagnostic Criteria.

The management required a biopsychosocial approach under a multidisciplinary lens, with appropriate physician and psychologist referrals.

The milestones of implemented therapeutic process, proposed in a complementary manner, to address physical, psychological, and behavioural issues and facilitate the patient's engagement and activation in the rehabilitation program, were patient education on CRPS and pain management, graded motor imagery (GMI), graded activity exposure (GEXP) as therapeutic exercise with introduction to the principles of Acceptance and Commitment Therapy (ACT) and Mindfulness Based Stress Reduction (MBSR), to engage for personal empowerment and improve coping strategies for the best self-management.

The rehabilitation program was held continually over a period of 12 months, with 18 months and 2-years follow-ups.

Results: Patient-Related Outcomes Measures (PROMs) initially administered were Örebro Musculoskeletal Pain Screening Questionnaire which prompted accessory psychosocial and functional evaluation. Compared to baseline, each one reveals itself improved during treatment and at follow-ups.

Conclusions: In the reported case study, a multimodal and psychologically informed practice approach tailored to the patient's characteristics has helped to improve her functional levels and to resume over time her work and previous quality of life.

932

IMPLEMENTATION OF EFIC© *"PLAIN TALKING"* AND *"ON THE MOVE"* CAMPAIGNS IN AN OUTPATIENT REHABILITATION SETTING

A. Celso[1], M. Canderan[1]

[1]*Azienda sanitaria Friuli Occidantale AsFO - Distretto delle Dolomiti Friulane, Maniago (PN), Italy*

Methods: From January 01 to December 31, 2022, every single patient afferent to our setting was exposed to Italian translation of EFIC© "*Plain Talking*" and *"On the Move"* Campaigns at first clinical encounter. During the therapeutical process two dedicated physiotherapists explained to the patient the campaigns handout, clarifying any doubts, and providing further information.

We quantified patient satisfaction utilizing the Physical Therapy Patient Satisfaction Questionnaire (PTPSQ) and compared the 2022 results of every compilated questionnaire with those of 2021.

Results: Comparing the results between years, we noted a sensible enhancement of PTPSQ scores after the diffusion of EFIC© Campaigns materials.

Conclusions: The implementation of EFIC© Campaigns resulted in the recognition both patients and clinicians of the importance of communication during the rehabilitation process and of the potential of physical activity to mitigate the impact of persistent pain conditions and improve patients' quality of life.

938

EXPERIENCE FROM A SINGLE-CENTER STUDY ON MULTIMODAL MEDICATION THERAPY FOR PATIENTS WITH COMPLEX REGIONAL PAIN SYNDROME

D. Park[1], C.R. Kim[1], D.Y. Kim[1], N.Y. Joo[1], S.Y. Joo[1]

[1]Ulsan University Hospital, Ulsan, Korea, Republic of

Methods: Patients with CRPS who underwent multimodal medication therapy were investigated retrospectively. Pain severity scores in these patients were evaluated using a numerical rating scale (NRS) at four time points (P1, pain at initial consult; P2, pain after oral medication; P3, pain after ketamine treatment; P4, pain after lidocaine treatment). The effect of the algorithm for multimodal medication therapy on pain management at each time point was evaluated.

Results: In patients with CRPS, multimodal oral medication therapy, intravenous ketamine therapy, and intravenous lidocaine therapy showed statistically significant improved pain control ($p<0.05$). Additionally, the combination of these three therapies (multimodal medication therapy algorithm) resulted in significant pain relief in CRPS patients ($p<0.05$).

Conclusions: Our multimodal medication therapy algorithm was effective in controlling pain in CRPS patients. However, further prospective studies with larger sample sizes and randomized controlled trials are needed for a more accurate generalization.

939

TIMING OF PAIN AND NON-PAINFUL SYMPTOMS AFTER THE INGESTION OF FRUCTOSE IN FRUCTOSE-SENSITIVE CHILDREN WITH CHRONIC ABDOMINAL PAIN

J. Hammer[1]

[1]Medical University of Vienna, Vienna, Austria

Methods: 60 patients (age: 10-15 years; 28 male, 33 female) with chronic abdominal pain received a fructose BHT for clinical suspicion of carbohydrate induced gastrointestinal symptoms. Symptoms during the BHT were ascertained regularly up to 9 hours after commencing the test on a VAS (0=no symptom, 5 extreme symptom). 21 patients (13 m, 8 f) turned out to be fructose sensitive, as one or more symptoms increased significantly (2 points or more). Mean±SEM are given, $p<0.05$ was considered significant.

Results: Before fructose ingestion abdominal pain scores were low in both fructose sensitive patients (0.60±0.2) and non-sensitive patients (0.87±0.2)(NS). In the fructose sensitive group, pain scores stayed low for the following 120 min (NS vs. baseline) but increased significantly at 150 min (1.33±0.3; $p<0.05$ vs. baseline). Pain resolved thereafter and did not recur. In contrast, nausea developed 30 min after baseline and continued until 120 min, meteorism was present between 120 and 150 min and urge to pass flatus was present 3 to 6 hours after fructose ingestion. Diarrhea did not develop within the 9 hour observation period.

Conclusions: Paediatric patients with fructose sensitivity develop abdominal pain approximately 2½ hours after fructose ingestion. Other symptoms associated with fructose ingestion show distinct timing pattern.

942

BIOLOGICAL AND PSYCHOLOGICAL EARLY PROGNOSTIC FACTORS IN COMPLEX REGIONAL PAIN SYNDROME: A SYSTEMATIC REVIEW

M.-H. Louis[1], C. Meyer[2], V. Legrain[1], A. Berquin[1,3]

[1]UCLouvain, Brussels, Belgium, [2]CHU UCL Namur, Yvoir, Belgium, [3]Cliniques Universitaires Saint-Luc, Brussels, Belgium

Methods: PubMed, Embase, PsycINFO, Cochrane Library and Scopus, were published between January 1990 and November 2021. Two independent investigators selected cross-sectional and longitudinal studies looking at early (<12 weeks from onset) prognostic factors for pain, CRPS severity score, disability, return to work, or quality of

life. The quality in prognostic studies (QUIPS) tool was used to assess the risk of bias. A qualitative meta-synthesis was performed.

Results: Out of 4652 different articles, six studies met the inclusion criteria. We identified 21 early factors associated with a poorer prognosis in type I CRPS. We found moderate evidence to support six of them: higher pain intensity, self-rated disability, anxiety, pain-related fear, being a female and high-energy triggering event. Only two studies had an overall low risk of bias.

Conclusions: This study showed an important lack of information on early prognostic factors in CRPS. Only one article investigated the link with psychological characteristics. There is a crucial need for larger studies, with a well-defined population using validated measures.

943

THE UTILIZATION OF A DIGITAL SUPPORT APPLICATION FOR PERSONS WITH CHRONIC PAIN AND THEIR EMPLOYERS – A CASE-STUDY OF USER DATA

C. Turesson[1], G. Liedberg[1], M. Björk[2]

[1]Department of Health, Medicine and Caring Sciences, Unit of Occupational Therapy, Linköping University, Norrköping, Sweden, [2]Pain and Rehabilitation Centre, Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden

Methods: This is a case-study including sixteen persons participating in a feasibility study. The analyses were based on user data collected for three months. Quantitative data, used functions, were analysed with descriptive statistics, and identified needs of support analysed by content analysis.

Results: Self-monitoring was used by all participants (median 26 daily registrations, interquartile range 8-87). Eleven participants set a work-related goal and performed weekly evaluations of goal fulfilment, and ratings of their work ability. Eight participants shared information with their employer, and two contacted the coach. Fifteen participants identified a total number of 51 support interventions wanted from their employer for example opportunities to take breaks and short rests. These support interventions were grouped into eight categories.

Conclusions: SWEPPE gives the possibility for the individual to choose and tailor the used function in relation to their needs. Interestingly, the self-monitoring feature and to identify needs of support by the employer were frequently used by all participants, indicating SWEPPE as an important tool for cooperation with the employer of creating a sustainable work situation.

944

EFFECTIVENESS AND COST-EFFECTIVENESS OF CHIROPRACTIC CARE, PHYSIOTHERAPY, AND A COMBINATION OF PHYSIOTHERAPY AND CHIROPRACTIC CARE, COMPARED WITH INFORMATION AND ADVICE IN THE TREATMENT OF CLBP

F. Gedin[1], M. Skeppholm[1], V. Sparring[1], M. Tessam[1], N. Zethraeus[1]

[1]Karolinska Institutet, Stockholm, Sweden

Methods: This was a multicentre pragmatic randomized controlled trial where 88 participants with CLBP were randomized to one of four treatment groups: physiotherapy, chiropractic care, combination treatment, or advice. Participants were recruited through ten primary care rehabilitation units in Sweden. A computer-based questionnaire was used to collect data on outcomes. The primary outcome measure was the difference in the Oswestry Disability Index (ODI) between baseline and follow-up at 6 months.

Results: There were no statistically significant differences in any of our outcome measures. The size of the difference in the primary outcome measure ODI, was -4.73 for physiotherapy, 1.7 for chiropractic care, and 0.72 for combination treatment, when compared to advice. Differences in quality-adjusted life years and costs between the treatment groups were small and not statistically significant.

Conclusions: We do not find any statistically significant differences in any of our outcome measures. The differences in our outcome measures between treatment groups were small and not clinically important.

945

EUROPEAN RECOMMENDATIONS ON OPIOIDS FOR CHRONIC NONCANCER PAIN, ARE WE THERE YET IN FRENCH PRESCRIPTIONS?

A.-P. Trouvin[1,2,3], S. Teixeira[2], N. Authier[2,4,3,5], C. Chenaf[2,3,5]

[1]INSERM U 987, Boulogne Billancourt, France, [2]Clermont Ferrand University Hospital - Medical Pharmacology Department, Clermont Ferrand, France, [3]INSERM U1107 - Neurodol, Clermont Ferrand, France, [4]Clermont Ferrand University Hospital - Pain Medicine Department, Clermont Ferrand, France, [5]OFMA - Observatoire Français des Médicaments Antalgiques, Clermont Ferrand, France

Methods: Using the French national health insurance database (SNDS), we conducted a cohort study including in 2012-2020 all adults, who were dispensed opioids (ATC code: N02A) for at least 3 continuous months (hence identifying opioid for chronic pain) with no previous or current diagnosis of cancer. Concomitant benzodiazepines (N05B) or gabapentinoids (N03AX12, N03AX16) or z-drugs (N05CF02, N05CF01) prescriptions and prescribers were examined.

Results: From 2012 to 2020, 2,197,943 patients received at least 3 continuous months of opioid analgesic. Among this cohort, table 1 summarizes prevalence of at least one concomitant prescription of opioid with benzodiazepines; gabapentinoids and z-drugs.

	Number of patients with at least one co-prescription n= (%)	Women (%)	Mean age [+/-SD]
Benzodiazepines	1,063,825 (48.4%)	68	59.8 [+/- 17.4]
Gabapentinoids	322,671 (14.7%)	63.5	59.2 [+/- 16.3]
Z drugs	474,993 (21.6%)	67.9	61.0 [+/- 16.9]

In case of concomitant prescription, both prescriptions were from the same prescriber for 975,136 patients (91.7%) for benzodiazepine and for 291,784 patients (90.4%) for gabapentinoids.

Conclusions: In France, in 2012-2020, almost half of patients receiving chronic opioid therapy for noncancer pain received at least once a concomitant prescription of benzodiazepines, most of them emanating from the same prescriber. This particular recommendation might require specific targeting and promotion.

1. Häuser EJP2021

2. Krčevski Škvarč EJP2021

948

PERSONALIZED AURICULAR VAGUS NERVE STIMULATION IN PATIENTS WITH INTRACTABLE CHRONIC LOW BACK PAIN: PRELIMINARY RESULTS OF A RANDOMIZED CONTROLLED PILOT STUDY

R. Likar[1,2], C. Perruchoud[3], E. Kaniusas[4], S. Neuwersch-Sommeregger[1,5], B. Rutschmann[3], S. Kampusch[6]

[1]Department for Anaesthesia and Critical Care, Klinikum Klagenfurt am Wörthersee, Klagenfurt, Austria, [2]Paracelsus Medizinische Privatuniversität, Salzburg, Austria, [3]Clinique de la Douleur, Hopital de La Tour, Geneva, Switzerland, [4]Institute of Biomedical Electronics, TU Wien, Vienna, Austria, [5]Medizinische Universität Graz, Graz, Austria, [6]AURIMOD GmbH, Vienna, Austria

Methods: 33 CLPB patients with a daily average VAS ³ 4 during screening were randomized to one of the following pVNS treatment groups: A) personalized amplitude and duty cycle, B) personalized amplitude, C) no personalization. pVNS was performed for 8 weeks (EoT) with an additional follow-up of 12 weeks. A smartphone application and an online therapy management system (TMS) allowed recording of VAS, medication, well-being, technical and physiological data collected by the stimulation device. The primary endpoint was defined as change from baseline to EoT in average VAS. painDETECT, EQ-5D-5L, HADS, sleep quality, motility, autonomic function, usability, and safety were assessed.

Results: 28 patients (78.6% female) completed at least one post baseline assessment (Performance Population). Average VAS significantly decreased from baseline to EoT in the Performance Population, Group A (highest average improvement) and C. Secondary outcome parameters improved in most patients. 28% of patients showed an average VAS improvement of more than 30% (responder). Treatment was safe and well-tolerated.

Conclusions: Preliminary results indicate beneficial effects of personalized pVNS in CLBP patients. Integration into a TMS platform allowed an effective collection of patient outcome data. Further analysis will be performed.

952

A TEN-YEAR TREND IN OPIOID ANALGESIC USE AND ASSOCIATED MORBIDITY AND MORTALITY IN FRANCE

A.-P. Trouvin[1,2,3], S. Teixeira[1], N. Authier[1,4,2,5], C. Chenaf[1,2,5]

[1]Clermont Ferrand University Hospital - Medical Pharmacology Department, Clermont Ferrand, France, [2]INSERM U1107 - Neurodol, Clermont Ferrand, France, [3]INSERM U 987, Boulogne Billancourt, France, [4]Clermont Ferrand University Hospital - Pain Medicine Department, Clermont Ferrand, France, [5]OFMA - Observatoire Français des Médicaments Antalgiques, Clermont Ferrand, France

Methods: Using the French Health Insurance claims database, the exhaustive nationwide hospital discharge database, and national mortality registry, all patients dispensed at least one prescription opioid (PO) in 2012-2021 were identified, to update trends in PO analgesic use, opioid-related hospitalizations and deaths.

Results: In 2012-2017, the annual prevalence of PO increased by 7.4% and then declined by 6.9% in 2017-2021, reaching 17.6%. Prevalences of codeine (-9.0%), tramadol (-16.0%), and fentanyl (-15.2%) use steadily decreased over 2012-2021, while those of opium (+38%) and morphine (+24%) regularly increased. For oxycodone, prevalence increased in 2012-2018 (+95%) and plateaued since. Opioid-related hospitalizations increased from 40 to 45 per 1,000,000 population (+12.5%, 2017-2021), and opioid-related deaths from 3.2 to 3.3 per 1,000,000 population (+3.1%, 2015-2017).

Conclusions: Over the last ten years, after a small increase of prevalence, a decrease started from 2018 onwards, leading back to 2012 figures. However, opioid-related morbidity and mortality is still on an increasing trend. The latter advocates for a continuous close monitoring.

Post LA et al. JAMA Netw Open.2022;5(7):e2223631

Pierce M et al. Eur Psychiatry.2021;64(1):e47

953

PRESERVATIVES IN PARENTERAL FORMULATIONS ACTIVATE TRPA1

C. Ciotu[1], M. Mager[1], M. Gold-Binder[1], S. Heber[1], M. Fischer[1]

[1]Medical University of Vienna, Vienna, Austria

Methods: Seventeen preservatives were screened for mediating calcium influx in HEK293t cells transfected with human TRPA1, with untransfected cells serving as control. In addition, proinflammatory mediators serotonin, histamine and prostaglandin E2 were coadministered to probe a potential sensitisation of preservative-induced TRPA1 activation.

Results: Methyl-/ ethyl-/ propyl-/ butylparaben, bronopol, phenylethyl alcohol and phenol induced a TRPA1-dependent calcium influx in transfected HEK293t cells at concentrations approved for preservation. Other preservatives increased calcium at the respective approved concentration ranges, and this spans the range from full to no TRPA1-dependence. Serotonin, histamine, and prostaglandin potentiated TRPA1 activation of phenylethyl alcohol, ethylparaben, propylparaben, butylparaben and bronopol.

Conclusions: Systematic screening of common preservatives used for parenterally administered drugs resulted in identifying several compounds with clear TRPA1 channel activation. Addition of inflammation-specific substances enhanced this effect. These results allow selecting a preservative without TRPA1 activation.

956

PSYCHOEDUCATIONAL INTERVENTIONS TO THE WELL-BEING AND QUALITY OF LIFE IN PEOPLE WITH CHRONIC PAIN: A SCOPING REVIEW PROTOCOL

B. Ursine[1], F. Lopes Júnior[2], M.d.L. Vale-Dias[1]

[1]University of Coimbra/Faculty of Psychology and Educational Sciences, Coimbra, Portugal, [2]Aydın Adnan Menderes University/Faculty of Medicine, Aydın, Turkey

Methods: To understand the effect of psychoeducational interventions in people with chronic pain, the research will explore the literature using the JBI methodology, and the orientations will be based on protocols of Prisma-P.

Results: With the Population, Concept, and Context (PCC) elements, the question that this review aims to answer was elaborated as follows: what are the characteristics and effects of psychoeducational interventions in people with chronic pain to well-being and quality of life? Two independent reviewers aim to find primary, and secondarily published studies, reviews, and opinion articles. Firstly, the searches will be done in 2 databases, in the second step, with the final strategy, searches in MEDLINE, PsycInfo, Web of Science, Scopus, ERIC, SciELO, and Redalyc. In the third step, the list of references of the publication will undergo an evaluation. These results will be presented on Prisma-ScR. All publications will be imported to MENDELEY and CADIMA. Relevant data will be presented in tables, graphs, or visual representations.

Conclusions: This review will allow systematic evidence mapping with the potential to produce practical and political implications.

957

A QUALITATIVE STUDY TO EVALUATE THE LONGTERM BIOPSYCHOSOCIAL STATUS OF PEDIATRIC PATIENTS RECEIVING A MULTIDISCIPLINARY APPROACH WITH EDUCATION AND MIND-BODY METHODS FOR ABDOMINAL PAIN

D. Hendboeg[1], C. Fonteyne[2], H. Dussart[2], A.-C. Morere[2], N. Andersson[2], P. Bontems[2], T. Mahler[2]

[1]ULB, Brussels, Belgium, [2]Hôpital Universitaire des Enfants Reine Fabiola, HUB, ULB-VUB, Brussels, Belgium

Methods: Nine FAP patients (median age 14 [9-22]) were interviewed by an independent investigator. All followed a multidisciplinary chronic pain management program based on education, hypnosis and mindfullness. The interviews were recorded, transcribed, coded and the results were categorized into themes and sub-themes according to the rules of a qualitative study.

Results: Median time after therapy was 4 ±1,64 years. After 9 interviews sufficient saturation was obtained.

Most important themes were:

- FAP was a handicap to their social life and overall functioning.
- Delay of specialized care led to negative feelings and impacted the family greatly.
- Improvement was reported by all participants.
- Receiving a diagnosis and explanations is particular important.
- Their current health is described as good.

Their remarks enabled us to adapt our education messages for a better comprehension and acceptance of their pathology.

Conclusions: Multidisciplinary management of pediatric FAP is beneficial in the short and longterm, resulting in biopsychosocial healthy patients. Patients feel empowered and are actively involved in their condition. The abdominal pain is occasional and autonomously controlled. The benefits of this holistic approach should stimulate our health organizations to organize and finance multidisciplinary pain management teams. Reflection on message transmission to patients is important.

959

IMPLEMENTING A MULTIDISCIPLINARY BIOPSYCHOSOCIAL PAIN EDUCATION PROGRAM FOR PRIMARY HEALTH CARE PROVIDERS IN BELGIUM: A 6-MONTH FOLLOW-UP STUDY

W. Munneke[1,2], C. Demoulin[2], A. Berquin[3], M. Meeus[4,5], J. Nijs[1], M. De Kooning[1]

[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]University of Liege, Liege, Belgium, [3]Université Catholique de Louvain, Louvain, Belgium, [4]University of Gent, Gent, Belgium, [5]University of Antwerp, Antwerp, Belgium

Methods: Within an implementation project of the Belgian Federal Government of Health, a multidisciplinary biopsychosocial pain educational program was developed based on scientific research and a Belgian expert panel. The course contained two e-learning sessions and two one-day face-to-face trainings. We aimed to train > 300 PHCP in the biopsychosocial pain educational program. Target groups were general practitioners, physiotherapists, psychologists, (home)nurses, occupational therapists and pharmacists.

Changes in knowledge and attitudes regarding chronic pain were measured using the KNowledge and Attitudes of Pain (KNAP). Guideline adherence was measured with two clinical case vignettes. Participants were measured pre-course, post-course and at a 6-month follow-up. The satisfaction of participants regarding the training and implementation into practice was measured during the course and at the follow-up.

Results: We hypothesized a shift in knowledge, attitudes and guideline adherence towards the biopsychosocial perspective that is in line with clinical guidelines after completing the pain educational program.

Conclusions: Multidisciplinary pain educational programs could play an important role to improve the management of patients with chronic pain and the multidisciplinary collaboration in clinical practice.

963

PROOF-OF-CONCEPT STUDY OF TOPICAL AMITRIPTYLINE FOR ERYTHROMELALGIA

G. Fox[1], J. Bauerschmitz[2], J. Sartori Valinotti[3], P. Picaut[1]

[1]AlgoTherapeutix SAS, Suresnes, France, [2]Universitätsklinikum Erlangen, Erlangen, Germany, [3]Mayo Clinic, Rochester, United States

Methods: We are therefore conducting a randomized, double-blind, placebo-controlled, crossover trial to investigate the efficacy and safety of ATX01 in EM patients. Fourteen adult EM patients will be enrolled in one US and one German centre. Following a three-week baseline assessment, patients will receive three-week courses of twice-daily applications of ATX01 and matching placebo, in random order, separated by a three-week wash-out period.

Results: The primary endpoint is mean pain intensity per episode, assessed for the final week of each treatment period using an 11-point numerical pain rating scale.

Conclusions: We aim to have data by the end of 2023.

968

OLD SKULLS TIE NEW TRICKS: THE THERAPEUTIC POTENTIAL OF THE NOVEL CANNABIMIMETIC SUBSTANCE Δ^9-TETRAHYDROCANNABIPHOROL IN THE CENTRAL POST-STROKE PAIN

R. Infantino[1], C. Belardo[1], C. Citti[2], F. Russo[2], G. Cannazza[2], L. Luongo[1], S. Maione[1]

[1]University of Campania, Naples, Italy, [2]University of Modena and Reggio Emilia, Modena, Italy

Methods: TH was obtained injecting collagenase-IV in thalamic ventral posterolateral (VPL) nucleus. The effectiveness of the THCp was tested by Von Frey test and the effect on locomotor activity and catalepsy was recorded. A significant increase in the expression of CB1 receptors was observed 7-days post-TH, in both cortexand perilesional area.

Results: A significant increase in the expression of CB1 receptors in both cortex and perilesional area was observed 7-days post-TH, corresponding to the time-point of CPSP establishment. THCp (0.3 mg/kg) significantly reduced tactile allodynia in TH mice compared to vehicle-treated mice (PWT:0.85gf±0.27 vs 0.06gf±0.02;P<0.01), with minimal side effect.

Conclusions: These results pave the way for better investigating the role of CB1 in the CPSP pathophysiology. Moreover, in a translational point of view, proposes THCp as a new cannabinoid for the treatment of CPSP.

971

REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (RTMS) AND NOCIPLASTIC PAIN. ONE-YEAR EXPERIENCE

M. Allegri[1], M.-L. Rosato[1], M. Jacobs[1], S. Coderay[1], A. Vion[1], C. Guignard[1], V. Wankhede[1], E. Buchser[1], S. Eldabe[1]

[1]Ensemble Hospitalier de la Cote, Morges, Switzerland

Methods: We apply rTMS (Mag-Pro-R30) to patients with widespread nociplastic pain in whom all other therapies failed. To ensure stimulation consistency, a robotic arm with tracking system (Axilium Robotics Tracking TMS-explorer) was used. The stimulation intensity, on the primary motor cortex (30 trains of 100 pulses at 10 Hz frequency resulting in 3000 pulses/session), at 80% of the single-pulse-stimulation motor threshold of the right motor cortex. Our protocol consisted of 8 to 10 30 minutes sessions for the first 2 weeks, 2 sessions on week 3, one session on week 4, 2 sessions on month 2 and 1 session on month 3 and 4.

Results: In 2022 we treated 76 patients (60 women - 17 to 62 years old). The treatment was prematurely stopped in 16 patients (lack of efficacy, transient headache or general malaise). 42 patients had between 11 and 20 sessions and 18 patients >20 sessions.

We did not observe a consistent effect on pain, but a substantial improvement in subjective sleep quality and duration. 7 patients requested to restart the program and 6 patients could not be weaned from rTMS, as it was the only one that had ever provided a significant benefit.

Conclusions: Our experience is that rTMS can have a beneficial effect in most patients presenting with refractory widespread pain improving sleep, independently of a short-term significant pain relief.

976

RACIAL DISPARITIES IN OBSERVERS' ATTENTION TO OTHERS' PAIN: AN EXPERIMENTAL STUDY

D. Van Ryckeghem[1,2], D. Reinert[2], A. Kissi[3], T. Vervoort[3]

[1]University of Luxembourg, Belval, Luxembourg, [2]Maastricht University, Maastricht, Netherlands, [3]Ghent University, Ghent, Belgium

Methods: Black (N = 37) and White (N = 41) observers performed a Visual Search Task during which they were presented with digitally rendered faces displaying moderate or high levels of pain, allowing to index attentional engagement to and attentional disengagement from pain for both Black and White pain faces. Additionally, participants rated the pain level and level of perceived threat of the facial pain expression. Finally, participants completed questionnaires measuring race-related pain experience beliefs, and racial threat stereotypes.

Results: Results indicated that White participants' disengagement from Black avatars' pain was facilitated as compared to disengagement from pain in White avatars. Furthermore, an indication was found for enhanced attentional engagement towards Black pain faces in White observers. No effects for pain experience beliefs, threat beliefs, threat ratings were found. Black avatars received higher ratings by both observer groups for pain intensity, when the pain level was moderate or high.

Conclusions: The current findings attest to the importance of future research into the role of observer attentional processing of sufferers' pain in understanding racial disparities in pain care. Theoretical and clinical implications are discussed and future research directions are outlined.

977

USING COMPUTERISED DECISION SUPPORT IN FINDING TREATMENT FOR MUSCULOSKELETAL PAIN DISORDERS – A QUALITATIVE STUDY OF PHYSIOTHERAPISTS' AND PATIENTS' EXPERIENCES (THE SUPPORTPRIM PROJECT)

N.E. Klevanger[1], A.F. Bones[1], I. Meisingset[1,2], O. Vasseljen[1], F. Granviken[1,2]

[1]Department of Public Health and Nursing, Norwegian University of Science and Technology (NTNU), Trondheim, Norway, [2]Department of Physical Medicine and Rehabilitation, St.Olavs Hospital, Trondheim, Norway

Methods: This qualitative study is based on individual interviews with 11 patients and 10 physiotherapists in primary physiotherapy care in Norway. The material is analysed thematically inspired by Actor Network Theory, a theoretical approach used to explore the interplay between technology and its users.

Results: The ongoing analysis explores how the CDSS influenced patients and physiotherapists individually, their interaction, and how the program's intended purpose was maintained or adjusted. For instance, therapists perceived the CDSS as a support when suggestions from the system coincided with their current practice, i.e., validating already formed personal clinical reasoning and planning of appropriate treatment. However, this reasoning and planning seem to be heavily influenced by revising information from the program's comprehensive biopsychosocial patient mapping prior to the first consultation. As such, the program's contribution to finding treatment appears implicit and dependent on the therapist's indebt knowledge of the individual patient rather than knowledge from previous patients in the system - as intended.

Conclusions: Conclusions will be presented at the conference.

982

INTERPERSONAL MECHANISMS AND THEIR EFFECT ON PAIN OVER TIME 1: A SCOPING REVIEW BETWEEN CLINICIANS AND PEOPLE WITH PAIN

H. Birkinshaw[1], C. Friedrich[1], E. Keogh[2], T. Pincus[1]

[1]University of Southampton, Southampton, United Kingdom, [2]University of Bath, Bath, United Kingdom

Methods: A scoping review was undertaken. The search included key psychosocial interpersonal factors explored in any study with a timeline, any type of clinician, and any type of pain. The following databases were searched: Embase, MEDLINE, Web of Science Core Collection, and PsycINFO. Two authors completed screening and extraction. PPIE contributed to both the development of the search and interpretation of the findings. The full protocol is available on the Open Science Framework.

Results: The search identified a total of 29709 records to be screened. After title and abstract and full-text screening, 28 studies were eligible for inclusion. For all psychosocial mechanisms, only small numbers of studies were found. Reassurance (three studies, n=2486), validation (two studies, n=551), empathy (four studies, n=3370) and motivational interviewing (three studies, n=2446) were all associated with small effects on pain and functioning. The quality of this evidence is mixed.

Conclusions: There is very little research exploring the effect of interpersonal factors between clinicians and patients on pain over time. Although some mechanisms have been identified as having effects on pain, the pathways by which this occurs is unknown.

983

COGNITIVE AND EMOTIONAL FACTORS – INCLUDING PERCEIVED INJUSTICE – AND HEALTHCARE USE IN BREAST CANCER SURVIVORS WITH PAIN: A CROSS-SECTIONAL STUDY

E. Roose[1,2], A. Lahousse[1], E. Smout[1], A. Robbeets[1], J. Nijs[1,3], P. van Wilgen[1], D. Beckwée[1], M. De Couck[1], A. Timmermans[2], M. Van Hoeij[4], C. Fontaine[4], R. Bults[1], L. Leysen[1], E. Huysmans[1]

[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]Universiteit Hasselt, Hasselt, Belgium, [3]University of Gothenburg, Gothenburg, Sweden, [4]Universitair Ziekenhuis Brussel, Brussels, Belgium

Methods: Healthcare usage was assessed by the Medical Consumption Questionnaire and further categorized into medication use, consulting behavior, and hospital stays. Cognitions and emotions were assessed with the Injustice Experienced Questionnaire (IEQ), Pain Catastrophizing Scale (PCS), Pain Vigilance and Awareness Questionnaire (PVAQ), Brief Illness Perception Questionnaire (IPQ-B), and the Depression Anxiety and Stress Scale (DASS-21). In addition, demographics and the type of pain were inventoried. The relationships between cognitive and emotional factors with healthcare usage are examined by generalized linear mixed models with a binomial or Poisson distribution.

Results: The study includes 120 participants with a mean age of 54.47±9.29 years. A total of 118 participants underwent surgery, 50 chemotherapy, 104 radiotherapy, and 38 were diagnosed with lymphedema. This sample has a mean pain severity score of 5.72±1.88. Cognitive and emotional factors are seen as scores of 15.42±9.75 on the IEQ, 14.39±12.76 on the PCS, 29.08±16.52 on the PVAQ, 22.55 on the IPQ-B, 15.74±0.92 Depression, 10.30±7.77 Anxiety, and 9.88±8.16 Stress on the DASS-21.

Conclusions: The analyses will be done before the congress. The results will better understand the mechanism behind healthcare usage in breast cancer survivors with pain.

984

AN ARTIFICIAL INTELLIGENCE-POWERED, PATIENT-CENTRIC DIGITAL TOOL FOR SELF-MANAGEMENT OF CHRONIC PAIN: A PROSPECTIVE, MULTICENTER CLINICAL TRIAL

M. Rosén Klement[1], A. Barreveld[2], C. Borrebaeck[1], N. Metha[3]

[1]Lund University, Lund, Sweden, [2]Tufts University School of Medicine, Boston, United States, [3]Weill Cornell Medicine, New York, United States

Methods: Eligible subjects were enrolled in a 12-week prospective, multicenter, single-arm, open-label study and instructed to use the digital coach PainDrainerTM, developed at Lund University and PainDrainer AB, daily.

Results: Primary outcome was pain interference and at 6 weeks 73.8% of the subjects had an objective decrease. Minimal Important Difference (MID) for pain interference was demonstrated in 57.5% of the subjects. The secondary outcomes were improvement in PROMIS physical function, anxiety, depression and pain intensity scores, pain catastrophizing and Chronic Pain Acceptance Questionnaire. MID for physical function was demonstrated in 72.5% of the subjects. A pre- to post-intervention improvement in depression score was also statistically significant, observed in 100% of subjects, as was the improvement in anxiety scores, evident in 81.3% of the subjects. PCS mean scores was also significantly decreased at 12 weeks.

Conclusions: In brief, chronic pain self-management, using an AI-powered, digital coach anchored in behavioral health principles significantly improved subjects' pain interference, physical function, depression, anxiety, and pain catastrophizing over the 12-week study period.

985

HUMAN TRPA1 SINGLE NUCLEOTIDE POLYMORPHISMS

C. Ciotu[1], M. Gold-Binder[1], S. Heber[1], M. Fischer[1]

[1]Medical University of Vienna, Vienna, Austria

Methods: Using site directed mutagenesis, human TRPA1 channel variants (R3C, R58T, E179K, K186N and H1018R) were generated. The mutated channels were transiently expressed in HEK293t cells and investigated using calcium microfluorimetry. The transfected cells were exposed to electrophilic agonists (AITC and JT010) and non-electrophillic agonists (Carvacrol and PF–4840154). The stimulus intensity was varied and the respective EC50 values of intracellular calcium transients were calculated.

Results: All agonists caused a concentration-dependent activation of human TRPA1 channels. Across the agonists a consistently higher EC50 compared to the other receptors was found for R58T.

Conclusions: The majority of the single nucleotide polymorphisms observed in the general population did not cause a change in sensitivity for the established modes of activation by pharmacological agonists. A reduced sensitivity of R58T was not reported before, whether this leads to an altered responsiveness in heterozygous subjects remains to be tested.

986

USE OF SENSORS IN CHRONIC PAIN STUDIES: A SCOPING REVIEW

D. Vitali[1], T. Olugbade[1], A. C de C Williams[1]

[1]University College London, London, United Kingdom

Methods: We searched PsychINFO, Web of Science, PubMed, from inception to July 2022. Our primary outcome was to map sensors by type, target, research application, and challenges imposed by each technology. Additionally, the characteristics of the sensors were reported in relation to the purpose of measurement (e.g. detecting pain) and to the complexity of the technological setups. This scoping review adopted the scoping review framework by Joanna Briggs Institute.

Results: Eight references containing 113 sensor units were included. There were four major categories of wearable sensors aimed at monitoring «physical activity», «autonomic activity», «muscle activity», and «brain activity». Sensors were used to detect pain, to recognise and measure pain behaviours, to monitor frequency and intensity of physical activity, sleep quality, and to study the association between biodata and psychosocial outcomes.

Conclusions: In the last decade the number of studies involving these technologies have grown exponentially and yet we felt that the growth of wearable technology has largely outpaced the growth in the demand from chronic pain research. The current availability of technology provides a vast number of potential research and clinical applications and some suggestions are proposed.

990

PLACEBO HYPOALGESIA INDUCED BY OPERANT CONDITIONING IN A NEW EXPERIMENTAL SETTING: MEDICALLY VS NON-MEDICALLY CONNOTED PLACEBOS

.J. Brączyk[1], H. Bieniek[1], E.A. Bajcar[1], M. Żegleń[1], S. Meeuwis[1,2], B. Paulewicz[1], P. Bąbel[1]

[1]Jagiellonian University, Kraków, Poland, [2]Leiden University, Leiden, Netherlands

Methods: Participants are randomly allocated to one of the experimental groups: medically connoted placebo and non-medically connoted placebo; and two respective control groups. In the medically connoted placebo groups, an alleged activation of a TENS device serves as a placebo intervention. In the non-medically connoted placebo groups, a white circle on black screen serves as a placebo. In both experimental groups in the operant conditioning phase, during every series of electrocutaneous stimulation participants have an option: to take or reject the placebo. If they choose the placebo, they are reinforced with lowered pain intensity. If they choose to reject the placebo, the pain intensity stays at the same level. The procedure in the control groups is analogous, however, the reinforcement is delivered randomly. After the conditioning phase, participants still have the choice between taking or rejecting the placebo, but no reinforcement is distributed. Both behavioral (NRS ratings) and physiological (ECG and EDA) measurements of pain intensity and pain expectation are collected.

Results: The data collection is ongoing, and the results will be presented during the conference.

Conclusions: The study will extend the knowledge about operant conditioning in inducing placebo hypoalgesia.

991

TEMPORAL ASSOCIATIONS BETWEEN PSYCHOLOGICAL INFLUENCES AND PAIN INTERFERENCE IN WOMEN WITH ENDOMETRIOSIS, FIBROMYALGIA AND VULVODYNIA

F.TA Sundström[1], A. Lavefjord[1], M. Buhrman[1], L. McCracken[1]

[1]Department of Psychology, Uppsala University, Uppsala, Sweden

Methods: Six participants with endometriosis (P1-2), fibromyalgia (P3-4), or vulvodynia (P5-6) completed a diary assessing PI, pain intensity, psychological inflexibility, catastrophizing and depression, twice daily for 42 days. Twenty-eight measurements were selected from each participant and analyzed using individual cross-lagged correlations, adjusted for autocorrelation, including lags -5 to +5, to examine the temporal relationship between pain interference as an outcome and proposed contributing psychological processes.

Results: Most psychological processes changed contemporaneously with PI, with some exceptions. For P6, the only significant correlation between psychological inflexibility and PI was found at lag 5 ($r = 0.44$, $p = 0.004$). For P2, the correlations between pain intensity and PI were significant at both lag zero and at lag one ($r = 0.73$, $p = 0.003$). For P3, there was a significant correlation between depression and PI at lag -1 ($r = 0.69$, $p = 0.001$). Notably, depression was the only proposed process that generated significant cross-correlations with PI for all participants.

Conclusions: To conclude, the importance of the proposed processes of influence seems to differs between participants. Future studies should recruit a sufficient sample to examine reliability and generality and identify potential subgroups.

995

EFFECT OF A PRE-CLINIC NURSE LED PAIN NEUROSCIENCE EDUCATION ON PATIENTS' ATTITUDES TOWARDS CHRONIC PAIN. AN EXPLORATORY RANDOMIZED CONTROLLED PILOT STUDY

S. Broekmans[1], E. Snels[1], B. Morlion[2], F. Haegdorens[3]

[1]University Hospitals Leuven, Leuven, Belgium, [2]University of Leuven, Leuven, Belgium, [3]University Antwerp, Antwerp, Belgium

Methods: A randomized controlled pilot study was performed in an academic multidisciplinary pain center. After informed consent, patients, referred to the pain center, were randomly assigned to the control group (n=22), receiving standard care, or to the intervention group (n=17). The latter group received a nurse-led pain neuroscience education before their first consultation with the medical pain specialist. Patient's attitudes were measured with the Pain Solutions Questionnaire (PaSol) at the beginning of the study and at 8 weeks after the first medical consultation.

Results: The PaSol mean scores in the control group were 35.36 at the start and 37.14 at week 8 ($p=0.509$); in the intervention group 35.31 at the start and 40.15 at week 8 ($p=0.087$).

Conclusions: Although no statistical significant results were found in this exploratory pilot trial with a small number of patients, the minor improvements in acceptance focused attitudes deserve further research by a statistical empowered study with an adequate sample size.

1007

RELIABILITY AND MINIMAL DETECTABLE CHANGE OF TEMPORAL SUMMATION AND CONDITIONED PAIN MODULATION USING A SINGLE EXPERIMENTAL PARADIGM

M. Vincenot[1,2], L.-D. Beaulieu[3,4], L. Gendron[2,5], S. Marchand[2,5], G. Léonard[1,2]

[1]Research Center on Aging, Sherbrooke, Canada, [2]Université de Sherbrooke, Sherbrooke, Canada, [3]Université du Québec à Chicoutimi, Chicoutimi, Canada, [4]Biomechanical & Neurophysiological Research Laboratory, Chicoutimi, Canada, [5]Centre de Recherche du CHUS, Sherbrooke, Canada

Methods: Forty-six pain-free participants took part in two identical experimental sessions to collect TS and CPM values. The test stimulus was a constant 2 min heat pain stimulation applied on the forearm. The conditioning

stimulus was a cold pressor test. Pain perception was continuously recorded during the two test stimuli, applied before and after the conditioning stimulus. TS was interpreted as the change in pain perception scores during the first test stimulus, and CPM was calculated by the difference in pain scores between the two test stimuli. Intra-class correlation coefficient ($ICC_{2,k}$), standard error of the measurement (SEM_{eas}) and the minimal detectable change (MDC) were calculated, as indexes of relative, absolute reliability and responsiveness to change respectively.

Results: Results shows that relative reliability varies from poor to moderate for TS (0.07 < ICC > 0.54) and remains poor for CPM (ICC < 0.50), with calculation methods having a high impact on the results. SEMeas and MDC are relatively high suggesting that significant changes are required on an individual level to exceed the measurement error.

Conclusions: TS and CPM are subject to intra- and inter-individual variation. Further research is needed to identify and control a maximum of variation factors. These mechanisms should be interpreted more as «state» mechanisms rather than a predefined «trait».

1010

THE IMPACT OF GAINING EXPERIENCE ON MEASUREMENT ERROR IN PRESSURE PAIN THRESHOLD ASSESSMENT

R. Reezigt[1,2], G. Slager[2], M. Coppieters[1,3], W. Scholten-Peeters[1]

[1]Vrije Universiteit Amsterdam, Amsterdam, Netherlands, [2]Hanze University Groningen, University of Applied Sciences, Groningen, Netherlands, [3]Griffith University, Brisbane, Australia

Methods: PPTs were determined in two studies (leg-study: tibialis anterior; arm-study: extensor carpi radialis brevis (ECRB)) with six untrained assessors in both study (physiotherapists: n=3; physiotherapy students: n=3). Assessors received instructions and a demonstration, and performed only one practise measurement. Seventy-two naive participants were measured over three days in each study (twelve new participants each morning and each afternoon over three testing days). Assessors received feedback on the measurements after every block of twelve participants. All data were analysed using the standard error of measurement (SEM) and Linear Mixed Models (LMM) including participant and assessor characteristics.

Results: For tibialis anterior, the SEM improved over the six blocks from 5.7 (95%CI: 5.0 – 6.6) to 4.2 (95%CI: 3.6 – 4.9). For ECRB, the SEM improved from 3.5 (95%CI: 3.0 – 4.0) to 2.4 (95%CI: 2.1 – 2.8). LMM revealed a significant effect of assessor experience (β=-0.2, p=0.035), assessor being a physiotherapist (β=0.64, p=0.02), assessor strength (β=0.01, p<0.001) and participant experience (β=-0.24, p=0.002).

Conclusions: Novice assessors already perform PPTs very reliably without training, while gaining experience further improves reliability. Participant experience also plays a role, highlighting the importance of familiarisation of the participants with the procedures.

1011

USE OF INFOGRAPHICS TO DRIVE CHANGE IN CLINICAL PRACTICE – DOES VISUAL COMMUNICATION IMPACT THE PRESCRIBING PRACTICE OF PREGABALIN IN A CARDIO-THORACIC TERTIARY CENTRE?

C. Gullberg[1], R. Di Palma[1]

[1]Guys and St Thomas NHS Foundation Trust, London, United Kingdom

Methods: Approval is being sought (2023) for a prospective three-month audit of patients prescribed pregabalin across two hospital sites.

No ethics or further approval needed for the development of the infographic (2022) as no new patient data was used in its development.

The infographic is to be displayed in clinical areas clinical areas where prescribers are based.

Data collection will be facilitated by our electronic patient documentation system and pharmacy dispensing system using a unique data collection tool (2017) to capture data on patient demographics, relevant medical history, dosing, treatment plans and review.

Results: Will be available for presentation at congress. Appropriate statistical analysis will be undertaken to illustrate findings

Conclusions: Previous audits has identified a need for ongoing awareness and improved prescribing. This is further supported by published international consensus guidelines[4] .

Using an infographic as a novel way of communicating key findings from previous audit cycles, we hope to demonstrate its value and drive change and improved prescribing practices of pregabalin in our clinical setting.

References:
1. NHS England & Public Health England (2014) Pregabalin and gabapentin: advice for prescribers on the risk of misuse - GOV.UK (www.gov.uk)
2. Evoy K.E et al (2017), Abuse and Misuse of Pregabalin and Gabapentin Systematic review, Drugs (2017) 77:403–426
3. Mc Sween-Cadieux E, Chabot C, Fillol A, et al. Use of infographics as a health-related knowledge translation tool: protocol for a scoping review. BMJ Open 2021
4. Levy, N., Quinlan, J., El-Boghdadly, K., Fawcett, W.J., Agarwal, V., Bastable, R.B., Cox, F.J., de Boer, H.D., Dowdy, S.C., Hattingh, K., Knaggs, R.D., Mariano, E.R., Pelosi, P., Scott, M.J., Lobo, D.N. and Macintyre, P.E. (2021), An international multidisciplinary consensus statement on the prevention of opioid-related harm in adult surgical patients. Anaesthesia, 76: 520-536.

1013

THE EFFICACY OF LEARNING PROCEDURES IN REVERSING NOCEBO HYPERALGESIA

I. Łaska[1], J. Badzińska[1], D. Rubanets[1], J. Kłosowska[1], P. Bąbel[1], E. Bajcar[1]

[1]Jagiellonian University, Institute of Psychology, Pain Research Group, Kraków, Poland

Methods: Healthy volunteers are randomly assigned to experimental groups where: 1) counterconditioning, 2) operant conditioning, 3) verbal modeling are used to eliminate the nocebo hyperalgesia, or to the 4) extinction control group; 5) random-control group. Participants from the experimental groups and the first control group undergo a classical conditioning procedure to induce nocebo hyperalgesia. They receive more intense pain stimuli in the placebo condition and less intense pain stimuli in the non-placebo condition. Then moderate pain stimuli are applied with- and without a placebo to examine the nocebo hyperalgesia occurrence. During the nocebo hyperalgesia elimination phase, participants depending on experimental group allocation: 1) experience less intense pain in the placebo than in the non-placebo condition, 2) are rewarded for experiencing lower pain in the placebo condition, 3) observe pain ratings allegedly from other participants, showing that they experienced less pain in the placebo than in the non-placebo condition. No learning procedures are implemented in control groups. Then moderate pain stimuli are applied both with- and without placebo to examine whether learning procedures eliminated previously induced nocebo hyperalgesia.

Results: Data collection is ongoing, the results will be presented on the poster.

Conclusions: The conclusions will be presented on the poster.

1014

PERSONALISED PERIOPERATIVE PAIN PASSPORT

A. Field[1], A. Deeley[1], D.-M. Lord[1]

[1]n/a, n/a, United Kingdom

Methods: Communication with key stakeholders for development of multi-professional opioid stewardship special interest group. Development of Patient Passport Documentation submitted to hospital governance process. Submitted as trust quality improvement project. Data collection via MedICU›s pain database. Demographic information, patient outcomes and patient satisfaction.

Results: Data collection ongoing.

Conclusions: We hypothesise safer, more effective care following this quality improvement project.

1018

THE EFFECT OF PERCEIVED INJUSTICE TARGETED PAIN NEUROSCIENCE EDUCATION AMONG BREAST CANCER SURVIVORS: A PROTOCOL FOR A RANDOMIZED CONTROLLED TRIAL

E. Roose[1,2], L. Leysen[1], A. Lahousse[1], P. van Wilgen[1], R. Bults[1], E. Huysmans[1], M. De Couck[1], D. Beckwée[1], A. Timmermans[2], J. Nijs[1,3]

[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]Universiteit Hasselt, Hasselt, Belgium, [3]University of Gothenburg, Gothenburg, Sweden

Methods: Female breast cancer survivors (n=156) experiencing pain and perceived injustice (≥3 months post oncological treatment) are recruited. Perceived injustice-targeted pain neuroscience education including motivational interviewing is compared with biomedical pain education. The randomization is done separately for each of the 6 treatment locations. Both interventions include an online session, an information leaflet, and three one-to-one sessions. Online questionnaires assess pain, quality of life, perceived injustice, healthcare costs, sleep, fatigue, and cognitive-emotional factors at baseline and 0-, 6-, 12-, and 24-months post-intervention. A linear mixed model for repeated measures will evaluate whether the groups differ in terms of pain, perceived injustice, opioid use, and quality of life after 12 months.

Results: We expect that perceived injustice-targeted pain neuroscience education is superior to biomedical education at reducing pain, perceived injustice, and opioid use, and improving the quality of life in breast cancer survivors.

Conclusions: This is the first randomized controlled trial investigating the effectiveness of perceived injustice-targeted pain neuroscience education as a non-pharmacological strategy in breast cancer survivors with pain and perceived injustice.

1020

OPTIMIZED B-VALUES FOR DIFFUSION TENSOR IMAGING (DTI) OF THE DORSAL ROOT GANGLIA (DRG)

M. Schindehütte[1], S. Weiner[1], M. Pham[1], G. Homola[1]

[1]University Hospital Würzburg, Würzburg, Germany

Methods: We examined the lumbosacral DRG of 18 healthy controls (9 women, 9 men) by 3T MRI. The DTI protocol included 9 b-values (0, 300, 400, 500, 600, 700, 800, 1000, 1200) with 32 directions each and a total acquisition time of 60 min per subject. The data were postprocessed and evaluated for uncertainty/dispersion and contrast-to-noise level (CNR).

Results: Dispersion is lowest in a range between b-value 500 and 800 (0.09 – 0.1). CNR drops significantly from a b-value higher than 800 s/mm² (>0.02).

Hereby, we determine FA values in healthy humans in a range from 0.25 to 0.28 [a.u.] and MD in a typical range of 0.0016 to 0.0017 mm²/s.

Conclusions: DRG DTI is a promising method to detect pathologies in pain processing on the level of primary sensory neurons. For this purpose, b-values between 500 and 800 should be applied.

1021

PREDICTORS OF CLINICAL RECOVERY AND QOL AT 12 MONTHS FOLLOW-UP ACROSS THE ICD-11 DIAGNOSTIC CHRONIC PAIN CATEGORIES: THE OSLO UNIVERSITY HOSPITAL PAIN REGISTRY (OPR)

N. Farnes[1,2], S. Vambheim[2], L.-P. Granan[2,1], A. Stubhaug[2,1]

[1]Oslo University, Oslo, Norway, [2]Department of Pain Management and Research, Oslo University Hospital, Oslo, Norway

Methods: This registry based study use baseline (N = 3258) and 12 months follow up data (N =1308) from chronic pain patients. Data are extracted from the Oslo Pain Registry (OPR). Data were collected between January 1st 2017 and November 30th 2021.The pain conditions are grouped into neuropathic pain, secondary non-neuropathic pain and primary pain, based on ICD-11 diagnostic criteria. We use regression models to investigate associations between demographic, psychometric and treatment variables (including sex, age, working status, pain, type of treatment or assessment, sleep, anxiety and depression, pain catastrophizing, experienced injustice, bodily distress, functional ability, activity, self-evaluated health, self-efficacy and fatigue), and clinical recovery and quality of life in the chosen patient groups.

Results: 348 patients were diagnosed with neuropathic pain, 250 with secondary non-neuropathic pain, and 710 with primary pain. Predictor analyses for clinical recovery will be presented.

Conclusions: Using the new ICD-11 classification on large-scale registry data enables investigation of differences between neuropathic pain patients and other chronic pain patients, which previously were not attainable. Understanding predictors of clinical recovery may improve clinical treatment outcomes and make individualized treatments more precise.

1023

POSTGRADUATE EDUCATION IN PAIN MEDICINE IN LITHUANIA

A. Sciupokas[1]

[1]*Lithuanian University of Health Sciences, Kaunas, Lithuania*

Methods: The curiculum program was examined by lining method and the reflexion from participants – by open questionnaire containing 17 items.

Results: The Curriculum in Pain medicine at the LUHS is conducted as professional qualification improvement primary course intended for all specialty doctors. The scope of the course is 200 hours including lectures - 84, practical work – 42, workshops – 15. The content is of three parts: 1. Theoretical pain basis; 2. Therapeutical aspects of pain medicine; 3. Interventional aspects of pain medicine. The teaching staff is from 16 structural units of the LUHS. The exam has three parts: 1. Clinical case presentation. 2. Theoretical test. 3. OSCE stations.

3 courses completed (2019-2022), 22 physicians been graduated. The reflexion from the doctors: i) overall course evaluation (0-10 scale) – 8.67; ii) pain theory – 9.17; iii) therapeutical aspects – 8.75; iiii) interventional aspects – 8.67. Insufficient training in practice was the only negative expressed by doctors – 66.7 %.

Conclusions:

1. Postgraduate education in Pain medicine in Lithuania is achievable by professional qualification improvement primary course.
2. The curriculum of course is based on multidisciplinarity.
3. Doctors evaluated the course positively, except for insufficient practice teaching.

1024

ARE PATIENTS WITH LONGER DURATION OF CONSTANT PAIN MORE INFORMED ABOUT CHRONIC PAIN?

S. Jerko[1]

[1]*University Rehabilitation Institute, Republic of Slovenia, Ljubljana, Slovenia*

Methods: Our research included 76 chronic pain patients. Half of them reported a duration of constant everyday pain of up to five years and the other half reported a duration of constant pain of more than five years. We asked them what information about chronic pain they already have and what information they would still like to be provided with.

Results: Our preliminary results show that patients with chronic pain durating for more than five years are slightly but not significantly more informed than patients with chronic pain durating up to five years. Both groups of patients would like to be provided with more information about chronic pain, whereas patients with chronic pain durating for more than five years would like to be provided with slightly but not significantly more information comparing to patients with chronic pain durating up to five years.

Conclusions: The results suggest that chronic pain patients would like to be provided with more information regardless of for how long do they live with chronic pain. This might imply the importance of education of chronic pain.

1029

OSCILLATORY BRAIN ACTIVITY AS POSSIBLE PREDICTOR FOR PHANTOM LIMB PAIN – A PILOT STUDY

A. Serian[1], J. Andoh[2], S. Desch[1], M.-P. Coll[3], M. Mosayebi-Samani[4], H. Neubauer[5], M. Nitsche[4], M. Roy[6], H. Flor[1]

[1]Institute of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, Ruprecht-Karls-University Heidelberg, Mannheim, Germany, Mannheim, Germany, [2]Department of Psychiatry and Psychotherapy, Central Institute of Mental Health, Medical Faculty Mannheim, Ruprecht-Karls-University Heidelberg, Mannheim, Germany, Mannheim, Germany, [3]School of Psychology, Université Laval, Quebec City, Quebec, Canada, Quebec, Canada, [4]Leibniz Research Centre for Working Environment and Human Factors, Dortmund, Germany, [5]BG Clinic Ludwigshafen Clinic for Hand, Plastic and Reconstructive Surgery - Severe Burn Injury Center - Clinic for Plastic Surgery of the Ruprecht-Karls-University Heidelberg, Ludwigshafen, Germany, [6]Dept. of Psychology, McGill University, Montréal, Canada

Methods: So far, we examined seven traumatic arm amputees and one traumatic leg amputee (mean age 47 years (SD = 15), 1 female), who could elicit phantom limb pain by moving their phantom hand or leg. The paradigm comprises a pain condition in which subjects elicit PLP by moving their phantom and a control condition in which subjects move their phantom without eliciting PLP. During both conditions a continuous pain rating on a visual analog scale was recorded using a trackball. Oscillatory alpha, beta and gamma activities where recorded with a 64 channels EEG.

Results: To obtain time courses of brain activity in specific frequency ranges, EEG data were time-frequency transformed. Preliminary results show that beta-band activity correlated with PLP ratings.

Conclusions: In summary, the activity in the beta-band as preliminary finding is in accordance with the literature, where it has been shown that beta-band oscillations in the prefrontal cortex are associated with contextual learning, which is highly relevant also for pain. Larger sample sizes are needed to confirm and extend these preliminary findings.

1030

WHAT DO WE KNOW ABOUT PAIN IN PHANTOM BREAST SYNDROME? A SCOPING REVIEW

T. Packham[1], S. Scherer[2], J. Smith-Turchyn[1]

[1]McMaster University, Hamilton, Canada, [2]University of Toronto, Toronto, Canada

Methods: We searched 4 databases for peer reviewed literature addressing phantom breast syndrome after mastectomy, including papers in any language with an English abstract. Titles and abstracts, then full texts were reviewed independently by 2 reviewers. Data was extracted by a single reviewer with a 10% random sample verification by a second reviewer. Data around interventions were extracted using a standardized framework: study quality was not evaluated.

Results: After deduplication and review, we located 98 full-text papers of n=3448 identified for data extraction. Publications spanned 1955 until present, increasing substantively after a 2003 seminal paper categorized PBP as a form of post-mastectomy neuropathic pain. While earlier papers considered PBS a psychopathology, recent publications attribute multiple causal factors, including physical, physiological and psychological contributors. Twenty percent used a form of standardized evaluation; only 11% of papers addressed interventions or practice recommendations. Reported prevalence of painful phantoms ranged from 0% to 64%. Three studies reported on mastectomy in gender-confirming surgeries rather than cancer treatment.

Conclusions: Given the prevalence of painful phantoms, there is a dearth of treatment-focused literature or evaluation of education for self- management. There is an opportunity to investigate the translation of effective interventions for phantom limb to the phantom breast syndrome population.

1031

BIOPSYCHOSOCIAL PREDICTORS OF TEMPORAL CHANGES IN THE PERCEPTION OF TONIC HEAT PAIN IN PERSONS WITH HIP OSTEOARTHRITIS

A. Sergooris[1], J. Verbrugghe[1], B. Bonnechère[1], M. Van Den Houte[2,1], K. Corten[1,3], K. Bogaerts[2,1], A. Timmermans[1]

[1]Hasselt University, Hasselt, Belgium, [2]KU Leuven, Leuven, Belgium, [3]Centre for Translational Psychological Research (TRACE), Genk, Belgium

Methods: 85 individuals with hip OA (66.2±10.7years) were included in this preliminary baseline analysis of a longitudinal study. A participant-controlled two-minute tonic heat protocol was performed at the contralateral wrist to assess temporal adaptation (TA) and summation (TS) of pain. Three categories were predefined based on the magnitude of TA and TS:(1)TA>TS,(2)TA=TS, and (3)TA<TS. Multinomial LASSO regression was used to identify predictors for the three categories. Independent variables included sociodemographics, psychiatric diagnosis (DSM-V), psychological outcomes (Hospital Anxiety and Depression Scale, Traumatic Experiences Checklist, Childhood Trauma Questionnaire, Fear-Avoidance Component Scale, Tampa Scale for Kinesiophobia, Injustice Experience Questionnaire), Hip Disability and Osteoarthritis Outcome Score, and pain intensity, duration, and frequency.

Results: Age (β=-0.030), male gender (β=0.441), emotional (β=0.030), and physical abuse (β=0.006) were associated with category 1 (TA>TS). The HOOS symptoms subscale (β=-0.005), social support (β=0.011), emotional abuse (β=-0.054), and suicidal risk (β=0.255) were associated with category 2 (TA=TS). Sport (β=0.190), pain intensity at the moment (β=-0.018) and on average last week (β=-0.107), and depression in the past (β=0.729) were associated with category 3 (TA<TS). For the remaining variables, no associations were found.

Conclusions: Individuals with hip OA and a history of depression might be at risk for increased TS of pain.Future research will investigate associations with other central pain mechanisms.

1138

IMPACT OF PAIN INTO THE SOCIAL LIFE OF TEENAGERS DIAGNOSED WITH SCHEUERMANN'S DISEASE

D. Piele[1], L. Rusu[1]

[1]University Of Craiova, Craiova, Romania

Methods: Our research was initially carried out on 127 articles published between 2014-2022 in PubMed, Web of Science, Embase. Selection was based on keywords such as Scheuermann, kyphosis, pain and focused on interpretation of pain and disability through relevant scores. Visual Analogue Scale (VAS), Quebeck Back Pain Disability Scale (QBPDS), Rolland Morris Disability Questionnaire (RMDQ), Oswestry Disability Index (ODI) and Short Form Survey (SF 36) have been the forms considered for measuring life quality in accordance to pain intensity.

Results: Considering the biopsychosocial impact of pain over lifespan, 26 studies created the final database of our analyses. Studies includ patients diagnosed with Scheuermann disease and corelate a VAS score rated between 4-6 to a: QBPDS of 74 points, RMDQ of 16 points, ODI of 32 points. On the opposite side a VAS score rated between 7-10 is corelated to a QBPDS of 91 points, RMDQ of 22 points and an ODI of 50 points.SF 36 modifies in accordance to patient outcome.

Conclusions: As per the obtained results the majority of teenagers with Scheuermann disease manifest pain (mild or severe) which is transposed into the quality of daily living. The impact of increased pain affects teenagers towards low state of mind and limited social interaction.

1140

PERCEIVED ATTRIBUTIONS OF PAIN AND ASSOCIATIONS WITH ACCEPTANCE MEASURED BY PAIN WILLINGNESS AND ACTIVITY ENGAGEMENT IN PATIENTS WITH HIGH IMPACT CHRONIC PAIN

A.K.J. Fledelius[1], J. Emborg[1], T.E. Andersen[1], H.B. Vaegter[2,3]

[1]Department of Psychology, Faculty of Health Sciences, University of Southern Denmark, Odense, Denmark, [2]Pain

Research Group, Pain Center, University Hospital Odense, Odense, Denmark, [3]Department of Clinical Research, Faculty of Health Sciences, University of Southern Denmark, Odense, Denmark

Methods: Patients (n=872) referred to a Danish interdisciplinary pain center, listed three causes of their pain. Assessment of PW and AE used the 8-item Chronic Pain Acceptance Questionnaire (CPAQ-8).

Two coders grouped the qualitative causes. Patients with responses such as injury and illness were categorized as "tissue damage" attribution, responses such as stress and depression as "psychological" attribution, and patients with causes containing both tissue damage and psychological attributions were categorized as mixed. Differences in PW and AE were analyzed using one-way ANOVA.

Results: In total, 332 (38.1%) patients were classified as tissue damage, 98 (11.2%) as psychological, and 58 (6.7%) as mixed. The remaining 384 (44.0%) patients reported other causes. A significant difference was observed between attribution groups' AE scores ($P<0.05$) (tissue damage: PW 10.2±4.7, AE 12.7±5.0; psychological: PW 10.4±4.9 AE 11.7±5.0; mixed: PW 10.5±4.7 AE 10.8±5.1).

Conclusions: Patients with high-impact chronic pain often attribute pain to tissue damage and rarely to psychological attributes. Scores for AE significantly differed, this and findings on pain perspectives may be useful in clinical practice.

1144

RADIOFREQUENCY ABLATION OF TERMINAL SENSORY ARTICULAR NERVES PRIOR TO ARTHROSCOPIC ROTATOR CUFF REPAIR SURGERY IMPROVED EARLY POSTOPERATIVE FUNCTIONAL OUTCOMES: A PILOT STUDY WITH 3 MONTHS FOLLOW-UP

M. Thepsoparn[1], A. Luechoowong[1], D. Limsakul[1], T. Tanpowpong[1]

[1]Chulalongkorn university, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Methods: In this prospective pilot study, participants were randomized to receive fluoroscopic-guided terminal sensory articular nerve cooled RFA (supraspinatus nerve, axillary nerve, lateral pectoral nerve) 1-5 days prior to elective ARCR or no intervention as the control group. Constant score (CS), American Shoulder and Elbow Surgeon score (ASES), and Pain numerical rating score (NRS) were assessed at 1, 2, 3, 4, 5, and 6 weeks and 3 months following ARCR.

Results:

ASES	Control (n=11)			CRFA (n=10)			Between groups	
	Mean ± SD	Mean Change (95%CI)	P value	Mean ± SD	Mean Change (95%CI)	P value	Mean difference (95%CI)	P value
Pre-operative	66.35 ± 16.09			57.66 ± 13.54				
6 weeks	77.49 ± 11.24	11.14(6.25-16.02)	<0.001	81.59 ± 5.49	23.93(17.28-30.58)	<0.001	12.79(4.64-20.95)	0.002
3 months	79.75 ± 13.44	13.4(8.5-18.28)	<0.001	87.32 ± 4.58	29.66(23.01-36.32)	<0.001	16.26(8.11-24.42)	<0.001

Twenty-one participants were enrolled in this study, including 11 in the control group and 10 in the cooled RFA group. The cooled RFA group showed significantly better CS and ASES at 6 weeks and 3 months. The two groups showed no differences in pain outcomes at all time points. No intervention-related complications were noted.

Conclusions: Cooled RFA of the terminal sensory articular branches of the supraspinatus, axillary, and lateral pectoral nerves performed 1-5 days prior to elective ARCR as part of a multimodal postoperative pain management regimen can improve functional outcomes as early as 6 weeks.

1145

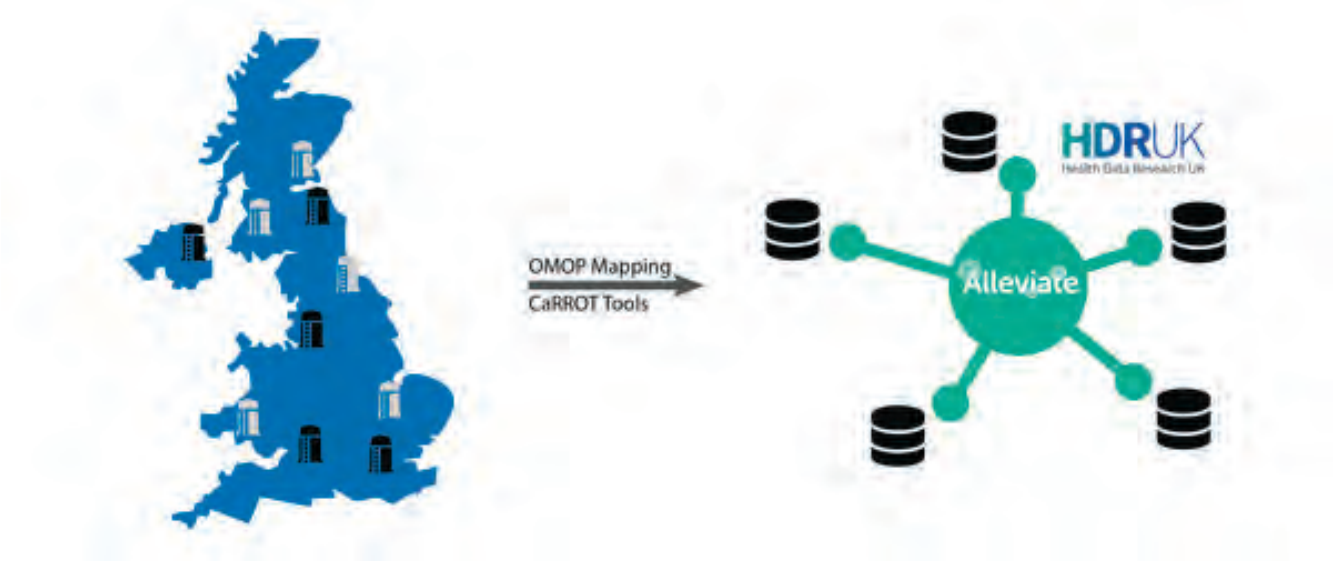
ALLEVIATE ADVANCED PAIN DISCOVERY PLATFORM – A NATIONAL DATA HUB FOR SHARING AND ACCESSING PAIN DATASETS

C. Cole[1], G. Milligan[1], P. Appleby[1], E. Masood[1], G. Martin[1], A. Chuter[2], J. Beggs[2], T. Giles[3], A. Mendez[3], E. Jefferson[4], P. Quinlan[3]

[1]School of Medicine, University of Dundee, Dundee, United Kingdom, [2]None, None, United Kingdom, [3]Digital Research Service, University of Nottingham, Nottingham, United Kingdom, [4]Health Data Research UK, London, United Kingdom

Methods: Building on the success of open-source tools developed during CO-CONNECT our team of academics and data engineers have experience curating datasets, using a set of open-source tools, from research cohort to the scale of population level data. The tools called CaRROT-Mapper and CaRROT-CDM combined with OHDSI's White Rabbit scan report generator transform data to a common standard using the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM). Alleviate makes available disparate pain datasets for re-use and analysis, utilising streamlined access to enable collaboration across pain datasets.

Results: We have worked with data partners to map their data to OMOP and make it available through the Cohort Discovery Tool: >5 million records are currently queryable by approved researchers in near real-time. Alleviate is continuing to add and improve the visibility of pain datasets.



Conclusions: Alleviate is a new and exciting pain data project that aims to enhance disparate high quality pain datasets throughout the UK and internationally. Curating data to a common standard and bringing it together through a single hub makes it easier to discover and access, ultimately facilitating pain research.

1146

EFFECT OF SUPERVISED MEDICAL YOGA THERAPY ON PAIN SENSITIVITY, FLEXIBILITY AND RANGE OF MOTION OF FIBROMYALGIA PATIENTS

A. Kumar[1], R. Yadav[1], S. Venkataraman[1], U. Kumar[1], R. Bhatia[1]

[1]All India Institute of Medical Sciences, New Delhi, India

Methods: We assessed pain catastrophization, pressure pain parameters, flexibility and range of motion in 22 fibromyalgia patients before and after 2 days of supervised medical yoga therapy.

Results: 22 fibromyalgia patients with mean VAS score 7.05±0.8, age 35.5±14.5 years and weight 60.5±8.5 Kg; completed the intervention. VAS score after intervention was 3.3±1.3($p<0.05$). Flexibility(cm) (Baseline: 2.1±0.8; Post-yoga: 3.9±1.3) and range of motion(^{O}) were significantly increased (Baseline: 16.7±4.3 (Left), 17.4±4.3 (Right); Post-yoga: 22.4±3.5 (Left); 22.4±3.6 (Right)). Pressure pain parameters in KPa were also found significantly increased for half of the parameters and at half of the sites; when pressure pain threshold and pressure pain tolerance at

reference site, left shoulder, right shoulder and L5 area were compared for baseline and post-yoga. Moreover, Significant decrease in pain catastrophizing scale (PCS) score after the medical therapy was found.

Conclusions: Supervised medical yoga therapy can partially ameliorate pain and improve flexibility and range of motion of fibromyalgia patients.

1147

RE-DESIGNING CHRONIC PRIMARY PAIN: LOOKING AT OTHER DISCIPLINES TO HELP THE PAIN BEARERS AND PAIN SPECIALISTS MANAGE PAIN

E. Tordera Nuño[1]

[1]Aalto University, Espoo, Finland

Methods: This study adopts the integrative object design approach proposed by philosopher Anne-Françoise Schmid. This method recognizes that some modern phenomena require a multidisciplinary effort as they cannot be fully understood from a single perspective. The study systematically reviews literature from various fields, such as health humanities, medical anthropology, embodied cognition, and contemporary art, from 2017 to 2023. This timeframe coincides with the latest advancements in chronic pain research and treatments.

Results: Once the multidisciplinary new conception is built, two facts appear: The CPP is unique to everyone. And combining different disciplines and displacing the biomedical gaze from the center gives rise to a new notion that might end up helping CPP bearers.

Conclusions: Further multidisciplinary research is imperative in the development of customized pain management.

1149

SCIATIC NERVE BLOCKS FOR NEUROPATHIC PAIN MANAGEMENT: A CASE REPORT

I. Kouroukli[1], T. Asimakopoulos[2], P. Botou[1], A. Hristodoulou[1], A. Gika[1], H. Tomara[1]

[1]Hippocratio General Hospital of Athens, Athens, Greece, [2]National and Kapodistrian University of Athens, Athens, Greece

Methods: A 33-year-old patient with sciatic pain was diagnosed with neuropathic pain using DN4. Despite treatment with pregabalin, duloxetine, tramadol SR, and tapentadol, the patient did not show improvement. Sciatic nerve block using dexamethasone 4mg and ropivacaine (0,5%) 20 ml was performed, resulting in immediate complete pain relief.

Results: Pain score improved to 4/10 in NRS 15 days later. The sciatic nerve block was repeated twice every 15 days, with progressive improvement of pain. In the follow up of patient 6 months and one year later she reported pain score 3/10 in NRS and had discontinued analgesics.

Conclusions: Neuropathic pain can be challenging to manage, and peripheral nerve blocks can provide effective pain relief. Our patient had significant pain relief following the initial sciatic nerve block and continued to have significant pain relief with repeated nerve blocks. Nerve blocks allowed the patient to discontinue analgesics and improve quality of life.Repeated sciatic nerve blocks can provide effective pain relief for neuropathic pain in lower extremities. Peripheral nerve blocks may be a valuable tool in the management of refractory neuropathic pain. Further research is needed to evaluate the long-term effects of repeated nerve blocks on pain control and quality of life

---

1150

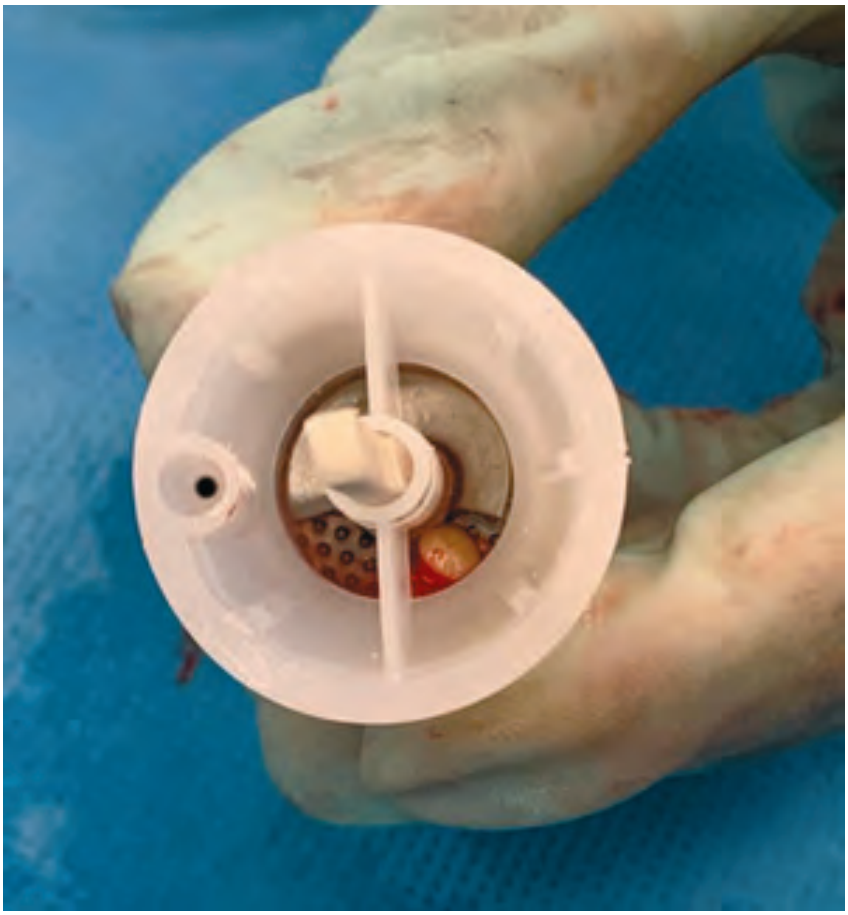
AUTOLOGOUS CARTILAGE MICROGRAFTING FOR KNEE OSTEOARTHRITIS: A CASE STUDY WITH A 60-DAY FOLLOW-UP

R.T.P. Ambrosio[1,2,3], C.D. Christ[2], H. Hyodo[2], M.V. Perez[2], R.I. Tibiriçá[2]

[1]Anhembi morumbi, São Paulo, Brazil, [2]Santa Casa de Misericordia de São Paulo, São Paulo, Brazil, [3]Universidade paulista - UNIP, São Paulo, Brazil

Methods: The cartilage sample is colleted by punch biopsy from the auricular: after asepsis, blocking of the greater auricular nerve and hydrodissection of the skin/cartilage (Figure 1). Three cartilage samples were collected, then introduced into the RIGENERACONS device with 4ml of sterile saline solution, where it was centrifuged for 6 minutes until satisfactory disintegration.

FIGURA 1 RIGENERACONS divice.



Results: The visual analogue scale was used to assess pain and the WOMAC questionnaire was used to assess stiffness. The patient showed improvement in intensity pain, as well as reduced joint stiffness and increased physical activity. (TABLE 1). In both cases, a reduction in the value represents improvement in the patient (FIGURA 2).

Table 1. WOMAC Results

Evaluation	Pre-procedure	15 days after	60 days after
WOMAC	Pain 14/20 Joint Stiffness 4/8 Disability 50/68	Pain 10/20 Joint Stiffness 3/8 Disability 55/68	Pain 8/20 Joint Stiffness 1/8 Disability 60/68
SF-12	PSD-12- 18,77 MSC-12- 60,88	PSD-12- 27,97 MSC-12- 61,97	PSD-12- 34,08 MSC-12- 63,27

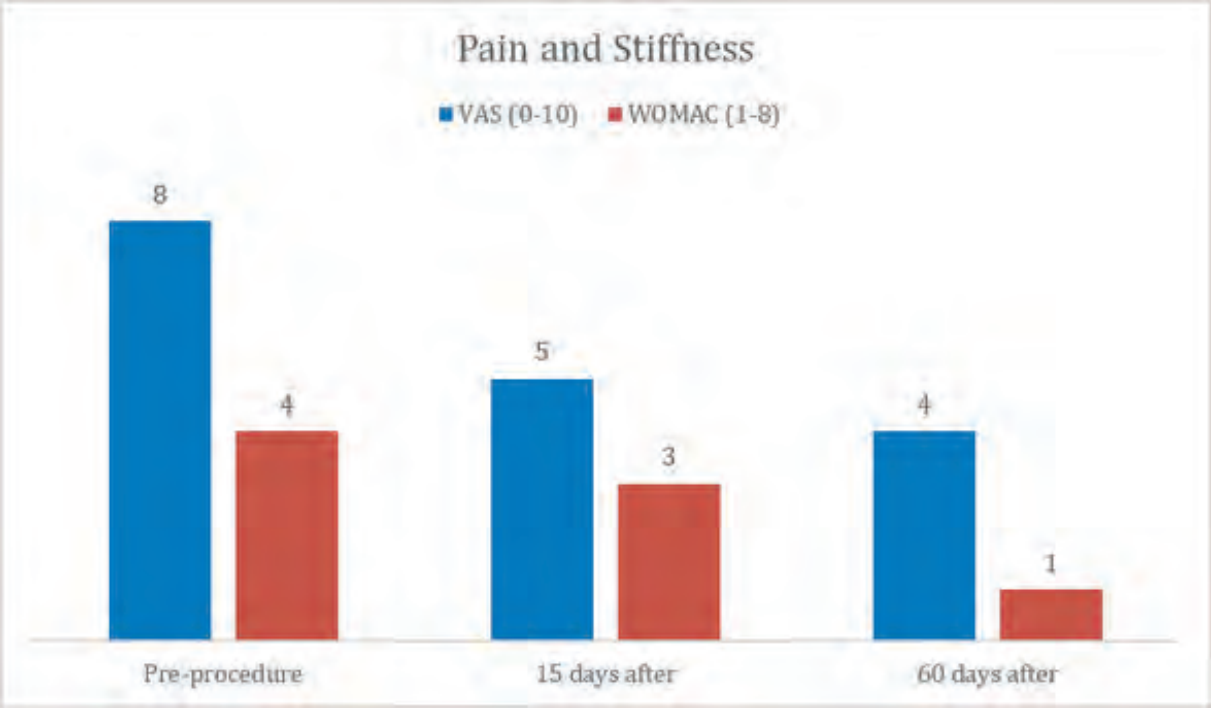


FIGURE 2

TABLE 1 Stiffnes (WOMAC) and Pain (VAS)

Conclusions: The RIGENERA technique of autologous cartilage micrografting for grade III knee osteoarthritis resulted in clinically significant improvement for pain as well as reduced joint stiffness and increased physical activity, the effects have been progressive between 15 to 60 days.

1154

STATE OF ART: CORRELATION BETWEEN THE ALTERED GUT MICROBIOME AND LIFESTYLE INTERVENTIONS IN CHRONIC WIDESPREAD PAIN PATIENTS: A SYSTEMATIC REVIEW

M.E. Gonzalez-Alvarez[1,2], E. Sanchez-Romero[3,4,5,6,7], J. Fernandez-Carnero[1,2,3,4,5,6,7], J. Villafañe[8]

[1]Universidad Rey Juan Carlos, Madrid, Spain, [2]Escuela Internacional de Doctorado, Rey Juan Carlos University, Madrid, Spain, [3]Universidad Europea de Madrid, Villaviciosa de Odón, Spain, [4]Physiotherapy and Orofacial Pain Working Group, Sociedad Española de Disfunción Craneomandibular y Dolor Orofacial, Madrid, Spain, [5]Musculoskeletal Pain and Motor Control Research Group, Faculty of Sport Sciences, Universidad Europea de Madrid, Madrid, Spain, [6]Department of Physiotherapy, Faculty of Health Sciences, Universidad Europea de Canarias, Santa Cruz de Tenerife, Spain, [7]Musculoskeletal Pain and Motor Control Research Group, Faculty of Health Sciences, Universidad Europea de Canarias, Santa Cruz de Tenerife, Spain, [8]IRCCS Fondazione Don Carlo Gnocchi, Milan, Italy

Methods: A systematic review was conducted until February 2023. The search was following the Preferred Reporting Items for Systematic Reviews (PRISMA) guidelines. Keywords “pain” “microbiome” and “AND” were combined in Pubmed, Cochrane, PEDro and ScienceDirect. Extraction data was according to the Cochrane Handbook for Systematic Reviews and to the eligibility criteria (clinical trial, LI, CWP patients and the gut microbiome).

Results:

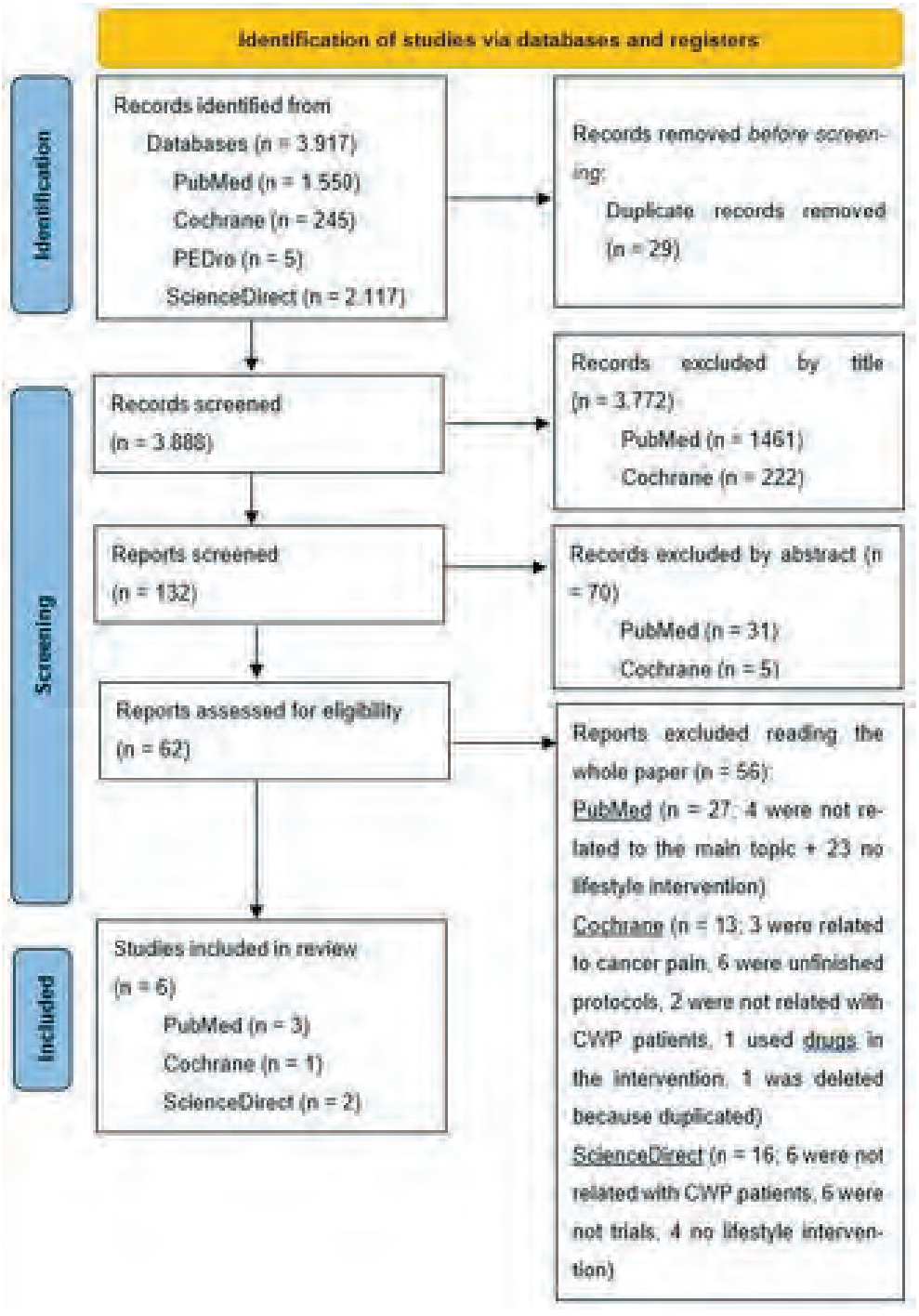
Author, Year	Study Design	Participants	Intervention	Outcome Measures	Reported Results
Shukla et al., 2015	Randomized controlled trial	20 subjects (10 ME/CFS patients and 10 controls) Mean age of patients was 48.6 years Mean age of controls is 46.5 years Inclusion criteria: subjects with CFS without any other major illness	Maximal exercise test on an electronically braked cycle ergometer Duration of trial: 3-minute warm-up at 25 W and the rate was increased to 5 W every 20 seconds. Participants should maintain a pedal rate between 60-70 RPM. The test ended if the participant could not maintain the pedal rate or stopped pedaling	Sample collection (blood and stool) DNA sequence analysis MFI POMS McGill Pain Questionnaire Symptom Inventory: Diarrhoea & Stomach/Abdominal Pain Symptom Inventory: (Neurocognitive Symptoms, Memory Problems, Concentration Problems) Measured and Follow-up: Pre-intervention, immediately pre-test, immediately post-test, 40 h and 72 h post-test	Baseline: statistically significant differences between groups in MFI and POMS. A significant difference between groups in heart rate during the test. The relative abundance of Actinobacteria in the gut microbiome was significantly lower in ME/CFS patients than in healthy controls. Authors' conclusions: "Exercise induced bacterial translocation, one likely argument to why patients worsen when they try to be more physically active."
Roman et al., 2018	Randomized controlled trial	31 fibromyalgia participants Inclusion criteria: >1 year from the fibromyalgia diagnosed before the study. Exclusion criteria 1)use of antibiotics and nutritional supplements 2)allergies 3)participating in other psychological or medical studies 4)pregnant/ breastfeeding 5)severe intestinal disease 6)psychiatric disorders	Probiotic ingests (n=16) Ctrl: sham probiotics (n=15) 2 pills before breakfast and dinner, for 8 weeks	VAS FIQ SF-36 STAI BDI MMSE Cognitive tasks (choice task and the Iowa gambling task) Cortisol Measures and Follow-up Pre- and post-intervention	Both groups: ↓ FIQ, depressive symptoms and cortisol ↑ SF-36 *Authors' conclusions*: "This intervention improves cognition, specifically impulsive choice and decision-making, in a group of patients diagnosed with fibromyalgia."
Jensen et al., 2019	Randomized doubleblind placebo controlled trial 1 year follow-up	85 participants, 42 active capsules and 43 placebo capsules. Inclusion criteria: CLBP and MC1 Age 18-65 Danish speakers RMQ < 5 Exclusion criteria: Intended, planned or previous back surgery Planned or current (last 3 months) antibiotic treatments for MC, immunosuppressants, intestinal pathology, immune deficiency, cancer or inability to complete de project	Active group: Probiotic Dicoflor ® twice daily for 100 days. Each capsule contains 6 billion Lactobacillus Rhamnosis GG. Placebo group: Placebo capsules indistinguishable from Dicoflor twice daily for 100 days	Age and sex Pain duration and intensity (NRS) Likert scale BMI RMQ Back+leg pain by the LBP rating scale Measures and Follow-up Until 1 year follow-up	No differences between intervention groups in regard to the predefined outcomes disability, back+leg pain, patient-reported global effect or the number of the patients with minimal disability at 1 year. Back pain decreased a little more in the active intervention group than in the control group. Authors' conclusions: "The study confirmed that treatment with probiotics, was safe and implicated no more side effects than placebo."

Author, Year	Study Design	Participants	Intervention	Outcome Measures	Reported Results
Kenis-Coskun et al., 2020	Clinical Trial	51 Female patients who have CWP with vitamin D deficiency Mean age: 44.3 ± 12.7 Mean symptom duration was 13.1 ± 6.7 months. Mean BMI: 21.6 ± 3.9 Exclusion criteria: Medications that alter CPS Neuropathies Comorbidities that can cause vitamin D deficiency Rheumatologic or metabolic diseases Surgery (last 6 months) CNS disorders Psychiatric disorders BMI < 30.	8-week re-placement therapy of vitamin D	VAS LANSS QoL (NHP) CSP parameters Vitamin D measurements Measures and Follow-up Before and after treatment	No significant changes un CSP parameters with Vitamin D replacement. Vitamin D replacement improve pain levels and QoL in patients with CWP. Authors' conclusions: "These results imply that in which-ever way vitamin D is effective in CWP, it does not seem to be via the spinal inhibitory circuit that elicits the inhibition of muscle contraction with painful stimuli."
Wang et al., 2021	Randomized controlled trial	90 participants (60 knee OA patients + 30 healthy controls) Inclusion criteria: Age 45-75 years, radiographically confirmed OA on one or both knees for more than 6 months and pain intensity ≥ 4 out of 10. Exclusion criteria: knee surgery, floating cartilage, joint effusion, inflammatory, malignant, or autoimmune disease, serious acute or chronic organic disease or mental disorder, pregnancy or breastfeeding, or history of bleeding disorder Participants were not included if they had acupuncture treatment or participated in other clinical trials in the past 3 months.	3 groups: EA: acupoints selected by formed acupuncturists (n = 30) SA: sham acupoints (n = 30) Healthy controls (n = 30) Duration of trial: 8 weeks	WOMAC (pain, stiffness and function subscales) NRS Function subscale: SF-12 Physical and mental health summary Fecal sample and DNA extraction 16S ribosomal RNA gene sequencing Microbial analysis Measures and Follow-up 0, 4, 8, 16, and 26 weeks of follow-up	↑ WOMAC total scores at 8 weeks in EA compared to SA ↑ WOMAC pain scores at 8 weeks in EA compared to SA ↓ NRS scores at 8 weeks in EA compared to SA Microbiota profiles were significantly different between EA (before intervention) and healthy controls. Blautia, Streptococcus and Eubacterium ↑and Bacteroides and Agathobacter ↓in EA. After treatment, Agathobacter and Lachnoclostridium↑EA. -Bacteroides were - correlated with NRS score, WOMAC total score, and WOMAC pain, stiffness and function. -Agathobacter was - correlated with NRS score, WOMAC total score, and WOMAC pain, stiffness and function scores. -Faecalibacterium was - correlated with NRS score, WOMAC total score, and WOMAC pain and function. -Roseburia was - correlated with WOMAC total score, and WOMAC pain, stiffness and function. Streptococcus was + correlated with NRS score, WOMAC total score, and WOMAC pain, stiffness and function scores. -Enterococcus was + correlated with NRS score and WOMAC pain score. Eubacterium, Blautia and Anaerostipes were positively correlated with SF-12 physiological score and SF-12 psychological score Authors' conclusions: - EA was more effective than SA at 8 weeks - EA treatment modified the diversity of the gut microbiome

Author, Year	Study Design	Participants	Intervention	Outcome Measures	Reported Results
Torlak et al., 2022	Randomized controlled trial	60 sedentary, CLBP patients (30 female + 30 male) Inclusion criteria: VAS > 5 BMI > 25 kg/m2. Exclusion criteria: Individuals who engage in active exercise Intake of painkillers, anti-depressant or cortisone Pregnant individuals; Severe chronic illness Spine surgery	PTG (n=20) PT+DG (n=20) DG (n=20) DG lasted for 5 weeks, monitored daily PTG lasted for 5 weeks, monitored 5 times a week. Program: hot packs + US + TENS PT+DG used both intervention	BMI VAS LANSS BI Measures and Follow-up Before and after treatment	Significant difference in VAS scores in each group before and after treatment when intragroups values ere compared (PT+DG: p<0.001; DG: p<0.001; PTG: p<0.001) No significant differences between groups in terms of VAS scores before and after treatment. Authors' conclusions: "Pain sensation decreased in all groups and the quality of life of the patients increased after treatment in PTG. Intermittent diet may be an alternative option for the treatment of chronic pain."

Abbreviations alphabetically ordered: ↑=Increased;↓=Reduced; +: positively; -: negatively; BDI: Beck Depression Inventory; BI: Barthel Index; BMI: Body Mass Index; CFS: Chronic Fatigue Syndrome; CLBP: Chronic Low Back Pain; CPS: Central Pain Sensitivity; Ctrl: Control; DG: diet group; EA: Electroacupuncture; FIQ: Fibromyalgia Impact Questionnaire; LANSS: Leeds Assessment of Neuropathic Symptoms and Signs pain scale; MC1: Modic changes type 1; ME: Myalgic Encephalomyelitis; MFI: Multidimensional Fatigue Inventory; MMSE: Mini-Mental State Examination; NRS: Numerical rating scale for pain; NHP: Nottingham Health Profile; OA: Osteoarthritis; POMS: Profile of Mood States; PTG: Physical therapy group; PT+DG: Physical therapy + diet group; QoL: quality of Life; RMQ: Roland Morris Questionnaire; RPM: revolutions per minute; SA: Sham acupuncture; SF-12: The standard 12-item Short-Form Health Survey; SF-36: The SF-36 Quality of Life Questionnaire; STAI: 40-item State-Trait Anxiety Inventory; VAS: visual analog scale; W: watts; WOMAC: Western Ontario and McMaster Universities Osteoarthritis Index.

3917 studies were identified by searching in the cited database. 6 articles, Fig.1 and 337 patients were included. LI were: probiotic or Vitamin D ingesta, modified diet, electroacupunture or exercise. There were three associations to highlight seeing the results reported: gut microbiome and pain (all investigations showed improvement after treatment) gut microbiome and quality of life (QoL), (5 investigations described better results after treatment, one did not measure QoL) and gut microbiome and exercise (Shukla outlined that all the participants showed changes after a maximal exercise challenge, Tab.1.



Conclusions: LI could be a suitable treatment for CWP, modifying pain and microbiome. CWP, microbiome and LI relationship has become clearer over the last years, widening the range of therapeutic options, which are still underexplored despite their potential.

1155

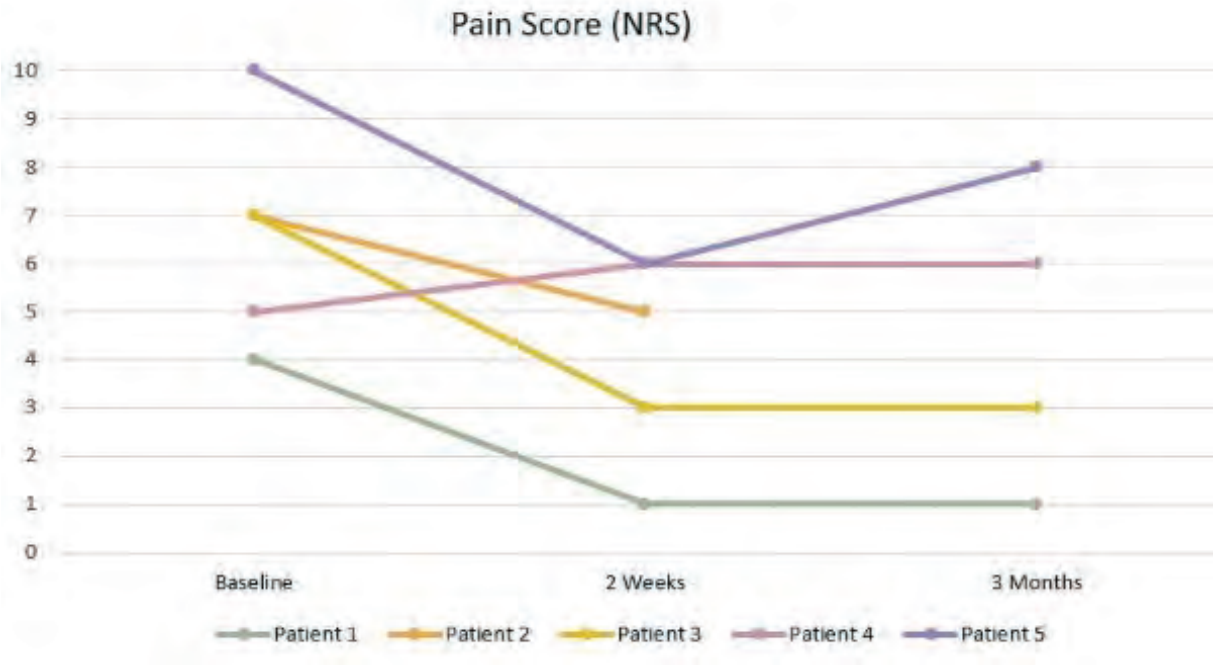
CLINICAL OUTCOMES OF PERCUTANEOUS INTRADISCAL RADIOFREQUENCY THERMOCOAGULATION FOR RADICULAR PAIN FROM LUMBAR DISC HERNIATION: A RETROSPECTIVE CASE SERIES OF PATIENTS REFRACTORY TO EPIDURAL STEROID INJECTIONS

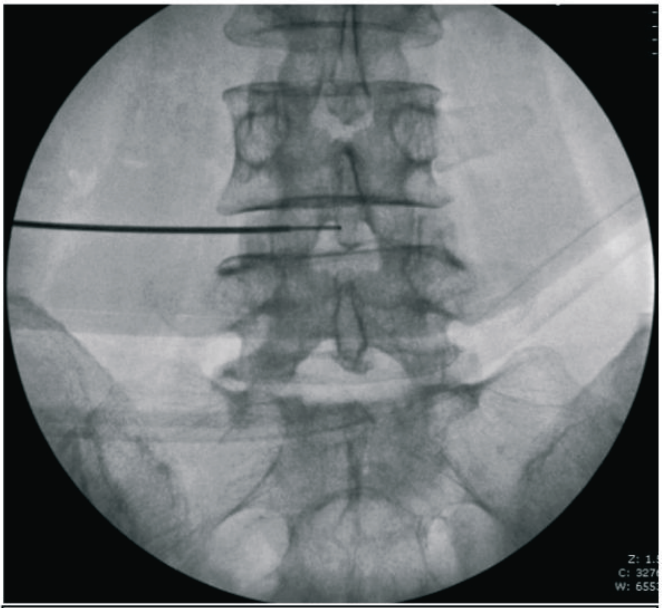
R. Choomsai Na Ayuthaya[1], M. Thepsoparn[1]

[1]*Chulalongkorn University, Bangkok, Thailand*

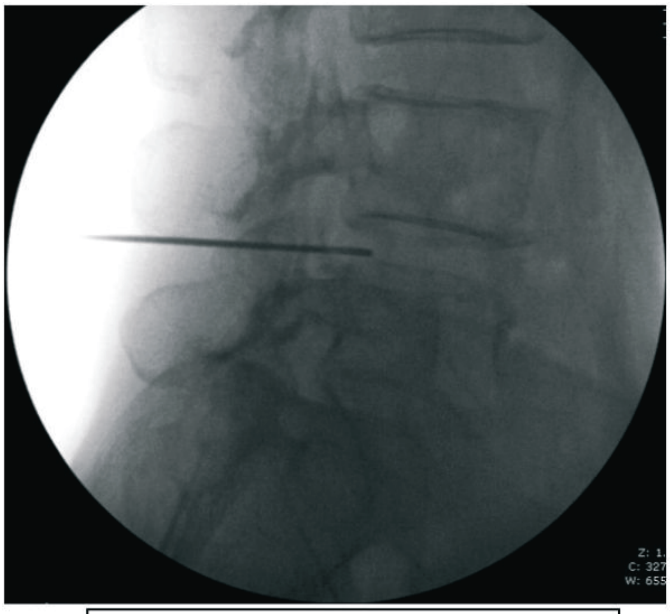
Methods: The medical records of 5 patients with radicular pain from lumbar disc herniation who received PIRFT after failed ESIs were reviewed. The patients were evaluated for pain using the numerical rating scale (NRS) before and after the procedure, at 2 weeks and 3 months.

Results:





Electrode and cannula positioned for treatment in the mediolateral posterior disc near the prolapse (AP view)



The cannula tip is within the posterior disc. (lateral view)

Two cases demonstrated more than 50% pain reduction at 2 weeks, and this benefit persisted for up to 3 months after the procedure. Two other cases with severe baseline pain NRS 7 and 10 achieved some pain relief with PIRFT, with their pain scores improving to 5 and 6 at 2 weeks, respectively. Nevertheless, they still required endoscopic decompression to achieve further pain relief. One patient did not experience any pain relief from PIRFT.

Conclusions: This retrospective case series suggests that PIRFT may be a beneficial treatment option for radicular pain from lumbar disc herniation that is refractory to ESIs. However, further prospective studies with larger sample sizes and longer follow-up periods are needed to confirm these results.

1158

ASSOCIATIONS BETWEEN PRIMARY MOTOR CORTEX ORGANIZATION, MOTOR CONTROL AND SENSORY TESTS IN LOW BACK PAIN. A PROTOCOL FOR A CROSS-SECTIONAL AND LONGITUDINAL CASE-CONTROL STUDY

S. Klerx[1,2], S. Bruijn[2,3], H. Kiers[2,1], M. Coppieters[4,2], J. Twisk[5], A. Pool[2,6]

[1]Research Group Lifestyle and Health, Section Movement Adaptation and Prognosis,HU University of Applied Sciences Utrecht, Utrecht, Netherlands, [2]Faculty of Behavioral and Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam, Netherlands, [3]Institute of Brain and Behavior, Amsterdam, Netherlands, [4]Menzies Health Institute Queensland, Griffith University, Brisbane and Gold Coast, Australia, [5]Department of Epidemiology and Data Science, Amsterdam University Medical Centre, Amsterdam, Netherlands, [6]SOMT University of Physiotherapy, Amersfoort, Netherlands

Methods: A case-control study with a cross-sectional and five-week longitudinal component is conducted in participants with LBP (N=25) and participants without LBP (N=25). Participants with LBP received usual care physiotherapy. Various tests were administered at baseline and follow-up. Following an anatomical MRI, organization of M1 was determined using transcranial magnetic stimulation. Quantitative sensory testing, a spiral-tracking motor control test, graphesthesia, two-point discrimination threshold and various self-reported questionnaires were also assessed. Multivariate multilevel analysis will be used for statistical analysis.

Results: Preliminary results. Data-collection has been completed. The first results are expected to be submitted for publication in June 2023.

Conclusions: We will address the gaps in knowledge about the association between reorganization of M1 and motor control and sensory tests during the clinical course of LBP. This study is registered at DOI 10.17605/OSF.IO/5C8ZG.

1159

VISUAL FEEDBACK IN MODULATION OF PAIN: NEUROPHYSIOLOGICAL PERSPECTIVE ON A PHANTOM LIMB PAIN MODELLING IN VIRTUAL REALITY

V. Piombino[1], K. Maciejewska[1], M. D'Alonzo[1], E.D. Papaleo[1], G. Di Pino[1]

[1]Università Campus Bio-Medico di Roma, Rome, Italy

Methods: In Experiment1, 10 healthy subjects were tested to assess sensitivity of sympathetic activity (SCR amplitudes) and Numerical Rating Scale (NRS) to discriminate touch and pain sensations. A sensorised custom-made pinprick device was employed to provide both sensations by covering or uncovering needle tip.

In Experiment2, differences in pain modulation were assessed on 4 healthy subjects for visual feedback conditions using virtual reality environment which allowed to alter the limb shape (blurred vision, different length, presence of injury or amputation).

Results: In Experiment1, both NRSs and SCRs were significantly higher in pain compared to touch condition ($p<0.001$, $p=0.021$; respectively) and were correlated (Pearson's correlation $r=0.730$; $p=0.017$).

In Experiment2, higher values were reported on average when the virtual body image was altered compared to normal at least in SCRs.

Conclusions: SCRs seem to be an effective measure of pinprick pain and can be employed to highlight differences in modulations induced by visual feedbacks. However, although preliminary results seem to confirm an active role of vision in pain modulation, a large sample size is necessary to draw detailed conclusions.

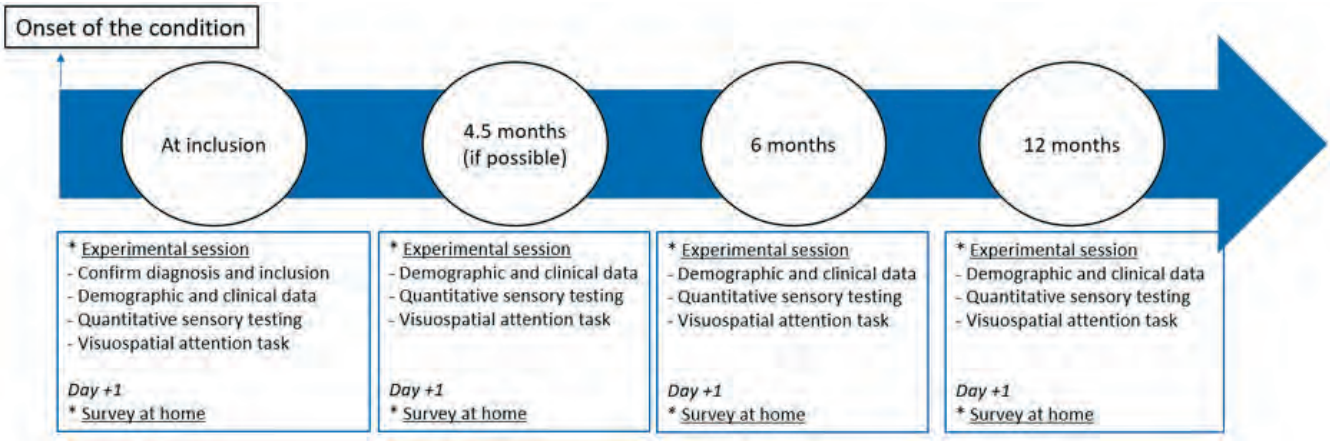
1160

[PRELIMINARY RESULTS] EARLY PROGNOSTIC FACTORS IN COMPLEX REGIONAL PAIN SYNDROME: A 1-YEAR BELGIAN PROSPECTIVE LONGITUDINAL OBSERVATIONAL STUDY (NCT05337501)

M.-H. Louis[1], V. Legrain[1], L. Filbrich[1], M. Halicka[1], A. Berquin[2]

[1]*UCLouvain, Brussels, Belgium,* [2]*Cliniques universitaires Saint-Luc, Brussels, Belgium*

Methods: Early CRPS patients (< 6 months from the onset of the condition) are included in a prospective longitudinal observational study and assessed at 4 time points during 1 year (as soon as possible, 4.5, 6 and 12months). Each session includes anamnesis, clinical examination, quantitative sensory testing, visuospatial attentional abilities and questionnaires covering the entire biopsychosocial model. The primary endpoint is the disability.



Results: Recruitment is ongoing (54 participants included); the following are the demographic and clinical characteristics. The cohort is predominantly female (76%) with a mean age of 49 years. 67% were working prior to condition onset. The mean CRPS duration is 82 days at the inclusion. At 6 months, 56% of participants still meet Budapest criteria and only 50% of workers have returned to work. Pain, disability and quality of life are impaired and do not seem to improve. On average, participants do not report anxiety or depressive disorders (mean HADS<11).

		INCLUSION (< 6MONTHS)	4.5 MONTHS	6 MONTHS
TOTAL NUMBER OF PARTICIPANTS		54	29	29
FULLY RETURNED TO WORK (% OF WORKERS)		20%	33%	50%
MEETING CLINICAL BUDAPEST CRITERIA (%)		100%	71%	56%
CRPS SEVERITY SCORE (/16)*		12 (10-13)	11 (9-12)	9 (7-11)
BODY PERCEPTION DISTURBANCE (/47)*		16 (8-24)	13 (9.5-20)	15 (6-23)
DISABILITY (QDASH OR LEFS)	Upper extremity (/100)*	64 (48-77)	58 (35-69)	52 (36-68)
	Lower extremity (/100)*	62.5 (46-71)	57.5 (41-75)	61 (47-77)
PAIN (SF-BPI)	Pain intensity (/10)*	5 (3-7)	5 (3.5-7)	6 (3-7)
	Pain interference (/10)*	6 (3.5-7.5)	5 (3-6.5)	5.5 (4.5-7)
QOL (EQ-INDEX, /1)*		0.53 (0.33-0.77)	0.71 (0.45-0.84)	0.66 (0.40-0.82)
PAIN-RELATED FEAR OF MOVEMENT (TSK-11, /44)*		32.5 (28-36)	30 (27-36)	33 (28-37)
ANXIETY SCORE (HADS, /21)*		9 (6-13)	10 (6-13)	9 (6-12)
DEPRESSIVE SCORE (HADS, /21)*		6 (3-11)	8 (3-10.5)	7 (3-11)

* = *Median (IQ25-75)*

Conclusions: The evolution seems to be less positive than described in literature. The final results will investigate which of these biopsychosocial factors predict long-term outcomes in CRPS. Ultimately, it might enable patients to be stratified according to their risk of chronification.

1161

RISK OF RISK DEPENDENCE ON SOCIALLY ACCEPTED SUBSTANCE IN A TERTIARY PAIN TREATMENT CENTER

G. Vargas-Schaffer[1], A. Osailan[1], S. Valera[1], J. Cogan[1], M.-C. Taillefer[1], A. Boulanger[1]

[1]University of Montreal, Montreal, Canada

Methods: After ethics approval, (Protocol 18.288) patients completed four electronic questionnaires: demographics, addiction screening questionnaires for alcohol dependence (CAGE), nicotine dependence tobacco (Fagerström), The Cannabis Abuse Screening Test (CAST). Results were compiled using the Survey Monkey software.

Results: A total of 405 adult patients participated in the study, women 66.67%, men 33.33%. The average age was 55 years and the pain scale at the time of the survey: 6.46. Fagerström questionnaire: 40 (15.74%) participants smoked cigarettes within the last week: low dependency 6.27%, moderate dependency: 6.02%, high dependency: 4.26%. CAGE questionnaire demonstrated positive for alcohol dependency 5.20%. CAST Questionnaire 8.20% positive for cannabis addiction. 25 of 404 participants took substances recreationally: 23 Marijuana, 1 Cocaine, and 1 other drug.

Conclusions: These results show that patients who are followed in a tertiary care pain center for CNCP may have a low to moderate risk for dependence on alcohol, nicotine and cannabis; similar to that seen in the general population in Canada. Therefore, while it is imperative to maintain vigilance regarding the potential for patient dependence it is also incumbent on clinicians to provide the highest quality of care using all appropriately selected measures to treat CNCP.

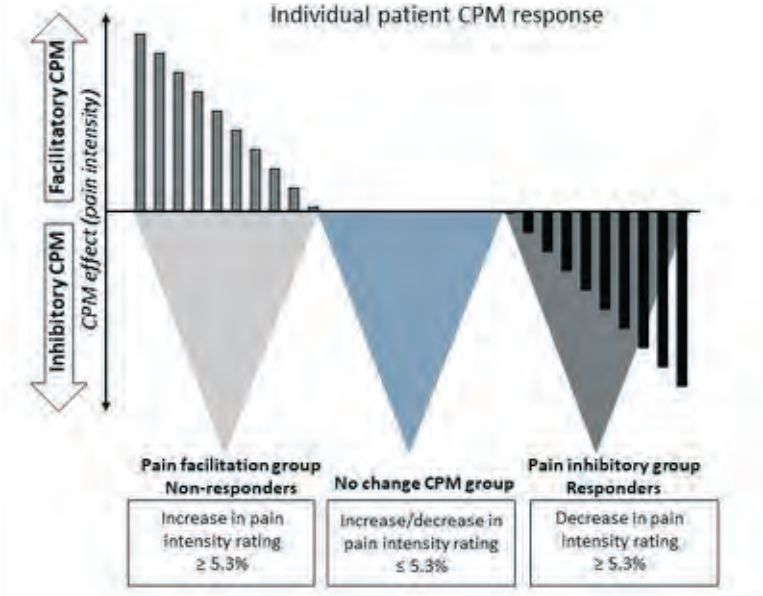
1163

INDIVIDUAL CONDITIONED PAIN MODULATION RESPONSES IN PATIENTS WITH CHRONIC KNEE PAIN. EXPLORATIVE FINDINGS FROM A MULTICENTER TRIAL

J.B. Larsen[1], P. Madeleine[1], L.B. Sørensen[1], J. Sachau[2], J.C. Otto[3], R. Baron[2], L. Arendt-Nielsen[1,4]

[1]Aalborg University, Aalborg, Denmark, [2]University Hospital Schleswig-Holstein, Kiel, Germany, [3]Ameos Clinic Eutin, Eutin, Germany, [4]Aalborg University Hospital, Aalborg, Denmark

Methods:



This explorative, cross-sectional study included 127 patients with chronic knee pain (osteoarthritis or following total knee arthroplasty). Individual CPM responses were categorized as facilitatory (test stimuli pain increased during conditioning stimuli), as inhibitory (test stimuli pain decreased), or as no change (figure 1). Outcomes were pain intensities, temporal summation, widespread pain, self-reported physical function, painDETECT questionnaire, and Pain Quality Assessment Scale. Data were analyzed as comparisons between the facilitatory and inhibitory groups and using multivariate linear regression models.

Results: Fifty-four patients exhibited facilitatory CPM responses, 49 inhibitory CPM responses, and 24 showed no change. A between-group difference was observed for self-reported physical function, with the facilitatory CPM-group reporting better function (54.4 vs. 46.0, p=0.028) and more deep pain sensations (3.2 vs. 2.0, p=0.021). The remaining outcomes showed no between-group differences. Higher clinical pain intensity and temporal summation were associated in the facilitatory CPM-group but not in the inhibitory CPM-group.

Conclusions: These explorative findings indicated that quantitative clinical and experimental differences exist between facilitatory or inhibitory CPM responses in chronic knee pain patients. Individual CPM responses should be further investigated to unravel possible clinical importance.

1166

CARDIAC DISEASE AND END-OF-LIFE CARE: WHAT HURTS? WHAT HELPS?

J. Cogan[1], É. Caplette[1], M. Raymond[1], J. Paquet[1], G. Vargas-Schaffer[1]

[1]University of Montreal, Montreal, Canada

Methods: We present an overview of the population followed by the palliative care team at the Montreal Heart Institute over the past 7 years as well as treatments and interventions used, specifically, which medications and types of interventions are most helpful in creating comfort at end-of-life.

Results: Patients with cardiac disease experience pain. When compared with cancer pain there are many differences in the expression and treatment for this discomfort, most notably seen with the efficient and effective use of very small doses of opiates. The doses prescribed help to alleviate not only pain, but shortness of breath and agitation.

Conclusions: It is possible to provide comfort and well-being with small doses of opiates and adjuvant medication for patients with end stage heart disease in order to allow them quality time with their family at the end of their life.

1171

THE EVISUALISATION OF PHYSICAL ACTIVITY AND PAIN INTERVENTION IN INTERDISCIPLINARY PAIN REHABILITATION PROGRAMS TO FACILITATE INDIVIDUALIZED PHYSICAL ACTIVITY LEVELS – A RANDOMISED CONTROLLED PILOT STUDY

V. Sjöberg[1], A. Monnier[1,2,3], E. Tseli[1,3], R. LoMartire[4], M. Hagströmer[3,5], M. Björk[6], B. Äng[1,3,4,7], L. Vixner[1]

[1]Dalarna University, School of Health and Welfare, Falun, Sweden, [2]Swedish Armed Forces, Military Academy Karlberg, Solna, Sweden, [3]Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, Division of Physiotherapy, Huddinge, Sweden, [4]Region Dalarna and Uppsala University, Center for Clinical Research Dalarna, Falun, Sweden, [5]Region Stockholm, Academic Primary Health Care Centre, Stockholm, Sweden, [6]Linköping University, Pain and Rehabilitation Center, and Department of Health, Medicine and Caring Sciences, Linköping, Sweden, [7]Region Dalarna, The Administration of Regional Board, Department of Research and Higher Education, Falun, Sweden

Methods: Recruitment was performed through Swedish IPRP with random allocation to either IPRP (n=20) or IPRP + eVIS (n=20). The preliminary primary outcome for the R-RCT, Physical Component Summary (RAND-36) and compliance rates were collected from both groups at baseline and at the end of study period (6 months). Feasibility ratings of study design and implementation were collected from the IPRP units. Proportion of improved by MCID≥10 p in PCS was evaluated to aid interim power calculation assessment.

Results: The results revealed satisfactory feasibility of study design. However, time- and resource related aspects were highlighted as barriers. Compliance of PROM registrations was high, with 86% and 74% in the intervention- and control group respectively. In the intervention group, PCS improved from 30 (SD 8) to 39 (SD 12) points in average from baseline to follow-up, in the control group with 31 (SD 6) to 35 (SD 9) points. Proportional difference between groups regarding improvement from baseline to follow-up by MCID≥10 p in PCS was 22.6%, favoring the intervention group. No adverse events were reported.

Conclusions: The implementation and design of the R-RCT is deemed feasible and with promising results.

1172

CANNABINOIDS WITH POTENTIAL PROTECTIVE ROLE FOR PACLITAXEL TREATED NEURONS, PRELIMINARY DATA

I. Creanga-Murariu[1], B.-I. Tamba[2]

[1]"Grigore T. Popa" Medicine and Pharmacy University, Iasi, Romania, [2]"Grigore T. Popa" Medidine and Pharmacy University, Iasi, Romania

Methods: Dorsal root ganglions (DRG) from adult mice were harvested and subjected to several enzymatic reactions, followed by isolation of neurons using a concentration gradient. Subsequently, neurons were treated with a solution of PTX and different cannabinoids, then monitored for 72h, with images taken at different time points, with special interest in axonal length. Statistical analysis was performed.

Results: When added to the PTX treatment, the selected cannabinoids showed a variably positive, concentration and time-dependent effect vs PTX treatment alone on axon length shortening. The cannabinoids reduced the toxic effects on the neurites of treated neurons, at all-time points and concentrations, significant for a neuroprotective effect that could impact CIPN.

Conclusions: The study focused on screening the influence of several natural and synthetic cannabinoids, on the neuronal morphology under the PTX toxic effects. Our findings highlight that the selected cannabinoids could have a protective effect on Paclitaxel-treated DRG neurons. Consequently, these types of compounds could be potential new candidates for the treatment of Paclitaxel-induced peripheral neuropathy. Finally, these preliminary results will be the groundwork for further in vitro and in vivo studies, in order to fully prove our hypothesis.

1173

TERPENES IN *CANNABIS SATIVA* INHIBIT CAPSAICIN RESPONSES IN DRG NEURONS VIA NA^+/K^+ ATPASE ACTIVATION

U. Anand[1], P. Anand[1], M.H. Sodergren[1,2]

[1]Imperial College London, London, United Kingdom, [2]Curaleaf International, Guernsey, United Kingdom

Methods: Adult rat DRG neurons were cultured in modified BSF2 medium containing 2% fetal calf serum, NGF (100 ng/ml), and GDNF (50 ng/ml), in a humidified incubator at 37°C, and 5 µMol Cytosine Arabinoside was added after 24 hours. 48 hours after plating, cultures were loaded with 2µM Fura2AM for calcium imaging at 37°C , and terpenes were applied individually at 0.001 - 100 µMol (n=3), or vehicle (0.1% ethanol), for 5 minutes, followed by 1 µMol capsaicin.

Results: In vehicle-treated control experiments, 1 µMol capsaicin elicited immediate and sustained calcium influx, with average latency of 1.27 ± 0.2 seconds, and average amplitude of 0.15 ± 0.01. In the presence of terpenes, capsaicin responses were inhibited for 6-8 minutes, followed by increased intracellular calcium. This calcium increase was due to release from intracellular stores, as it was eliminated by thapsigargin pretreatment in calcium/magnesium-free medium. Capsaicin responses were normalised after washout of medium and in the absence of the terpene. Terpene inhibition of capsaicin responses was reversed in the presence of the Na^+/K^+ ATPase inhibitor ouabain, but not CB_1 or CB_2 receptor antagonists.

Conclusions: Our findings suggest that terpenes inhibit TRPV1 by activating the plasma membrane Na^+/K^+ ATPase, resulting in hyperpolarization. This mechanism is distinct from cannabinoids; hence terpenes may produce additive analgesic effects.

1176

UNDERSTANDING ETHNIC MINORITY SERVICE USER EXPERIENCES OF BEING INVITED TO AND ATTENDING GROUP PAIN PROGRAMMES

D. Young[1], D.E. Bull[2], Z. Malpus[1], A. Etchbarne[3]

[1]Manchester University NHS Foundation Trust, Manchester, United Kingdom, [2]Greater Manchester Mental Health NHS Foundation Trust, Manchester, United Kingdom, [3]Trafford NHS, Manchester, United Kingdom

Methods: Semi-structured interviews were conducted with five service users who had been offered a place on a secondary care, group pain programme within the last three years. Interviews were recorded and transcribed verbatim. Interpretative phenomenological analysis was used to identify themes in the data.

Results: Three themes were identifed:

1) *Pain, Ethnicity and Coping:* Perceptions of pain and coping in relation to ethnicity and intersectional factors, alignment to a self-management approach

2) *Communication:* Experiences of ethnicity and culture in relation to health professional communication, participants' expectations and fears

3) *Feeling Included:* Experiences of feeling included or excluded, relationships and empowerment during the group pain programme.

Conclusions:

Participants shared varied perspectives on how their ethnicity shaped their experience of the programme. Findings suggest that adaptations to group pain programmes can make a meaningful difference for service users from ethnic minority backgrounds. Recommendations include; a greater exploration of cultural beliefs during assessment, improving accessibility of information about the service, and engaging more diverse attendees and facilitators.

1179

THE IMPACT OF WOUND INFILTRATION ON POSTOPERATIVE PAIN MANAGEMENT

A. Bytyqi[1], F. Kryeziu[2], V. Kryeziu[2], A. Bytyqi[3], B. Bytyqi[4], B. Sylaj[3]

[1]Professional Health Association - PHA, Pain Section, Kosovo, Prizren, Albania, [2]Regional Institute of Public Health, Prizren, Kosovo, Albania, [3]General Hospital, Prizren, Kosovo, Albania, [4]University of Pristina, Medical faculty, Pristina, Kosovo, Albania

Methods: The study was quantitative approach, realized at all surgical departments of The General Hospital in Prizren for a period of 5 years. The patients were divided into two groups, one control group with wound infiltration and other without infiltration. General anesthesia was the most common form of anesthesia. At the end of surgery, the surgeon makes infiltration of fascia with local anesthetic (Bupivacain 0.5%) at control group.

Results: The study was quantitative approach, realized at all surgical departments of The General Hospital in Prizren for a period of 5 years. The patients were divided into two groups, one control group with wound infiltration and other without infiltration. General anesthesia was the most common form of anesthesia. At the end of surgery, the surgeon makes infiltration of fascia with local anesthetic (Bupivacain 0.5%) at control group.

Conclusions: Patients after surgical procedures reported severe pain-related outcomes. It has been proven that in control group of patients who underwent wound infiltration, the postoperative pain was significantly reduced, the patients were rehabilitated faster.

1180

OPIOID BASED ANALGESIA VS NON-OPIOID ANALGESIA FOR OOCYTE RETRIEVAL PROCEDURE – A RANDOMIZED CLINICAL TRIAL

E. Farladansky[1], C. Weiniger[2], B. Cohen[2], B. Almog[2], S. Hazan[1], L. Barzilay[1], S. Haim[1]

[1]Sackler Faculty of Medicine, Tel Aviv University/Sourasky Medical Center, Sackler Faculty of Medicine, Tel -Aviv, Israel, [2]Sackler Faculty of Medicine, Tel Aviv University/, Sourasky Medical Center, Tel Aviv, Israel

Methods: 100 Healthy women undergoing oocyte retrieval procedures under general anesthesia were enrolled in this single-center, randomized, single-blinded, non-inferiority trial, to receive either IV 100 mcg Fentanyl or IV 1000 mg Acetaminophen.

The primary outcome measure was mean post-operative pain score NRS (0-10, zero is no pain, 10 = worst pain) in the two postoperative hours in the Post Anesthesia Care Unit. Secondary outcome measures included sedation scale (Pasero), Aldrete scale, Bedridden time (0-60 vs >60 mins), patient satisfaction with the anesthesia (Likert score 1-5), supplemental analgesia and antiemetics administration.

Results: Among 100 recruited women, data were analyzed for 95; 50 received Acetaminophen and 45 received Fentanyl. The mean ± SD NRS score was 0.56 ± 0.99 in the acetaminophen group, and 0.37 ± 0.71 in the fentanyl group; (*P* = 0.305; 95% confidence interval of mean difference = -0.17 to 0.54), indicating non-inferiority. All secondary outcomes were not significantly different between the two groups.

Conclusions: Among women undergoing oocyte retrieval procedures under general anesthesia, use of opioid-free multimodal analgesia was non-inferior to fentanyl for NRS in PACU after the procedure. These findings could allow reduction in opioids administered to patients undergoing IVF.

1187

SERVICE USER OUTCOMES OF SUPPORTED SELF-MANAGEMENT

S. Cottom[1]

[1]*York St John, London, United Kingdom*

Methods: People who had accessed the on-line monthly self-management group meetings were invited to complete a questionnaire via Survey-Monkey. We had 64 responses and the questions were based on the following categories:

•Length of time they had the pain

•Benefits experienced

•The impact on their quality of life

•Coping mechanisms

Results: Some of the key outcomes are:

•95% advised that attending the group helped them maintain their self-management skills.

•82% felt more in control.

•90% felt more able to cope on a daily basis

•60% had fewer visits to their GP as result of attending the groups.

•43% have been living with chronic pain for over 10 years.

•The top 3 topics include: Pacing, Stress and Flare-ups

Conclusions: The self-management programs do not claim to change pain levels but rather aims to reduce the suffering component and change maladaptive habits. As a result of understanding more and changing behaviours, some people do report a change in their pain levels or fewer flare-ups or reliance on medication, but most report a change in how they feel about their condition and their life.

1188

COMPETENCIES OF COUNSELORS TO CARRY OUT THE PROCESS OF SPIRITUAL COUNSELING IN PALLIATIVE CARE

F.G. Torres Toala[1], K. Gangotena[2]

[1]*Suportamed, Quito, Ecuador,* [2]*None, Guayaquil, Ecuador*

Methods: An exploratory systematic review was carried out to determine the competencies of the counselors to carry out the process of spiritual counseling in Palliative Care. In July 2022, a review was conducted from 2017 to 2022 to identify published articles describing the competencies of spiritual advisors in palliative care, at the end 80 articles that met the inclusion criteria were included.

Results: Training in spiritual matters is essential to avoid variability, in general, adequate spiritual assistance for the best quality of life, It was found that before the little scientific evidence about the effectiveness of spiritual intervention and the reduction of pain levels in people with neoplastic illness, it can be concluded that spiritual intervention contributes to patients being able to cope with pain, without changing the level of intensity of this.

Conclusions: We concluded that providing quality spiritual counseling to people who require palliative care is essential, the main barriers to its implementation can be eliminated through training that must contain practical tools and allow a high degree of reflection.

1189

COMPARISON OF ULTRASONOGRAPHY-GUIDED STEROID INJECTION AND PULSE RADIOFREQUENCY AND STEROID INJECTION ALONE IN PIRIFORMIS SYNDROME

B. Bayraktar[1], M.S. Gulec[1], A. Bilir[1], C. Elcin[1]

[1]Eskisehir Osmangazi University Medical Faculty ,Department of Algology, Eskisehir, Turkey

Methods: Patients who underwent piriformis injection between 2021 and 2022 were selected from hospital records. Patients who underwent other interventional procedures with piriformis injection excluded from the study. The patients have steroid injections (group S) and pulsed radiofrequency with steroid injections (group PRF) were included the study. Percentages of pain relief, duration of pain relief, side effects and complications were recorded. The data obtained were evaluated with Student t-test and Mann Whitney U test.

Results: 43 patients were reached from hospital records. 16 patients were excluded because they did not meet the inclusion criteria.There was 19 patients in Pulsed radiofrequency+ steroid group and 8 patients in steroid injection group . It was determined that pain relief was less than fifty percent in 1 patients in the S group and 4 patients in the PRF group. More than 3 months of relief was found to be 7,8 months in the group S and 12,3 months in the group PRF. (p>0,05). No complications were observed in any patient.

Conclusions: Pulsed radiofrequency added to steroid injection did not changed the quality of analgesia, but the duration of analgesia may be longer with pulsed radiofrequency.

1190

EFFECTIVENESS OF GENICULAR NERVE COOLED RADIOFREQUENCY ABLATION IN TREATING PAIN OF KNEE OSTEOARTHRITIS

S. M. Khan[1], A. Alshaiby[1], K. Alshuaibi[1], S. Yousuf[1]

[1]King Fahad Medical City, Riyadh, Saudi Arabia

Methods: The patients who underwent CRFA, were measured for pain reduction using the NRS index (0-100/100), KOOS (Knee injury and osteoarthritis outcome scores). KOOS and the primary outcomes were measured at 1 week, 1 month and 6 months respectively. 40 knee subjects were given the test genicular nerve block prior to the CRFA, 32 knee subjects opted for and underwent the knee genicular nerves cooled radiofrequency ablation.

Results: The primary outcome of this study is the treatment's success, which is defined by the reduction in NRS score and other defined criteria as per subscales of KOOS index. No mean significance (P = 0.802) difference among NRS was observed at all follow-up, NRS at 1 week improved at 1 month and worsened further at 6 months. Overall the average KOOS score at 1 week improved at 1 month and stayed steady at 6 months provided that no mean significant (P = 0.592) difference was noticed among KOOS at all follow-ups.

Conclusions: Knee genicular nerve CRFA is an effective way of reducing knee OA pain at 1 week and a further improvement is noticed in the treatment results at 1 month, were maintained upto 6 months. Thus CRFA provided sustained pain relief, improved function, and perceived positive effect through 6 months for subjects with OA knee pain.

1192

USING VIRTUAL PERFORMANCE MEASURES (VPM) TO ASSESS PHYSICAL FUNCTION IN KNEE OSTEOARTHRITIS: AN INNOVATIVE TRANSFORMATION OF PATIENT CARE

H. Razmjou[1,2], S. Denis[1], J. Falconer[1], S. Robarts[1], A. Wainwright[1], P. Dickson[1], J. Murnaghan[1]

[1]Sunnybrook Health Sciences Centre, Toronto, Canada, [2]University of Toronto, Toronto, Canada

Methods: The videos were developed based on input from physical and occupational therapists and patient representatives and incorporated pain and difficulty. Forty videos were chosen from 180 videos and represented 10 functional tasks. Four videos showed increasing difficulty for each task and patients were requested to choose the video that best reflected their own situation. The total VPM score was calculated as a sum of responses to 10 questions and was validated against self-report, actual performance outcome measures and clinician›s severity score that included functional, clinical and radiological assessment.

Results: Data of 100 patients, 70 (70%) females, mean age: 65(9) were examined. The Cronbach's alpha coefficient that examined internal consistency of the VPM score was 0.92, indicating excellent reliability. The ICC value of 0.82 was obtained for test-retest reliability. Factor analysis showed three distinct domains. There was moderate correlations between the VPM score and the self-report and actual performance measures ranging from r=0.46 to 0.66. The VPM score was able to differentiate between candidates and non-candidates for knee arthroplasty, with the AUC value of 0.90 indicating excellent predictive validity

Conclusions: The VPM score showed good reliability and excellent validity in patients with moderate to severe OA of the knee joint. This tool has potential to transform osteoarthritis care by providing a valid measurement of pain and functional limitations without an in-person visit.

1195

PROTECTING MITOCHONDRIAL FUNCTION WITH HBOT: A NOVEL APPROACH TO MODULATE PAIN DEVELOPMENT AFTER SCIATIC NERVE INJURY

Y. Awad-Igbaria[1,2], A. Keadan[2,3], R. Sakas[1,2], A. Shamir[4], J. Francois-Soustiel[1,3,2], E. Palzur[1,2]

[1]Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel, [2]Research Institute of Galilee Medical Center, Nahariya, Israel, [3]Department of Neurosurgery, Galilee Medical Center, Nahariya, Israel, [4]Ruth and Bruce Rappaport Faculty of Medicine, Technion – Israel Institute of Technology, Haifa, Israel

Methods: Hypersensitivity and motor function were measured in rats following sciatic nerve injury (SNI). The HBOT (2.5 ATA) was performed 4 hours after SNI and twice daily (12 hours intervals) for seven consecutive days. In addition, RT-PCR, Immunohistochemistry, and mitochondrial respiration measurement were performed at the end of the experiment to assess mitochondrial function, neuroinflammation, neuromodulation, and apoptosis in the dorsal root ganglion (DRG: L3-L6) and spinal cord (SC).

Results: HBOT during the early phase of the SNI alleviates mechanical and thermal hypersensitivity and enhances motor function. Moreover, HBOT modulates the overexpression of the pain channels (TRPV1, TRPA1), pro-inflammatory cytokines (IL6, TNF-a, IL-1b), and apoptosis in the DRG and SC following nerve injury. Additionally, HBOT prevents the reduction in mitochondrial respiration including ATPlinked respiration, spare-capacity, and maximal mitochondrial respiration in the SC after nerve injury.

Conclusions: Mitochondrial dysfunction in peripheral neuropathic pain was found to be mediated by neuroinflammation and neuromodulation. Strikingly, HBOT during the critical period of the nerve injury modulates the transition from acute to chronic pain via reducing neuroinflammation and protecting mitochondrial function, and consequently lower level of neuronal apoptosis in the DRG and SC

1198

MULTIDIMENSIONAL PAIN PROFILING IN PEOPLE LIVING WITH OBESITY AND ATTENDING WEIGHT MANAGEMENT SERVICES: AN INTERIM ANALYSIS FOR A LONGITUDINAL COHORT STUDY

N.S. Hinwood[1,2], C.G. Dunlevy[3], C. Doody[1,2], C. Blake[1,2], B. Fullen[1,2], J. O'Connell[3], C.W. Le Roux[4], C. Gilsenan[5], F.M. Finucane[6,7], K.M. Smart[1,2,8]

[1]Department of Physiotherapy, School of Public Health, Physiotherapy and Sports Science, University College Dublin, Dublin, Ireland, [2]UCD Centre for Translational Pain Research, University College Dublin, Dublin, Ireland, [3]Centre for Obesity Management, St. Columcille's Hospital, Dublin, Ireland, [4]Diabetes Complications Research Centre, University College Dublin, Dublin, Ireland, [5]Physiotherapy Department, Beaumont Hospital, Dublin, Ireland, [6]School of Medicine, College of Nursing and Health Sciences, University of Galway, Galway, Ireland, [7]Bariatric Medicine Service, Centre for Diabetes, Endocrinology and Metabolism, Galway University Hospitals, Galway, Ireland, [8]Physiotherapy Department, St. Vincent's University Hospital, Dublin, Ireland

Methods: This is an ongoing longitudinal observational cohort study recruiting PwO attending a multidisciplinary weight management service (WMS) in Ireland. Participants complete questionnaires assessing their multidimensional biopsychosocial pain experience at baseline and at 3, 6, 12 and 18-months post-recruitment. We expect to complete data collection in September 2024. An interim analysis was performed on baseline results of participants recruited between February 2022 and January 2023.

Results: Descriptive statistics were performed to understand the baseline clinical profiles of (n=248) participants recruited from three WMS. Participants' mean age was 47.1 years; 70% female. The mean Body Mass Index (BMI) of participants was 47kg/m^2. On further analysis, 79% of participants reported experiencing pain (n=237), with 51% reporting not presently receiving treatment for pain.

Conclusions: At baseline, the results from this interim analysis suggest a high prevalence and potential under-treatment of pain in people with obesity.

The study has been approved by the Ethics and Medical Research Committee of St. Vincent's Healthcare Group, Dublin, Ireland (Reference No.: RS21-059).

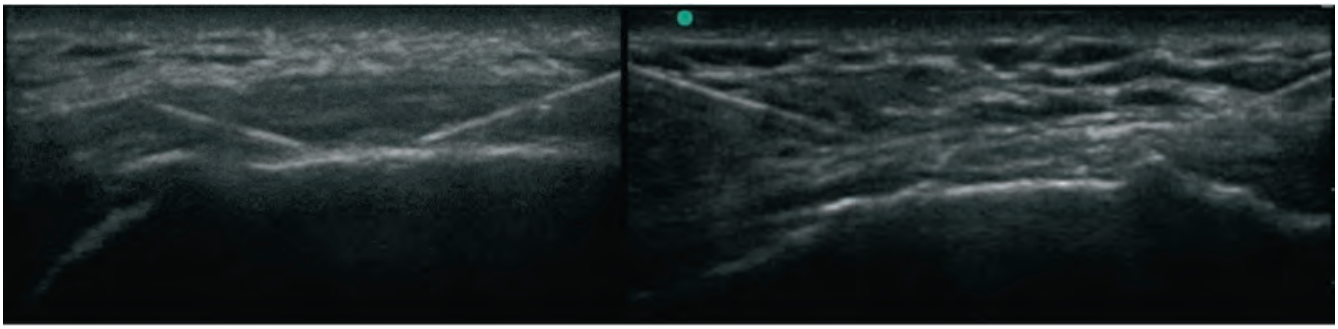
1199

A NOVEL OPTION FOR THE TREATMENT OF GREATER TROCHANTERIC PAIN SYNDROME: A CASE SERIES

A. Vieira[1], D. Correia[1]

[1]Hospital Central do Funchal, Funchal, Portugal

Methods: We treated eligible patients with ultrassound guided bipolar pulsed radiofrequency that was performed at one cycle of 42°C for 6 minutes, followed by the injection of 3 mL of 0.2% ropivacaine and 12mg of dexamethasone. Short Brief Pain Inventory (BPIs) and Lequesne Algofunctional index(LAI) were used prior to the procedure and third month post procedure.



Results: All three of our patients had an satisfactory outcome, with a total reduction of their symptoms when asked the question “how much pain you have right now” of the BPIs at the 3 month follow-up, from a mean of 8/10 pre procedure. There was an improvement of 37.94% at the 3 month follow-up in the LAI(preprocedural μ=13,67). There weren´t any immediate complications after the procedure or reported at the subsequent follow-up.

Conclusions: This technique seems to be promising, considering the amount of non-responders to current conservative treatment. With our case series, it looks to be feasible the guidance of this technique using ultrasound.

1204

ASSESSING PATIENT READINESS FOR SHOULDER ARTHROPLASTY: A VALIDITY STUDY

H. Razmjou[1], M. Christakis[1], D. Nam[1], D. Drosdowech[2], U. Sheth[1], A. Wainwright[1], R. Richards[1]

[1]Sunnybrook Health Sciences Centre, Toronto, Canada, [2]Roth|McFarlane Hand & Upper Limb Centre, St. Joseph’s Health Care, London, Canada

Methods: This was an observational study of patients assessed at an academic centre. The demographics, overall health, patient-specific risk profile, expectations, and health related quality of life were documented. Visual Analogue Scale and the American Shoulder & Elbow Surgeon (ASES) measured pain and functional disability respectively. Clinical and imaging examination documented clinical findings and extent of degenerative arthritis and cuff tear arthropathy. Appropriateness for arthroplasty surgery was documented by a 5-item Likert response survey and the final decision was documented as ready, not-ready and would like to further discuss.

Results: Eighty patients, 38 women (47.5%), mean age: 72(8) participated in the study. The appropriateness decision aid showed excellent discriminate validity (AUC value of 0.93) in differentiating between patients who were “ready” and those who were “not-ready” to have surgery. Gender (p=0.037), overall health (p=0.024), strength in external rotation (p=0.002), pain severity (p=0.001), ASES score (p<0.0001), and expectations (p=0.024) were contributing factors to the decision to have surgery. Imaging findings did not play a significant role in the final decision to have surgery.

Conclusions: A decision aid assisted patients in evaluating their status and making an informed decision for having shoulder arthroplasty surgery. Patient’s gender, expectations, strength, and self-reported outcomes are important factors in reaching the final decision.

1205

STUDY TO EVALUATE THE EFFICACY AND SAFETY OF A NEW MODEL OF MEDICAL ASSISTANCE BASED ON TELEMEDICINE

L. Polino[1,2], T.L. Rodriguez Araya[1], J. Llorente[3], A. Arias Gassol[1], X. Torres Mata[1], M.V. Abad Peruga[2], E. Beltran Catala[2], A. Pros Simon[2], C. Perez Garcia[2]

[1]Hospital Clinic, Barcelona, Spain, [2]Hospital del Mar, Barcelona, Spain, [3]Institut Hospital del Mar d‘Investigacions Mèdiques - IMIM, Barcelona, Spain

Methods: Semi-experimental study of no inferiority with pre and post-intervention measures to evaluate the efficacy and safety of TM. Patients with RA/AE/PSA are included in remission and stable treatment for more than 1 year. Presencial visits at 0 and 12 months. Follow-up TM visits at 4 and 8 months.**Figure1** shows the variables collected. An analysis of variance has been performed.

Figure 1 (Study Design).pdf

Results: 130 patients were included(45 RA, 41 AE, 23 PSA) and 21 were excluded in any of the phases of the study.**Table 1** describes the characteristics of the patients and **Table 2** describes the adverse events recorded (N.º 33) and the causes of premature finalization(Nº 21). No changes were evident in the activity of the disease in any of the three pathologies in this model based on TM. The means of specific disease activity scores are reported in Imagen 2.Table1 Group description.pdf Table-2 Adverse events.pdf

Conclusions: TM is equally effective as traditional medical care in those patients with RA/AE/PSA in clinical remisión according to specific criteria of clinical activity of each disease. No different adverse events have been recorded.

1213

EFFECTIVENESS OF AN INTERVENTION PROGRAM BASED ON VIRTUAL RUNNING COMBINED WITH THERAPEUTIC EXERCISE IN IMPROVING PAIN IN PRE-FRAIL AND FRAIL ELDERLY PEOPLE

S. Mollà-Casanova[1], E. Muñoz-Gómez[1], N. Sempere-Rubio[1], M. Inglés[1], M. Aguilar-Rodríguez[1], J. López-Pascual[2], Á. Page[3], P. Serra-Añó[1]

[1]UBIC, Physiotherapy Department, University of Valencia, Valencia, Spain, [2]Instituto de Biomecánica de Valencia, Universitat Politècnica de València, Valencia, Spain, [3]Instituto Universitario de Ingeniería Mecánica y Biomecánica, Universitat Politècnica de València, València, Spain

Methods: This study is a single-blinded randomized controlled trial. Thirty-eight pre-frail and frail elderly people were divided into two intervention arms: The experimental Intervention (EI) group, in which VR (figure 1) and gait-specific physical exercises were administered, and Control Intervention (CI) group, in which a placebo VR and the same exercise program were administered. Maximum and mean unspecific pain was assessed before (T1) and after intervention (T2), and four weeks of follow-up (T3), using a 10 cm Visual Analogue Scale (VAS).

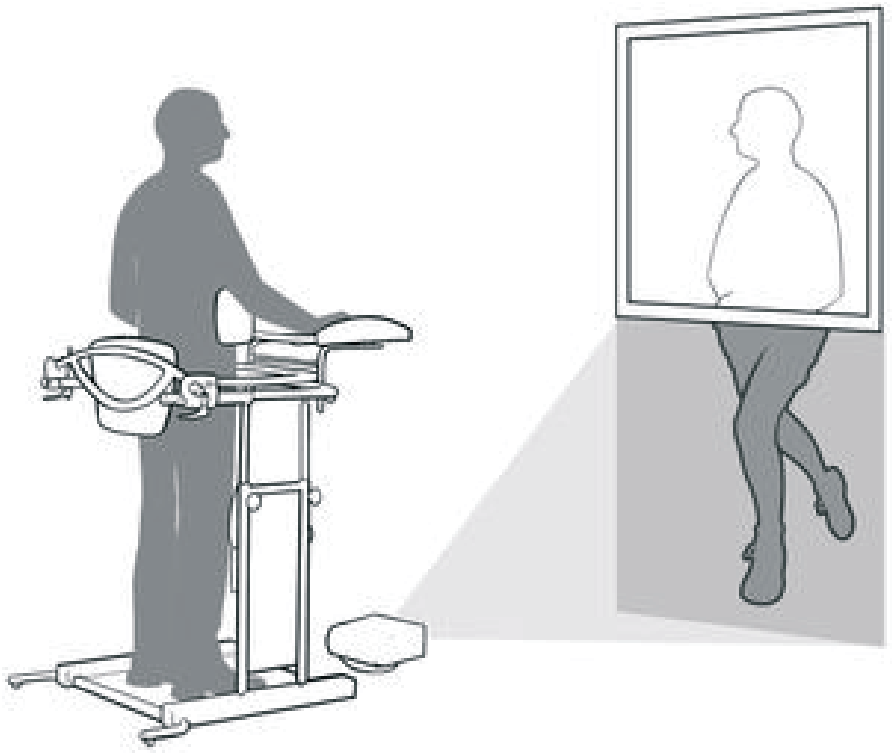


Figure 1. Set-up protocol.

Results: Figure 2 shows pain results (i.e., maximum and mean). The EI group shows a significant pain decrease at T2 compared to T1 in both pain domains assessed, while pain levels in CI group remained at the same level during all assessments. No differences were found for T3 in any of the groups.

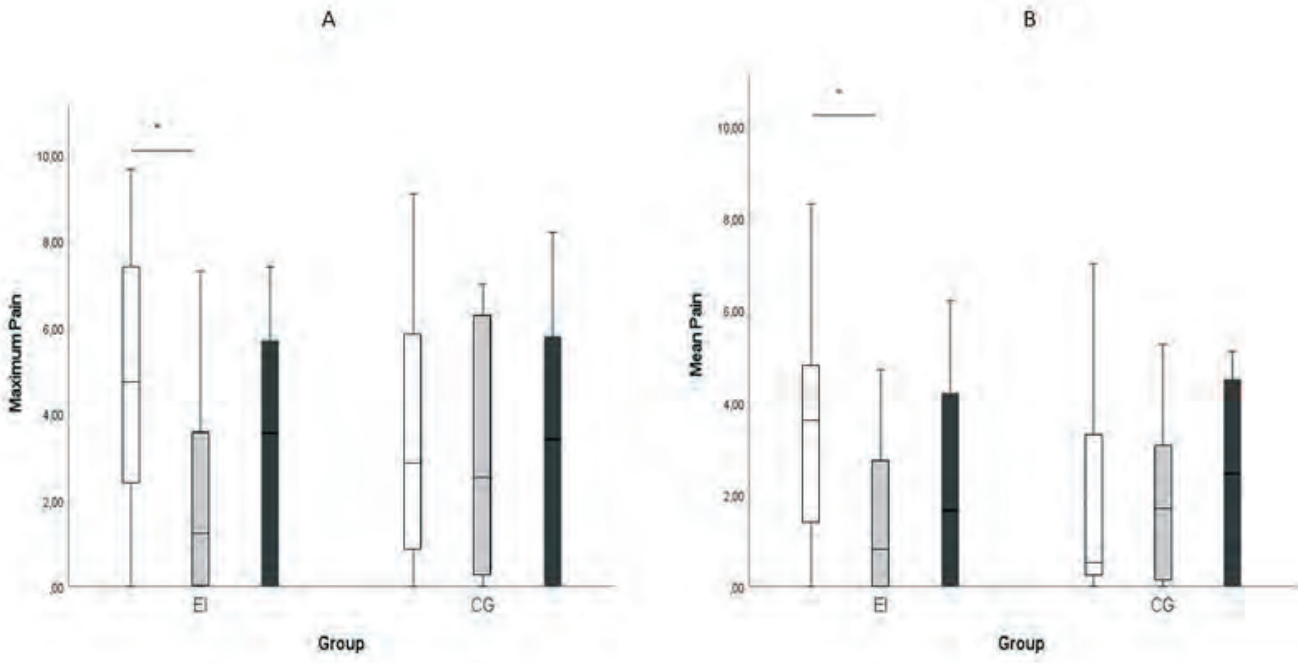


Figure 2. The previous week reported maximum (A) and mean (B) pain. White bars represent the pre-treatment assessment (T1), the grey ones the post-treatment assessment (T2), and the black bars, the 1-month follow-up assessment (T3).

Conclusions: Based on all the foregoing, this study provides evidence that neuron system activation through VR therapy combined with PE can improve pain in frail and pre-frail people.

1214

MODULATION OF P2RY6-DEPENDENT PHAGOCYTOSIS THROUGH B2 ADRENERGIC PATHWAY IN RODENT AND HUMAN MICROGLIA

T. Deluc[1,2,3], M.-F. Dorion[1,2], Y. Tang[1,2], R. Lo[1,2], A. Ase[1,2,3], S. Stifani[1,2], P. Séguéla[1,2,3]

[1]McGill university, Montréal, Canada, [2]Montreal Neurological Institute, Montréal, Canada, [3]Alan Edwards Centre for Research on Pain, Montréal, Canada

Methods: Using various cellular models and fura2-based ratiometric calcium imaging, we examined how ADRB2 affects P2RY6 calcium responses. We optimized a microglial phagocytosis assay protocol to assess the impact of ADRB2 on UDP-evoked P2RY6 phagocytosis. We also investigated if the inflammatory cytokine release is regulated by P2RY6/ADRB2 using a cytometric bead array kit.

Results: We demonstrated that ADRB2 activation effectively suppresses the calcium transients evoked by activation of Gq-coupled P2RY6 receptors in primary mouse microglia and this inhibition is conserved in human iPSC-derived microglia. UDP-evoked microglial phagocytosis is reduced by ADRB2 activation in primary mouse microglia and human iPSC-derived microglia, in agreement with our calcium imaging results. However, we did not observe any significant effect of P2YR6 or ADRB2 on the release of inflammatory cytokines.

Conclusions: Our data provide evidence for selective intracellular crosstalks between P2 and adrenergic signalling in rodent and human microglia, potentially contributing to pathological innate immune responses in neurodegenerative disorders and chronic pain states.

1217

THE EFFECTIVENESS OF AEROBIC EXERCISE COMPARED TO OTHER TYPES OF TREATMENT ON PAIN AND DISABILITY IN PATIENTS WITH OROFACIAL PAIN: A SYSTEMATIC REVIEW

A.I.S. de Oliveira-Souza[1], L. Gülkner[1], L. Dennett[2], J.F. Contreras[3], M. Kempe[1], S. Grimmelsmann[1], E.M. De Castro-Carletti[4], H. Von Piekartz[1], S. Armijo-Olivo[1,2]

[1]University of Applied Sciences Osnabrück, Faculty of Economics and Social Sciences, Osnabrück, Germany, [2]Faculties of Rehabilitation Medicine and Medicine and Dentistry, University of Alberta, Edmonton, Canada, [3]Faculty of Health Sciences, Department of Physical Therapy, Clinical Research Lab, Catholic University of Maule, Talca, Chile, [4]Post Graduate Program in Human Movement Sciences, Methodist University of Piracicaba - UNIMEP, Piracicaba (SP), Brazil

Methods: The searches were conducted on five electronic databases. RCTs or CTs with patients over 18 years old of both sexes with OFP diagnoses were targeted. The intervention of interest was AE (i.e., walking, cycling, and running), compared to any other conservative and non-conservative therapy. The primary outcome was pain intensity. Risk of bias (RoB) was done with the Cochrane RoB tool (RoB 2). The overall certainty of the evidence was evaluated with GRADE.

Results: Out of 21,585 initial records found in the initial database search, only one study (reported on three manuscripts) was included. The diagnosis of interest was headache plus temporomandibular disorders (TMD). Three treatment groups (strengthening (Str) exercise + manual therapy (MT) (G1); AE + MT + Str exercises (G2); AE (G3)) were compared. The main outcome was pain; the secondary outcomes included disability, strength, anxiety, and quality of life. The combined treatment (AE+MT+Str exercises) had the strongest effect to decrease pain and headache intensity in patients with OFP (SMD: 9.99 [95%CI: 7.19, 12.80].

Conclusions: a multimodal treatment strategy achieved the greatest positive effects on pain and other outcomes in the short/medium term. AE seems to be an important component of this strategy. However, the scientific evidence supporting AE›s isolated effect is limited, indicating a research gap in this scientific field.

1232

TREATTREATMENT OF LOW BACK PAIN ACCORDING TO THE HENDERSON HASSELBACH EQUATION. AND BLOCKS MENT OF LOW BACK PAIN ACCORDING TO THE HENDERSON

A. Hernandez Islas[1], A. Hernandez Islas[1]

[1]universidad nacional autonoma de mexico, Ciudad De Mexico, Mexico

Methods: Complete blood count, blood chemistry, and gasometry

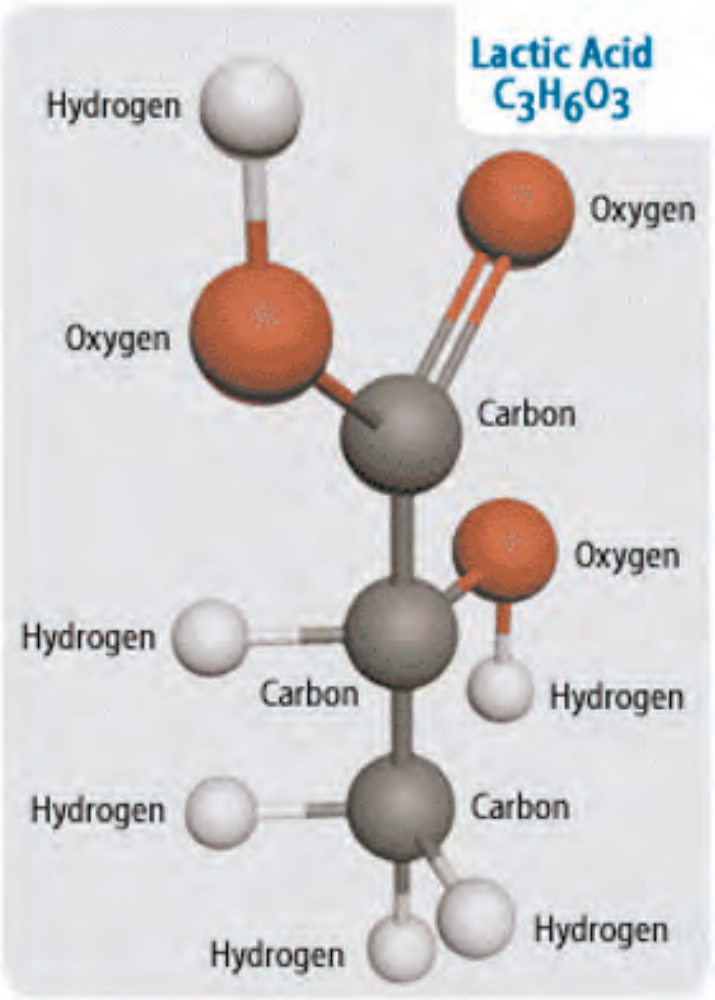
Results: Satisfactory if a correct diagnosis is made and the patient behaves properly.

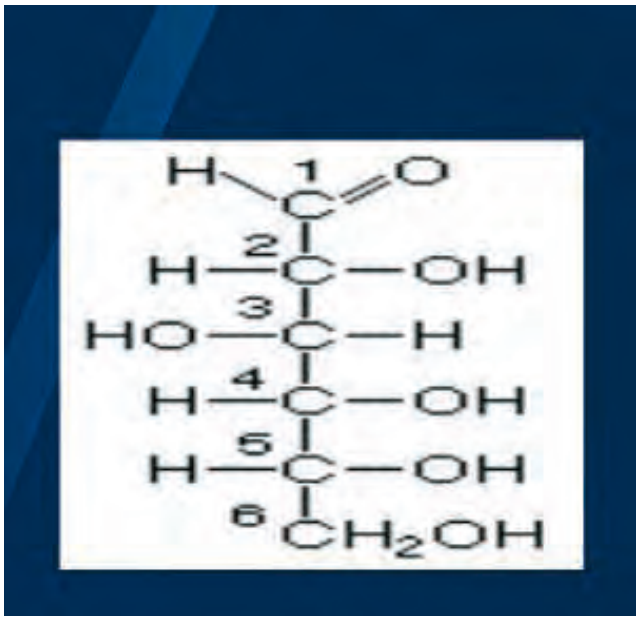
Conclusions: Generally, the excessive release of hydrogen ion conditions the release of lactic and pyruvic acid, which irritate the nerve ending, causing pain. Somatic pain. Requires, blocks or surgery.

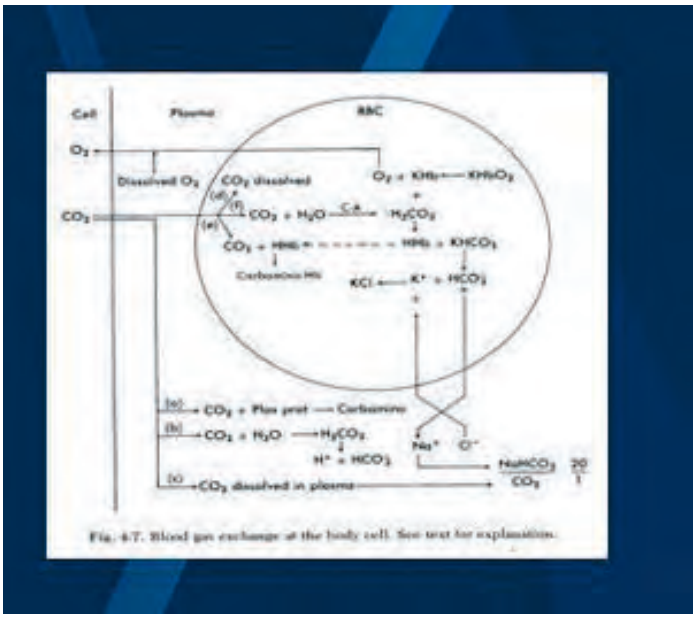
TREATMENTS: Hydration 70% water, 30% solids, good mental attitude, food with degradable foods, enemas with flaxseed and coffee, fasting for one or two days a week, antiplatelet aggregates such as apixaban, analgesics such as paracetamol, acupuncture . Alcohol or phenol blocks in the paravertebral chain.

PH = 6.1 + log, (10/1.08) = 6.1 + 1.24 = 7.34 ACIDOSIS

pH = 6.1 + log (12 / 1.7) = 6.1 + 1.27 = 7.37 ACIDEMIC pH = 6.1 + log (base / acid) = 6.1 + log (24 / 1, 2) = 6.1 + log20 = 6.1 + 1.3 = 7.40 NORMAL







1239

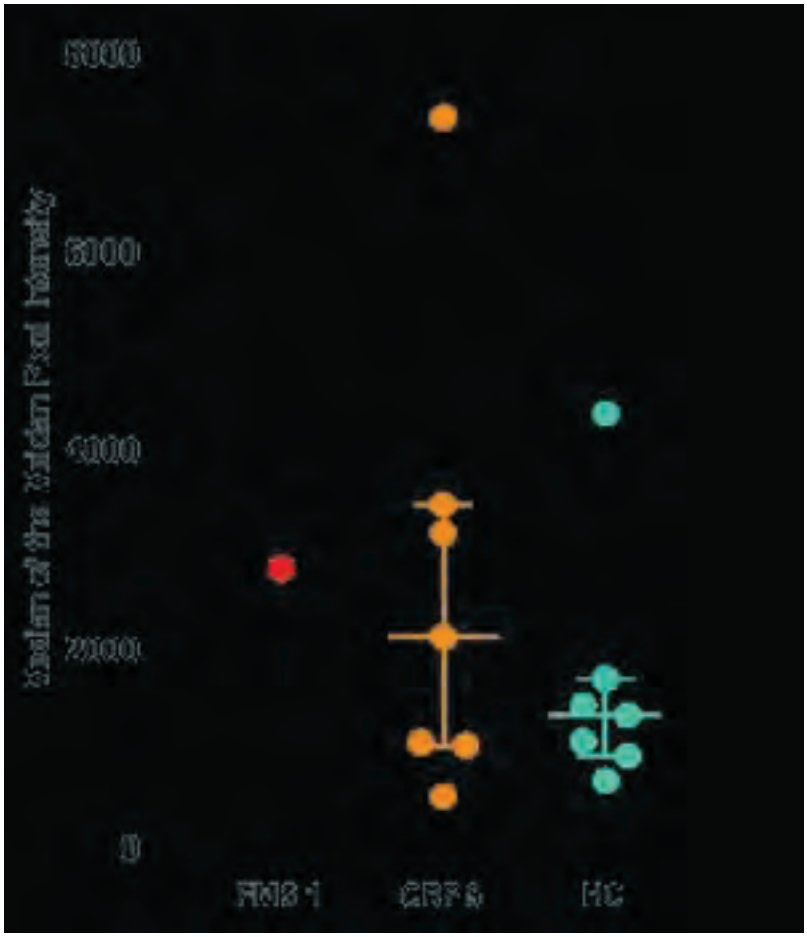
ANALYSIS OF COMPLEX REGIONAL PAIN SYNDROME (CRPS) SERUM IGG BINDING TO RODENT DORSAL ROOT GANGLIA-DERIVED SATELLITE GLIAL CELLS

H. Neiland[1], R. Berwick[1], S. Sensi[1], A. Goebel[1]

[1]*University of Liverpool, Liverpool, United Kingdom*

Methods: DRGs were dissected from mice and chemically digested to prepare a pool of SGCs. Cells were stained with purified human IgG from; seven CRPS patients, seven healthy controls or one FMS patient. Slides were prepared with the stained cells and imaged on a Zeiss LSM780.

Results: Each CRPS patient had a high pain intensity (7.9-8.1 out of 10; 0= no pain, 10= unbearable pain). 4/7 CRPS and 1/7 HC IgG stain at around the level of the positive FMS control. However, there is no significant difference between the CRPS and HC groups. High staining may sometimes be non-specific due to other conditions e.g. in coeliac disease- a discovery from previous experiments.



Conclusions: Our results suggest that this method does not detect pathogenic CRPS IgG binding, unlike in fibromyalgia. A direction for future study would be to harvest DRGs from mice following trauma to see how this influences the binding affinity of the IgG to the DRG that receives sensory input from the injured area.

1240

COMPARISON OF SUBJECTIVE MOTOR IMAGERY ABILITIES IN CRPS COMPARED TO CHRONIC LIMB PAIN AND HEALTHY CONTROLS: A CROSS SECTIONAL STUDY

G. Cohen-aknine[1], A. Homs[2], D. Mottet[3], T. Mura[4], F. Jedryka[5], A. Dupeyron[6,7]

[1]*EuroMov Digital Health in Motion, CHU Nimes, Univ Montpellier, IMT Mines Ales, Montpellier, France,* [2]*EuroMov Digital Health in Motion, CHU Nimes, Univ Montpellier, Montpellier, France,* [3]*Euromov Digital Health in Motion, University of Montpellier, IMT Mines Ales, Montpellier, France,* [4]*c Department of Biostatistics, Epidemiology, Public*

Health and Innovation in Methodology (BESPIM), CHU Nimes, Nîmes, France, [5]Department of Pain Management, CHU Nimes, Univ Montpellier, Nîmes, France, [6]Department of Physical Medicine and Rehabilitation, CHU Nimes, Univ Montpellier, Nîmes, France, [7]EuroMov Digital Health in Motion, CHU Nimes, Univ Montpellier, IMT Mines Ales, Nîmes, France

Methods: In this single-center observational study, 120 patients were recruited, comprising 40 participants each with CRPS, chronic limb pain (CLP), and healthy individuals. Participants completed the Motor Imagery Questionnaire - Revised Second (MIQ-RS) once on each side to assess their subjective kinesthetic (KMI) and visual (VMI) MI abilities. The study was performed in the University Hospital of Nîmes (France). The total MIQ-RS score and KMI and VMI subscores were compared between groups and between healthy and painful sides.

Results: There was no difference between or within groups ($p>0.05$; 95% CI) for all scores. Bayesian analysis suggested that CLP patients had the same MI abilities as healthy individuals and between their healthy and painful sides for the KMI score ($BF_{01}>3$).

Conclusions: This approach allowed us to conclude that, if a difference exists for CRPS patients, it is very small. Motor imagery training appears to be effective in rehabilitation programs for patients with CRPS, but not in improving a deficit in the ability to perform MI. Future studies should aim to assess MI abilities by a subjective or objective method in a longitudinal study and observe changes in these abilities.

1245

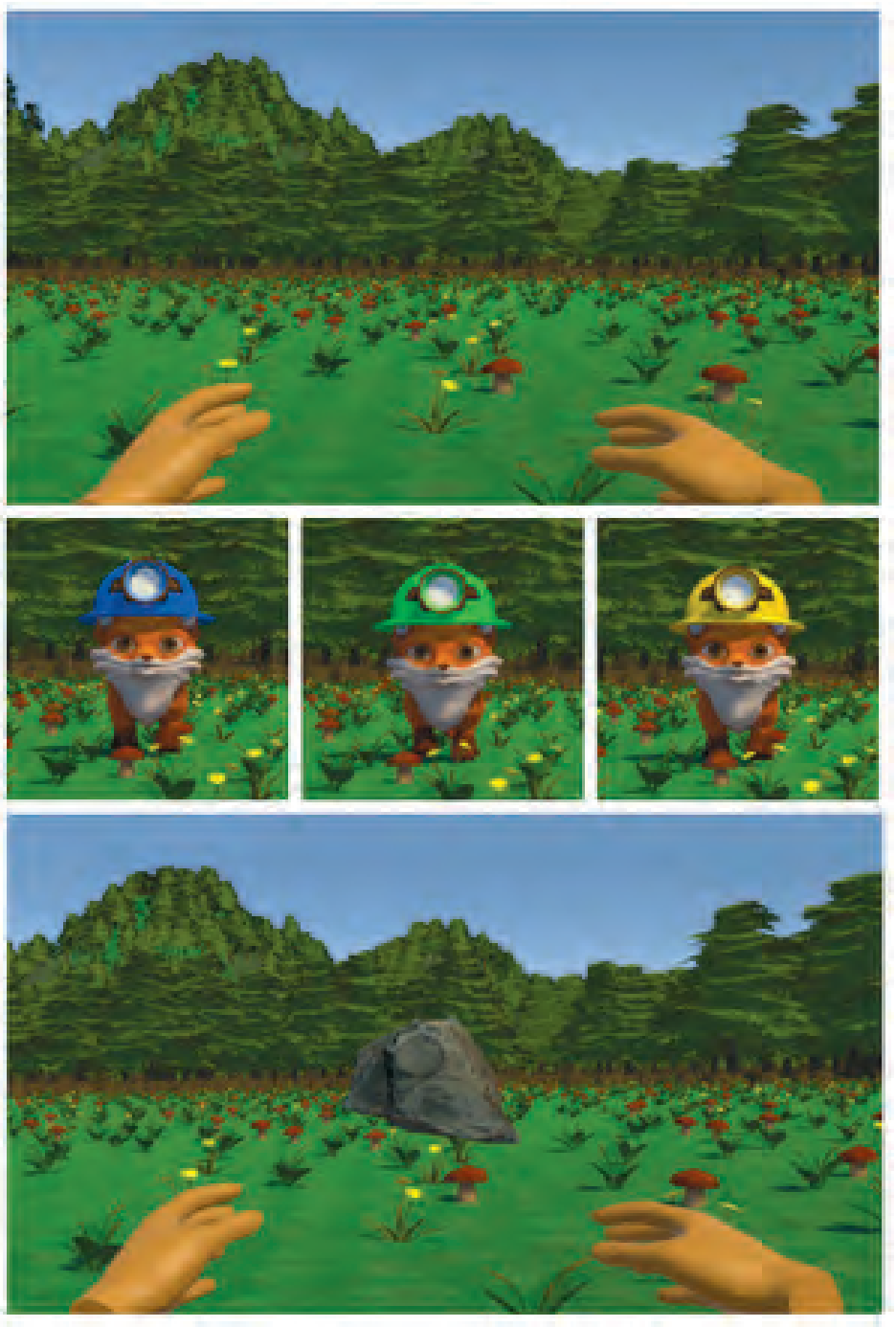
NEURAL MECHANISMS OF CUED PAIN ANTICIPATION DURING LATERALISED TONIC EXPERIMENTAL PAIN: A MULTISENSORY METHOD POWERED BY VIRTUAL REALITY

D. Hewitt[1], S. Tong[2], B. Seymour[1]

[1]Wellcome Centre for Integrative Neuroimaging, University of Oxford, Oxford, United Kingdom, [2]Oxford Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom

Methods: Healthy volunteers view a dynamic forest scene. Animated cues (foxes) are presented, differentiated by colour, followed by an object (a rock) looming towards the left or right body side or the ground. During acquisition, objects looming to the left and right are accompanied by phasic pain on the corresponding site, while objects that hit the ground result in no pain. During extinction, tonic pain is applied to the left or right arm, and phasic pain is not delivered. Physiological, EEG and eye-tracking data are monitored throughout with real-time data stream synchronisation using centralised software.

Results: Forthcoming research will implement this paradigm in a healthy population. We predict an enhanced anticipatory response to pain-predictive compared to neutral cues during conditioning, which will decline during extinction. Critically, we expect changes in neurophysiological measures of extinction for cues previously associated with lateralised tonic pain.



Conclusions: We developed a novel, multisensory method for exploring pain learning during tonic pain. Findings will contribute to a greater understanding of the acquisition and extinction of pain-related fear following injury. Future work could identify those with maladaptive learning processes after injury, which may contribute to persistent pain conditions.

1246

MECHANISMS OF EDUCATION AND GRADED SENSORIMOTOR RETRAINING IN PEOPLE WITH CHRONIC LOW BACK PAIN: A MEDIATION ANALYSIS

A. Cashin[1,2], H. Lee[3], B. Wand[4], M. Bagg[5], E. O'Hagan[6], R. Rizzo[2,1], T. Stanton[7], G.L. Moseley[7], J. McAuley[1,2]

[1]Neuroscience Research Australia, Sydney, Australia, [2]University of New South Wales, Sydney, Australia, [3]Exeter University, Exeter, United Kingdom, [4]The University of Notre Dame, Fremantle, Australia, [5]Curtin University, Perth, Australia, [6]The University of Sydney, Sydney, Australia, [7]University of South Australia, Adelaide, Australia

Methods: We conducted a pre-planned causal mediation analysis of a randomized clinical trial which allocated 276 participants with CLBP to 12 weekly clinical sessions of education and graded sensorimotor retraining (n=138) or a sham and attention control (n=138). Outcomes were pain intensity, and disability, both assessed at 18 weeks. Hypothesized mediators included tactile acuity, motor coordination, back self-perception, beliefs about the consequences of back pain, kinesiophobia, pain self-efficacy and pain catastrophizing, all assessed at the end of treatment (12 weeks).

Results: 4/7 (57%) mechanisms mediated the intervention effect on pain; the largest mediated effects were for beliefs about back pain consequences (-0.96 [-1.47 to -0.64]), pain catastrophizing (-0.49 [-0.61 to -0.24]), and pain self-efficacy (-0.37 [-0.66 to -0.22]). 5/7 (71%) mechanisms mediated the intervention effect on disability; the largest mediated effects were for beliefs about back pain consequences (-1.66 [-2.62 to -0.87]), pain catastrophizing (-1.06 [-1.79 to -0.53]), and pain self-efficacy (-0.84 [-1.89 to -0.45]). When all seven mechanisms were considered simultaneously, the joint mediation effect explained most of the intervention effect for both pain and disability.

Conclusions: Optimizing interventions to target beliefs about the consequences of back pain, pain catastrophizing and pain self-efficacy, is likely to lead to improved outcomes for people with CLBP.

1259

MULTIMODAL TREATMENT OF POST- MASTECTOMY PAIN SYNDROME (PMPS) – CASE STUDY

M. Bitner-Bieleszuk[1], N. Kozera[1], L. Foltyńska[1]

[1]Wrocław Medical University, Wrocław, Poland

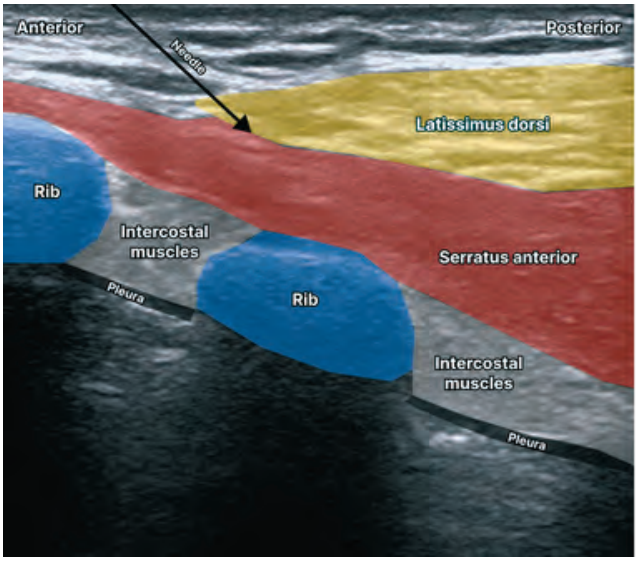
Methods: A case study of 79-year-old female cancer survivor (T2N1aM0) treated with breast conserving therapy, radiation therapy, adjuvant chemotherapy (AC 4k) and endocrine therapy with letrozole. She was admitted to the Pain Management Clinic due to progressing PMPS with no significant improvement after multiple pain-relief medications prescribed in the past.

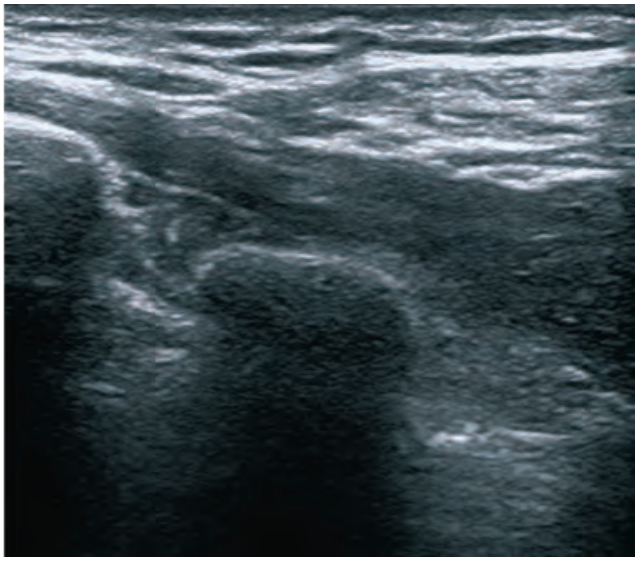
The patients quality of life was assessed using ESAS-r scale.

Results: The patient's regular medication included pregabalin 300 mg, tramadol 37.5mg + paracetamol325mg, estazolam 2 mg. The patient reported burning neuropathic pain of the left frontolateralchest wall, armpit and shoulder. The physical examination revealed limitation in left arm abduction, hyperalgesia of the scar tissue and microperfusion impairment of skin above.

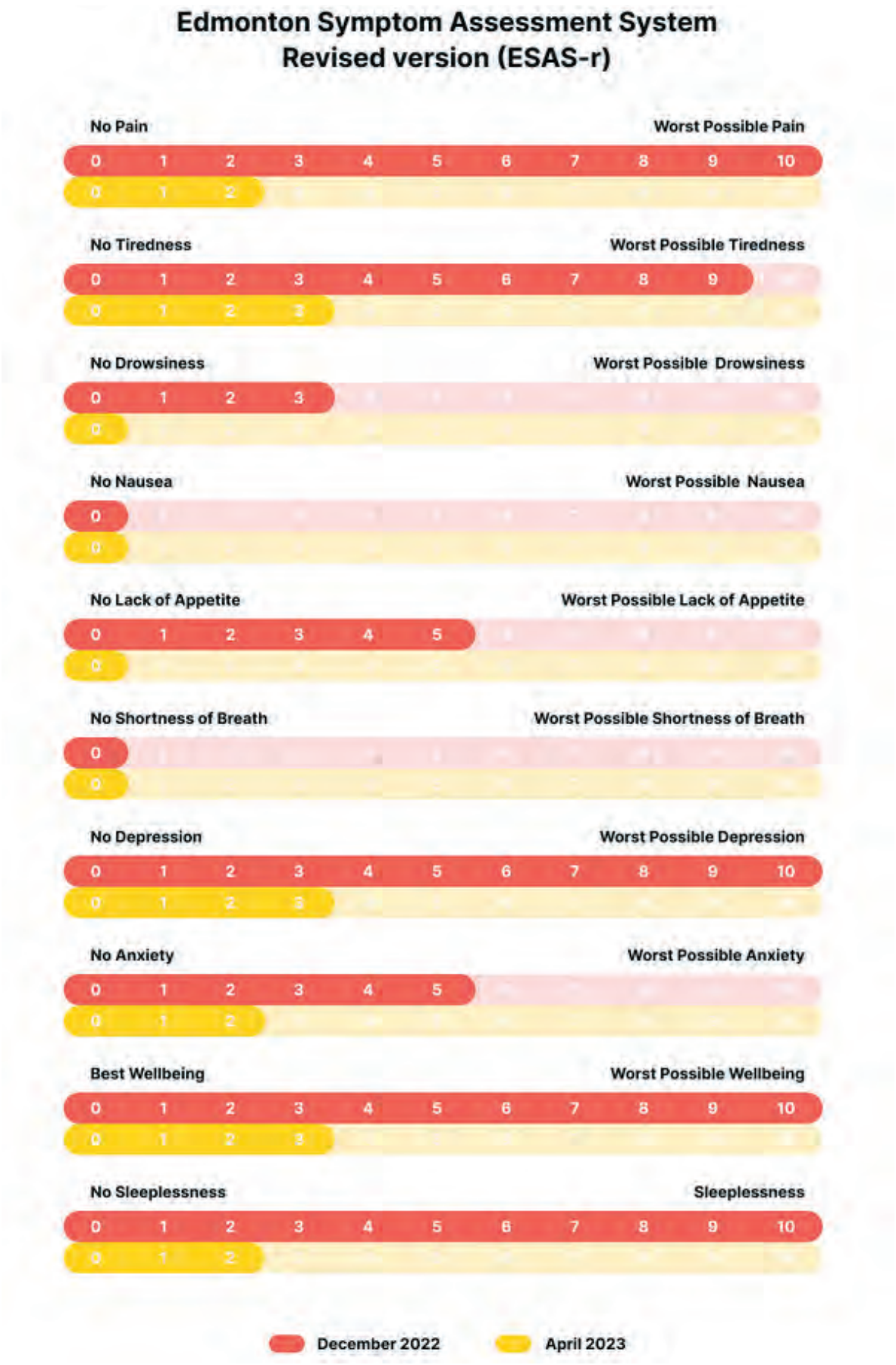
The patient was advised to discontinue taking estazolam, prescribed duloxetine escalated to 60 mg, pregabalin (the same dose) and topical ointment with 5% ketoprofen and 5% gabapentin twice a day. Psychologist intervention and physiotherapist sessions were scheduled.

Between January and April 2023 the patient was treated with a serratus anterior plane block (picture 1) twice and left suprascapular nerve block.





Within 5 months of combined multimodal treatment the patient's symptom control measured in quality of life (ESAS) improved (picture 2).



Conclusions: Management of patients with PMPS requires an individualised approach and should include multimodal therapy performed by a multidisciplinary team.

1260

INTERSECTIONS BETWEEN PAIN-RELIEF SMOKING, BARRIERS TO QUITTING, AND COMORBID ALCOHOL AND GAMBLING DISORDERS

K. Yamada[1,2], N. Mizunuma[3,4,5,6], T. Tabuchi[7]

[1]Juntendo University Graduate School of Medicine, Tokyo, Japan, [2]Juntendo University Faculty of Medicine, Tokyo, Japan, [3]Toho University Graduate School of Medicine, Tokyo, Japan, [4]Tokyo Kagurazaka Law Office, Tokyo, Japan, [5]Tottori University, Yonago, Japan, [6]Saitama Medical University International Medical Center, Hidaka, Japan, [7]Osaka International Cancer Institute, Osaka, Japan

Methods: We analyzed 5319 smokers aged ≥20 after excluding those with invalid responses, confounding diseases, and medical opioid use from 34000 participants in the Japan ‹Society and New Tobacco› Internet Survey (JASTIS) 2023. A modified Poisson regression model with multivariate adjustment was used to calculate the relative risk (RR) and 95% confidence intervals (CI) for indifference to quitting, history of quitting in the past year, nicotine addiction, and alcohol and gambling disorders among this population.

Results: Overall, 6.2% of smokers used tobacco for pain relief. These individuals showed more quit attempts but also higher failure rates in the past year compared to others; RR 1.32 (1.15-1.51). However, their indifference to cessation was not increased. Additionally, these individuals showed an increased risk of nicotine addiction, problematic drinking, and problem gambling compared to those who did not smoke for pain relief; RR 1.21 (1.06–1.37), RR 1.44 (1.26–1.66) and RR 2.46 (2.03–2.99), respectively.

Conclusions: Our study suggests that individuals who smoke for pain relief not only make more quit attempts but also experience higher failure rates. Additionally, they demonstrate increased risks of nicotine addiction, problematic drinking, and problem gambling. Comprehensive support strategies are needed for this population.

1261

EFFECT OF A CONTROLLED DIAPHRAGMATIC BREATHING SESSION ON PERCEIVED PAIN AND STATE ANXIETY IN PEOPLE WITH CHRONIC PAIN

E.R. Serrano-Ibáñez[1,2], R. Esteve[1,2], M. Czub[3], J. Piskorz[3], G.T. Ruiz-Párraga[2], G. Sainero-Tirado[2], V. Barrado[2], A.E. López-Martínez[1,2], C. Ramírez-Maestre[1,2], R. de la Vega[2]

[1]Instituto de Investigaciones Biomédicas de Málaga (IBIMA), Malaga, Spain, [2]Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Facultad de Psicología y Logopedia, Universidad de Málaga, Malaga, Spain, [3]University of Wrocław, Institute of Psychology, Wroclaw, Poland

Methods: We analysed the influence of sociodemographic variables, dispositional anxiety, average pain during the last week, respiratory rate, and inhalation/exhalation ratio. The sample comprised 169 people with chronic pain from Spain and Poland who were evaluated before and after performing an online CDB task which includes audiovisual support.

Results: The Wilcoxon test showed significant decreases in state anxiety and perceived pain. Linear regression analyses revealed an association between dispositional anxiety and pretest/posttest differences in state anxiety, as well as an association between both average pain in the last week and nationality and pretest/posttest differences in perceived pain. The Spanish participants reported greater change in perceived pain level, were less distracted during the task, and regularly practiced activities that include controlled breathing.

Conclusions: CDB could be a good option to reduce pain perception and state anxiety in chronic pain conditions.

1264

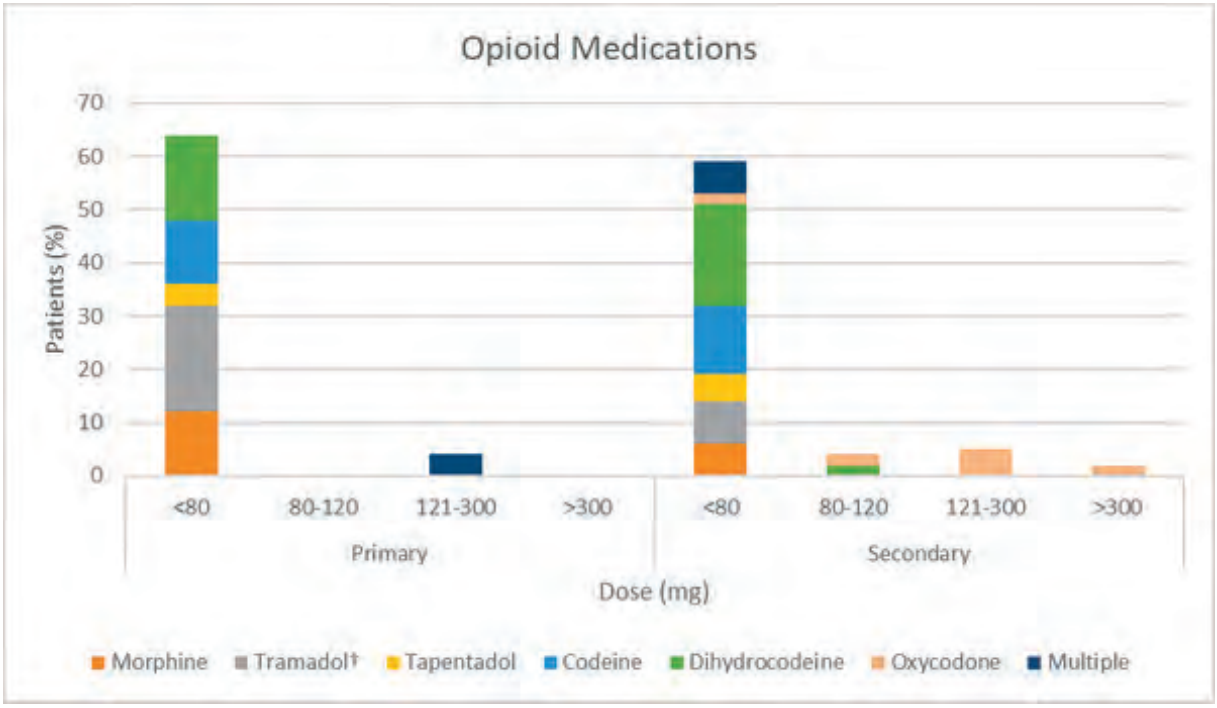
THE USE OF OPIOID MEDICATIONS IN CHRONIC PRIMARY PAIN DISORDERS: A QUALITY IMPROVEMENT PROJECT

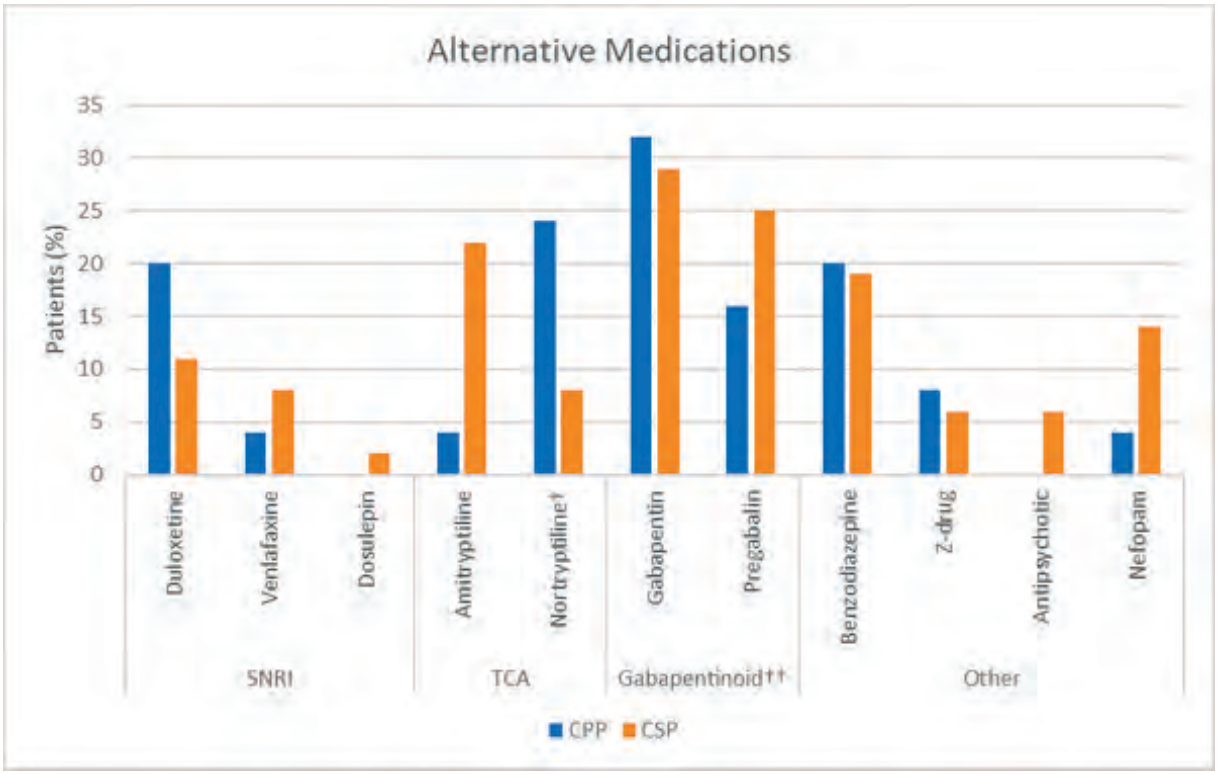
E. Schweighart Gate[1], S. Kanarajakan[2]

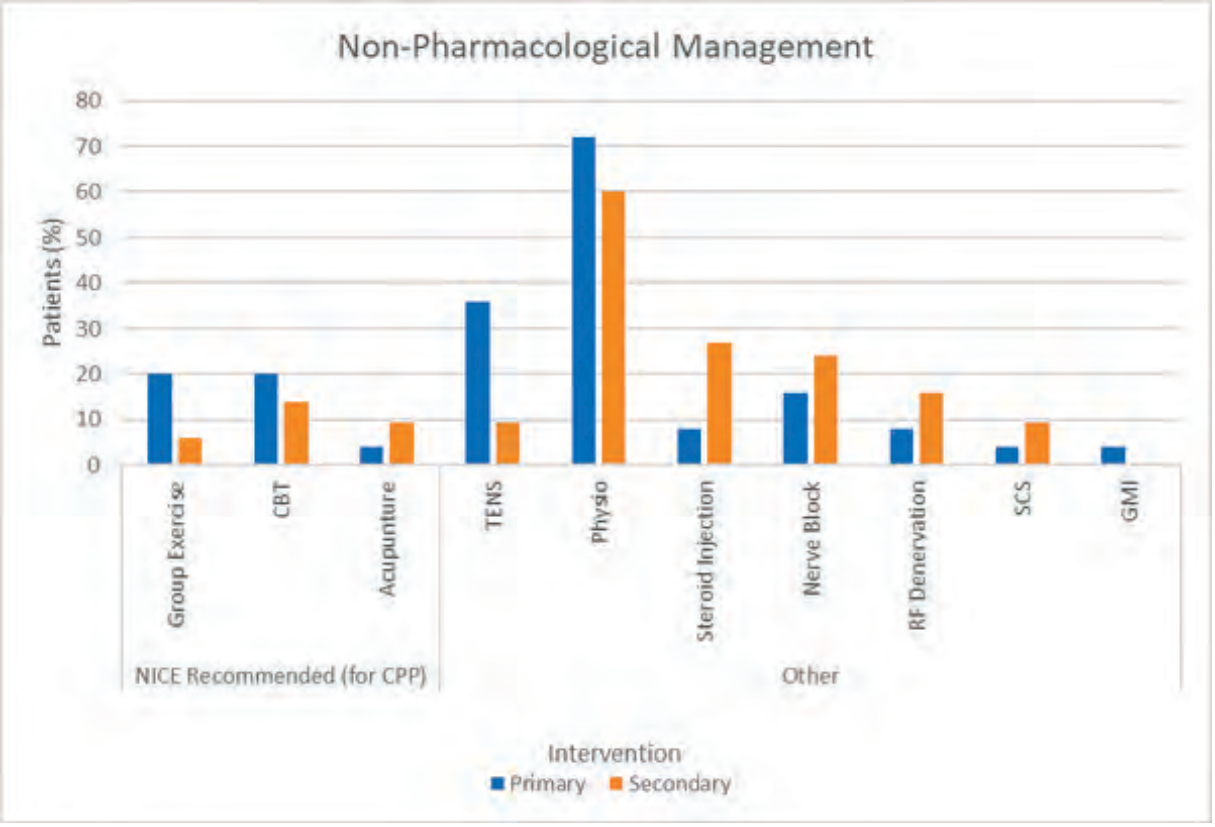
[1]University Of Aberdeen/ NHS Grampian, Aberdeen, United Kingdom, [2]NHS Grampian, Aberdeen, United Kingdom

Methods: Relevant information was collected through TrakCare of patients attending outpatient clinic list at the NHSG pain clinic using a data capture tool designed in REDCap. Two-tailed exact Fischer tests were conducted using Prism to determine whether differences in outcomes were statistically significant.

Results: A total of 93 patients were included in the study, of which 25 had CPP and 63 chronic secondary pain (CSP). 17 (68%) CPP patients were prescribed opioid medications, 16 with doses <80mg and 1 with dose 121-300mg.18 (72%) CPP patients were prescribed other pharmacological medications. 8 (32%) CPP patients had been referred for NICE recommended non-pharmacological interventions. Fischer tests showed no statistically significant differences between outcomes across patient groups.







Conclusions: The NHSG pain clinic was not compliant with aspects of guidelines for opioid prescription outcomes, with high prescription rates and long-term courses. However, doses were low, and compliant with faculty of pain medicine (FPM) guidance to prescribe doses <120mg. Prescription of other non-recommended medications were high, and a significant minority received these in combination with an opioid medication. Complexity of management is likely to contribute to these findings.

1268

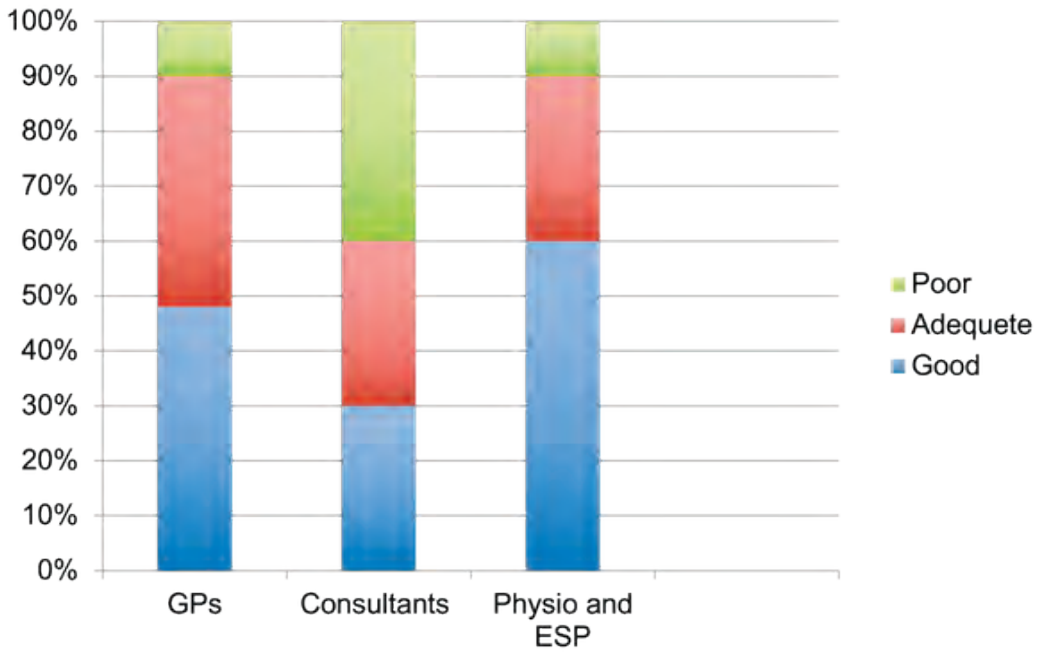
AUDIT ON QUALITY OF CHRONIC PAIN REFERRAL LETTERS

P. Ramchandran[1], M. Tewani[1]

[1]*University Hospitals Birmingham, Birmingham, United Kingdom*

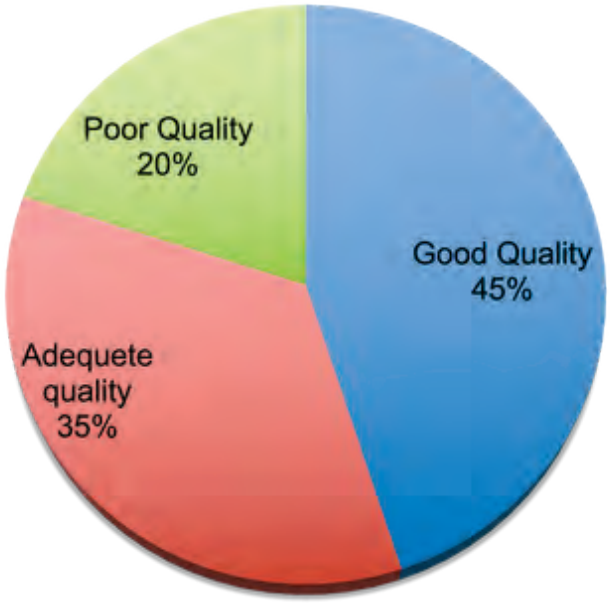
Methods: 60 pain referral letters for new patient appointments to HGS Pain Clinic between Jan 2019 –Apr 2019 were audited. Letters included those from GPs, Physiotherapists, Extended Scope Practitioners (ESP), Surgeons, Rheumatologists, Gastroenterologist and Neurologists. This Audit was based on **Kings fund 2010** (quality of referral letters) and **FPM core standards**. **14 parameters** were evaluated and according to points they received , they were categorized into poor (up to 6 points), **adequate** (6-10) and **good quality**(above 10).

Results:



55% of total referrals were from **GP**, out of which only 10% were of poor quality. Remaining 90% were of adequate to good quality.

22% of referral letters were from **Consultants**, out of which most were poor to adequate quality. 23% of referral letters were from **physiotherapists and ESP** out of which 61% were good quality letters.



Conclusions: In our Audit, we found that **20%** of the referral letters were of **poor** quality and although **45 %** were of **good** quality, there is some scope of improvement.

Implementing a **structured referral letter** will improve the quality and standard of referrals and save time for both general practitioners and specialists.

1272

EFFECT OF COMBINED ELECTROACUPUNCTURE AND DIETARY INTERVENTIONS ON PAIN AND LIFE- QUALITY IN FIBROMYALGIA PATIENTS: PRELIMINARY DATA OF A PROSPECTIVE OBSERVATIONAL STUDY

E. Koutoulaki[1], P. Vardakis[1], G. Stefanakis[1], G. Papastratigakis[1], M. Venihaki[2], V. Nyktari[2]

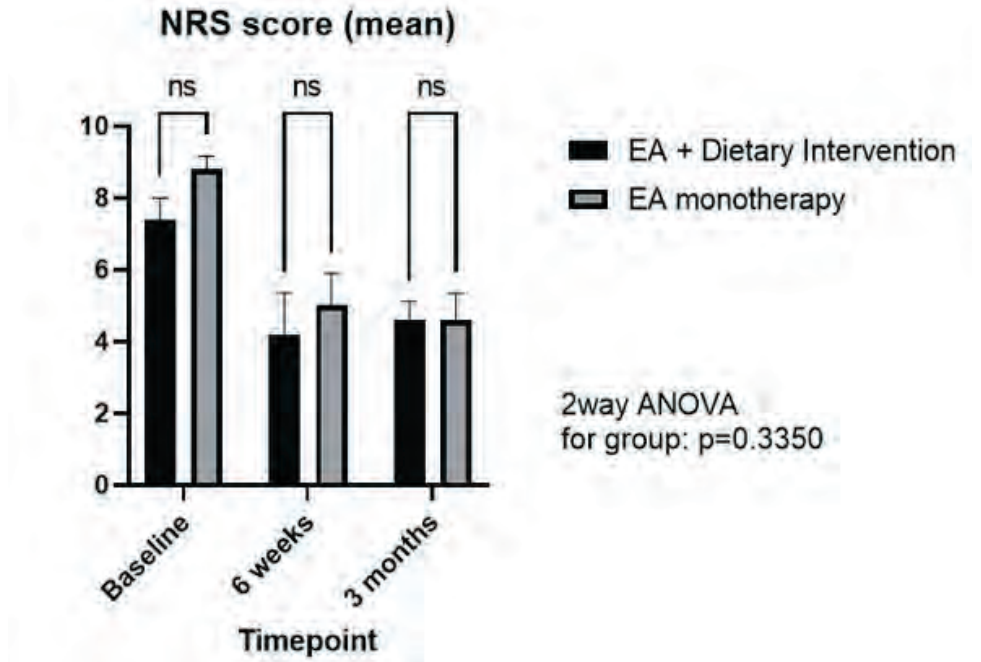
[1]University Hospital of Crete, Heraklion, Greece, [2]School of Medicine, University of Crete, Heraklion, Greece

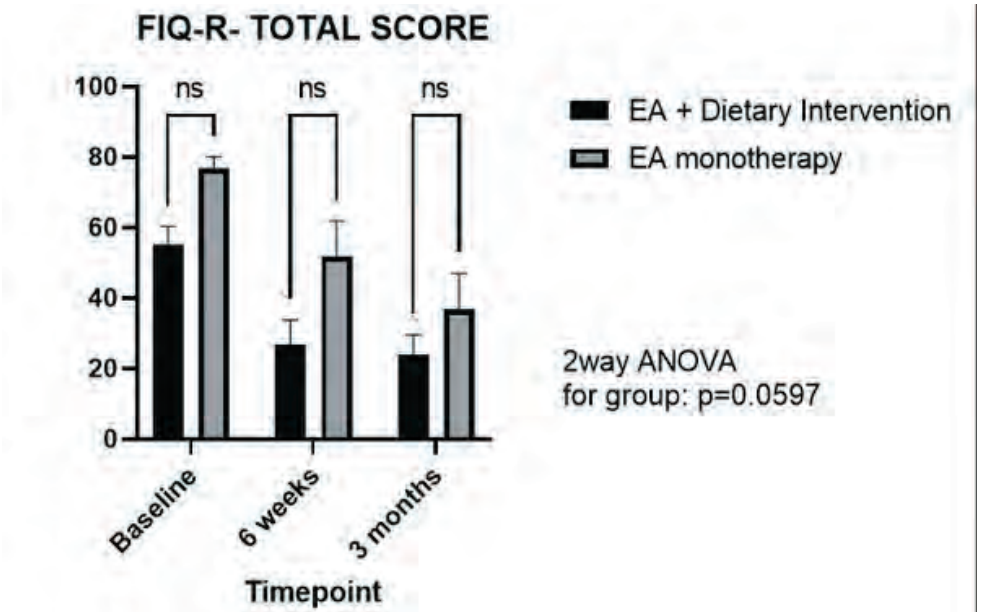
Methods: All patients were informed on management options. Eligibility criteria included primary fibromyalgia, chronic diffuse pain>6 months, patient's consent and age>18 years.

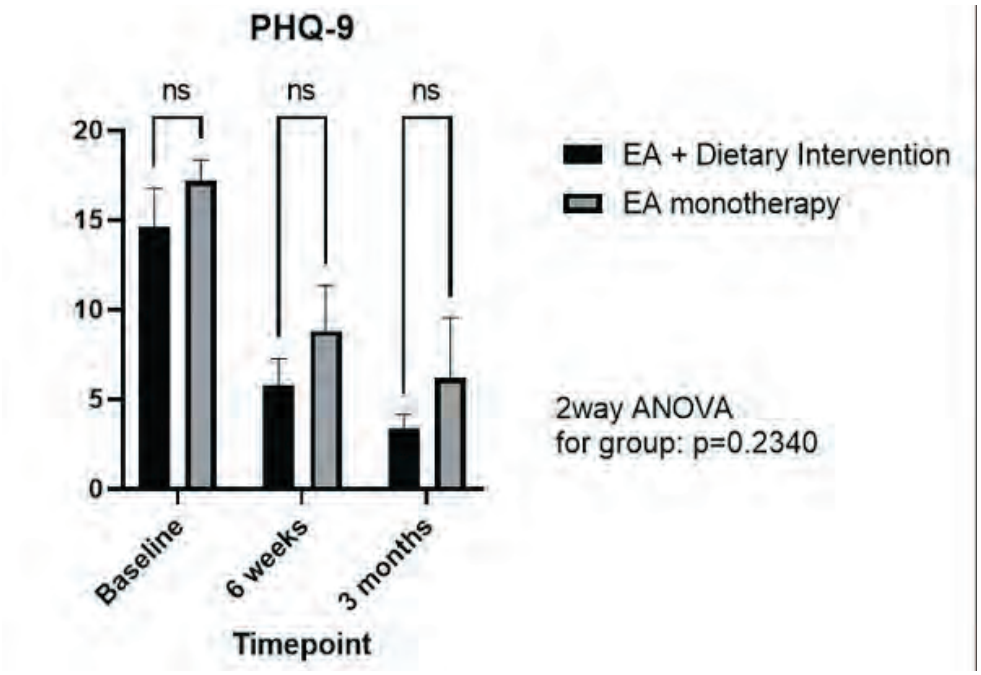
Management included 12 EA sessions within six-weeks, followed by sessions every 15 days for 6 months. Mediterranean diet combined with nutrition supplement with palmitoylethanolamide, superoxide dismutase, alpha-lipoic acid, vitamins E, B1, B3, B6, B12 (Epineuron, Pharma Unimedis) was proposed to all patients. Palmitoylethanolamide is an endocannabinoid-like lipid mediator with anti-inflammatory, analgesic, immunomodulatory and neuroprotective effects.[3]

Pain was assessed at 3 time points (first visit, six weeks, three months) using a numerical scale (NRS) self-report. Quality of life was assessed using the revised fibromyalgia questionnaire (FIQR) and PHQ-9 for depression

Results:







Preliminary data from 10 patients were analysed. Five patients complied to EA monotherapy. Two-way ANOVA showed no statistically significant difference in NRS (p=0.335), FIQR (p=0.0597) and PHQ-9 (p=0.234) (Figures 1-3) when combined EA and dietary modification were compared to EA monotherapy.

Conclusions: Although preliminary data showed a trend towards lower pain and depression and improved quality-of-life in patients managed with combined electroacupuncture and nutrition modification, no statistically significant difference was found.

1274

DESCRIBING EXERCISE WITH CHATGPT IN PATIENTS WITH CHRONIC SPINAL PAIN AND ASYMPTOMATIC PARTICIPANTS: A CASE-CONTROL STUDY PROTOCOL

G. Yalcinkaya Colak[1], I. Kara[2], S. Ozyurek[2]

[1]Bozok University, Yozgat, Turkey, [2]Dokuz Eylul University, Izmir, Turkey

Methods: The study was designed with a case-control methodology. Sample calculation will be made based on pilot analyses following the data collection. All participants will attend to a questionnaire that includes descriptions of exercises commonly used in the management of CSP according to clinical guidelines. The exercise descriptions of the questionnaire will be defined in five steps by chatGPT and a physiotherapist. The responses will be independently graded according to the guidelines by two expert physiotherapists on this topic. The ability to determine the description of exercise by physiotherapist or chatGPT will be compared between individuals with CSP and asymptomatic participants.

Results: Our findings will provide evidence that a therapeutic exercise description by chatGPT can be distinguished from that of a physiotherapist or not.

Conclusions: The present perspectives of participants on defining chatGPT can guide the contents of digital health applications. We will conduct this trial to provide evidence on whether chatGPT may have or not a role as an adjunct informational tool for designing the most effective exercise programs to manage spinal pain.

1275

PAIN PROCESSING AND PAIN-AUTONOMIC ALTERATIONS IN CHRONIC LOW BACK PAIN: EXPLORING CONTACT HEAT EVOKED POTENTIALS AND SYMPATHETIC SKIN RESPONSE

B. Chozas Barrientos[1,2], I. De Schoenmacker[3,2], P.S. Scheuren[3,4,5], L. Sirucek[1,2], D. Costa Marques[3], R. Lütolf[3], L. Gorrell[1], A. Langenfeld[1], M. Baechler[1], B. Wirth[1], J. Rosner[3,4,6], M. Hubli[3,2], P. Schweinhardt[1,2]

[1]Integrative Spinal Research, Department of Chiropractic Medicine, Balgrist University Hospital, University of Zurich, Zürich, Switzerland, [2]Zentrum für Neurowissenschaften Zürich (ZNZ), Zürich, Switzerland, [3]Spinal Cord Injury Center, Balgrist University Hospital, University of Zurich, Zürich, Switzerland, [4]Department of Neurology, University Hospital Bern, Inselspital, University of Bern, Bern, Switzerland, [5]International Collaboration on Repair Discoveries (ICORD), Faculty of Medicine, University of British Columbia, Vancouver, Canada, [6]Danish Pain Research Center, Department of Clinical Medicine, Aarhus University, Aarhus, Denmark

Methods: 59 nsCLBP patients and 41 age- and sex-matched HC participated in the study. Time-locked CHEPs and SSRs were simultaneously recorded in response to blocks of 15 heat stimuli applied at the back (patients› most painful body site, 2 blocks) and the hand (non-painful control area, 2 blocks). Participants rated the perceived pain intensity of each stimulus using a numeric rating scale.

Results: SSR latencies were prolonged in patients compared to HC ($F = 11.452$, $p = 0.001$) and for hand stimulation compared to the back ($F = 11.992$, $p = 0.0008$). In patients, SSR latencies in both areas correlated negatively with clinical pain intensity (back: $rho = -0.411$, $p = 0.014$, control area: $rho = -0.394$, $p = 0.021$). SSRs amplitudes and habituation parameters, and CHEPs amplitudes, latencies, and habituation parameters, neither differed between groups nor correlated with pain ratings.

Conclusions: The results of prolonged SSR latencies indicate a dysregulated autonomic response in nsCLBP. Shorter SSR latencies correlating with higher clinical pain suggest increased saliency of nociceptive input in those patients.

1276

PAIN CATASTROPHIZING AND FEAR-AVOIDANCE BELIEFS, BUT NOT DEMOGRAPHIC ASPECTS, CONTRIBUTE TO SELF-EFFICACY LEVELS OF PEOPLE WITH CHRONIC SHOULDER PAIN

M.D. Santos[1], M.L.R. Sacomano[1], L.A. Almeida[1], M.N. Haik[1]

[1]Federal University of São Carlos, São Carlos, Brazil

Methods: Sixty-seven individuals (32 females) between 18 and 80 years with shoulder pain longer than 3 months were assessed. Self-efficacy was assessed with the Brazilian version Chronic Pain Self-Efficacy Scale, and pain catastrophizing, fear-avoidance beliefs and kinesiophobia were assessed with the Brazilian version of the Pain Catastrophizing Scale, Fear-Avoidance Beliefs Questionnaire and Tampa Kinesiophobia Scale, respectively. Sex, age, pain catrastrophizing, fear-avoidance and kinesiophobia were entered into a multiple linear regression model to explain self-efficacy variability.

Results: Self-efficacy was inversely related to pain catastrophizing ($p<0.01$; $r=-0.43$), fear-avoidance beliefs ($p<0.01$; $r=-0.44$) and kinesiophobia ($p<0.01$; $r=-0.37$), while sex and age were not. The model was statistically significant [$F(2,64)=11.22$; $p<0.01$; $R^2=0.26$) for pain catastrophizing (ß=-0.29; $t=-2.36$; $p=0.02$) and fear-avoidance beliefs (ß=-0.30; $t=-2.48$; $p=0.01$) to explain self-efficacy variability.

Conclusions: The higher the self-efficacy level, the lower the pain catastrophizing, fear-avoidance beliefs and kinesiophobia levels. Together, only pain catastrophizing and fear-avoidance beliefs explained 26% of the variability in self-efficacy scores. Age, sex and low levels of kinesiophobia do not contribute to better self-efficacy in people with chronic shoulder pain.

1277

AN AUDIT OF PATIENT AWARENESS OF THE ADVERSE-EFFECTS OF ANALGESIC MEDICATIONS IN A POPULATION OF PATIENTS ADMITTED FOR DAY-CASE PROCEDURES FOR MANAGEMENT OF PAIN CONDITIONS

P. Walsh[1,2], E. Grufferty[2], C. Cleary[2]

[1]University College Cork, Cork, Ireland, [2]Bon Secours Hospital Cork, Cork, Ireland

Methods: *Design:* Cross-sectional, prospective audit.

Participants: Patients admitted for day case pain management procedures (n=53).

Variables: Age, Sex, List/Number of pain medications, Knowledge of side effects.

Outcome: Knowledge of common adverse-effects (KCA) score - expressed as proportion of adverse-effects of a participant's given pain medication, of which they are aware of.

Results: 64.15% [95% CI: 50.18, 76.07] of participants were female and mean age was 60.6 years [95% CI: 56.53, 64.68]. Patients were taking a mean of 1.66 [95% CI: 1.39, 1.93] analgesics. 35.85% [95% CI: 23.93, 49.82] take NSAIDs, 54.72% [95% CI: 40.99, 67.77] take opioids, 24.53% [95% CI: 14.62, 38.15] take gabapentoids and 20.75% [95% CI: 11.72, 34.07] take anti-depressants. KCA scores for each medication: NSAIDs=0.49, Opioids=0.44, Gabapentoids=0.49, Anti-depressants=0.26, Total=0.42.

Conclusions: Patient's knowledge surrounding adverse-effects of analgesics in this audit is consistent with previous literature, highlighting ongoing requirements to improve patient education on this topic.

1278

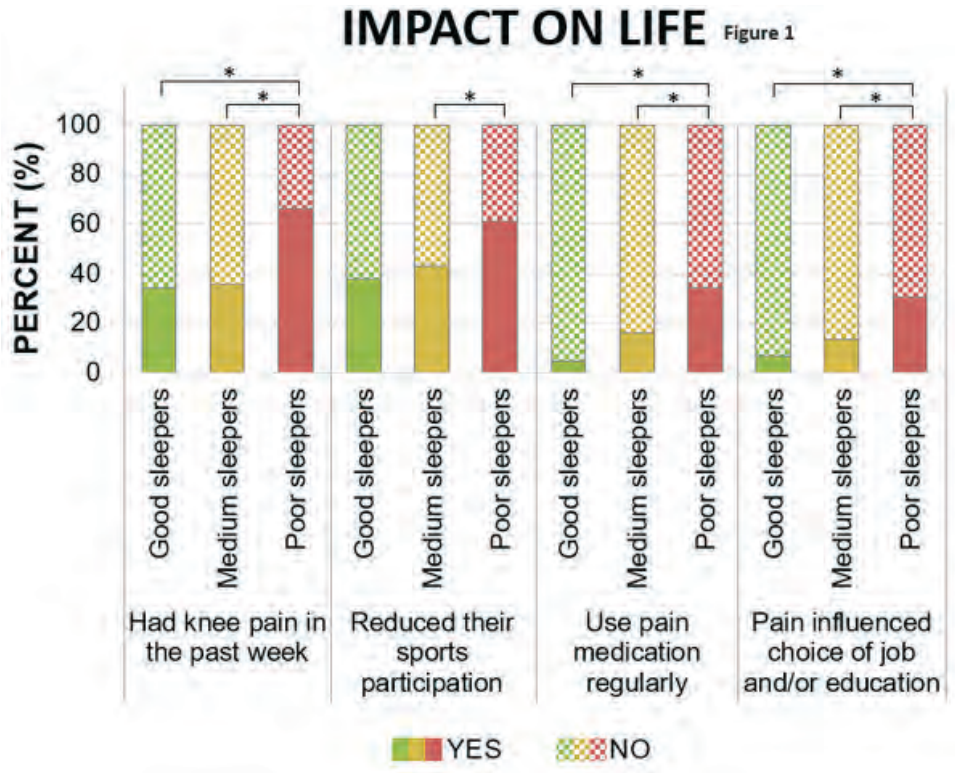
IMPACTS OF SLEEP QUALITY IN YOUNG ADULTS WITH A HISTORY OF ADOLESCENT KNEE PAIN FROM A PROSPECTIVE POPULATION-BASED COHORT IN DENMARK

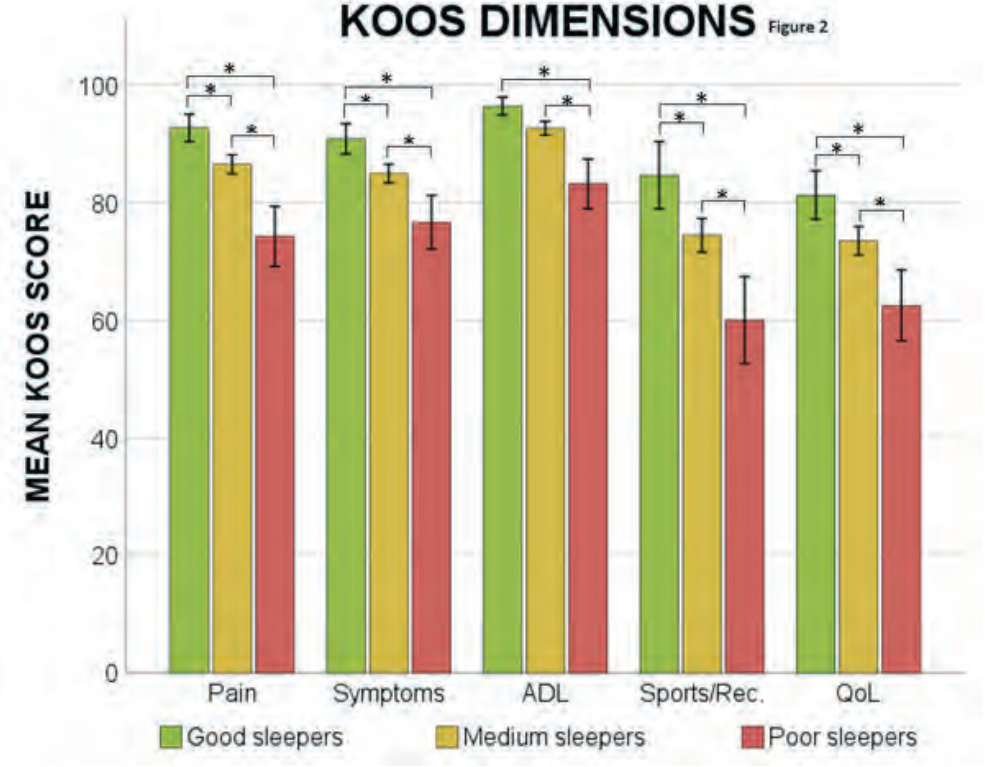
E. Hertel[1,2], M.S. Rathleff[1,3], C.L.N. Straszek[1,3], S. Holden[4,3], K.K.-S. Petersen[1,2,5]

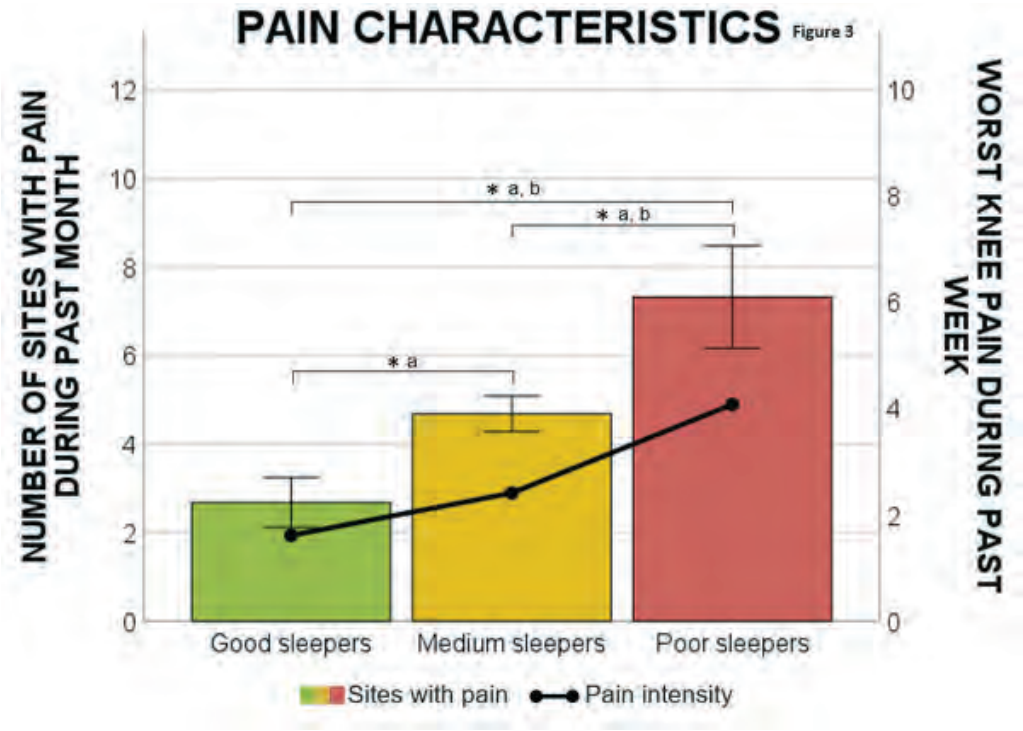
[1]Department of Health Science and Technology at Aalborg University, Aalborg, Denmark, [2]The Center for Mathematical Modeling of Knee Osteoarthritis, Aalborg, Denmark, [3]Center for General Practice at Aalborg University, Aalborg, Denmark, [4]Aalborg University, Department of Health Science and Technology, Aalborg, Denmark, [5]Center for Neuroplasticity and Pain (CNAP) at Aalborg University, Aalborg, Denmark

Methods: This cross-sectional exploratory study included 341 young adults with a history of adolescent knee pain from a population-based cohort. Participants rated four common sleep problems on a 3-point scale and were divided into groups based on cumulative scores with cutoffs at 4 (good sleepers), 8 (medium sleepers), and 12 points (poor sleepers), and were compared on pain, function, and QoL.

Results: Poor sleepers (n=62) had lower QoL (EQ-5D index-score, P<0.001) compared to medium (N=235) and good (N=44) sleepers. Poor sleepers more frequently reported knee pain (P<0.01, fig. 1), higher pain intensities (P<0.001, fig. 3), regular use of painkillers (P<0.01, fig. 1), and multiple painful body sites (P<0.001 fig. 3) compared to medium and good sleepers. Furthermore, poor sleepers more frequently reported reduced sports participation (P<0.01, fig. 1) and impact on job and/or education choice due to pain (P<0.01, fig. 1) compared to medium and good sleepers. Finally, poor sleepers had worse Knee Injury and Osteoarthritis Outcome Scores (KOOS) for function in daily living (ADL) compared to medium and good sleepers (P<0.001, fig. 2), while all other KOOS dimensions worsened progressively from good to poor sleepers (P<0.05, fig. 2).


IMPACT ON LIFE
Figure 1
PERCENT (%)
100
80
60
40
20
0
Good sleepers
Medium sleepers
Poor sleepers
Had knee pain in the past week
Reduced their sports participation
Use pain medication regularly
Pain influenced choice of job and/or education
YES
NO


KOOS DIMENSIONS
Figure 2
MEAN KOOS SCORE
100
80
60
40
20
0
Pain
Symptoms
ADL
Sports/Rec.
QoL
Good sleepers
Medium sleepers
Poor sleepers



Conclusions: Poor self-reported sleep impacts several important domains such as pain, QoL, and career choices in young adults with a history of pain.

1279

COGNITIVE-AFFECTIVE CHANGES MEDIATE THE MINDFULNESS-BASED INTERVENTION EFFECT ON ENDOMETRIOSIS-RELATED PAIN AND MENTAL HEALTH: A PATH ANALYSIS APPROACH

M. de França Moreira[1], O.L. Gamboa[2], M.A. Pinho Oliveira[1]

[1]State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil, [2]Sydney University, School of Psychology, Sydney, Australia

Methods: Secondary analysis of a Randomized Controlled Trial of women with endometriosis, assigned to standard medical treatment (n=32) and standard medical treatment plus bMBI (n=31). We tested a series of parallel and serial mediators (PC, PA, and NA) of the relationship between bMBI and outcomes (PPI, PU, and QoL-MH).

Results: The bMBI group demonstrated improvement in PA (Cohen's f^2 = 0.12 [0.01, 0.36]), decreases in NA (Cohen's f^2 = 0.06 [0.00, 0.24]) and PC (Cohen's f^2 = 0.16 [0.02, 0.42]). The PC reduction mediated the effect of the bMBI on PPI and PU directly; however, the PC effect through PA increase mediated the PU marginally but not PPI changes. bMBI effect on Qol-MH was mediated directly by PA and NA. The PC improved Qol-MH through PA increase and Pain decrease but not via NA. Figure summarizes the variables' relationship that better explains the bMBI effect on outcomes.

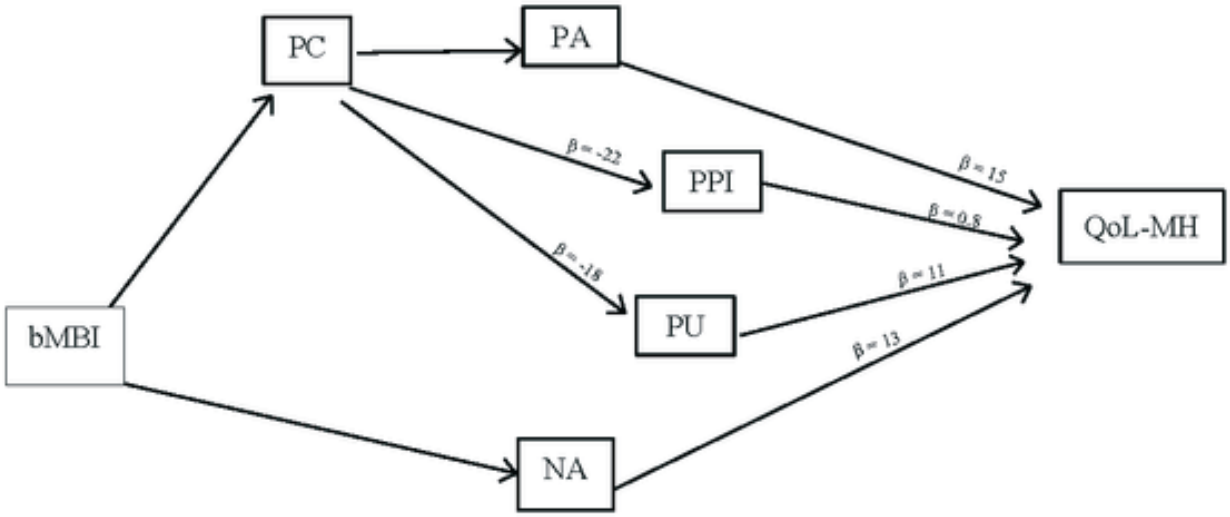


FIGURE. A conceptual model based on variable relationships that better explained the brief Mindfulness Intervention (bMBI) effect in Pain and QoL-Mental Health (QoL-MH). β = standardized beta coefficient, representing the path estimation of pre–post difference in the mindfulness group compared to the control (reference group). PC = Pain Catastrophizing; PA = Positive Affect; NA = Negative Affect; PPI = Pelvic Pain Intensity; PU = Pain Unpleasantness;

Conclusions: Our findings showed that bMBI impacts pain through changes in pain-related cognitive-affective factors. bMBI can improve QoL-MH by multiple pathways, including but not limited to pain reduction, highlighting the independent potential of improvement in affect to restore mental health in endometriosis.

1280

EFFECTIVENESS OF VIRTUAL MOBILITY THERAPY COMBINED WITH PHYSICAL THERAPY FOR UPPER LIMB ON PAIN IN PATIENTS WITH ACUTE INCOMPLETE SPINAL CORD INJURY

E. Muñoz-Gómez[1], S. Mollà-Casanova[1], N. Sempere-Rubio[1], M. Inglés[1], M. Aguilar-Rodríguez[1], P. Serra-Añó[1]

[1]*University of Valencia, Valencia, Spain*

Methods: Five participants with acute iSCI coursing neuropathic pain were included in this study. The program lasted eight weeks with three sessions per week. Each session included: (i) 10 minutes of virtual mobility therapy, in which the volunteers sat at a table where hands doing activities were projected (figure 1); and (ii) 30 minutes of therapeutic exercise for the upper limbs.

Figure 1. Virtual mobility therapy set-up.

Neuropathic pain and its impact on the volunteers' life were assessed by the Brief Pain Inventory in three times: before intervention (T1), after intervention (T2) and four weeks follow-up (T3). A non-parametric test was conducted to compare the different outcomes between assessments. Error type I was established in 5% ($p<0.05$).

Results: There was a significant reduction of maximum pain and total pain severity at T2 compared with T1, but not for T3 (figure 2). No significant difference was found for Pain interference (figure 3).

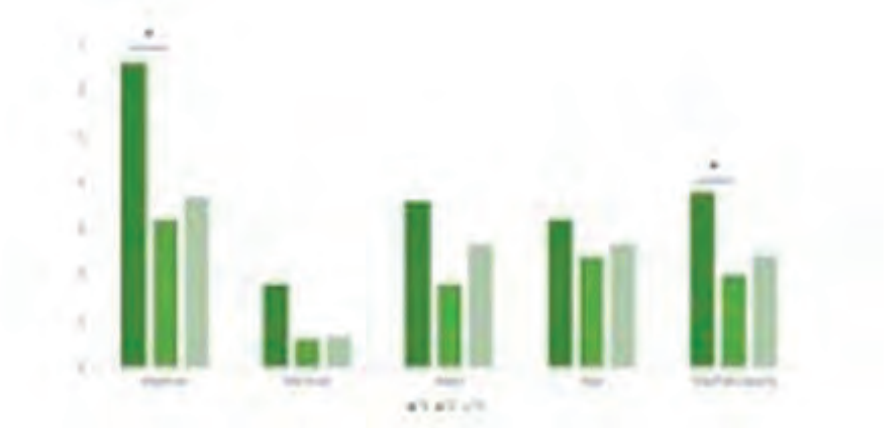


Figure 2. Pain Severity results.*$p<0.05$.

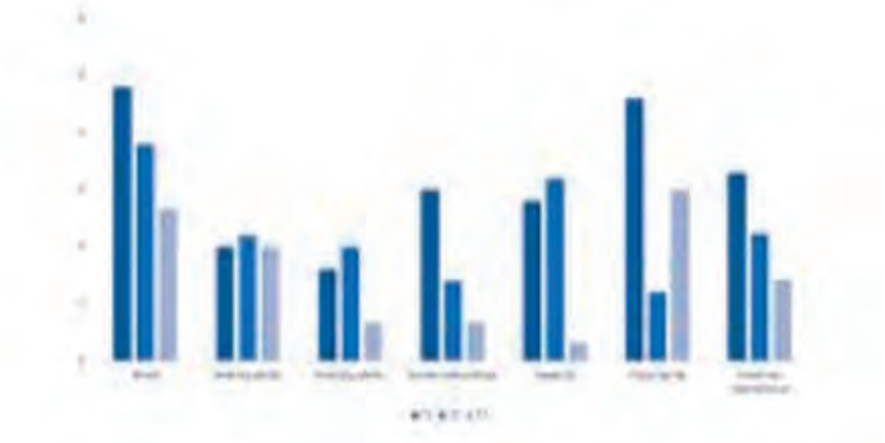


Figure 3. Pain

Conclusions: These preliminary results show that virtual mobility therapy combined with therapeutic exercise immediately improves neuropathic pain severity in people with iSCI, but the interference of pain on mood and daily activities remains unchanged.

1281

MINDFULNESS INTERVENTION EFFECT ON ENDOMETRIOSIS-RELATED PAIN DIMENSIONS AND ITS MEDIATOR ROLE ON STRESS AND VITALITY: A PATH ANALYSIS APPROACH

M. de França Moreira[1], O.L. Gamboa[2], M.A. Pinho Oliveira[1]

[1]State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil, [2]Sydney University, School of Psychology, Sydney, Australia

Methods: Secondary analysis of a RCT of women with deep endometriosis, allocated to standard medical treatment (n=32) and standard medical treatment plus bMBI (n=31). Parallel and serial mediator models were used to assess the bMBI effect on potential mediators and outcomes (figure). Mediator path coefficients are unstandardized (B) and standardized (β).

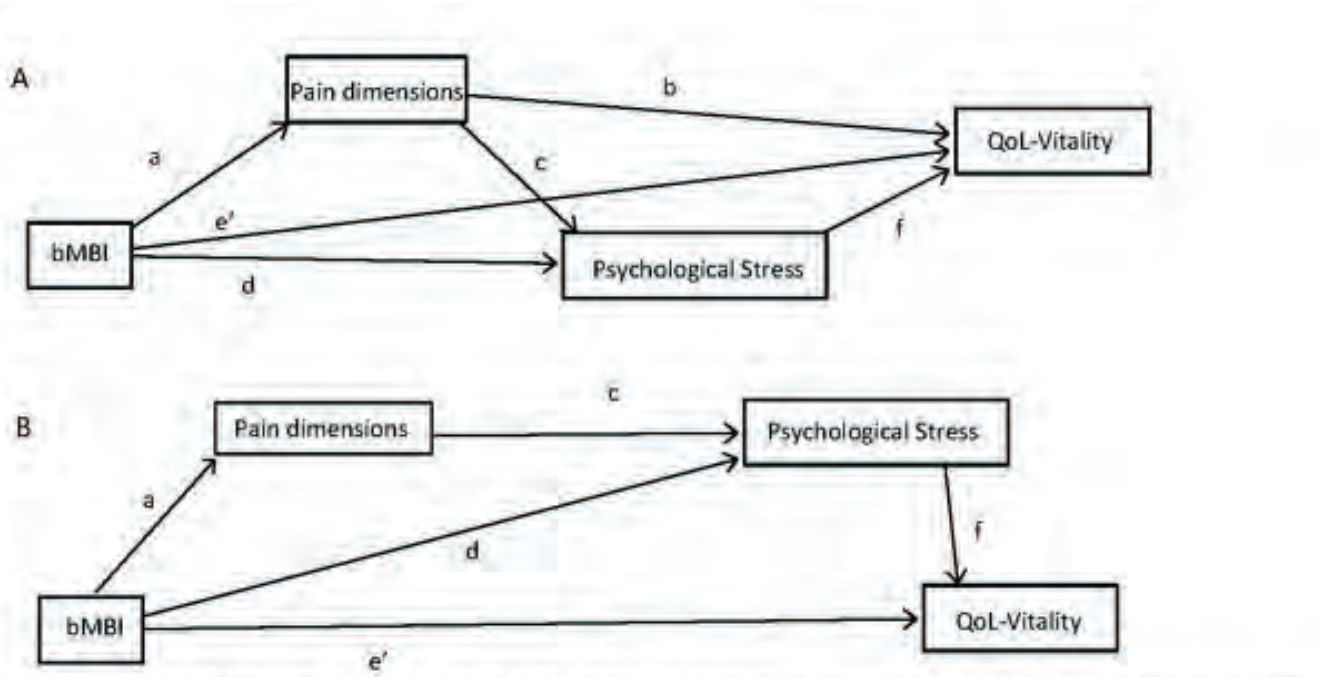


Figure. A) Conceptual model one examines the contribution of pain dimensions on the brief Mindfulness-Based Intervention effect on Psychological Stress and the independent mediator effect of pain and Psychological Stress on QoL-Vitality improvement. B) Conceptual model two examines the serial mediator effect of pain dimensions and Psychological Stress on QoL-Vitality improvement.

Results: Results showed that bMBI improves the sensory (B= -6.09 [-9.81, -2.52], β= -0.42) and affective (B= -3.40 [-5.02, -1.80], β= -0.47) pain. The bMBI effect on psychological stress was mediated by these changes in sensory (B= -2.81 [-6.06, -0.41], β= -0.21) and affective (B= -1.97 [-5.07, -0.17], β= -0.15) pain. Serial sensory pain and PS reduction mediated the bMBI effect on QoL-Vitality (B= 2.27 [0.11, 5.81], β= -0.09).

Conclusions: Meditation training improves affective and sensory endometriosis-related pain characteristics through which psychological stress is reduced. The sensory pain dimension must be positively impacted in combination with psychological stress for the bMBI improves women›s vitality. Findings suggest that adding a psychosocial intervention like meditation training to the standard treatment is required for some women restore well-being.

1282

DISABILITY, BURDEN, AND SYMPTOMS RELATED TO SENSITIZATION IN MIGRAINE PATIENTS ARE ASSOCIATED WITH HEADACHE FREQUENCY

L. Arendt-Nielsen[1,2], S. Di Antonio[3,4], M. Castaldo[3]

[1]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Denmark, Aalborg, Denmark, [2]Department of Medical Gastroenterology, Mech-Sense, Aalborg University Hospital, Aalborg, Denmark, [3]Department of Health Science and Technology, Center for Pain and Neuroplasticity (CNAP), SMI, School of Medicine, Aalborg University, Aalborg, Denmark, [4]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics and Maternal Child Health, University of Genoa, Genoa, Italy

Methods: Migraine patients were subgrouped into three groups according to headache frequency (LFEM, HFEM, CM). Headache-related disability was assessed with the Headache Disability Index questionnaire; neck-related disability was assessed with Neck Disability Index; physical and mental dimensions of quality of life were assessed with Medical Outcomes Study Short Form-36 Physical and Mental; anxiety and depression were assessed with Hospital Anxiety and Depression Scale Anxiety and Depression; symptoms related to sensitization were assessed with Central Sensitization Inventory. Differences among migraine groups were assessed using the Chi-Quadro test, ANOVA, or Kruskal Wallis as appropriate

Results: 197 patients were included (97 LFEM, 68 HFEM, 32 CM). Patients with HFEM and CM differed from patients with LFEM showing a worse headache-related (HFEM, p=0.001; CM, p<0.001) and neck-related disability (HFEM, p=0.009; CM, p=0.003), worse level of physical (HFEM, p=0.001; CM, p=0.001) and mental (HFEM, p=0.001; CM, p<0.001) quality of life, worse level of depression (HFEM, p=0.024; CM, p=0.009), and increase presence

of symptoms related to sensitization (HFEM, p=0.003; CM, p<0.001). No differences were found in any variables between patients with HFEM and patients with CM (p> 0.05).

Conclusions: Patients with high-frequency episodic migraine and chronic migraine could be considered in the same segment of the migraine population, with similar degrees of disability and sensitization-related symptoms.

1284

TELL ME A STORY: A QUALITATIVE STORY COMPLETION STUDY OF CHIROPRACTORS UNDERSTANDING OF COMPLEX REGIONAL PAIN SYNDROME

D. Luu[1], T. Packham[1], S. Moll[1], E. Durocher[1], J. Nash[1]

[1]McMaster University, Hamilton, Canada

Methods: Story completion is a relatively novel data generation method in qualitative research used to generate deep and rich insights into an individual's perceptions, beliefs, experiences and intentions. Chiropractors practicing in Canada were recruited with the help of the professional association and through social media. An online survey was sent out to participants in which a story was presented about a patient living with CRPS who has been referred to chiropractic; story stems also randomly included current medications as either opioids, gabapentin or cannabis. Participants were asked to complete the story describing what happens next.

Results: Forty-one respondents have been collected for data analysis. Analysis of practice characteristics of chiropractors in relation to CRPS assessment and management and the story completion stem will be thematically analyzed. Final results will be shared.

Conclusions: Results of this study may be used to identify CRPS knowledge gaps in the chiropractic profession so that knowledge translation tools can be created while highlighting the role that chiropractors can play in the inter-disciplinary management of CRPS.

1285

ACUTE RESTRAINT STRESS ATTENUATES NOCICEPTIVE BEHAVIOR IN THE RAT SPARED NERVE INJURY MODEL OF NEUROPATHIC PAIN

S. Bourke[1,2], L. Boullon[1,2], M. Hopkins[1,2], A.M. Diego[1,2], M. Redmond[1,2], A. Bella[3,2], C. Di Marino[1,2], A. Llorente-Berzal[1,2], D.P. Finn[1,2]

[1]Pharmacology and Therapeutics, School of Medicine, Galway, Ireland, [2]Galway Neuroscience Centre and Centre for Pain Research, University of Galway, Galway, Ireland, [3]Physiology, School of Medicine, Galway, Ireland

Methods: Male and female 11-12-week old Sprague-Dawley rats underwent SNI or sham surgery. Mechanical and cold hypersensitivity (electronic Von Frey [eVF] and acetone drop [AD] test, respectively) were assessed weekly until 21 days post-surgery. Rats were then assigned to restraint (30 minutes) or non-restraint (n=11 per group, 8 groups), followed by eVF and AD tests 1 hour later. Tissue levels of endocannabinoids, AEA and 2-AG, and *N*-acylethanolamines, PEA and OEA, in the rostral ventromedial medulla, periaqueductal grey, amygdala and hypothalamus were quantified by LC-MS/MS.

Results: SNI surgery induced mechanical and cold hypersensitivity in SNI rats versus shams. While SNI-induced mechanical and cold hypersensitivity were attenuated in stressed rats of both sexes, these antinociceptive effects of stress were more pronounced in males than females, and on mechanical versus cold hypersensitivity. No between-group differences in 2-AG, AEA, PEA and OEA were found in the regions analysed.

Conclusions: Acute restraint stress attenuated SNI-induced nociceptive behaviour in a manner specific to both pain modality and sex. Further analysis is ongoing to investigate the potential role of the endocannabinoid system.

Acknowledgements

This work was supported by grants from the Irish Research Council (GOIPG/2019/3945 and GOIPG/2020/1496), Science Foundation Ireland (13/RC/2073-P2), Hardiman Scholarship University of Galway, Marie Skłodowska-Curie Actions (955684).

1286

COMPARISON OF THE EFFECTS OF MECHANICAL VERSUS MANUAL TRACTION ON PAIN, MUSCLE TONE, AND FUNCTIONALITY IN CERVICOGENIC HEADACHE: A RANDOMIZED CONTROLLED TRIAL

R. Kayis[1], B. Varhan[2], P. Van Der Veer Iii[2], Y. Buran[2]

[1]Medikalpark Hospital, Bursa, Turkey, [2]Istinye University, Istanbul, Turkey

Methods: This study was conducted with people who were diagnosed with CGH. Participants were randomly divided into the mechanical cervical traction(CTG) and manual cervical traction groups(MTG).Intermittent traction was applied to CTG with Tru Trac device and manual traction was applied to MTG for 15 minutes additional to the conventional treatment for 2 weeks.Demographic information was obtained,the head and neck pain was evaluated with VAS and McGill Pain Questionnaire.Cervical joint ROM was measured with electro goniometer,muscle tone with MyotonPRO device,posture with Corbin Posture Analysis.The functional status was evaluated using Headache Impact Scale (HIT-6) and sleep quality with Pittsburgh Sleep Quality Index.An endurance test was applied to cervical flexion and extension muscles.

Results: 52 people were enrolled in the study and 3 people dropped out.There are improvements in all measurements within groups,but there was no statistically significant difference between the two groups before and after treatment.

Conclusions: Cervical mechanical traction is a method that can be easily used and time effective in the clinical setting,thus clinicians can prefer mechanical traction over the manual traction method due to its similar effect on pain,muscle tone,and functionality.

1287

MINDFULNESS-BASED INTERVENTION EFFECT ON THE PSYCHOPHYSIOLOGICAL MARKER OF SELF-REGULATION IN WOMEN WITH ENDOMETRIOSIS-RELATED CHRONIC PAIN

M. de França Moreira[1], O.L. Gamboa[2], M.A. Pinho Oliveira[1]

[1]State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil, [2]Sydney University, School of Psychology, Sydney, Australia

Methods: An exploratory analysis of the secondary outcomes of a pilot RCT was performed. The vagally-mediated Heart Rate Variability (vmHRV) at rest, cognitive stress, and recovery, were employed to measure autonomic regulation. The Flanker and Stroop tasks were used to estimate the attention domains. Multiple linear regression models were developed for each outcome to determine the immediate post treatment effects.

Results: Results showed that bMBI (n= 26) significantly improved Flanker accuracy (Beta= 0.11 [0.01, 0.21]), Flanker (Beta= -31.10 [-60.73, 1.82]) and Stroop reaction time (Beta= -4.80 [-9.45, -0.14]) compared to the control group (n= 28). bMBI significantly increased vmHRV at rest (HF, Beta= 48.49 [5.75, 91.24]) and recovery (RMSSD, Beta= 9.24 [1.57, 17.87]) after cognitive stress. Attention mediated the bMBI effect on affective pain improvement (Group>Stroop RT>Pain Affective, Standardized Beta= -0.11[-0.44, -0.03]).

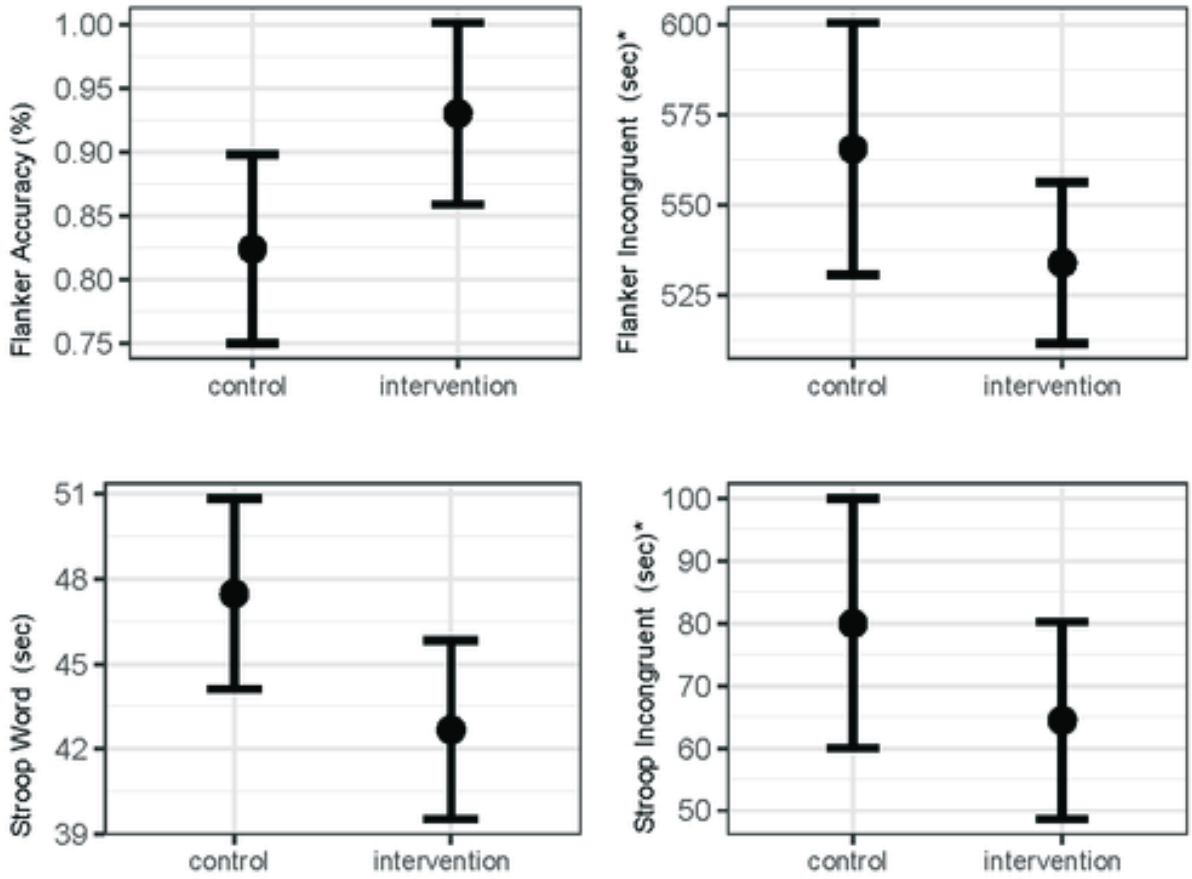


Figure 1. Significant bMBI effect on attention. *Adjusted for depression. Error Bars represent 95% confidence intervals.

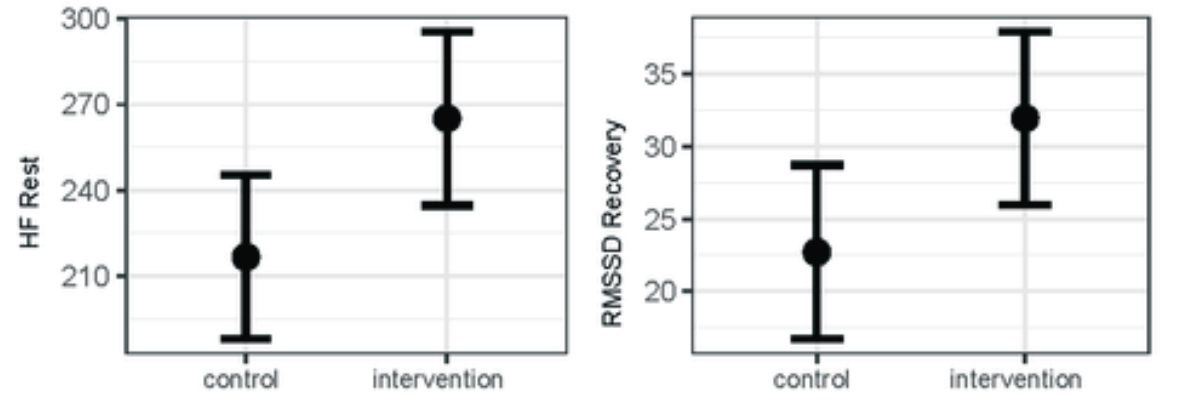


Figure 2. Significant bMBI effect on vagally mediated Heart Rate Variability. Error Bars represent 95% confidence intervals. RMSSD = Root Mean Square of Successive Differences between normal heartbeats; HF = High-Frequency absolute power.

Conclusions: Mindfulness improves autonomic regulation and attention which can benefit affective pain. It may facilitate change elements of the vicious cycle in endometriosis, such as physiological stress, perseverative cognition, and affect.

1288

BENEFICIAL PLACEBO EFFECTS OF A MULTISESSION THETA-BURST STIMULATION (TBS) SHAM PROCEDURE ON PAIN AND FUNCTIONAL RECOVERY IN PATIENTS WITH AN ISOLATED UPPER EXTREMITY FRACTURE (IULF)

L. Proulx-Begin[1,2], M. Jodoin[2], D. Brazeau[1,2], A. Herrero Babiloni[3,2], D. Rouleau[4,2], C. Arbour[5,2], L. De Beaumont[4,2]

[1]Department of psychology, Université de Montréal, Montréal, Canada, [2]CIUSSS du Nord-de-l'Île-de-Montréal, Montréal, Canada, [3]Division of Experimental Medicine, Faculty of Medicine, McGill University, Montréal, Canada, [4]Department of Surgery, Faculty of Medicine, Université de Montréal, Montréal, Canada, [5]Faculty of Nursing, Université de Montréal, Montréal, Canada

Methods: A SHAM group (N=20) was enrolled in the full study (12 laboratory visits over 2 weeks, and a final visit at 3-month post-fracture). Pain intensity (NRS) and functional disability (DASH) levels were collected at each time point. A control-matched group (N=43) was recruited over the phone at 3-month post-fracture and completed the same measures online.

Results: Analyses show significant between-group differences on NRS ($t(61)=-2.221, p=0.030$), suggesting that the SHAM group ($M=1.33; SD=2.05$) reports less severe pain intensity at 3-month post-fracture than the control group ($M=2.51; SD=1.94$); and on DASH ($t(61)=-2.206, p=0.031$), indicating worse functional disabilities in the control group ($M=25.93; SD=16.36$) compared to the SHAM group ($M=16.50; SD=14.44$).

Conclusions: Implementing a rapid and narrow post-fracture follow-up could lead to beneficial effects on the patients' recovery including prevention of pain chronification.

1289

ANTAGONIZING TRPA1 RECEPTORS COUNTERACTS NON-HISTAMINERGIC ITCH IN HUMANS

G.E. Aliotta[1], J. Elberling[2,3], L. Arendt-Nielsen[1,4,5], S. Lo Vecchio[1]

[1]Center for Neuroplasticity and Pain (CNAP), SMI, Department of Health Science and Technology, Faculty of Medicine, Aalborg University, Aalborg, Denmark, [2]Department of Dermatology and Allergy, Herlev and Gentofte Hospital, Copenhagen, Denmark, [3]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark, [4]Department of Gastroenterology & Hepatology, Mech-Sense, Clinical Institute, Aalborg University Hospital, Aalborg, Denmark, [5]Steno Diabetes Center North Denmark, Clinical Institute, Aalborg University Hospital, Aalborg, Denmark

Methods: Twenty-two healthy subjects were randomized, using a single-blinded protocol. Four areas on the forearms were selected and treated as follows: vehicle+BAM8-22, A-967079+BAM8-22, A-967079+BAM8-22 (applied after 5 minutes), and A-967079+inactivated cowhage spicules. A-967079 (0.5 mg/ml) and vehicle were intradermally injected (0.1 ml), while BAM8-22 was applied through inactivated cowhage spicules coated with while BAM8-22 (2 mg/ml). After spicules application, itch intensity was scored with a visual analog scale for 9 minutes followed by the assessment of the mechanically evoked itch.

Results: Itch evoked by 'A-967079+BAM8-22 (after 5 min)' resulted in a lower intensity than 'vehicle+BAM8-22' ($p<0.05$). Moreover, the mechanically evoked itch was lower in 'A-967079+BAM8-22 (after 5 min)' and 'A-967079+inativated spicules' areas compared to 'vehicle+BAM8-22' ($p<0.05$).

Conclusions: A-967079 reduced the itch intensity and the mechanically evoked itch in BAM8-22-induced non-histaminergic itch. This study confirmed the involvement of TRPA1 receptors in the signal pathway of non-histaminergic itch generation and hence the block of TRPA1 receptors can be a promising option for treating chronic itch.

1291

SEXUALLY DIMORPHIC ENDOCANNABINOID CHANGES IN A RAT MODEL OF CHRONIC LOW BACK PAIN INDUCED BY INTERVERTEBRAL DISC INJURY

M.A Hopkins[1], M.C Redmond[1], M.I Ferdousi[1], S. Bourke[1], C. Healy[1], R. Lane[1], R. Brennan[1], Á. Llorente-Berzal[1], D.P Finn[1]

[1]Pharmacology and Therapeutics, School of Medicine, Galway Neuroscience Centre and Centre for Pain Research, University of Galway, Galway, Ireland

Methods: Male and female 12-week old Sprague-Dawley rats underwent IVDI or sham surgery (n=7-8 per group). Mechanical (electronic von Fry-eVF) and heat (Hargreaves-HG) hypersensitivity were assessed at the base-of-the-tail 48/72hrs respectively, and weekly thereafter till post-surgery day (PSD) 30. Following euthanasia on PSD31, tissue levels of ECBs/NAEs were analysed in gross-dissected brain regions and spinal cord via LC-MS/MS.

Results: Male IVDI rats displayed mechanical hypersensitivity compared to sham rats on PSD21, and from PSD7 onwards with Area-Under-the-Curve analysis. Male IVDI rats also showed heat hypersensitivity from PSD8-22 compared to sham counterparts. In females, IVDI did not induce mechanical or heat hypersensitivity. Post-mortem analysis revealed a significant increase in levels of anandamide in the prefrontal cortex of IVDI-treated males. IVDI did not alter levels of ECB/NAEs in brain regions of females. Main effects of sex on levels of ECB/NAEs were found in other regions.

Conclusions: In conclusion, this study revealed sexually-dimorphic alterations in nociceptive behaviour and brain region-specific ECB/NAE levels in a rat model of IVDI.

Funded by Irish Research Council Postgraduate Scholarships (GOIPG/2019/3945, GOIPG/2020/1496), Science Foundation Ireland (SFI) and is co-funded under the European Regional Development Fund Grant 13/RC/2073-P2.

1295

OPI-APP: EDUCATIONAL APP FOR CHRONIC PAIN PATIENTS AT RISK OF OPIOID ABUSE

L.M. de Sousa Garcia Soares[1], A. Porto do Nascimento[1], L.R. Brum Costa[1], F. Conduru[1], F.L. Seixas[1], É. Brandão De Moraes[1]

[1]Federal Fluminense University, Rio de Janeiro, Brazil

Methods: Agile methodology study carried out in Brazil. The development team is made up of students and professors from the Nursing and Information Systems school at Federal Fluminense University.

Results: After meetings to define the structure of the mobile application, we prepared texts in a clear way, addressing the risks related to the use of opioids and forms of prevention, and strategies for patient safety. We designed the systems architecture and defined configuration management practices, as well as defining the functionalities that represent the greatest added value to patients, composing the Minimum Viable Product, in Figma Software. The structure of the mobile app›s screens includes registration in the app; search by opioid name and list of possible doubts; place for the patient to insert possible adverse events that he feels and interact with the professional; personalized calendar with times and days to take the medication; and appointment scheduling. All data are available for monitoring by the responsible professional who accesses the system via the computer.

Conclusions: The mobile app will contribute to the education of patients with chronic pain at risk of abusive use of opioids, and it can be used in different contexts and health scenarios. Will be available for download after usability evaluation by a group of chronic pain patients.

1297

THE RELATIONSHIP BETWEEN FUNCTION, PAIN SEVERITY, AND PSYCHOLOGICAL/ COGNITIVE LEVELS IN INDIVIDUALS WITH CHRONIC NECK PAIN: A CROSS-SECTIONAL STUDY

F. Tanik[1], D. Özer Kaya[2]

[1]Izmir Katip Celebi University, Institute of Health Sciences, Department of Physiotherapy and Rehabilitation, İzmir, Turkey, [2]Izmir Katip Celebi University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, İzmir, Turkey

Methods: A total of 62 patients (44 female, 18 male, age: 50.82±10.79 years, weight: 72.33±11.52 kg, height: 168.09±8.03 cm) with chronic neck pain who had been experiencing pain for at least 3 months were recruited from a physiotherapy center. The visual analogue scale for pain severity, the Neck Disability Index for functional level, Pain Catastrophizing Scale, Ruminative Thinking Scale, Melbourne Decision-Making Scale I-II, and Marmara Critical-Thinking Inventory were used for psychological/cognitive assessments.

Results: Our findings revealed positive correlations between activity pain, night pain, and functional level with rumination (respectively, rho:.368, p=0.003; rho:.423, p=<0.001; rho=.334, p=0.008). We also found positive correlation between night pain, functional level, and pain catastrophizing (respectively, rho=.298, p=0.019; rho=.434 p<0.001). In contrast, we observed a negative correlation between pain severity and functional level and critical-thinking scores (respectively, rho=-.393, p=0.002; rho=-.377 p=0.003, rho=-.428 p<0.001, rho=-.441 p<0.001).

Conclusions: Our study highlights the significant relationship between chronic neck pain, psychological factors, and cognitive processes. Specifically, pain severity and functional level were positively associated with rumination and pain catastrophizing, while chronic neck pain was negatively correlated with critical-thinking scores. These results provide valuable insight into complex relationship between chronic pain and psychological/cognitive factors and can inform the development of assessments and interventions aimed to improve patient well-being.

1298

INVESTIGATION OF FACTORS AFFECTING LOW BACK PAIN IN SCUBA DIVERS

D. Ertekin[1], D. Çokar[1], G.D. Yılmaz Yelvar[1]

[1]İstinye University, Istanbul, Turkey

Methods: 47 scuba divers between the ages of 25-65 participated in our study. VAS for pain severity, Oswestry Disability Index(ODI) and Quebec Back Pain Disability Scale(QBPDS) for functional status, Short Form Health Survey(SF-36) for quality of life, Beck Anxiety Inventory(BAI) for anxiety methods were used. In addition, posture, lumbar muscle strength, endurance and flexibility, vertical-horizontal jump, and static-dynamic balance measurements were evaluated.

Results: Participants; mean age was 41.04±6.73, year of dive was 11.61±5.25, and the average number of dives per year of 58% of them was >500. The number of dives statistically significant difference was detected with Corbin posture index(p=0.000) and pain(p=0.000). Pain intensity is related; modified lumbar schober(p=0.001, r=-0.473), sit up(p=0.000, r=-0.839), modified abdominal endurance(p=0.000, r=-0.855), Biering Sorenson(p=0.000, r= -0.843), multifidus muscle endurance(p=0.000, 0.802), Y balance(p=0.000, r=-0.798), vertical(p=0.000, r=-0.591) and horizontal(p=0.000, r= -0.697) jump, BAI(p=0.004, r=0.409), QBPDS(p=0.000, r=0.927), ODI(p=0.000, r=0.859), and SF- 36's sub-parameters; physical function(p=0.001, r=-0.468), physical role difficulty(p=0.000, r=-0.624), pain(p=0.000, r=-0.704), and general health(p=0.000, r=-0,531).

Conclusions: In scuba divers with nonspecific LBP, as the number and year of dives increase, their posture, muscle strength, endurance, flexibility, physical performance and related quality of life decrease, and their anxiety level increases.

1299

IS MCKENZIE EXERCİSE MORE EFFECTIVE ON PAIN THAN MULLIGAN EXERCISE IN NON-SPECIFIC NECK PAIN?: A RANDOMIZED CONTROLLED STUDY

G.D. Yilmaz Yelvar[1], Y. Buran Cirak[1], N. Durustkan Elbasi[1], N. Ulug[2], B. Isikci[1]

[1]Istinye University, İstanbul, Turkey, [2]Atilim University, Ankara, Turkey

Methods: Fifty four patients with non-spesific neck pain included in our study. All cases were applied the classical physiotherapy program, including hot application, TENS and ultrasound. In addition, Mulligan exercise was applied to one group and McKenzie exercise to the other group. Pain, neck flexion-extension muscle strength, fear-of-movement, the effects of neck pain on activities of daily living were evaluated with the McGill Pain Questionnaire, the myometer, Tampa Kinesiophobia Scale(TKS), Neck Disability Index(NDI) respectively.

Results: Outcome measures of both groups were similar before treatment($p>0.05$). In intra-group comparisons after treatment, there was a significant difference in all parameters except TKS and NDI in the Mulligan, and in all parameters in the Mckenzie Group($p<0.05$). There was a significant difference in favor of McKenzie in terms of pain and kinesiophobia in comparisons between groups after treatment($p<0.05$).

Conclusions: McKenzie exercises are more effective in terms of pain and fear of movement. We think that patients› performing exercises with self-control and without auxiliary equipment reduce their fear of movement and pain and thus have a significant effect on recovery. In the light of these findings, we suggest that one or both of the concepts can be integrated into the physiotherapy program according to the clinical condition of the patient and in terms of exercise diversity.

1300

THE EFFECT OF MUSCULAR FATIGUE ON PAIN THRESHOLD AND TOLERANCE IN ATHLETES

B. Varhan[1], E.P. Dagdemir[1], Y. Buran Cirak[1]

[1]Istinye University, Istanbul, Turkey

Methods: 21 amateur football player and 21 sedentary participant were included. Measurements of pain threshold(PTSH) and tolerance(PTOL) was performed by generating experimental pain with electrical stimulation over the dominant leg quadriceps femoris muscle by giving square wave galvanic current with a frequency of 166Hz, 1ms stimulation and 5ms rest time, with the Chattanooga Advanced (Chattanooga, TN, USA) device. PTSH at the point where the pain was felt for the first time was recorded in mA as PTOL at the point where they could not stand. Borg scale was used to determine the severity of fatigue during exercise. Functional Agility Short Term Fatigue Protocol(FAST-FP) was applied to induce fatigue.

Results: Both athletes and sedentary showed increased on PTSH and PTOL after fatigue($p<0.05$). Between groups, while there was no statistically significant difference in PTSH at rest and after fatigue($p>0.05$), PTOL at rest and fatigue was statistically significant($p<0.05$).

Conclusions: PTSH of the athletes was not different than the sedentary's and this result did not change with fatigue. Both groups' PTOL increased significantly after fatigue. This situation, which can be increased by the ambition to win the game, suggests that it may delay the awareness of the injury and increase the severity. It is recommended that the athletes be warned about this issue and that the health providers should be careful.

1301

EFFECT OF PAIN NEUROSCIENCE EDUCATION IN ADDITION TO CONVENTIONAL PHYSIOTHERAPY AND REHABILITATION IN PATIENTS WITH MYOFASCIAL PAIN SYNDROME: A RANDOMIZED CONTROLLED STUDY

Ç. Karal[1,2], Y. Buran Çırak[2], G.D. Yılmaz Yelvar[2], N. Dürüstkan Elbaşı[2]

[1]Memorial Hospital, İstanbul, Turkey, [2]İstinye University, İstanbul, Turkey

Methods: Forthy patients with MPS aged 18-65 years were included. Participants were randomized into study group (PNE in addition to CPR) and control group (only CPR). CPR were applied to both groups 3 days a week for 6 weeks. In addition to CPR, PNE was applied to study group once a week for 6 weeks. Pain, muscle stiffness, posture, kinesiophobia, sleep, body awareness, depression, anxiety, quality of life were evaluated with pressure pain thresholds, Short-form McGill Pain Questionnaire and Pain Catastrophizing Scale (PCS), MyotonPRO®, Corbin Posture Index (CPI), Tampa Kinesiophobia scale, Pittsburgh Sleep Quality Index (PSQI), Body Awareness Questionnaire (BAQ), Depression Anxiety and Stress Scale 21 (DASS-21), SF-36, respectively.

Results: Study group had significantly greater reduction in pain level, improvement in muscle stiffness, posture, kinesiophobia, sleep quality, body awareness, depression, anxiety and quality of life compared with control group ($p<0.05$). McGill Pain score ($p<0.001$,effect size:0.529), CPI score ($p<0.001$,effect size:0,599), PCS score ($p<0.001$,effect size:0.737) SF-36 score ($p<0.001$,effect size:0.984), DASS-21 score ($p<0.001$,effect size:0.688) TAMPA score ($p<0.001$,effect size:0.705), PSQI score ($p<0.001$,effect size:0.585) and BAQ score ($p<0.001$,effect size:0.557) were significantly improved in PNE group.

Conclusions: PNE in addition to CPR is more effective than alone CPR for improving pain, muscle stiffness, kinesiophobia, body awareness, mental and physical functioning, and pain cognitions in patients with MPS.

1304

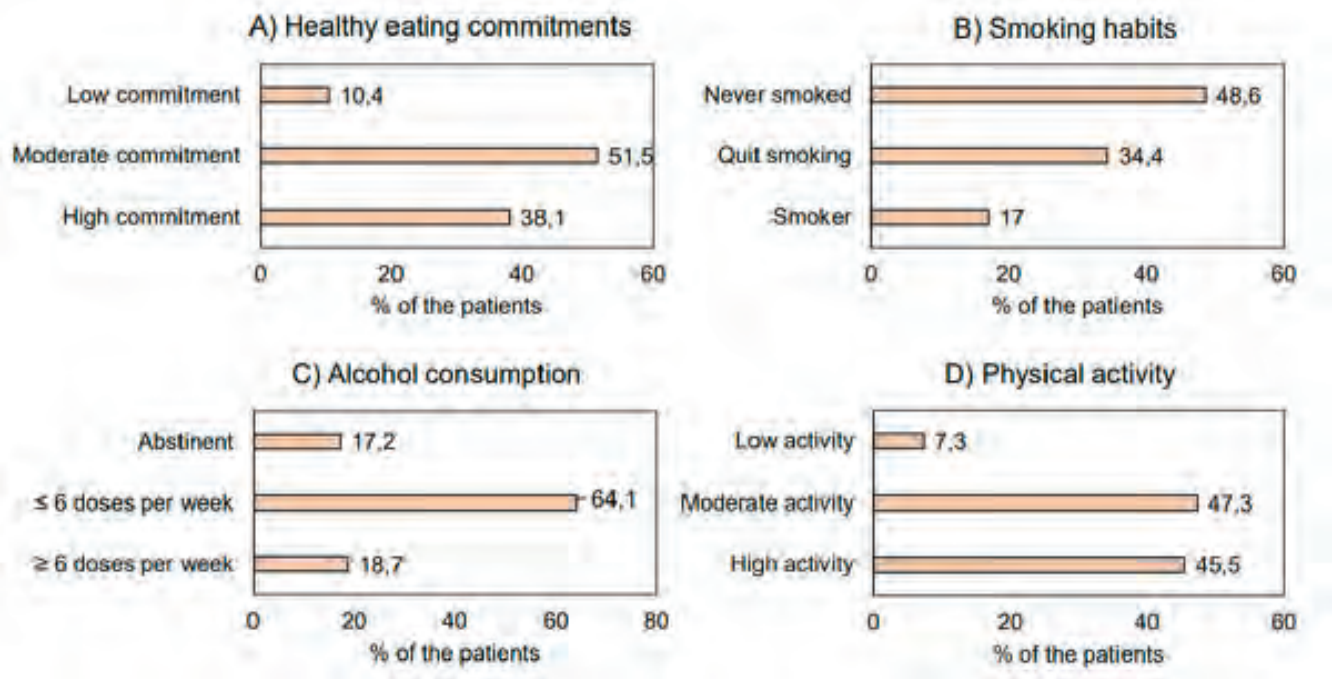
LATENT CLASS PROFILES OF HEALTH BEHAVIOUR IN BREAST CANCER SURVIVORS: ASSOCIATION WITH CHRONIC PAIN, FATIGUE, AND SELF-RATED HEALTH

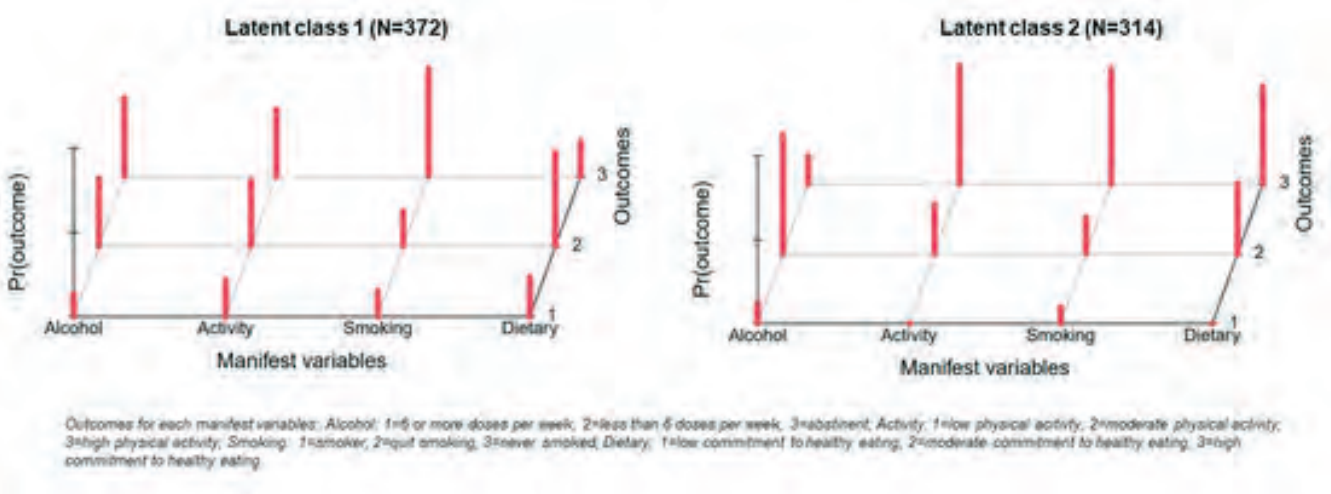
T. Aho[1,2], H. Harno[1,2], F. Vaura[2], E. Kalso[1,2], R. Sipilä[1,2]

[1]Helsinki University Hospital, Helsinki, Finland, [2]University of Helsinki, Helsinki, Finland

Methods: We assessed smoking, weekly alcohol consumption, physical activity, and healthy eating commitments from 686 BCS. Patients rated their health, fatigue, and intensity of any chronic pains by using Numerical Rating Scale. We applied Latent class analysis (LCA) to categorize lifestyle data 1,000 times with random initial conditions and identified the highest log-likelihood model. R package poLCA was used.

Results: Of the patients, 49% reported any chronic pains. Most patients were committed to a healthy lifestyle (Figure 1). LCA identified two classes in which patients in class 2 showed less smoking and a higher commitment to physical activity and healthy dietary habits (Figure 2). Class 2 membership probability was associated with higher self-rated health (Beta=0.104, p=0.003) and lower fatigue (Beta=-0.3448, p<0.001), but not with chronic pain.





Conclusions: Commitment to various aspects of health behaviour was associated with better self-rated health and fewer fatigue reports in BCS. Comorbid chronic pain potentially affects well-being, including self-rated health. The LCA approach may provide new insights for risk-profiling and patient selection for clinical interventions to improve experienced health in BCS.

1307

SPATIAL SUMMATION AND LATERAL INHIBITION IN THERMOSENSATION

C.E. Krænge[1], M. Sørensen[1], M. Allen[1], F. Fardo[1]

[1]*Aarhus University, Aarhus, Denmark*

Methods: 16 volunteers participated in a thermosensory task, during which we presented warm (42°C) and cold stimuli (20°C) of varying area sizes (spatial summation condition) or varying distances between two warm or cold stimuli (lateral inhibition condition). In each trial, participants indicated whether they felt the stimulus as warm or cold as fast and precisely as possible, and assessed their perceived intensity using a visual analogue scale.

Results: Linear mixed effects (LME) results showed an interaction between thermosensory quality and area size, indicating spatial summation. Specifically, participants responded faster to cold of increasing size compared to warm, and rated cold of increasing size as more intense. Hierarchical Drift Diffusion Modelling of the response times showed larger and wider drift rates for cold vs. warm. Additionally, LME results showed a stimulus distance main effect, indicating weak lateral inhibition for both cold and warm perception.

Conclusions: Our findings indicated that spatial summation operates differently in cold and warm perception, and demonstrated lateral inhibition in innocuous thermosensation. In a subsequent study, we will investigate whether this disparity in spatial summation between cold and warm perception relates to the illusory pain of the thermal grill illusion.

1308

POSTOPERATIVE PAIN MANAGEMENT: A BEST PRACTICE IMPLEMENTATION PROJECT IN A VASCULAR SURGERY DEPARTMENT FROM A CENTRAL PORTUGUESE HOSPITAL

J. Manata[1], C. Nunes[1], M. Caetano[1], M. Cruz[1], D. Mourão[1], C. Martins[1], M. Santos[1], A. Vaz[1], M. Costa[1], G. Manso[1], F. Madeira[1], B. Póvoa[1], A. Marques[1], B. Lopes[1], M. Fonseca[1], E. Semedo[1]

[1]*Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal*

Methods: A multidisciplinary team formed by nurses, pharmacists, anesthesiologists, and vascular surgeons developed this evidence implementation project used the JBI Practical Application of Clinical Evidence and Getting Research into Practice audit and feedback instrument, and involves 3 phases:

1) Baseline audit in March 2022 (criteria informed by the evidence).

2) Design and implement strategies.

3) Conduct a follow-up audit (July 2023).

Results: According to the baseline audit, less than 20% of the audit criteria were being met in terms of compliance. The barriers were identified as a lack of preoperative pain evaluation and diagnosis, standard procedures, awareness among the multidisciplinary team, informative material, and reference to pain specialists. Strategies were developed, including the creation of manuals to standardize procedures, decision flowcharts, predefined protocols, and formal training for the multidisciplinary team.

Conclusions: The assessment and diagnosis of postsurgical pain management were found to be insufficient. However, a multidisciplinary team developed strategies that greatly improved the quality of the document produced. The implementation of this implementation raised awareness of professionals and standardized actions, with focus on patient at the center of the care process.

1309

KNOWLEDGE, BELIEFS AND ATTITUDES OF GREEK PHYSIOTHERAPISTS ABOUT EMPATHETIC COMMUNICATION IN PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN: AN E-SURVEY STUDY

K. Savvoulidou[1], A. Papageorgiou[2], V. Folia[3], E. Kapreli[1]

[1]University of Thessaly, Lamia, Greece, [2]University of Nicosia, Nicosia, Cyprus, [3]Aristotle University of Thessaloniki, Thessaloniki, Greece

Methods: A cross-sectional e-survey was conducted by existing evidence. The study was designed and reported according with the Checklist for Reposting Results of Internet E-Surveys. Eligible participants were musculoskeletal physiotherapists with clinical practice in Greece. All participants electronically provided informed consent and only completely filled questionnaires were included in the study. Two-level mixed logistic regression and descriptive analysis were conducted in data analysis.

Results: 214 physiotherapists responded with 82.7% of the total sample reported some knowledge of empathy. Most of participants (79.4%) believed that physiotherapists should be empathetic and only 12.6% mentioned that they did not respond to patient's feelings. 57.5% of participants have not received any educational training in communication skills. Linear regression results showed that females and physiotherapists with postgraduate education were more likely to have an empathetic communication ($p<0.05$), whereas physiotherapists working in inpatient settings or having a long hours work were associated with less empathetic attitude ($p<0.05$). Workload and burnout were revealed as the most relevant barriers of empathetic response.

Conclusions: Despite limited physiotherapist›s training in communication skills, empathy is widely use in chronic musculoskeletal patients. This is the first research study investigated physiotherapist›s empathetic behaviour in CMP rehabilitation. Further research is needed to examine empathetic attitude and implementation in clinical practice for improving patient's outcomes and identifying training needs.

1310

A SURVEY TO IDENTIFY EDUCATION NEEDS WITH MANAGING ANALGESICS IN CHRONIC NON-CANCER PAIN IN FIRST CONTACT PRACTITIONER TRAINING

C.-Y. Yip[1]

[1]NHS England, Leeds, United Kingdom

Methods: An online survey was designed and distributed to FCPs, FCPs in training and eligible FCPs to self-assess their confidence, ability and importance in managing medication focussing on high-risk analgesics such as opioids and gabapentinoids. The survey used a 5-point Likert scale to allow for quantitative analysis of data.

Results: 147 responded to the survey, which included 109 (74.15%) physiotherapists, 11 (7.48%) paramedics, 16 (10.89%) podiatrists, 6 occupational therapists (4.08%), and 5 dieticians (3.40%).

Respondents rated 4.31 in management of escalating pain needs and 4.01 in understanding dependence and addiction to analgesics as most important using a 5-point Likert scale (1 not at all important, 5 absolutely essential).

Although understanding dependence and addiction to analgesics is of high importance, only 76 (53.5%) indicated agreement or strong agreement with confidence in identifying issues with opioids and 43 (30.3%) with gabapentinoids.

Conclusions: Overall, the results have potential implications on development of FCP training and results can be used as baseline data to establish further FCP training.

Acknowledgements: I like to give thanks to my supervisor Stephen Doherty who has guided me through the survey

---

1311

A CROSS-SECTIONAL STUDY OF FEAR OF SURGERY AMONG BREAST CANCER PATIENTS: PREVALENCE, SEVERITY AND DIFFERENCES AMONG PATIENTS EXPERIENCING HIGH, MODERATE, OR LOW FEAR OF SURGERY

S. Engel[1], S. Endresen Reme[1,2], H. Børsting Jacobsen[1,2]

[1]The Mind Body Lab, Department of Psychology, Faculty of Social Sciences, University of Oslo, Oslo, Norway, [2]Department of Pain Management and Research, Oslo University Hospital, Oslo, Norway

Methods: This cross-sectional study included 204 BC patients, aged 18-70, and awaiting surgery at Oslo University Hospital, Norway. Following their preoperative visit participants completed validated psychological questionnaires including the Surgical Fear Questionnaire (SFQ; 0-10 per item/0-80 overall), the primary outcome measure, online. Patients were grouped based on SFQ-percentiles (<25th=little, 25th–75th=moderate and >75th percentile=high fear) and compared on psychological, sociodemographic, and medical outcomes.

Results: On average fear of surgery was low (M(SD)=26.41(16.0), min-max=0-80), but omnipresent. Only 1.5% (n=3/195) indicated no fear at all. Groups differed significantly (p<.001) in their experience of anxiety, depression, and injustice, their optimistic disposition, and expectance of postsurgical pain. Between-group differences concerning demographic and medical information were largely insignificant.

Conclusions: This study was the first to demonstrate fear of surgery to be prevalent and relevant among BC patients. The higher a patients' fear, the poorer their preoperative psychological constitution. This, largely irrespective of their current diagnoses or treatments, medical history, and demographics. Fear of surgery might thus cater as a prognostic marker and treatment target among BC patients. However, given the present research's cross-sectional design, prognostic studies are needed to evaluate such claims.

1312

CULTURAL ADAPTATION AND PSYCHOMETRIC PROPERTY EVALUATION OF THE HEALTH CARE PROVIDERS PAIN AND IMPAIRMENT RELATIONSHIP SCALE (HC-PAIRS) FOR GREEK-SPEAKING PHYSIOTHERAPISTS

G. Theotokatos[1,2], A. Venieri[3,2], A. Sideris[4,2], I. Sotiralis[2], V. Korakakis[5,2], A. Politis[4]

[1]School of Physical Education and Sport Science, National and Kapodistrian University, Athens, Greece, [2]Hellenic OMT eDu, Athens, Greece, [3]Sport Excellence, 1st Orthopedics Department, School of Health Sciences, National and Kapodistrian University, Athens, Greece, [4]National Kapodistrian University of Athens, Medical School, 1st Dep. of Psychiatry, Division of Geriatric Psychiatry, Athens, Greece, [5]Dep of Population Health Sciences, Faculty of Life Sciences and Medicine, Dep of Physiotherapy Education, King's College, London, United Kingdom

Methods: The translation and cross-cultural adaptation process followed published guidelines. The content validity of the HC-PAIRS was assessed for relevance, comprehensibility, and comprehensiveness. Structural validity was evaluated by principal axis factoring (PAF). Cronbach's alpha was used to examine the internal consistency and the Intraclass Correlation Coefficient ($ICC_{2,1}$) with an eight-week interval between administrations (N=31) was used to assess test-retest reliability.

Results: The HC-PAIRS was administered to 671 physiotherapists (32.1 ± 9.8 years). Content validity was found to be acceptable with no issues in relevance, comprehensibility, and comprehensiveness of the tool. The scale presented good internal consistency (α=0.669; if item deleted 0.619-0.683), acceptable ICC (0.837), and no floor or ceiling effects. A 5-factor solution explained 71.14% of the total variance. It was also shown that the participants who had never audited workshops on pain neurophysiology, presented greater adherence with the notion that back pain necessitates the avoidance of activities and justifies disability.

Conclusions: The Greek version of the HC-PAIRS showed sound psychometric properties and can be utilized by clinicians and researchers to assess beliefs and attitudes about LBP.

1313

RIDING ALPHA WAVES: A RESEARCH PROGRAMME TO IDENTIFY ELECTROENCEPHALOGRAPHY ALPHA OSCILLATIONS FEATURES THAT CAN PREDICT THE EXPERIENCE OF PAIN

E. Valentini[1], Y. Han[1], S. Halder[1]

[1]University of Essex, Colchester, United Kingdom

Methods: Here, we will present findings obtained with electroencephalography (EEG) recorded from healthy individuals in a laboratory acute tonic pain model.

Results: We will show that 1) while individual alpha oscillations decrease in speed during thermal pain compared with innocuous thermal stimulation, they do not differ from oscillations obtained during a very unpleasant auditory condition; 2) a marker of *neural integration* as indexed by phase-based connectivity of the alpha oscillations across EEG sensors can be exploited by machine learning models, allowing for great prediction accuracy of pain states and high computational efficiency; 3) convolutional neural network models trained on alpha range phase-based connectivity features provide a promising path towards pain prediction within the same individual but do not seem to be able to generalise their prediction to other individuals in pain.

Conclusions: Altogether, our findings emphasize the importance of a robust methodological and analytical design to disclose the functional role of alpha oscillations during pain while exploring the potential of some integrative features in advancing pain prediction applications for clinical purposes the discovery of acute pain experience in healthy individuals.

1317

THE EFFECT OF A MUSIC-BASED CAREGIVING INTERVENTION ON PAIN INTENSITY IN NURSING HOME PATIENTS WITH DEMENTIA. A CLUSTER-RANDOMIZED CONTROLLED STUDY

M. Myrenget[1], P. Borchgrevink[1,2], T. Rustøen[3,4], R. Sandvik[5,6], M. Småstuen[7,8], V. Rangul[9,10], O. Håpnes[11], S. Butler[12,13], A. Myskja[14], G. Selbæk[15,16,17], B. Husebø[18,19]

[1]Norwegian University of Science and Technology, Trondheim, Norway, [2]Department of Pain and Complex Disorders, Clinic of Anaesthesia and Intensive Care, Trondheim, Norway, [3]Department of Research and Development, Oslo University Hospital, Oslo, Norway, [4]Institute of health and society, University of Oslo, Oslo, Norway, [5]Western Norway University of Applied Sciences, Bergen, Norway, [6]Department of Health and Caring sciences, Faculty of Health and Social sciences, Western Norway University of Applied Sciences, Bergen, Norway, [7]Oslo University Hospital, Oslo, Norway, [8]Institute of Health and Society, Faculty of Medicine, University of Oslo, Oslo, Norway, [9]HUNT research centre, Norwegian university of science and technology, Trondheim, Norway, [10]Norwegian Resource Centre for Arts and Health, Nord University, Faculty of Nursing and Health Sciences, Levanger, Norway, [11]Norwegian Resource Centre for Arts and Health, Nord University, Levanger, Norway, [12]Department of Surgical Sciences, Uppsala University, Uppsala, Sweden, [13]Department of Public Health & Caring Sciences, Family Medicine & Clinical Epidemiology, Uppsala University, Uppsala, Sweden, [14]Senter for Livshjelp, Ski, Norway, [15]Department of Geriatric Medicine, Oslo University hospital, Oslo, Norway, [16]Norwegian National Centre for Ageing and Health, Tønsberg, Norway, [17]Faculty of Medicine, University of Oslo, Oslo, Norway, [18]Centre for Elderly and Nursing Home Medicine, Department of Global Public Health and Primary Care, Bergen, Norway, [19]Neuro-SysMed, Department of Global Public Health and Primary Care, Faculty of Medicine, University of Bergen, Bergen, Norway

Methods: Out of 645 patients from 36 wards in 12 nursing homes, 498 were screened for dementia and pain using the Clinical dementia rating scale and the Mobilization–Observation-Behavior–Intensity-Dementia Pain Scale. In total, 279 nursing home patients having both chronic pain and dementia were randomized to intervention (n=134) or control groups (n=145). Staff received training in MBC, and the main outcome was pain intensity measured before and after the intervention.

Results: The study (71% females, 42% severe dementia) did not reveal any effect of MBC on pain intensity when

comparing the intervention and control group (B -0.92, p= 0.617). No significant difference was found within the intervention group analyzing the impact of intervention time (B 0.73, p=0.264) or chronic primary versus secondary pain syndromes (B 0.45, p=0.080).

Conclusions: This first RCT on music and pain intensity in patients with dementia and chronic pain did not find an effect of advanced treatment with MBC. We recommend future studies of sufficient sample size and with a control group to investigate the effect of music on acute pain in this population.

1322

IMPAIRED QUALITY OF LIFE AS MEASURED BY THE SHORT-FORM 36 (SF-36) QUESTIONNAIRE IN WOMEN WITH PAIN, RLS AND DYSSOMNIA - A POPULATION-BASED STUDY IN FEMALES

R. Stehlik[1]

[1]*Uppsala University, Uppsala, Sweden*

Methods: The study included 4040 respondents to a postal questionnaire sent to 10,000 women in the age range of 18–64 years and randomly selected from the general population in Dalarna, Sweden. Complete questionnaire data on type (acute/chronic), degree (mild to severe) and spreading (0–5 body zones) of pain, as well as RLS symptoms (validated questionnaire), self-reported sleep quality and quality of life (SF-36) were obtained from 3060 subjects.

Results: Subjects with pain, RLS and dyssomnia scored substantially lower on all SF-36 subscales compared to subjects with no pain; pain only; pain, RLS and pain and dyssomnia (Kruskal-Wallis p<0,0001). The quality of life decreases with increasing amount of pain localization and RLS diagnosis (Kruskal-Wallis p<0,001). Subjects with RLS, pain and dyssomnia exhibited lowest scores on all SF-36 mean scores and on the Physical Composite Score and Mental Composite Score controlling for anxiety and depression in a multiple regression analysis.

Conclusions: Subjects with pain, dyssomnia and RLS exhibits the lowest quality of life compared to subjects with pain only, pain and dyssomnia and pain and RLS. The quality of life deteriorates also with the degree of pain spreading in women recruited from the general population.

1324

SEE MY PAIN – A UK NATIONAL SURVEY REVEALING THE UNCONSCIOUS BIAS TOWARD WOMEN'S PAIN

K. Edokpayi[1], F. Cheng[1], R. Mohammed[1], P. Aluko[1], B. Laughey[1], Y. Kolade[1]

[1]*Reckitt Benckiser, Slough, United Kingdom*

Methods: UK participants aged 18+ recruited via email (14th July-1st August 2022) completed an online questionnaire without restriction on medical conditions, age, gender or region. The Data were analysed by OnePoll MRS using Q research software and Microsoft Excel. Results were presented in GPG Index Report (November 2022).

Results: Of the 5,100 people surveyed, 51% were female and 49% male Women reported feeling ignored or dismissed by GPs (50% vs 36% for men), by other HCPs (27% vs 20% for men), and by their friends and partners/ spouses (21-26% vs 20-25% for men). Many participants for different pain types had experienced pain for over 10 years. 63% of women vs 39% of men think GPG exists and believe women are not taken seriously because they are perceived as ‹emotional›.

Conclusions: Results indicate that a gender pain gap exists, though it is also important to note that both women and men in pain report feeling dismissed with alarming frequency. The unconscious bias toward women›s pain is not limited to dismissal from HCPs but also other parts of society. Everyone›s Pain deserves to be seen, and society will need to work on it together.

1327

VIRTUAL APPOINTMENTS – PATIENT EXPERIENCE & CLINICAL EFFECTIVENESS

S. Chaudhry[1], P. Ramchandran[2], H. Barot[3], S. Balasubramanian[1], V. Bower[1], R. Correa[1], U. Chakka[1], S. Krishnamoorthy[1]

[1]University Hospital Coventry and Warwickshire, Coventry, United Kingdom, [2]University Hospital Birmingham, Birmingham, United Kingdom, [3]South Warwickshire NHS Trust, Warwick, United Kingdom

Methods: 2020, Video-consultation: Audit of patient experience. An online questionnaire was sent to the patients' smart phone after consultation. First 100 responses were included.

2021, Video-consultation (follow up). A proforma was filled by the pain physician on the treatment day to note the variation between the treatment planned virtually versus treatment provided after physical examination on the day. First 100 responses were included.

Results: 80% of the patients agreed that they received appropriate information on how to use the technology. More than 90% of the patients were able to access the video-consultation on the day, were comfortable during the consultation, happy with the assessment, & the length of consultation. For the future consultations, 30% of the patients preferred face-to-face, the rest were happy for virtual consultations.

The re-audit showed that 88% patients had no change in their diagnosis or treatment plan on the day of treatment. One patient could not lie prone, so the intervention was abandoned. 11% patients had subtle changes in their diagnosis and proposed treatment.

Conclusions: Newer technologies support alternatives to physical consultations. The arrangement appears to be safe, cost-effective and clinically effective. Feedback on patient experience is positive.

1328

COMBINED IMPACT OF OBESITY AND SEX ON ARTHRITIS OF THE LOWER EXTREMITY

H. Razmjou[1], A. Wainwright[1], A. Szafirowicz[1], P. Dickson[1], J. Murnaghan[1]

[1]Sunnybrook Health Sciences Centre, Toronto, Canada

Methods: This study involved a secondary analysis of prospectively collected data of patients who underwent hip or knee arthroplasty.

Results: Data of 5130 patients (1989 males, 39%, 3141 females, 62%), mean age: 66 (11) were used for data analysis. Of these patients, 2038 patients underwent hip and 3092 patients underwent knee arthroplasty. Prevalence of obesity (grade I and II) was higher in the TKA group as compared with THA group (54% vs. 38%) with the prevalence of morbid obesity (Grade II) being twice as many in the TKA group (27% vs. 14%), $p<0.001$. There was a statistically significant association between obesity and site of joint involvement ($p<0.001$) and for the interaction between sex of the patient and site of arthritis ($p<0.001$). In the TKA group, the sex factor was the only factor that was related to the pre-op creatinine level ($p<0.001$). In THA group, both sex ($p<0.001$) and obesity ($p=0.002$) showed an association with pre-op creatinine.

Conclusions: Obesity has a multifaceted interaction with osteoarthritis with a differential pattern in hip and knee joints. The effect of sex on the BMI depended on the site of joint involvement. Creatinine considered as a pro-inflammatory factor had a differential role in hip and knee arthritis.

1329

CHRONIC PAIN RISK DURING PREGNANCY AND EARLY PARENTHOOD: THE IMPACT OF UNINTENDED PREGNANCY AND FERTILITY TREATMENTS

N. Mizunuma[1,2,3,4], K. Yamada[5], T. Kimura[6], Y. Ueda[7], T. Takeda[8], T. Tabuchi[9]

[1]Toho University Graduate School of Medicine, Tokyo, Japan, [2]Tokyo Kagurazaka Law office, Tokyo, Japan, [3]Tottori University, Yonago, Japan, [4]Saitama Medical University International Medical Center, Hidaka, Japan, [5]Juntendo University Graduate School of Medicine, Tokyo, Japan, [6]Hokkaido University Graduate School of Medicine, Sapporo,

Japan, [7]Osaka University Graduate School of Medicine, Osaka, Japan, [8]Kindai University, Osaka-sayama, Japan, [9]Osaka International Cancer Institute, Osaka, Japan

Methods: We analyzed data from a cross-sectional web survey conducted in 2021, which included 1,711 men and 7,265 women aged 18+ with pregnancies or children under two in Japan. We employed a modified Poisson regression model with multivariate adjustment to compare the relative risk (RR) and 95% confidence intervals (CI) of chronic pain prevalence among participants with spontaneous unintended pregnancy, fertility treatment via scheduled intercourse or ovulation induction, intrauterine insemination, and in-vitro fertilization (IVF) with intracytoplasmic sperm injection (ICSI), using planned spontaneous pregnancy as the reference group during pregnancy and early parenthood.

Results: Men undergoing scheduled intercourse or ovulation induction experienced a significantly higher chronic pain risk compared to those with planned spontaneous pregnancies during early parenthood (RR 1.75, 95%CI 1.01–3.05). Women with unintended spontaneous pregnancies faced higher chronic pain risk (RR 1.63, 95%CI 1.14–2.33), while those undergoing IVF and ICSI had lower risk (RR 0.44, 95%CI 0.22–0.87) during pregnancy compared to those with planned spontaneous pregnancies.

Conclusions: Chronic pain risk, based on conception methods, varied between men and women, emphasizing the need for tailored mental support and treatment during pregnancy and early parenthood to address chronic pain, considering the specific treatments involved.

1330

THIRTY PERCENT OF PEOPLE WITH PERSISTENT HIGH PAIN AT 3-MONTHS POST-TOTAL KNEE REPLACEMENT CONTINUE TO HAVE PERSISTENT HIGH PAIN AT 12- AND 36-MONTHS

N. Johns[1], D. McKenzie[2], J. Naylor[3], B. Brady[4], J. Olver[2]

[1]Monash University, Melbourne, Australia, [2]Epworth Healthcare, Melbourne, Australia, [3]Whitlam Orthopaedic Research Centre, Sydney, Australia, [4]Liverpool Hospital, Sydney, Australia

Methods: A retrospective analysis of data from a large prospective study of participants who had a total knee replacement for osteoarthritis. Oxford Knee Score and the EQ-5D-5L were collected at 3-, 12- and 36- months post-surgery.

Results: Of the 722 participants with data from all 3 timepoints, 74 (10.2%) had high pain at 3-months post-knee replacement. At 12-months, 25 of these 74 participants (33.8%) continued to have high pain. At 36-months, 26 of these 74 (35.1%) continued to have high pain. At 3-, 12- and 36-months, there were significant associations of high pain with reduced function, more problems with mobility, self-care and performing usual activities and poorer mental health. High pain was significantly associated with poorer quality of life at 3- and 36-months.

Conclusions: Clinicians treating patients with high pain 3-months or more post-total knee replacement should be aware that a third of their patients will continue to have persisting high pain at 12- and 36-months post-surgery. The patient with high pain may also have significantly poorer self-rated function, mobility, ability to do usual activities and poorer mental health that may need management.

1331

ANALYSIS OF PRE-OPERATIVE PAIN AND DISABILITY IN CANDIDATES FOR ANATOMICAL VERSUS REVERSE SHOULDER ARTHROPLASTY

H. Razmjou[1,2]

[1]Sunnybrook Health Sciences Centre, Toronto, Canada, [2]University of Toronto, Toronto, Canada

Methods: This was a cross-sectional study of patients with OA or CTA who were candidates for anatomical and reverse shoulder arthroplasty respectively. Visual Analogue Scale and the American Shoulder & Elbow Surgeon (ASES) measured pain and functional disability respectively. Health-related quality of life (QoL) was documented. Diagnosis was based on clinical and radiological findings.

Results: Eighty patients, 42 men (52.5%), mean age: 72(8) participated in the study. Out of 80 patients, 62 had moderate to severe OA and 18 had mild OA. Twenty two (28%) had mild and 16 (20%) had severe CTA. In the mild OA group 72% had CTA, in the moderate to severe OA group only 40% had CTA (p=0.017).

There was no statistically significant differences in physical disability, pain, or QoL between patients with different levels of OA or between patients with and without CTA. Lower expectations for recovery were reported for patients with concomitant marked OA and CTA with a poor strength. Patients with limited elevation of <90° with poor strength of external rotation had the highest level of disability (p=0.004) and pain p=0.016 regardless of the diagnosis.

Conclusions: Candidates for shoulder arthroplasty have different patterns of bone, joint, and muscle pathologies. Higher levels of pain and physical disability are associated with limitation in elevation and external rotation rather than the amount of radiological changes.

1332

THE ROLE OF STIGMA AND PSYCHOLOGICAL FLEXIBILITY IN PEOPLE LIVING WITH FIBROMYALGIA IN SLOVENIA

A. Klepac[1], L. McCracken[2], V. Jug[1]

[1]University of Primorska, Koper, Slovenia, [2]Uppsala University, Uppsala, Sweden

Methods: Participants were recruited online via patient self-help organizations and completed a online survey including the Chronic Illness Anticipated Stigma Scale, Revised Fibromyalgia Impact Questionnaire, Patient health questionnaire-9, and Multidimensional Psychological Flexibility Inventory self-report questionnaires. All of the questionnaires were translated into Slovenian beforehand, using a standard translation process.

Results: Responses to the survey were obtained from 196 participants (98.5% women). Scores from the stigma measure were significantly correlated with overall fibromyalgia impact, r=.33, and depression, r=.43. We found that psychological inflexibility significantly mediated the relationship between stigma and overall fibromyalgia impact and the relationship between stigma and depression. Hierarchical regression analyses showed that higher levels of stigma, pain intensity, and psychological inflexibility were associated with higher overall fibromyalgia impact. Additional analyses showed that prolonged time since diagnosis, higher levels of stigma and psychological inflexibility were associated with higher depression scores.

Conclusions: Our study examined the relations between stigma on depression and disease impact in people with fibromyalgia. We found that perceived stigma correlated positively with these outcomes. Also, psychological inflexibility appeared to mediate the relationship between stigma and fibromyalgia outcomes. Approaches to reduce stigma and promote psychological flexibility may improve health and well-being for people with fibromyalgia.

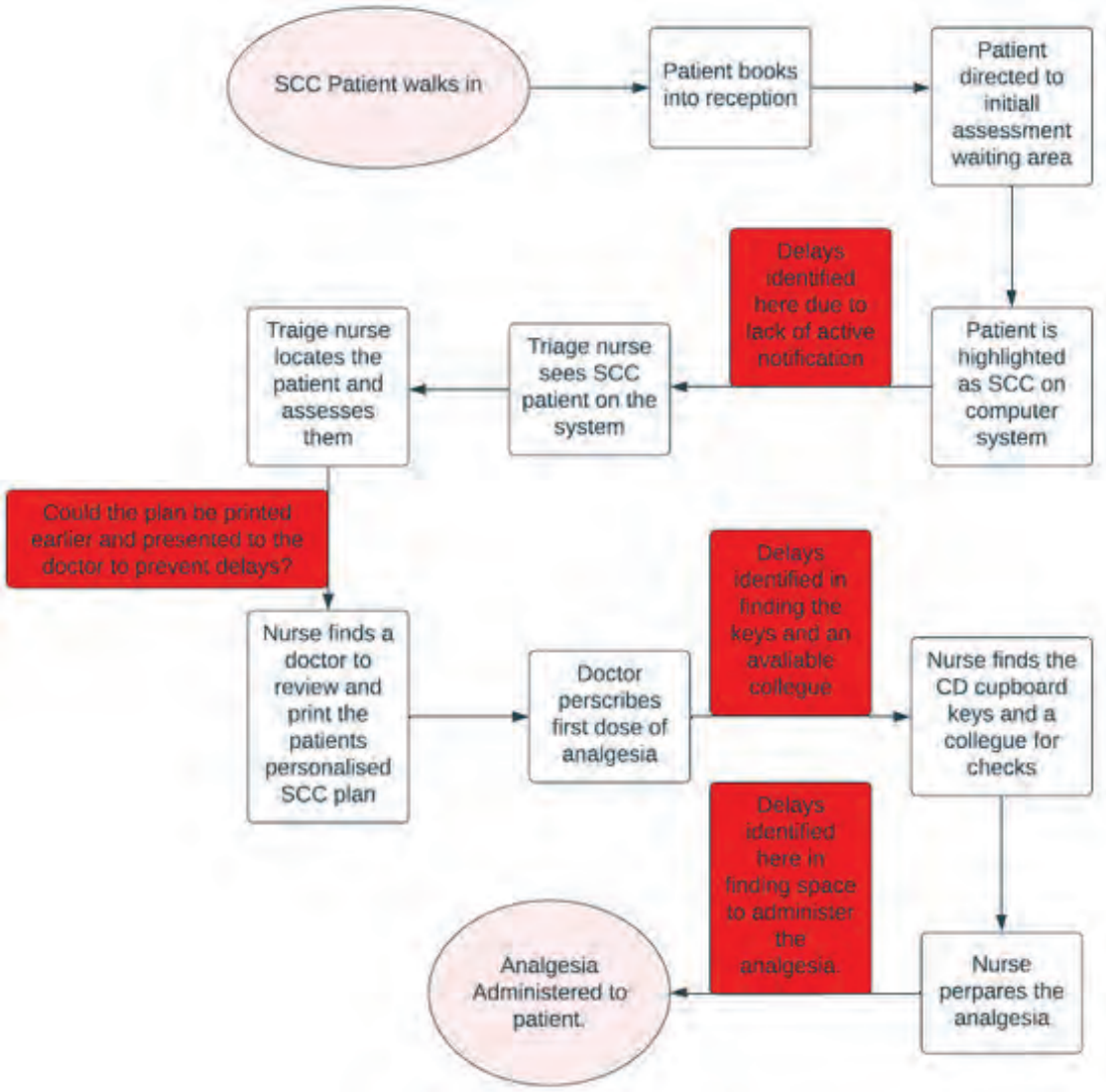
1335

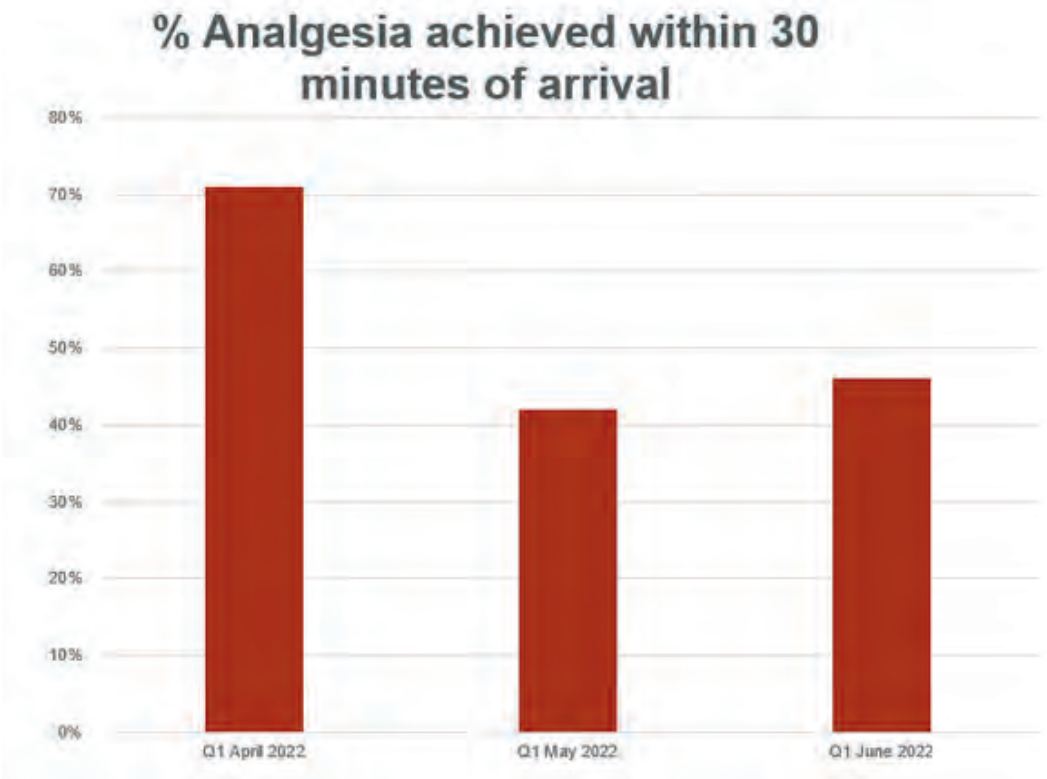
OVERVIEW, STRUCTURE AND CHALLENGES OF MANAGING SICKLE CELL PAIN IN THE EMERGENCY DEPARTMENT

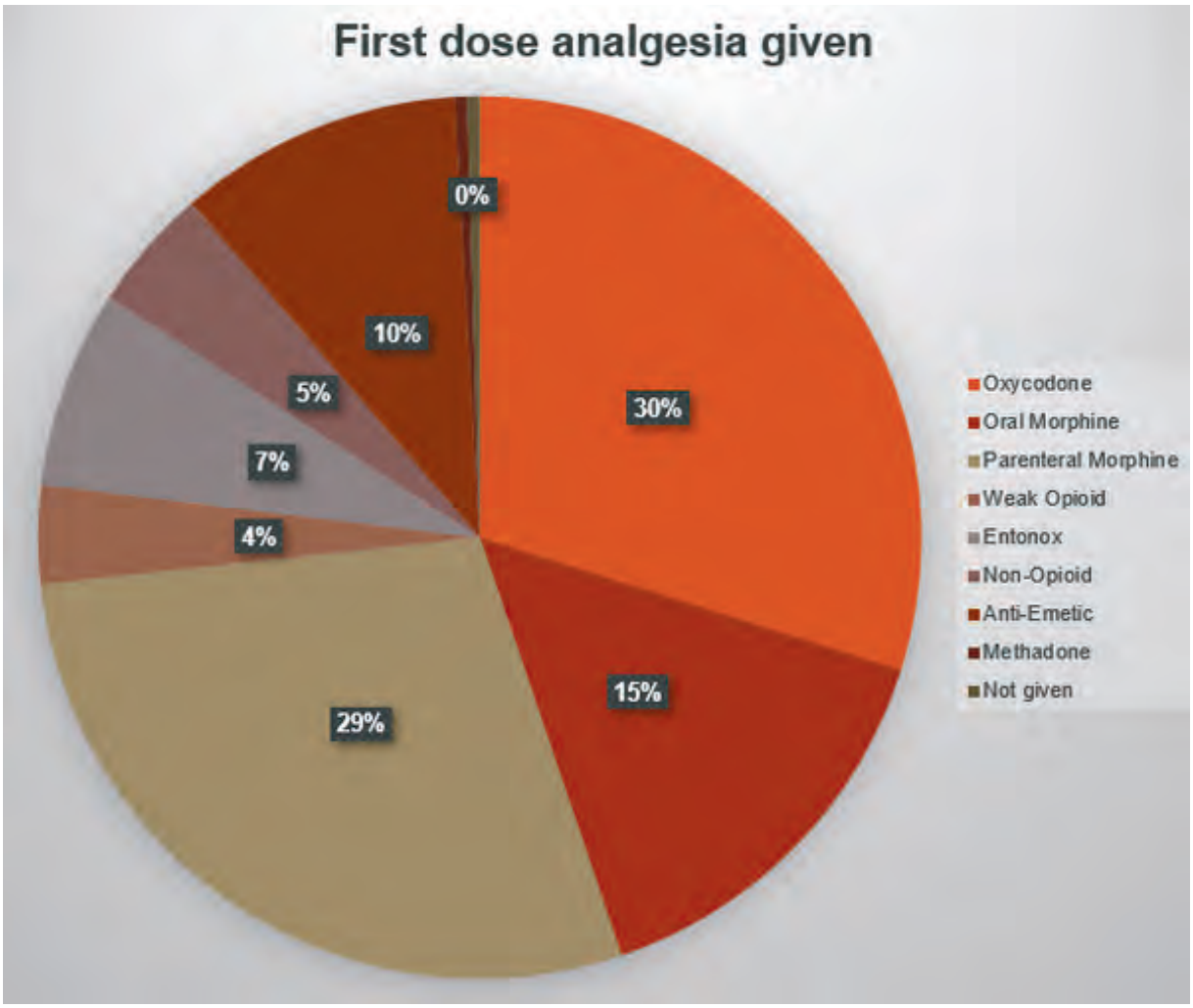
A. Haki[1], L. Parker[2], T. Huseyin[2], H. Cook[3], A. Mohamed[2], S. Akinola[2], T. Owolabi[2], E. Chidenga[2], P. Sandajan[2], L. Odeh[2]

[1]University College London, London, United Kingdom, [2]North Middlesex University Hospitals NHS Trust, London, United Kingdom, [3]University College London Hospitals NHS Foundation Trust, London, United Kingdom

Methods: An observed patient pathway was analysed to see how analgesia is delivered in the ED for SCC pain. Data was collected over 3 months for all SCC attendances to ED tracking arrival, triage, prescription, and analgesia administration times. The data was analysed to see If the 30-minute target was being met and if not to identify reasons why it hadn't been.


SCC Patient walks in
Patient books into reception
Patient directed to initiall assessment waiting area
Patient is highlighted as SCC on computer system
Delays identified here due to lack of active notification
Triage nurse sees SCC patient on the system
Traige nurse locates the patient and assesses them
Could the plan be printed earlier and presented to the doctor to prevent delays?
Nurse finds a doctor to review and print the patients personalised SCC plan
Doctor perscribes first dose of analgesia
Delays identified in finding the keys and an avaliable collegue
Nurse finds the CD cupboard keys and a collegue for checks
Nurse perpares the analgesia
Delays identified here in finding space to administer the analgesia
Analgesia Administered to patient.


% Analgesia achieved within 30 minutes of arrival
80%
70%
60%
50%
40%
30%
20%
10%
0%
Q1 April 2022
Q1 May 2022
Q1 June 2022



Results: 72% of patients received analgesia within 30 minutes in April 2022, 42% in May and 46% in June.

Delays in triage time accounted for 60% of breach reasons.

59% received a parenteral strong opioid as the first dose of analgesia with median doses of 20mg of oxycodone and 10mg of morphine.

Conclusions: Sickle cell pain is managed in the ED using personalised pain management plans, including regular outpatient prescriptions for nonopioids and inpatient administration of strong opioids. Improvement has been made in delivering analgesia in 30 minutes however challenges arising from ED pressures limit this.

1338

KEEPING IT SIMPLE – IMPLEMENTING PAIN SCIENCE EDUCATION FOR ALL: A CLINICAL CROSS-OVER FEASIBILITY STUDY AMONG PATIENTS WITH CHRONIC PAIN REFERRED TO COMMUNITY-BASED REHABILITATION

B. Eiger[1,2], M.S. Rathleff[1,3], K. Ickmans[4,5,6], E. Rheel[4,7], C.L. Straszek[1,3,8]

[1]Department of Health Science and Technology, Aalborg University, Aalborg, Denmark, [2]Rehabilitation Center, Køge Municipality, Køge, Denmark, [3]Centre for General Practice at Aalborg University, Aalborg, Denmark, [4]Pain in Motion research group (PAIN), Department of Physiotherapy, Human Physiology and Anatomy, Faculty of Physical Education & Physiotherapy, Vrije Universiteit Brussel, Brussel, Belgium, [5]Movement & Nutrition for Health & Performance research group (MOVE), Department of Movement & Sport Sciences, Faculty of Physical Education & Physiotherapy, Vrije Universiteit Brussel, Brussel, Belgium, [6]Department of Physical Medicine and Physiotherapy, Universitair Ziekenhuis Brussel, Brussel, Belgium, [7]Department of Experimental-Clinical and Health Psychology, Ghent University, Ghent, Belgium, [8]Department of Physiotherapy, University College of Northern Denmark, Aalborg, Denmark

Methods: We used a three-step approach to 1) translate to Danish language, 2) contextually adapt, and 3) test the feasibility (using patient acceptance and understandability of the new program). Translation was performed by a native Dane fluent in Dutch and since triangulated with both the original and English versions. Think-aloud sessions were held with both therapist and end-user groups until consensus was reached to contextually adapt and validate the new program. Finally, feasibility was tested amongst 20 adult patients with chronic musculoskeletal pain consecutively referred for rehabilitation in the municipality. A priori success criteria were determined to be 70% acceptability and 70% understandability.

Results: Translation was successfully preformed, and minor changes were made. Both the therapist and end-user groups found the program easy to grasp, the simplicity and interactive nature of the program ingenious, and thought it would be well suited in an adult population. All patients (100%) found the PNE4Adults comprehendible and acceptable across health literacy levels.

Conclusions: PNE4Adults was successfully translated and contextually adapted, and found feasible, comprehendible, and acceptable in a municipality rehabilitation setting. Progression to a full trial is warranted.

1339

EFFECT OF REPETITIVE ADMINISTRATION OF TOPICAL LOCAL ANAESTHETIC MIXTURE OF LIDOCAINE AND PRILOCAINE (EMLA) ON NON-HISTAMINERGIC ITCH

S. Lo Vecchio[1], G.E. Aliotta[1], A. Joseph[2], L. Fomsgaard[2], S.H.S. Strandgaard[2], V. Kløve[2], Y. Ahmed[2], J. Elberling[3,4], L. Arendt-Nielsen[1,5,6]

[1]Center for Neuroplasticity and Pain Faculty of Medicine, Aalborg University, Aalborg, Denmark, [2]Aalborg University, Aalborg, Denmark, [3]Department of Dermatology and Allergy, Herlev and Gentofte Hospital, Hellerup, Denmark, [4]Department of Clinical Medicine, University of Copenhagen, Copenhagen,, Denmark, [5]Department of Gastroenterology & Hepatology, Mech-Sense, Clinical Institute, Aalborg, Denmark, [6]5 Steno Diabetes Center North Denmark, Clinical Institute, Aalborg University Hospital, Aalborg, Denmark

Methods: For three consecutive days, 25mg/g Lidocaine + 25mg/g Prilocaine cream (EMLA) and vehicle cream were topically applied for 1 and 3 hours on each forearm of 25 healthy participants. After cream removal, cowhage (applied by gently rubbing the spicules on the skin) provocation was performed in each area followed by a 9-minute visual analog scale-score (VAS) of itch and pain intensity, measurement of superficial blood perfusion (SBP), alloknesis and hyperknesis.

Results: EMLA reduces itch ($p<0.001$) and pain ($p<0.01$) intensities, mean SBP ($p<0.05$), alloknesis ($p<0.01$), and hyperknesis ($p<0.001$) induced by non-histaminergic itch compared to placebo. It was also found a difference between 1H and 3H application at day 1 for both peak itch ($p<0.001$) and hyperknesis ($p<0.05$), and during the whole experiment for peak pain ($p<0.05$). Lastly, the peak itch was lower after 1h application at day 3 compared to day 1 ($p<0.01$).

Conclusions: EMLA pretreatment reduces cowhage-induced itch, pain, SBP and mechanical sensitivity. Moreover, a higher effect on itch and pain intensity and hyperknesis was elicited by 3 hours application compared to 1 hour.

1340

GRADED ACTIVITY AND PAIN EDUCATION (GAPE) AFTER LUMBAR SPINAL FUSION REDUCE SEDENTARY BEHAVIOUR 12 MONTHS POST-SURGERY: A RANDOMISED CONTROLLED TRIAL

H. Tegner[1], N. Rolving[2], M. Henriksen[3], R. Bech-Azeddine[4], M. Lundberg[5], B. Appel Esbensen[4]

[1]Department of Occupational Therapy and Physiotherapy, Rigshospitalet, Glostrup, Denmark, [2]Department of Physical and Occupational Therapy, Aarhus University Hospital, Aarhus, Denmark, [3]The Parker Institute, Copenhagen University Hospital, Frederiksberg, Frederiksberg, Denmark, [4]Copenhagen Spine Research Unit, Centre for Rheumatology and Spine Diseases, Rigshospitalet, Glostrup, Denmark, [5]Department of Health-Promoting Science, Sophiahemmet University, Stockholm, Sweden

Methods: Design: A parallel-group, observer-blinded RCT with a primary endpoint three months after surgery.

Participants: In total, 144 participants undergoing an LSF for CLBP.

Intervention: All participants received usual care, consisting of a pre-surgery back seminar and post-surgery consultations with a nurse. The intervention group additionally received nine sessions of GAPE, based on principles of operant conditioning.

Outcome measures: The primary outcome was reduction in time spent in sedentary behaviour, measured by an accelerometer at three months. The secondary outcomes were reduction in time spent in sedentary behaviour at 12 months and changes from baseline to three-, six- and 12 months on disability, pain, fear of movement, self-efficacy for exercise and health-related quality of life.

Results: No difference in changes in sedentary behaviour between groups was found three months after surgery, but at 12 months after surgery there was a significant difference between groups (mean difference: -25.4 minutes/day (95% CI -49.1 to -1.7)) in favour of the intervention group.

Conclusions: Compared with usual care, GAPE had no effect on short-term changes in sedentary behaviour but did improve long-term sedentary behaviour after LSF. Further, the behavioural intervention was safe to perform.

1342

COMPARISON OF ANXIETY, DEPRESSION AND BODY PAIN OF PHYSIOTHERAPISTS WORKING IN DIFFERENT SPECIALTIES

Y. Gül[1], G. Bayram[1], A. Al-Zihaymee[1], D. Kaya[1], A. Fathalla[1], Ç. Günday[1]

[1]Istinye University, İstanbul, Turkey

Methods: This study started in May 2023 and is still ongoing. So far, 41 physiotherapists have participated. Demographic, professional and pain information was collected with a form prepared by authors. Additionally, Maslach Burnout Inventory, Beck Anxiety Inventory, and Perceived Stress Scale were used.

Results: The most frequently studied area was pediatric rehabilitation (22%). This was followed by therapists who are working in all fields (19.5%). Participants mostly suffered from back (80.5%), low back (75.6%) and neck (75.6%) pain. There was a low correlation between neck pain and the time spent as a physiotherapist (p= 0.043), and the burnout level (39.24±11.39) and perceived stress level (24.15±9.60) (p=0.034). The mean anxiety level was calculated as 7.29±7.39 and it was correlated to shoulder, elbow, knee and back pain (p<0.005).

Conclusions: These are the preliminary results of an ongoing study. Pain level felt in the axial skeleton is high among physiotherapists. Neck pain is associated with time spent in the profession, regardless of the field of study. Coping strategies such as higher levels of beds may be helpful. The level of burnout is high but the relationship between pain, burnout and work-related variables requires a higher number of participants.

1345

THE BENEFITS OF THE PAIN MANAGEMENT TEAM DEDICATED TO PEDIATRIC PATIENTS

I. Batko[1,2], M. Falecka[1], U. Skowronek[1], P. Wójcik-Kosturek[1], M. Kocot-Kępska[2]

[1]University Children's Hospital, Cracow, Poland, [2]Jagiellonian University Medical Collage, Cracow, Poland

Methods: Comparison of two time periods (A vs. B):

A – before the PMT implementation 01.10.2021-31.03.2022 (no documentation on pain monitoring),

B – after the PMT implementation 01.10.2022-31.03.2023.

The assessment of pain, the number of performed surgeries, the number and duration of children's hospitalization and financial results in the orthopedic department were analyzed.

Results: In period B we can observe:

- mean pain score NRS<4,
- 2,001 PMT's consultations (including 15 consultations for severe pain despite treatment),
- number of surgeries up by 34% (including more advanced procedures),
- number of hospitalized patients up by 30%,

- number of points completed under the contract with the National Health Fund up by 35%.

These outcomes translate directly into higher financial results.

Conclusions: The PMT contributes to the high-quality postoperative pain treatment, the development of therapeutic opportunities, and the increase of hospital›s income.

1346

VALIDITY AND RELIABILITY OF THE DANISH CONCEPT OF PAIN INVENTORY FOR ADULTS (COPI-ADULT (DK)) – TOWARDS TARGETED PAIN SCIENCE EDUCATION

B. Eiger[1,2], C.L. Straszek[1,3,4], J. Pate[5], M.S. Rathleff[1,3]

[1]Department of Health Science and Technology, Aalborg University, Aalborg, Denmark, [2]Rehabilitation Center, Køge Municipality, Køge, Denmark, [3]Centre for General Practice at Aalborg University, Aalborg, Denmark, [4]Department of Physiotherapy, University College of Northern Denmark, Aalborg, Denmark, [5]Graduate School of Health, University of Technology, Sydney, Australia

Methods: A dual panel approach was used to translate, contextually adapt COPI-Adult into a Danish version. A heterogenic sample of Danish adults >18 years (n=150) were included in the test-retest analysis (7-14 days), completing an online REDCap survey. Based on COSMIN recommendations, the following psychometric properties were assessed; test-retest reliability using intraclass correlation coefficient ($ICC_{2,1}$), internal consistency using Cronbach's alpha level, and measurement error in terms of Standard Error of Measurement (SEM) and Smallest Detectable Change (SDC).

Results: The first panel reached 100% consensus on the wording of the COPI-Adult (DK), with no alterations by the second panel. Good to excellent test-retest reliability was found with $ICC_{2,1}$-value (95%CI) 0.88 (0.84-0.91), excellent internal consistency for the 13-item COPI-Adult (DK) with α=0.939, SEM of 2.53 and SDC of 7.02.

Conclusions: The COPI-Adult (DK) was successfully translated and contextually adapted. It is a reliable questionnaire with excellent internal consistency. The COPI-Adult (DK) shows promise for research and clinical practice.

1347

CHRONIC PAIN IN INDIVIDUALS WITH AUTISM SPECTRUM DISORDER: A SYSTEMATIC REVIEW

H. Garriga-Cazorla[1], J. Roman-Juan[1], L. Martí[1], E. Solé[1], R. Martínez-Leal[1], J. Miró[1]

[1]Universitat Rovira i Virgili, Tarragona, Spain

Methods: The systematic review was pre-registered (PROSPERO ID: CRD42021261031). It was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. To identify relevant studies, we conducted a comprehensive search of the main electronic databases. The search was conducted for all records published up until May 31, 2023.

Results: Database search identified 5603 potential papers. After removal of duplicates, and irrelevant articles by title and abstract, 86 articles were reviewed in full. The findings showed that chronic pain, particularly migraine, is common in individuals with ASD. Very few studies that focused on pain assessment measures for people with ASD or that examined the efficacy of pain treatments were identified.

Conclusions: The review shows that additional research is needed to improve the understanding of the prevalence and impact of chronic pain in people with ASD. It is also important to develop and validate specific assessment tools to evaluate chronic pain in this population. Improving pain assessment will help to develop new treatment programs to address ASD individuals' needs.

1348

TTX-SENSITIVE AND TTX-RESISTANT COMPONENTS OF C-FIBRE RESPONSES TO SLOW DEPOLARISING STIMULI

S. Soares[1], R. Carr[1], M. Schmelz[1], R. Rukwied[1]

[1]Department of Experimental Pain Research, Mannheim Center Translational Neuroscience (MCTN), Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany

Methods: Functionally characterised single C-fibre sub-classes were subject to slow depolarizing electrical sinusoids in the presence of TTX in anesthetized pigs. Compound action potentials (CAPs) were evoked in vitro from pig saphenous nerves. Excitability parameters to 1 and 4Hz electrical sinusoids were assessed before and after TTX and μ-conotoxin PIIIA.

Results: All single C-fibre sub-types responded intensity-dependently to electrical sinusoids. Low-threshold (LT) C-fibres and "polymodal" (HT) nociceptors were more sensitive to this type of stimulus as compared to very high threshold (VHT), "silent" (CMi) and cold (CN) nociceptors. In CAP recordings, higher currents led to shorter latencies and thus charge remained constant for action potential initiation. Blockade of $Na_V1.6$ with μ-conotoxin PIIIA abolished A-fibre CAP components. Long-latency sine wave-evoked C-CAPs were still recorded after TTX. TTX reduced responses to low intensity sine and half-sine wave stimulations in single LT and HT fibres, but were partially rescued by increasing stimulus intensities about 5-fold.

Conclusions: $Na_V1.7$ is not required for long latency action potential generation upon slow depolarization in C-fibres. TTX blockade of distal endings of LT and HT nociceptors reduced responsiveness to slow depolarisation. Electrically evoked axonal responses after intradermal TTX could arise in the more proximal axon at a non-blocked site.

1350

TRICKING PAIN WITH THE SENSES: A WORKSHOP TO IMPROVE SELF-MANAGEMENT STRATEGIES FOR CHRONIC PAIN PATIENTS

T. Leiva[1], J. Lawrence[1]

[1]St Mary's Hospital Isle of Wight NHS Trust, Newport, United Kingdom

Methods: Over the course of a year, the project team conducted a survey to assess the need for improvement in their chronic pain clinic and conducted a literature review to find evidence-based techniques for reducing pain perception through sensory inputs. The team developed a three-hour workshop that taught patients about pain perception and the role of sensory inputs in pain management, and provided experiences with each sense to reduce pain perception. The workshop was delivered by one Pain Consultant and a magician.

Results: Two groups of 12 patients participated in the workshop, and post-workshop surveys were conducted. Patients rated the content 5/5 for all senses and rated 4.8/5 the likelihood of using the self-management techniques for their pain management. The most common word used to summarize the workshop was Hope.

Conclusions: The «Tricking Pain with the Senses» workshop was successful in improving patients› perception of hope and resilience in managing chronic pain symptoms through sensory inputs. The workshop provided a new approach to pain management and could be incorporated into existing pain management strategies to improve patient outcomes.

1351

EVALUATION OF THE EFFECTS OF NOVEL H_3R ANTAGONIST, E-98, ON NEUROPATHIC PAIN SYMPTOMS AND GLIAL CELLS ACTIVATION - *IN VIVO* AND *IN VITRO* STUDIES

K. Popiołek-Barczyk[1], M. Degutis[1], D. Łażewska[2], J. Barut[3], G. Latacz[2], K. Kieć-Kononowicz[2], K. Starowicz-Bubak[1]

[1]Maj Institute of Pharmacology, Polish Academy of Sciences, Department of Neurochemistry, Krakow, Poland, [2]Department of Technology and Biotechnology of Drugs, Jagiellonian University Medical College, Krakow, Poland, [3]Maj Institute of Pharmacology, Polish Academy of Sciences, Department of Brain Biochemistry, Krakow, Poland

Methods: Mice were subjected to chronic constriction injury and the effects of repeated E-98 (10 mg/kg; i.p., twice daily, 7 days) administration on mechanical (von Frey) and thermal (cold plate) stimuli were evaluated. Behavioural observations were correlated with changes in microglial (Iba1) and astroglial (GFAP) cells activation in the lumbar spinal cord (Western blot). Using primary glial cell cultures we evaluated the impact of E-98 (10μM) on levels of IL-1β, IL-6, IL-10 (ELISA). The H_3R expression within the spinal cord of neuropathic mice and glial cultures was also analysed (Immunofluorescence).

Results: The analgesic potency of E-98 correlated with decreased microglia, but not astrocyte, activation. E-98 diminished the level of IL-6 in glial cell cultures but increased IL-1β only in astrocytes. The spinal expression of H_3R colocalizes with microglia, astrocytes and neurons. *In vitro* studies confirmed the expression of this receptor in glia.

Conclusions: We provided evidence for the analgesic potency of a novel H_3R antagonist. We observed the expression of H_3R within neurons and glia, which are strongly related to neuropathic pain formation. We suggest that the analgesic effects of E-98 are partially due to the modulation of glia activation.

Acknowledgements: Work was financed by the National Science Centre, Poland, SONATA 2019/35/D/NZ7/01042.

1354

ENDOMETRIOSIS: THE IMPORTANCE OF COMMUNICATION FOR HEALTH-RELATED QUALITY OF LIFE

I. Flink[1], H. Grundström[2], E. Rimhagen[3], C. Söderstierna[4], L. Engman[5]

[1]Karlstad University, Karlstad, Sweden, [2]Linköping University, Linköping, Sweden, [3]Region Östergötland, Linköping, Sweden, [4]Region Stockholm, Stockholm, Sweden, [5]Karolinska Institute, Stockholm, Sweden

Methods: Anonymous survey data was collected in a self-selected sample of women with endometriosis. One-way repeated measures ANOVA was used to compare (in)validating communication within the three contexts. Multiple regression analysis was executed to explore the predictive value of (in)validation on quality of life, over and above symptoms of depression and anxiety.

Results: The level of validating communication differed significantly in all three contexts, with lowest levels with health care providers, and highest levels with close family/friends. The level of invalidating communication showed a similar pattern, but in the opposite direction. The hierarchical multiple regression revealed that all included predictors (depressive symptoms, anxiety and (in)validation in the three contexts) contributed with unique variance on quality of life, except for (in)validating communication from employers.

Conclusions: Validation in different contexts appear as an important component for women with endometriosis and may be linked to quality of life.

1356

THE PERFORMANCE OF THE DEEP CERVICAL FLEXOR MUSCLES IS RELATED TO THE FREQUENCY OF HEADACHE ATTACKS AND NECK STRENGTH

A. Rodrigues[1], C.F. Pinheiro[1], J. Martins[1], L.L. Florencio[2], G.F. Carvalho[3], M.D. Rosa[1], F. Dach[1], D. Bevilaqua Grossi[1]

[1]University of Sao Paulo, Ribeirao Preto, Brazil, [2]Rey Juan Carlos University, Madrid, Spain, [3]Universität zu Lübeck, Lubeck, Germany

Methods: 103 women, aged between 18 and 55 years, diagnosed with migraine were selected. Clinical data of the participants were collected and applied to the Headache Impact Test (HIT-6), Neck Disability Index (NDI), and 12 items Allodynia Symptom Checklist/Brazil – (ASC-12/Brazil) questionnaires. The endurance test of neck flexors, maximum voluntary isometric contraction (MVIC), and CCFT also were assessed.

Results: There was a negative and weak correlation between the performance of the DNF muscles and the frequency of migraine (r= -0.232; p=0.018) and a positive and weak correlation between cervical endurance and the performance of the DNF (r=0.222; p=0.024). There was no correlation of DNF performance with migraine intensity, frequency and intensity of neck pain, disability in HIT-6, ASC-12, and NDI, and the MVIC (p>0.05).

Conclusions: Migraine patients may have reduced DNF performance when there is an increase in the frequency of headache attacks and a decrease in neck endurance.

1357

DO PSYCHOSOCIAL FACTORS PREDICT THE PERSISTENCE OF SHOULDER PAIN?

D. Rosa[1,2,3], H. Masse- Alarie[1,3], J.-S. Roy[1,3]

[1]Université Laval, Quebec city, Canada, [2]Universidad de Málaga, Málaga, Spain, [3]Centre for Interdisciplinary Research in Rehabilitation and Social Integration (Cirris) - Université Laval, Quebec city, Canada

Methods: Fifty-nine participants with persistent RCRSP completed this study (43.9±11.5years;61%women;70%had pain duration>1year). Using the RedCap web application, participants filled questionnaires covering a biopsychosocial spectrum: Brief Resilience Scale (BRS), Perceived Stress Scale (PSS-10), Disabilities of the Arm, Shoulder, and Hand Questionnaire (QuickDASH), Patient-Health Questionnaire–9 (PHQ-9), General Anxiety Disorder–7 (GAD-7), Pain Catastrophizing Scale (PCS), Pain Self-Efficacy Questionnaire (PSEQ) and Multidimensional Scale of Perceived Social Support (MSPSS). Thereafter, participants took part in an educational program aimed at promoting self-management of shoulder pain that included two meetings with a physiotherapist. After 3 months, participants filled the QuickDASH and, based on their scores, were classified as having persistent shoulder pain (score>11) or as recovered (score=0-11).

Results: The symptoms of 24 participants (~41%) were considered resolved at 3 months. A binomial logistic regression demonstrated that only PSEQ was associated with symptoms resolution (p=.04). Lower level of self-efficacy was associated with persistent pain at 3 months (OddsRatio=1.08;95%Confidence Interval:1.00,1.17. No variables predicted persistent RCRSP.

Conclusions: Pain self-efficacy was the most important factor in avoiding the development of persistent RCRSP

1358

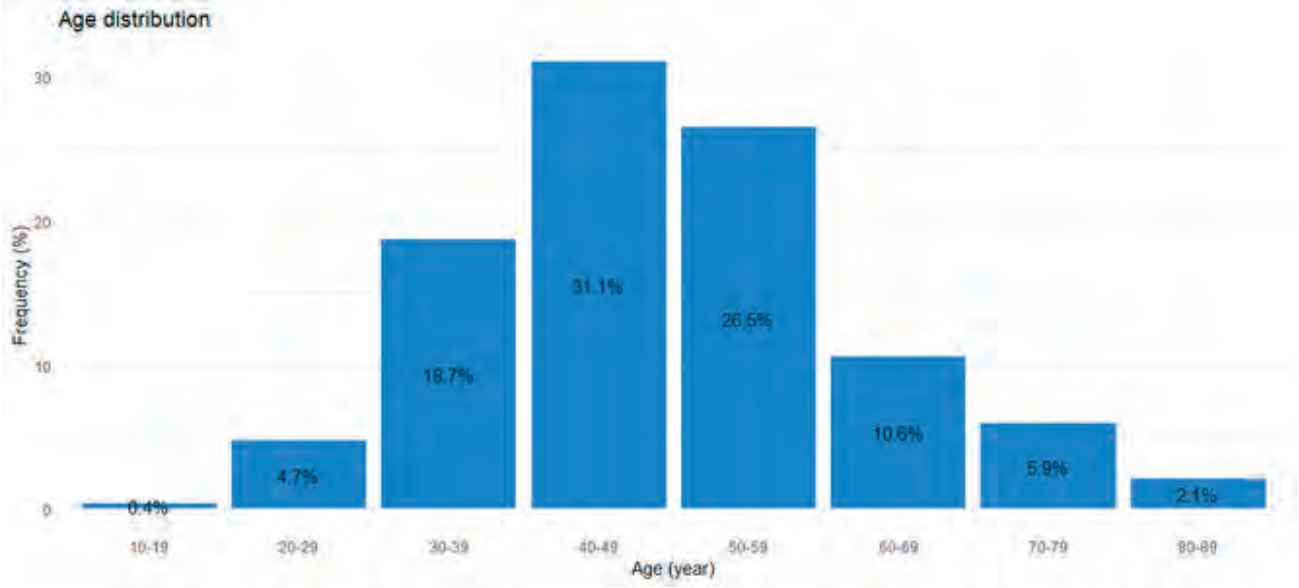
EPIDEMIOLOGICAL STUDY ON CHRONIC NEURO-MUSCULOSKELETAL PAIN

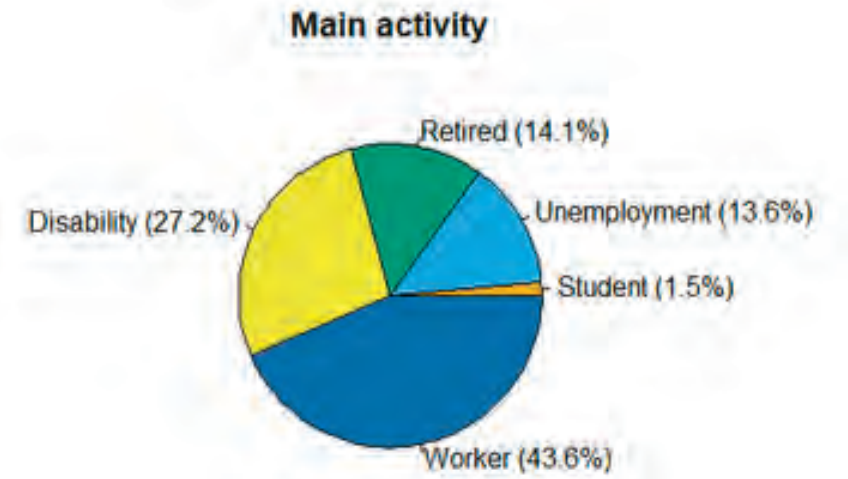
C. Denaeyer[1], L. Fousse[1], J. Mellier[1], D. Zarka[1], S. Walid[1], A. Bengoetxea[1], T. Turgay[2]

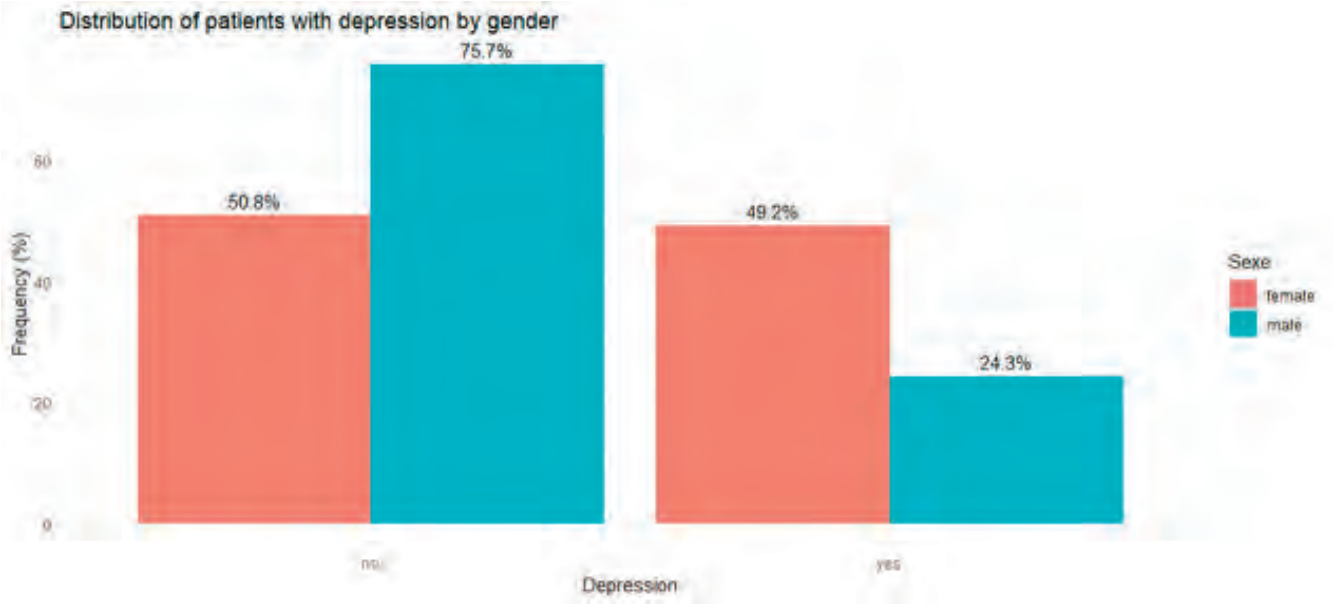
[1]Unité de Recherche en Sciences de l'Ostéopathie, Université Libre de Bruxelles (U.L.B.), Brussels, Belgium, [2]Service d'AnesthésiologieRéanimation, C.U.B. Hôpital Erasme, Université Libre de Bruxelles (U.L.B.), Brussels, Belgium

Methods: A retrospective analysis was performed using patient records from the Centre Multidisciplinaire d'Evaluation et de Traitement de la Douleur (CMETD) at Erasme University Hospital (Brussels). A random sample of 100 participants per year with chronic neuromusculoskeletal pain at the CMETD between 2007 and 2017 was included. Data collection included sociodemographic information and diagnosis.

Results: The study analyzed 1000 medical records, 73% of which represented women. The median age of the patients was 48 [40-57] years and the median time to onset of symptoms was 4 [2-8] years. Among them, about 43.6% were professionally active, while 27.2% were on disability. The lumbar region was the most affected anatomical area and 42.4% of the patients reported suffering from depression. In addition, depression was significantly more common in women (49.2% versus 24.3% in men).







Conclusions: Our study confirms data already observed in the literature: a higher prevalence in women and people of working age, frequent low back complaints and a strong association with depression. Multidisciplinary pain management in primary care would avoid collateral damage to professional activities and the psychological state of patients.

1363

EFFECTIVENESS, COST-UTILITY AND PHYSIOLOGICAL UNDERPINNINGS OF THE FIBROWALK MULTICOMPONENT THERAPY IN ONLINE AND OUTDOOR FORMAT IN INDIVIDUALS WITH FIBROMYALGIA (ON&OUT STUDY)

A. Feliu-Soler[1], M. Serrat[2], S. Ferrés[3], W. Auer[1], M. Almirall[2], E. Lluch[4], F. D'Amico[5], M. Maes[6], J. Navarrete[7], J. Montero-Marin[8], R. Neblett[9], J. Nijs[10], X. Borràs[1], J.V. Luciano[1]

[1]Universitat Autònoma de Barcelona, Barcelona, Spain, [2]Vall d'Hebron Institut de Recerca, Barcelona, Spain, [3]Escoles Universitàries Gimbernat, Barcelona, Spain, [4]Universitat de València, València, Spain, [5]London School of Economics, London, United Kingdom, [6]Chulalongkorn University, Bangkok, Thailand, [7]Insitut de Recerca Sant Joan de Déu, Barcelona, Spain, [8]Oxford University, Oxford, United Kingdom, [9]Productive Rehabilitation Institute of Dallas for Ergonomics, Dallas, United States, [10]Vrije Universiteit Brussel, Brussel, Belgium

Methods: We designed a 6-month RCT with three treatment arms (FIBROWALK program in FIBRO-On and FIBRO-Out formats adjuvant to TAU, compared to TAU alone) to evaluate the effectiveness of the program in patients with

FM. Participants will meet inclusion criteria and biomarkers substudy criteria. Clinical outcomes, process measures, and physiological markers will be assessed. Analysis of effectiveness and changes in biomarkers will be conducted on an ITT basis with linear mixed-effects regressions. Cost-utility analyses will be performed.

Results: The On&Out study will evaluate the effectiveness, physiological mechanisms and cost-utility of adding the FIBROWALK program in an online or outdoor format to treatment as usual for fibromyalgia patients. Previous studies showed short-term efficacy, and the current study will determine if these effects are maintained at a 6-month follow-up. Preliminary results will be available in June 2023.

Conclusions: No studies have evaluated the effectiveness, physiological mechanisms and cost-utility of multicomponent interventions for fibromyalgia in online or outdoor formats. The FIBRO-On and FIBRO-Out programs may become part of standard care for treating FM. The On&Out study also aims to identify treatment responders and deepen our understanding of the mechanisms underlying non-pharmacological interventions in FM.

1364

VIRTUAL REALITY DISTRACTION FOR NEEDLE-RELATED PAIN AND DISTRESS IN CHILDREN: A MULTI -CENTER RANDOMIZED CONTROLLED TRIAL

M. Czub[1], J. Piskorz[1], B. McGuire[2], H. Lydon[2], E. Serrano-Ibáñez[3], R. Esteve[3]

[1]University of Wrocław, Wrocław, Poland, [2]University of Galway, Galway, Ireland, [3]Universidad de Málaga, Malaga, Spain

Methods: The study involved 304 children aged 5 to 9 years undergoing a blood draw procedure, randomly allocated to one of three groups: VR distraction, non-VR distraction, and control group (usual care). The game logic was based on the Multiple Object Tracking (MOT) paradigm, and the game was identical in design and gameplay for both VR and non-VR distraction groups. Self-reported pain intensity was measured using the Faces Pain Scale-Revised (FPS-R). Analyses were conducted using ANOVA and multivariable linear regression models.

Results: The results showed that VR Distraction and non-VR distraction performed similarly, showing large effect sizes compared to standard care. There was no significant difference between the two types of distraction, even though the study was sufficiently powered to detect medium or larger effect sizes.

Conclusions: The study›s findings suggest that VR and non-VR distraction are similarly effective in reducing needle-related pain and anxiety in children undergoing venous blood draw. This is the first well-powered study comparing modern VR distraction with an identical task displayed on a smartphone or monitor screen. The study›s results have important implications for using VR in clinical settings and suggest that investing in expensive VR equipment for acute pain management may not be necessary.

1365

THE RELATIONSHIP BETWEEN THE PEAK FREQUENCY OF ALPHA OSCILLATIONS AND THE PERCEPTION OF PAIN

E.S. May[1,2], L. Tiemann[1,2], C. Gil Ávila[1,2], F.S. Bott[1,2], V.D. Hohn[1,2], J. Gross[3], M. Ploner[1,2,4]

[1]Technical University of Munich (TUM), School of Medicine, Department of Neurology, Munich, Germany, [2]Technical University of Munich (TUM), School of Medicine, TUM-Neuroimaging Center, Munich, Germany, [3]Institute for Biomagnetism and Biosignalanalysis, University of Münster, Münster, Germany, [4]Technical University of Munich (TUM), School of Medicine, Center for Interdisciplinary Pain Medicine, Munich, Germany

Methods: Fifty-one healthy participants received 60 painful laser stimuli to the hand and rated the perceived intensity while recording brain activity using EEG. Using a predefined, preregistered analysis pipeline, we determined the momentary APF before each stimulus and related it to variations of pain ratings within participants. APF was determined for a somatosensory (S1) ROI (electrodes C4, CP4, CP6) and globally (global ROI: all electrodes). Additionally, specification curve analyses tested the robustness of findings against analytical choices.

Results: For both ROIs, Bayesian statistics provided evidence against an intra-individual relationship between APF and pain (S1/global ROI: BF_{10} = 0.16/0.17). For the global ROI, tests of the median effect size across many analytical choices confirmed this negative finding (p = 0.19). For the S1 ROI, they showed a trend towards a negative relationship between APF and pain intensity (p = 0.05).

Conclusions: Our findings provide evidence against a role of the global APF for intra-individual variations of pain. However, specification curve analysis indicates a potential negative but small and analysis-dependent relationship between the somatosensory APF and pain, which would strengthen the somatosensory APF as a pain sensitivity biomarker. For further investigations, analyses are currently extended to a new, bigger data set with 159 participants.

1367

EFFECTS OF A NUTRACEUTICAL ON FIBROMYALGIA SYMPTOMS

T.L. Rodríguez Araya[1], A. Arias Gassol[1], X. Torres Mata[1], L. Polino[1]

[1]*Hospital Clìnic, Barcelona, Spain*

Methods: Prospective pilot observational study, in 30 patients with FM.

- Inclusion criteria: Women ≥18; ACR 1990/2010 criteria, VAS pain/fatigue ≥4. ≥4 weeks without concomitant treatments, except paracetamol ≤2g/day and/or tramadol ≤100mg/8h.

- Exclusion criteria: unstable psychiatric disorder. Secondary pain. Active inflammatory diseases. Current disability process. Concomitant natural therapies, rehab or drugs. Hypersensitivity to components. Pregnancy/Lactation

Results: All the symptoms have decreased during the study (Table 1). Primary endpoint, Quality of life, and secondary variables as pain, fatigue and severity of symptoms have decreased in the first 4 weeks and progressively improved during the last 4 weeks. Functional capacity has been improving, being statistically significant at 8 weeks. Only 2 clinical episodes were related to the product, gastrointestinal discomfort and nocturnal urination that did not prevent continuation of the study. Therapeutic compliance was higher than 96% and the majority of patients continued with the product after the study

		ITT population					PP population				
		Mean	**SD**	**Friedman (p)**	**Wilcoxon signed rank test (p)**		**Mean**	**SD**	**Friedman (p)**	**Prueba de rangos con signo de Wilcoxon (p)**	
sFIQ	baseline	64,79	14,33	**0,000**	4 week - baseline	**0,000**	64,76	14,87	**0,002**	4 week - baseline	**0,000**
	8 weeks	55,57	16,64		8 week. - baseline	**0,002**	54,80	17,26		8 week - baseline	**0,003**
Fatigue VAS	baseline	8,10	1,37	**0,005**	4 week - baseline	0,177	8,15	1,43	**0,005**	4 week - baseline	0,177
	8 weeks	7,10	1,73		8 week- baseline	**0,005**	7,04	1,81		8 week - baseline	0,005
Pain VAS	Baseline	7,75	1,15	**0,000**	4 week - baseline	**0,001**	7,83	1,15	**0,000**	4 week - baseline	**0,001**
8 weeks 6,55 1,65 8 week - baseline						**0,000**	6,57	1,64		8 week - baseline	**0,000**
Symptoms Severity Score, SSS	baseline	8,43	1,524	**0,000**	4 week - baseline	**0,000**	8,3	1,54	**0,000**	4 week - baseline	**0,000**
	8 weeks	6,53	1,995		8 week - baseline	**0,000**	6,3	1,938		8 week - baseline	**0,000**
Widespread Pain Index	baseline	10,3	2,12	**0,000**	4 week - baseline	**0,000**	10,52	2,082	**0,000**	4 week - baseline	**0,000**
	8 weeks	5,7	2,307		8 week - baseline	**0,000**	5,59	2,258		8 week - baseline	**0,000**
SF-36 Physical function	baseline	38,83	18,74	-	8 week - baseline	**0,012**	37,04	18,095	-	8 week - baseline	**0,012**
	8 weeks	46,83	19,804				45,93	19,954			
SF-36 Bodily Pain	baseline	19,90	17,091	-	8 week - baseline	**0,001**	18,30	14,920	-	8 week - baseline	**0,001**
	8 weeks	32,13	15,516				31,89	13,835			

		ITT population					PP population				
		Mean	SD	Friedman (p)	Wilcoxon signed rank test (p)		Mean	SD	Friedman (p)	Prueba de rangos con signo de Wilcoxon (p)	
SF-36 General Health	Baseline	31,55	14,601	-	8 week - baseline	**0,023**	30,348	14,145	-	8 week - baseline	**0,023**
	8 weeks	36,67	16,470				36,04	16,603			
SF-36 Vitality	Baseline	21,67	18,035	-	8 week - baseline	0,066	21,06	18,110	-	8 week - baseline	0,066
	8 weeks	29,38	23,046				29,63	23,679			
SF-36 Social Functioning	baseline	42,92	23,370	-	8 week - baseline	**0,002**	42,59	24,332	-	8 week - baseline	**0,002**
	8 weeks	57,08	21,446				58,33	21,927			
SF-36 Role Emotional	baseline	63,33	29,895	-	8 week - baseline	**0,049**	63,89	31,522	-	8 week - baseline	**0,049**
	8 weeks	72,22	28,730				73,76	29,932			
SF-36 Mental Health	baseline	51,83	25,444	-	8 week - baseline	0,066	50,37	26,199	-	8 week - baseline	0,066
	8 weeks	58,17	24,014				57,41	24,976			
SF-36 Change in health status	baseline	3,63	1,066	-	8 week - baseline	**0,024**	3,70	1,068	-	8 week - baseline	**0,024**
	8 weeks	3,17	1,177				3,19	1,210			
	8 weeks	2,87	1,074				2,74	1,023			
	8 weeks	9,17	4,496				9,26	4,72			

Conclusions: FibrofixPlus® is a supplement that facilitates the control of FM general symptoms. A clinical trial of supplementation for 6 months of FibrofixPlus® compared to placebo in FM patients would be adequate to verify this hypothesis.

1368

EFFICIENCY OF MANUAL THERAPY ON CENTRAL SENSITIZATION IN PATIENTS WITH NON-SPECIFIC CHRONIC BACK PAIN

S. Aydoğdu[1], N. Uluğ[1], E. Kılıç[1]

[1]*Atilim University, Ankara, Turkey*

Methods: A total of 40 LBP patients aged between 24-64 with CSS were randomized into two groups. The manual therapy group received a 4-week manual therapy (two sessions/week) plus the conventional physiotherapy program, while the control group only received conventional physiotherapy. Outcomes measured before and after the interventions were pain intensity (VAS), and scores of three questionnaires: Oswestry Disability Index (ODI), Central Sensitization Inventory (CSI), and the 36-item Short Form Health Survey Questionnaire (SF-36).

Results: Manual therapy group showed significant improvement in terms of VAS, CSI and ODI scores, together with some subgroups of SF-36 ($p<0,05$) compared to control group.

Conclusions: The results of the current study showed that manual therapy appears to be more effective than current conventional physiotherapy for improving pain, symptoms of central sensitization, disability, and quality of life in individuals with chronic LBP and CSS.

Keywords: central sensitization, manual therapy, non-specific low back pain.

1369

LEARNED FEAR TOWARDS VISCERAL SENSATIONS AND ITS IMPACT ON INTEROCEPTIVE HABITUATION

L. Pattyn[1], J. Zaman[1,2], L. Van Oudenhove[1], I. Van Diest[1]

[1]KU Leuven, Leuven, Belgium, [2]UHasselt, Hasselt, Belgium

Methods: An experimental group (n=40) and a control group (n=40) both received 126 identical non-painful electrical stimulations at the distal esophagus. It was hypothesized that the recurrent stimulus presentation would lead to perceptual habituation. In the experimental group, fear learning was established by pairing the non-painful stimulus to a painful visceral stimulus. It was hypothesized that fear learning would disrupt the perceptual habituation process of the non-painful stimulus (compared to the control group) as assessed by self-reported stimulus intensity and event-related potential amplitudes. Startle blink EMG, skin conductance responses and expectancy of pain were used as indexes of fear learning.

Results: Fear learning towards the non-painful sensations was established as indicated by potentiated startle responses and higher self-reported US expectancy in the experimental group. Surprisingly, no habituation was observed before fear learning, and there were no differences in habituation towards the non-painful sensation between the group with and without fear learning.

Conclusions: Fear towards gastrointestinal sensations was established, but more research is needed to assess its role in disrupting perceptual habituation.

1371

RECOGNITION AT THE HEART OF THE COMPLEX SITUATIONS EXPERIENCED BY PEOPLE WITH CHRONIC NEUROMUSCULOSKELETAL PAIN

J. Mellier[1], A. Balis[1], F. Defraine[2], Q. Vanderhofstadt[3], L. Di Biagi[4], M. Schetgen[5,6], P. D'ans[2], J. Foucart[7], C. Mahieu[8,6], A. Bengoetxea[1]

[1]Université Libre de Bruxelles/ Osteopathy Sciences Research Unit, Brussels, Belgium, [2]Haute Ecole Ilya Prigogine, Brussels, Belgium, [3]Université Libre de Burxelles/ Department of General Medicine, Brussels, Belgium, [4]Université Libre de Bruxelles/ Research Center in Social Approaches to Health, Brussels, Belgium, [5]Université Libre de Bruxelles/ Department of General Medicine, Brussels, Belgium, [6]Université Libre de Bruxelles/ Primary Care Research Unit, Brussels, Belgium, [7]Université Libre de Bruxelles/Research Unit in Psychology, Brussels, Belgium, [8]Université Libre de Bruxelles/Research Center in Social Approaches to Health, Brussels, Belgium

Methods: A qualitative method was used by conducting 24 semi-structured interviews with people with PMSC in complex situations. The study was carried out in Belgium with French-speaking individuals. The interviews took place at the university, in a university hospital, in private clinics or in the persons› homes.

Results: People with CNMSP revealed the importance of the lack of recognition experienced in the intimate, social and legal spheres. The invisibility of pain and it's a priori benign character, as well as the sacredness of medical images and the stigmatization of chronic pain, lead to questioning of the veracity of the person›s experience by their entourage and health professionals. Pain causes a loss of physical, emotional and relational capacities, leading to isolation and psychological distress. A struggle to be legally recognized can occur, ranging from a denial of responsibility by employers to the brutality of certain «expert» doctors. Access to financial aid to support work incapacity or to gain access to some forms of care is thus jeopardized.

Conclusions: This study highlights that the lack of recognition is at the heart of the complex situations experienced by people with CNMSP. Given the fact that the invisibility of pain is an inherent characteristic of this medical condition, the lever to alleviate the negative consequences of non-recognition would be to evolve the vision of different actors involved as well as collaborative practices.

1372

EVALUATING THE MANAGEMENT OF CHRONIC PELVIC GIRDLE PAIN FOLLOWING PREGNANCY (EMAPP): A RANDOMISED CONTROLLED FEASIBILITY TRIAL

B. Halliday[1], S. Chatfield[1], L. Cameron[2], J. Hosking[3], J. Shawe[1], A. Hawton[4], C. Hayward[5], K. Carter[6], J. Freeman[1]

[1]University of Plymouth, Plymouth, United Kingdom, [2]Aneurin Bevan Health Board, Newport, United Kingdom, [3]Peninsula Clinical Trials Unit / University of Plymouth, Plymouth, United Kingdom, [4]University of Exeter / Health Economics Group, Exeter, United Kingdom, [5]Exeter Clinical Trials Unit / University of Exeter, Exeter, United Kingdom, [6]Cornwall Partnership NHS Foundation Trust, Truro, United Kingdom

Methods: Design: Multicentre randomised controlled feasibility trial with embedded qualitative study and economic evaluation.

Procedures: Participants with PPGP were randomised to receive two physiotherapy sessions [Intervention/Control], separated by 14 days. Wear time adherence was measured by an Orthotimer. Numerical Pain Rating Scale (NPRS) assessed pain intensity fortnightly, over 24 weeks. Secondary outcome measures assessed kinesiophobia, continence, function, quality of life, and depression at baseline, 12 and 24 weeks. Adverse events were recorded.

Progression criteria: (1) Target sample size (60 from three centres over a 7-month recruitment period); (2) Outcome measure completion (>60% at 24 weeks); (3) Orthotic wear-time compliance (>70% for 6 hours/day); (4) Evidence suggesting efficacy.

Results: Of 180 participants sent information sheets, 40 were screened, and 24 randomised. At 24 weeks, 95% completed NPRS, and 89-95% the secondary outcome measures. Technical issues caused significant orthotimer missing data, although wear-time adherence appeared below the set target. Outcomes were broadly comparable between groups. Two Intervention participants experienced thrush.

Conclusions: Trial procedures/interventions were acceptable to participants. Technical orthotimer issues are resolvable. Recruitment of participants was a major challenge. Work to understand how best to engage women in this research is needed before moving to a definitive trial.

1373

PERIPHERAL NEUROPATHY IN A ROTENONE-INDUCED ANIMAL MODEL OF PARKINSON'S DISEASE

M. Faisal[1], L. Sabre[2], P. Taba[2], M. Hickey[1]

[1]University of Tartu, Tartu, Estonia, [2]University of Tartu Hospital, Tartu, Estonia

Methods: Male C57Bl/6J mice received rotenone, or DMSO, intrastriatally. Tyrosine hydroxylase immunocytochemistry was used to quantify dopaminergic terminals and cell bodies. Motor function was assessed by hindlimb stepping, rotarod and spontaneous activity in Noldus phenotypers. Total gut motility was measured as the latency to excrete carmine red, a non-absorbed dye. Touch, heat, and cold sensitivity were examined using hot and cold plantar assays, von Frey plantar responses, and exploration of hot and cold environments.

Results: Mice receiving intrastriatal rotenone showed greatly reduced dopamine terminals in striatum and developed progressive motor impairments in hindlimb stepping but no change in spontaneous activity. Interestingly, no change was noted in gut motility. Moreover, we did not observe any change in heat, cold, or touch sensitivity.

Conclusions: Although «top-down» modelling may provide insight into mechanisms of dopaminergic cell death in PD, it does not mirror PD accurately as it failed to induce changes in gut or changes in sensation. Therefore, to model PD in its entirety, it is essential that better animal models are developed.

Funding: Estonian Research Council Grant PRG957

1375

FIBROMYALGIA AND REFRACTORY PAIN IN RHEUMATIC DISEASES (FARR) CROSS-SECTIONAL PILOT STUDY: PROTOCOL AND RECRUITMENT STRATEGIES

K. Plant[1,2], A. Goebel[1,2]

[1]*University of Liverpool, Liverpool, United Kingdom,* [2]*Pain Research Institute, Liverpool, United Kingdom*

Methods: Recruitment method was recorded for each participant. Participants provided feedback on their experience of the study. Feedback was analysed using a framework method.

Results: Approach started 9/03/23. Analysis was undertaken on 15/05/23. 17 pre-screening interviews were performed; 53% of patients were recruited from clinical databases, 18% from social media and 5 from charity advertising. 3 participants declined involvement due to travel distance. 13/14 remaining participants attended the study visit (98%); BS n=1, BS + FMS n=3, AS n=4, AS+FMS n=1, RA n=4. The motivations to participate and feedback of the participants are summarised in Figure 2. Table 1 outlines several 'low-burden elements' which were integrated in the study design and their role in aiding recruitment.

Figure 2- Motivation and feedback of study participation coded by facilitator and barrier themes.

Figure 2- Feedback from research participants, regarding motivation to participate and the study design, are colour-coded highlighting themes using a framework analysis. Facilitator themes:: Blue = Altruism, Orange = Personal benefit, Purple = Trust in researcher, Green = Convenience. Barrier themes: Red = Uncertainty

Table 1 - Study design elements and their association with aiding recruitment

Study Design Elements	Facilitators	Combatted barriers
Utilise social media and charity advertising	Altruism and personal benefit	Health stigma
Patient information sheet	Conveyed reason for study leading to altruism and personal benefit	Uncertainty
Pre-screening interview with research	Trust in the research team	Uncertainty
Questionnaire beforehand	Convenience	Perceived risk Uncertainty Health stigma
1 study visit (1.5 hours)	Convenience	
Familiar techniques: venepuncture, eye test (Corneal confocal microscopy)	Trust in the research team	Perceived risk Uncertainty

Table 1 breaks down the elements of the study design and pairs these with the associated facilitators and combatted barriers to research participation.

Conclusions: Facilitators for participation were altruism, personal benefit, trust and convenience; Barriers were distance and uncertainty. This protocol demonstrates a low-burden study design for researching chronic musculoskeletal pain.

1377

EVALUATION OF THE EFFECTIVENESS OF EXTRAPERITONEAL SPACE INFILTRATION TECHNIQUES IN THE MANAGEMENT OF POSTOPERATIVE PAIN AFTER LAPAROSCOPIC RADICAL PROSTATECTOMY. PRELIMINARY RESULTS

A. Klimkowicz[1], I. Kuliniec[2], E. Kotlińska-Hasiec[1], P. Mitura[2], M. Bogusiewicz[3], W. Dąbrowski[1]

[1]I Department of Anaesthesiology and Intensive Therapy, Medical University of Lublin, Lublin, Poland, [2]Department of Urology and Urological Oncology, Medical University of Lublin, Lublin, Poland, [3]Second Department of Gynaecology, Medical University of Lublin, Lublin, Poland

Methods: The prospective, single-center, randomized, double blinded clinical trial with placebo control group study has been planned on 200 patients undergoing LRP. Patients have been randomly divided into four groups receiving different infiltration solution: 4 ug/ml of fentanyl, 0,25% ropivacaine, 0,25% ropivacaine with 4 ug/ml fentanyl and placebo. Infiltration solution is delivered by elastomeric pump through infiltration catheter into extraperitoneal space over a period of 40 hours. Post-operative pain at rest is assessed by a bedside nurse using the Numeric Rating Scale (0−10).

Results: A total of 60 patients have been included for this preeliminary study. Results show that patients receiving a solution of 0,25% ropivacaine and 0,25% ropivacaine with 4 ug/ml fentanyl have significantly lower pain intensity scores ($p<0,05$) the day of surgery in comparison to the placebo group.

Conclusions: The study demonstrates the effectiveness of a new technique for treating postoperative pain which increases patient comfort.

1378

A MULTIVARIATE BRAIN SIGNATURE APPROACH TO DETECT BRAIN ACTIVITY PATTERNS ASSOCIATED TO PAIN MODULATION

L. Malaguti Modernell[1], I. Faillenot[1], R. Peyron[1], L. Garcia-Larrea[1], C. Fauchon[1]

[1]Lyon Neuroscience Research Center, University of Saint-Etienne, Saint-Étienne, France

Methods: A database comprised of 4 studies is used, including 88 participants undergoing cognitive and affective tasks increasing or decreasing pain. Functional and anatomical images are preprocessed with a standardized pipeline and undergo first-level modeling to estimate the BOLD response to different task events. Averaged beta-images corresponding to different relative pain intensities per participant and per condition are used for the prediction of pain ratings using the LASSO-PCR algorithm. A 10-fold cross-validation procedure is used to assess the predictive accuracy of the classifier. The derived signature is hypothesized to include areas such as the posterior insula, the somatosensory cortices, the anterior cingulate cortex and the dorsolateral prefrontal cortex.

Results: A Preliminary model including 36 subjects has a highly distributed activity pattern across brain areas and is associated to a prediction accuracy of 0.97, $p<0.001$, with a sensibility of 1.0, specificity of 0.0, AUC of 0.54 and PPV of 0.97.

Conclusions: The model shows a low predictive performance according to the presented measures, which could be explained by the selection of a specific portion of the subjects' pain response to train the model. The inclusion of additional subjects and the validation in an independent data set will help to improve prediction.

1379

EAR ACUPUNCTURE AND WESTERN MEDICAL ACUPUNCTURE FOR PAIN AND HEALTH-RELATED QUALITY OF LIFE AMONG OLDER PATIENTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN

M. Rybicka[1,2], A. Przeklasa-Muszyńska[2], J. Wierzbicka[2], K.-K. Hui[1], M. Kocot-Kępska[2]

[1]University of California, Los Angeles Center for East-West Medicine, Los Angeles, United States, [2]Jagiellonian University Medical College, Kraków, Poland

Methods: This was a clinical, prospective, single center, open label study. A total of 60 older patients diagnosed with chronic non-specific low back pain were divided into two groups to receive either ear acupuncture or Western medical acupuncture once a day for 20 minutes for 10 days (5 week days, except for Saturdays and Sundays) during a two-week study period. Pain intensity was assessed using numeric rating scale. The decrease in the average NRS score before and after treatment was compared between the two groups as the primary outcome. Quality of life according to the SF-36 questionnaire was also assessed.

Results: After two weeks of treatment the average NRS score decreased significantly both in the ear acupuncture and Western medical acupuncture group. The effective decrease in the average NRS was significantly higher in the ear acupuncture group than in the Western medical acupuncture group. There was significant improvement in the health-related quality of life for both ear acupuncture and Western medical acupuncture group but none of these methods has proven superior. There were minor complications observed in both groups, including small bleeding after the treatment which resolved quickly.

Conclusions: Ear acupuncture appeared to be a safe and effective, easily applicable treatment option for older patients with chronic non-specific low back pain.

1380

PAINFLEX VALIDATION STUDY: THE IMPACT OF ATTENTION FLEXIBILITY FOR PAIN ON EXPERIMENTAL PAIN OUTCOMES

J. Mac Goris[1], D. Van Ryckeghem[1], E. Pinto[2]

[1]Maastricht University, Maastricht, Netherlands, [2]Ghent University, Ghent, Belgium

Methods: To investigate this, we conducted a study using Virtual Reality based on a previously developed In Vivo Approaching Object paradigm. Fifty healthy participants performed the attention flexibility paradigm, followed by an experimental cold pressor task probing pain experience and task interference by pain.

Results: In line with our hypotheses, results indicate that participants show an attention bias for pain information with a is a significant better detection accuracy when the approached side and the tactile location are on the same location (i.e., threat side) (OR = 1.24, 95% IC [1.17, 1.31]). Additionally, results indicated that limited attention bias flexibility, rather than attention bias, predicted poor pain outcomes (b = .41, t (43) = 2.84, p=.007; R^2 = .17, $F_{(2,42)}$ = 8.09, p = .007).

Conclusions: Overall, the current findings provide initial support for the link between attention bias flexibility and poor pain outcomes with this novel experimental paradigm. Future research is however needed to address the causal relationship between attention bias flexibility and poor pain outcomes.

1382

OPTIMIZING REFERRALS TO A CHRONIC PRIMARY PAIN UNIT

A. Arias Gassol[1], T.L. Rodríguez Araya[1], X. Torres Mata[1], L. Polino[1]

[1]Hospital Clìnic, Barcelona, Spain

Methods: Retrospective observational study of the referrals to our unit in 2022. The data provided to assess its quality have been collected: referring service, reason for rejection (if any), patients sociodemographic and occupational variables, main diagnosis, disease evolution time and response to previous treatments.

Results: Sociodemographic data are in Table 1. Referrals profile and admission are in table 2. Up to 40% of referral flyers did not provide data for evaluation and 25,3% did not provide diagnostic orientation. The most frequent main diagnoses were FM or generalized chronic pain(GCP(50.4%), post-oncologic-pain(13.5%) and pain in an inactive autoimmune disease (9.7%). The data of the referrals quality are in Table 3.

TABLE 1. SOCIODEMOGRAPHIC DATA OF THE PATIENTS ACCORDING TO THE REFERRED SERVICE	
Total Patients	478
Mean age of all patients: Mean age of patients according to the referring service: • Rheumatology: • Primary care: • Anaesthesia, pain clinic: • Rehabilitation: • Traumatology:	55,7±11,6 52,4±10 57,8±11,2 57,1±11 59,7±11,4 58,6±17,9
Gender: • Women • Men Gender according to the referring service: • Rheumatology: • Primary care: • Anaesthesia, pain clinic: • Rehabilitation: • Traumatology:	 443 (92,7%) 35 (7,3%) W 88,7%, M 11,21% W 86,4%, M 13,6% W 75,9%, M 24,1% W 82,6%, M 17,4% W 90%, M 10%
Patients employment situation: • Rheumatology (data collected from 78 patients): ◊ Active ◊ No job (housewives/house husbands) ◊ Sick leave ◊ Work disability ◊ Retired by age ◊ Unemployment • Primary care (data collected from 4 pacients): ◊ Sick leave • Anaesthesia (pain clinic) (6 patients): ◊ Sick leave • Rehabilitation (not provided data) • Traumatology (not provided data)	 27 (34,6%) 10 (12,8%) 27 (34,6%) 4 (5,1%) 1 (1,3% 10 (12,8%) 4 6

TABLE 2. REFERRALS:		
	Referrals	Accepted
TOTAL PACIENTS From our geographic area: • Rheumatology • Primary Care • Other services: • Anaesthesia (pain clinic) • Rehabilitation • Traumatology • Oncology • Chronic Fatigue Unit • Gynaecology (endometriosis unit) • Hematology (onco-hemato unit) • Other Out of our geographic area (inside Barcelona): • Rheumatology • Primary Care • Other Services Other areas of Catalonia: Out of Catalonia (other Spanish Regions):	478 448 (93,7%) 190 (42,4%) 129 (28,8%) 129 (28,8%) 39 (8,7%) 17 (3,8%) 7 (1,6%) 7 (1,6%) 7 (1,6%) 3 (0,7%) 3 (0,7%) 46 (10,3%) 25 (5,2%) 4 (16%) 11 (44%) 10 (40%) 4 (0,83%) 1 (0,2%) 0	330 (69%) 176 (92,6%) 83 (64,3%) 53 (41,1%) 3 (7,7%) 0 (0%) 0 (0%) 5 (71,4%) 3 (42,8%) 3 (100%) 3 (100%) 36 (78%) 15 (60%) 4 (100%) 8 (72,7%) 3 (30%) 2 (50%) 1 (100%) 0

TABLE 3. QUALITY OF INTRAHOSPITAL REFERRAL LEAFLETS:					
	Rheuma	Primary Care	Anaesthesia	Rehab	Traumatology
Relevant data included in referral flyers:					
- Age (data by default)	100%	100%	100%	100%	100%
- Gender (by default)	100%	100%	100%	100%	100%
- No data	0%	3,03%	28%	21,7%	50%
- Symptoms only (no other data)	0%	9.09%	8%	47,80%	40%
- Diagnostic	100%	87,9%	64%	30,40	10%
- Physical examination	64%	6,7%	16%	21,7%	0%
- Employment situation	41,20%	3,03%	16%	0%	0%
- Evolution time from disease onset	70,60%	3,03%	8%	0%	10%
- Evolution of the disease	82%	13,3%	16%	8,7%	10%
- Previous treatments effects	47%	6,7%	16%	4,3%	10%
Leaflet quality:					
• Bad (No data or just symptoms)	0%	12,1%	36%	69,6%	90%
• Normal (Diagnostic or evolution)	58%	84,87%	64%	30,4%	10%
• Excellent (diagnostic, evolution time, previous treatments and employment situation)	41%	3,03%	0%	0%	0%

Conclusions: The patient profile is a perimenopausal woman with GCP. Patients referred by rheumatology are younger and the quality of the referral is higher so they are admitted more frequently and quickly. Based on these data, we have established a strategic plan to improve referral processes with the ultimate goal of finding an improvement in prognosis.

1383

EVALUATION OF EFFICACY OF NON-ARTHROSCOPIC JOINT LAVAGE ASSOCIATED TO VISCOSUPPLEMENTATION IN SEVERE GONARTHROSIS

R. Schiotis[1], R. Stangu[1]

[1]*Clinical Hospital of Infectious Diseases, Cluj Napoca, Romania*

Methods: We performed a descriptive longitudinal cohort study in patients diagnosed with primary gonarthrosis at SCBI, Rheumatology Outpatient Clinic Cluj-Napoca, Romania, between February and November 2019. Only patients with grade 3 and 4 were included. Disease severity and evaluation of treatment efficacy was done using WOMAC score (0-96) at baseline visit and after 3 months. Non arthroscopic knee joint lavage was performed and hyaluronic acid was administered at the end. One week after a second dose of hyaluronic acid was administered in the same knee. Statistical analysis performed with SPSS program, statistical significance was p<0,005.

Results:

Table 1. Summary of patients' characteristics

Patients' Characteristics		Frequency	%
Gender	Female	13	65.0
	Male	7	35.0
Living Condition	urban	8	40.0
	rural	12	60.0
Leg	Left Knee	7	35.0
	Right Knee	13	65.0
Stage of the Disease	Stage 1	0	0
	Stage 2	0	0
	Stage 3	10	50.0
	Stage 4	10	50.0
Initial use of NSAIDS	No	2	10.0
	7/7 days	3	15.0
	3-6/7 days	9	45.0
	1-3/7 days	6	30.0
Final use of NSAIDS	No	8	40.0
	3-6/7 days	1	5.0
	1-3/7 days	11	55.0
	Total	20	100.0
Weight(kg)	Mean±SD		81.60±12.296
Height (cm)	Mean±SD		168.90±8.136
Age (years)	Mean±SD		66.75±5.068
BMI	Mean±SD		28.55±2.764

Table 2. Comparison between WOMAC score at base line and after 3 months

Variable	Initial	Final	Mean Difference	t	p-value
WOMAC score (0-96)	58.85±9.027	36.30±9.932	-22.550	-25.596	<0.001
Pain (0-20)	14.54±2.724	8.20±2.948	-1.450	-6.493	<0.001
Physical activity function (0-68)	39.45±6.894	24.65±7.314	-6.250	-17.631	<0.001
Rigidity (0-8)	4.95±1.761	3.50±1.433	-14.800	-17.266	<0.001

The Study cohort was compromised by 20 patients who fulfilled the inclusion criteria. Baseline demographic characteristics as well as non-steroidal anti-inflammatory drugs (NSAIDS) intake are included in (Table 1). Values of the WOMAC score at baseline and after 3 months follow-up are depicted in Table 2.

Conclusions: In this study we were able to demonstrate a significant reduction in WOMAC score at 3 months post intervention, with the maximum reduction achieved for the rigidity. Reduction of NSAID intake was also noted.

1384

NOT EVERY PATIENT WITH CHRONIC WIDESPREAD PAIN HAS A FIBROMYALGIA

T.L. Rodríguez Araya[1], L. Polino[1], X. Torres Mata[1], A. Arias Gassol[1], A. García[1]

[1]*Hospital Clìnic, Barcelona, Spain*

Methods: 3 Cases reports

Results: Case1:39-year-old woman, referral:internal medicine; myalgias(negative myositis antibodies),MRI:atrophy and fatty infiltration of several muscles, nonspecific muscle biopsy, ANAS/antiSP100 positive. Raynaud›s phenomenon, arthralgias, xerostomia, skin lessions of scalp, without alopecia. ACR1990: 11/18 tender points; ACR2010, widespread pain index 11, severity of somatic symptoms(SSS) 7.5. Follow-up: lesion in the right elbow(biopsy "localized morphea"); right elbow epicondylitis, metacarpophalangeal arthritis, bilateral trochanteritis, recurrent deQuervain›s tenosynovitis, sacroiliac pain(no MRI edema), oral/genital ulcers, unilateral enlargement of the right parotid gland. HLAB51 was performed due to meeting the criteria for Behçet›s disease, it was positive, patients was treated with GCs and AZA with recovery of symptoms

Case2:54-year-old woman, referral:primary care; generalized arthromyalgia and fatigue, meets 1990 and 2010 FM criteria. In addition, unrefreshing sleep, constitutional syndrome, repeated oral and genital ulcers, neuropathic symptoms in arms and legs compatible with fine-fiber neuropathy, pending biopsy. HLA B51 is requested, positive. Colchicine was prescribed, which the patient did not tolerate, so she was changed to prednisone and azathioprine with improvement in symptoms

Case 3:58-year-old woman, referral:anaesthesia; generalized arthromyalgia/fatigue, met 1990 and 2010 FM criteria. Follow-up: recurrent oral/genital ulcers, polyarthritis, hyperuricemia, seronegative sicca syndrome, recurrent obstructive sialadenitis, sacroiliac pain with negative MRI and HLA B27. HLA B51 positive. Significant improvement with sDMARD

Conclusions: Not all chronic widespread pain are fibromyalgia

---

1385

STUDY OF THE PATIENT PROFILE ACCEPTED IN A MULTIDISCIPLINARY PRIMARY CHRONIC PAIN UNIT, ACCORDING TO THE LEVEL OF CARE THAT REFERS THE PATIENT

L. Polino[1], T.L. Rodríguez Araya[1], X. Torres Mata[1], A. Arias Gassol[1]

[1]*Hospital Clìnic, Barcelona, Spain*

Methods: Data of accepted patients for multidisciplinary assessment(MDA), at multidisciplinary unit of Barcelona Clinic Hospital, in 2022, (demographic and socioeconomic data, patient origin, presumptive/definitive diagnosis and comorbidities)were collected. The concordance between diagnosis was analyzed using Cohen›s Kappa coefficient.

Results: 478 patients were referred.330 patients were accepted(138 for MDA). Data are in Table1.No significant differences were observed between groups. 94% patients presented ≥2comorbidities(at least 1 musculoskeletal). Only rheumatologists apply the IASP CPP criteria.Presumptive/definitive diagnoses relation is in Table2.FM is most commonly confused with hyperalgesia secondary to spinal pathology, hyperalgesia or neuropathy in autoimmune diseases and secondary musculoskeletal pain (e.g.myofascial syndrome).

TABLE 1. Sociodemographic data of patients that have been accepted for mutidisciplinary evaluation:

Referral service	TOTAL	Rheumatology	Primary care	Others
Number of patients	138	78 (56,5%)	37 (26,8%)	23 (16,7%)
Age	48,3±10,3	48,2±10,5	49,4±9,8	46,6±10,7
Gender: • Woman • Man	 127 (92%) 11 (8%)	 71 (91%) 7 (9%)	 35 (95,6%) 2 (4,4%)	 21 (91,3%) 2 (8,7%)
Academic level: • Primary studies • Highg school or vocational training • Univertisty	 32 64 42	 23 (29,5%) 31 (39,7%) 24 (30,8%)	 7 (18,9%) 18 (48,6%) 12 (32,4%)	 2 (8,7%) 15 (65,2%) 6 (26,1%)

TABLE 1. Sociodemographic data of patients that have been accepted for mutidisciplinary evaluation:				
Referral service	**TOTAL**	**Rheumatology**	**Primary care**	**Others**
Civil status:				
• Single	30 (21,7%)	15 (19,2%)	11 (29,7%)	4 (17,4%)
• Married/stable couple	76 (55,1%)	43 (55,1%)	19 (51,3%)	14 (60,9%)
• Separated/divorced	30 (21,7%)	19 (24,4%)	7 (18,9%)	4 (17,4%)
• Widow/widower	2 (1,5%)	1 (1,3%)	0	1 (4,3%)
Profession:				
• Administrative	24 (17,4%)	10 (12,8%)	5 (13,5%)	9 (39,1%)
• No job (housewive/house husband)	4 (2,9%)	3 (3,8%)	0 (0%)	1 (4,3%)
• Specialized	65 (47,1%)	32 (41%)	25 (67,6%)	8 (34,8%)
• Student	4 (2,9%)	2 (2,6%)	1 (2,7%)	1 (4,3%)
• Not specialized	41 (29,7%)	31 (39,7%)	6 (16,2%)	4 (17,4%)
Employment situation:				
• Active	54 (39,1%)	28 (35,9%)	15 (40,5%)	11 (47,8%)
• No job	21 (15,2%)	10 (12,8%)	8 (21,6%)	3 (13%)
• Sick leave	33 (23,9%)	22 (28,2%)	10 (27%)	2 (8,7%)
• Absolute disability	9 (6,5%)	4 (5,1%)	1 (2,7%)	4 (17,4%)
• Total disability	3 (2,2%)	1 (1,3%)	0 (0%)	1 (4,3%)
• Age retirement	1 (0,7%)	1 (1,3%)	0 (0%)	0 (0%)
• Unemployment	17 (12,3%)	12 (15,4%)	3 (3,8%)	2 (8,7%)
Discapacity grade				
• None	90 (65,2%)	57 (73,1%)	19 (51,3%)	14 (60,9%)
• ≤50%	36 (26,1%)	14 (17,9%)	17 (45,9%)	6 (26,1%)
• >50	12 (8,7%)	7 (9%)	1 (2,7%)	3 (13%)

Presumptive diagnosis	**Definitive diagnostic:**	**Total Referrals**	**Rheumatology**	**Primary care**	**Others**
Fibromyalgia	**Who did the referral made these diagnosis:**	**106**	**54**	**33**	**19**
	Fibromyalgia Postvirical Syndrome Secondary ME pain: **Cohen's Kappa=0.49 (Moderate agreement)**	**48** 3 **55**	**26** 1 27 **Cohen's Kappa=0.49 (Moderate agreement)**	**14** 1 18 **Cohen's Kappa=0.48 (Moderate agreement)**	**8** 1 10 **Cohen's Kappa=0.47 (Moderate agreement)**
Chronic Widespread Pain	**Who did the referral made these diagnosis:**	**22**	**17**	**3**	**2**
	Chronic Widespread pain Fibromyalgia Widespread pain of axial origin Widespread pain in autoimmune Diseases Dolor ME secundario	**1** 7 5 5 4	0 5 4 5 3	0 1 1 0 1	1 (100%) 1 0 0 0
Other diagnostics	**Who did the referral made this diagnosis:**	**10**	**7**	**1**	**2**
	Secondary muskuloskeletal pain: Multifactorial Fatigue	**8** 2	7 0	0 1	1 1

Conclusions: Overdiagnosis of fibromyalgia exists, ignoring diseases that could benefit from other kind of early approaches. Primary care physicians only consider the MDoption for FM patients. We must place greater emphasis, not on the dissemination of classification criteria itself, but on diagnostic procedures of diseases that cause chronic pain(eg.physical examination) and the use of terms (such as primary generalized CP) that allow a faster diagnostic

process and an early referral of the patient, which will favor their prognosis. Another aim is to reduce the average age of the referred patient and improve their employment situation (trying to get them referred while they are active or with a few months off) in order to avoid their entry in the leave circuit.

1386

UNCERTAINTY MODULATES VERIDICAL TEMPERATURE PERCEPTION AND ILLUSORY PAIN IN A VOLATILE LEARNING ENVIRONMENT

J.F. Ehmsen[1], C.S. Deolindo[1], C.E. Krænge[1], D.E. Christensen[1], M. Allen[1,2], F. Fardo[1,3]

[1]Center of Functionally Integrative Neuroscience, Aarhus University, Denmark, Aarhus, Denmark, [2]Cambridge Psychiatry, Cambridge University, UK, Cambridge, United Kingdom, [3]Danish Pain Research Center, Aarhus University, Denmark, Aarhus, Denmark

Methods: Participants learned auditory-thermal cue-stimulus associations of varying strength. Participants heard an auditory cue and predicted the upcoming stimulus (i.e., cold or warm). Cue-stimulus contingencies were intermixed with TGI trials consisting of simultaneous cold and warm stimulation. Subjective cold, warm and burning sensations were provided on 50% of trials. Individual learning trajectories were fitted using a hierarchical Bayesian framework.

Results: Results showed that anticipated stimulus amplified thermosensation and conversely incongruent expectations suppressed felt thermosensation . Participants' burning responses to TGI stimuli increased as the uncertainty in the association between the cue and the stimulus increased. The sensitivity to illusory pain was found to be strongly interrelated to the degree to which TGI stimuli were modulated by expectations.

Conclusions: Our results demonstrate that participants update their beliefs about thermal stimuli according to hierarchical Bayesian learning. We showed that innocuous and illusory thermal percepts are modulated by expectations, and that susceptibility to these top-down effects is stable across thermal stimuli. Critically, the painful burning sensation elicited by the TGI was modulated by higher level uncertainties about the upcoming stimulus. These findings challenge strictly bottom-up accounts of the TGI to proffer a new understanding of both veridical and illusory thermal perception.

1387

PERCEIVED SCHOOL PERFORMANCE IN YOUTH WITH CHRONIC PAIN: MEDIATING EFFECTS OF PSYCHOLOGICAL AND COGNITIVE FUNCTION ON THE ASSOCIATIONS WITH PAIN INTERFERENCE

E. Castarlenas[1,2], E. Sánchez-Rodríguez[1,2], E. Solé[1,2], J. Roman-Juan[1,2], M.P. Jensen[3], J. Miró[1,2]

[1]Universitat Rovira i Virgili, Department of Psychology, Tarragona, Spain, [2]Unit for the Study and Treatment of Pain – ALGOS, Research Center for Behavior Assessment (CRAMC), Institut d'Investigació Sanitària Pere Virgili, Tarragona, Spain, [3]Department of Rehabilitation Medicine, University of Washington, Seattle, WA, United States

Methods: Study participants were selected from the general population within the framework of the EPIDOL Project. A sample of 454 schoolchildren with chronic pain (64% girls, aged 8 to 18 years old) participated. Participants were asked to complete measures assessing demographic information, the presence and location(s) of any chronic pain, pain interference, anxiety and depressive symptoms, cognitive function, and perceived school performance.

Results: The results supported a full serial mediation model for anxiety and cognitive function on the association between pain interference and school achievement. Moreover, the findings confirmed a full serial mediation of depressive symptoms and cognitive function in the association between pain interference and perceived school achievement.

Conclusions: The study findings highlight the role of psychological and cognitive factors in understanding the relationship between pain interference and school-related function.

1388

RANDOMIZED CROSSOVER CLINICAL TRIAL TO EVALUATE THE EFFICACY AND SAFETY OF PUPILLOMETRY AS AN OBJECTIVE MEASURE OF NOCICEPTION IN HEALTHY VOLUNTEERS

G. Robleda Font[1,2], R.M. Antonijoan Arbós[3], M. Puntes Rodríguez[3], M.T. Garrido Sánchez[3], M.R. Ballester Verneda[3]

[1]Campus Docent Sant Joan de Déu. University of Barcelona, Sant Boi de Llobregat, Spain, [2]Iberoamerican Cochrane Center, Barcelona, Spain, [3]Sant Pau Medical Research Center Research Institute of the Hospital de la Santa Creu i Sant Pau – IIB Sant Pau, Barcelona, Spain

Methods: A randomized, single-blind, crossover clinical trial was conducted, excluding participants with certain health conditions or medication use. Objective pain was evaluated based on a ≥5% increase in pupillary dilation reflex (PDR) and subjective pain was evaluated with the Visual Analog Scale (VAS) score ≥4. Baseline pupil diameter, pupillary diameter variation (in % and mm), pain threshold, adverse events, sociodemographic, and clinical data were also recorded.

Results: A balanced sample of 30 healthy volunteers with a mean age of 42.6 ± 11.8 years was included. The pain threshold (VAS ≥4) with the algometer was on average 529.8 ± 117.5 Kpa, while with the pupillometer it was 19.25 ± 9.2 mA. The correlation between PDR and VAS was moderate in both eyes (r=0.50 OD; r=0.59 OS p<0.01). There were no significant differences in pain association with sociodemographic and clinical data based on age, gender, or anxiety level.

Conclusions: Pupillary diameter variation is a valid and reliable measure for evaluating the pain and the response to a nociceptive stimulus in healthy volunteers. These findings suggest that pupillometry could be a valuable tool for objectively measuring pain in non-communicative patients.

1389

IMPLEMENTATION OF A TRANSDIAGNOSTIC EMOTION-FOCUSED TREATMENT FOR COMORBID EMOTIONAL PROBLEMS AND CHRONIC PAIN IN CLINICAL CARE

H. Zetterberg[1], X. Zhao[1], S. Bergbom[1], R. Lennartsson[1], S. Linton[1], I. Flink[1], K. Boersma[1]

[1]Örebro University / School of Behavioral, Social and Legal sciences, Center for Health and Medical Psychology, Örebro, Sweden

Methods: This study had a sequential single-case experimental AB design with randomized baseline lengths (4, 5, or 6 weeks), with repeated measures for 20 weeks and standardized pre-post and follow-up measurements. Eligible participants were screened and a total of 43 participants with anxiety or depressive symptoms and chronic pain with functional impairment were recruited from primary and secondary care. The transdiagnostic emotion-focused treatment was provided by a psychologist in 10-15 sessions. Data were analyzed with descriptive and inferential statistics.

Results: Data analysis is ongoing, and results will be presented at the congress. Participant characteristics are presented in Table 1.

Table 1. Participant characteristics.

Measurement	**Baseline (N=41)**
Age, M (SD)	39.6 (12.5)
Gender, N (%)	
Women	28 (68.3)
Men	13 (31.7)
Nationality, N (%)	
Born in Sweden	26 (63.4)
Born in other countries	15 (36.6)
Education	
Middle school	3 (7.3)
High school or vocational education	29 (70.7)

Measurement	Baseline (N=41)
University	9 (22.0)
Sick leave during the past year, N (%)	
0-14 days	13 (31.7)
15-90 days	5 (12.2)
90-365 days	23 (56.1)
Doctor's visits during the past 6 months, N (%)	
0-3 visits	8 (19.5)
4-10 visits	22 (53.7)
More than 10 visits	11 (26.8)

Conclusions: This study provides valuable information on the implementation and effectiveness of the treatment model in clinical care, adding knowledge of integrated treatment approaches for patients suffering from both mental health problems and somatic health problems.

1390

QUALITY IMPROVEMENT PROGRAMME (QIP) ON STANDARDISATION OF POST-OPERATIVE ANALGESIA AT HOSPITAL DISCHARGE, BASED ON PAIN SEVERITY AND TYPES OF DAY SURGERY PROCEDURES

M.F. Rasheed[1], A. Abdelhakim[1], T. Kashianandan[1], R. Chatterjee[1]

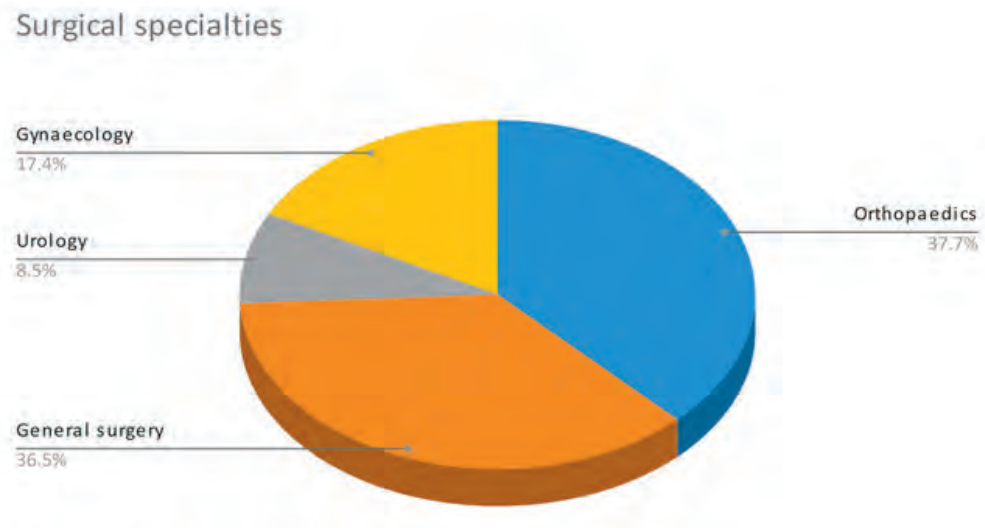
[1]North Middlesex University Hospital, London, United Kingdom

Methods: •Collected all Day-surgeries discharge medications data at **North Middlesex University Hospital, London.**

•Duration - period of **Six months**

•**Retrospective analysis** of data from September,2019- February, 2020

Results:



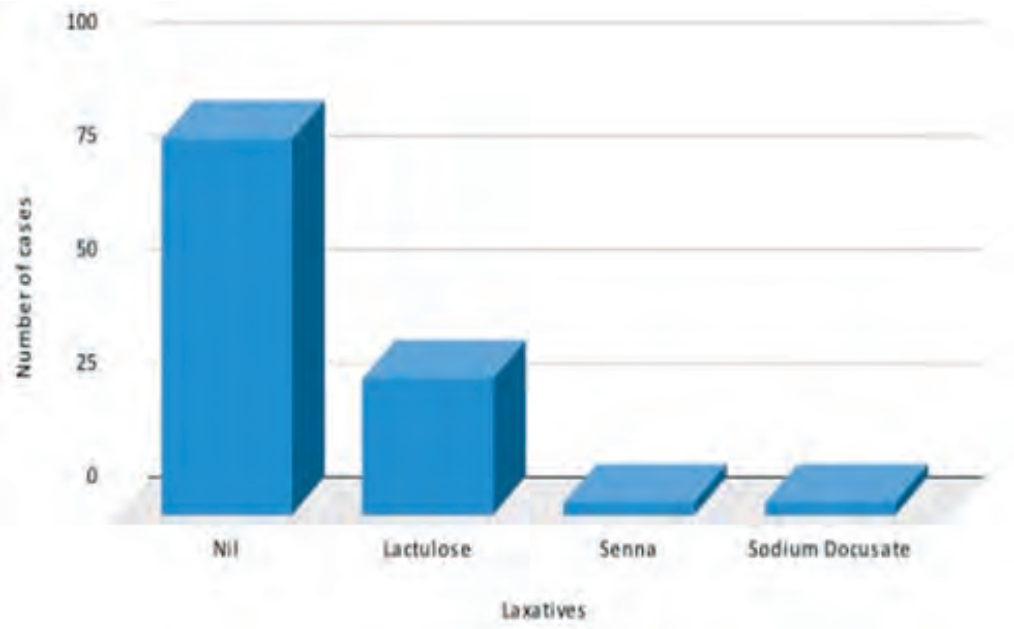
Specialty Wise % Of Cases Over 6 Months

•Post operative Analgesia – not standardised

•Mostly Co-dydramol (59%)– prescribed without laxatives (<7%)

•NSAIDS prescribed without PPI – Small proportion were prescribed with.

•Compromised Day surgeries nurses efficiency - No Pre-packed available - delayed hospital discharge - High hospital Cost



Use of Laxatives with Use of Opiates.

Conclusions:

•Standardisation of post-operative analgesia – making protocols –individualised for each surgery

•For implementation, training of surgeons and Day care nurses - help of IT team.

Surgery	Degree of Pain	TTA Analgesia	
• Cystoscopy	**No Pain**	None	
• Prostate Biopsy • Urethral Surgery • Sebaceous Cyst • Skin Lesion Surgery	**Mild Pain**	Paracetamol 1 gm QDS + Ibuprofen 400 mg PRN	
• Vaginal Sling • Cervical and Vulval Surgeries • Hysteroscopy SMM • Arthroscopy • Dupuytren's Contracture • MUA / Steroid Injection • Carpal Tunnel decompression • Anal Surgery • Breast lump excision	**Moderate Pain**	NSAID'S **NOT** contraindicated Paracetamol 1 gm QDS + Ibuprofen 400 mg QDS + Dihydrocodeine 30 mg PRN	NSAID'S contraindicated Co-dydramol (10/500) 2 tablets QDS + Lactulose 15 ml BD
• Testicular surgeries • Circumcision • Endometrial Ablation • ACL reconstruction • Shoulder surgery • Osteotomy / Joint fusions • Haemorrhoidectomy • Laparoscopic • Hernia repair	**Severe Pain**	NSAID'S **NOT** contraindicated Co-dydramol (30/500) 2 tablets QDS + Ibuprofen 400mg QDS + Lactulose 15 ml BD	NSAID'S contraindicated Co-dydramol (30/500) 2 tablets QDS + Lactulose 15 ml BD *Consider* ***Tramadol*** *50-100mg QDS or* ***Oromorph*** *10 mg PRN (every 4-6hours)*

Guidelines for Prescribing Post-op Analgesia after Day Surgeries

1391

PERCEIVED INJUSTICE AS A PREDICTOR OF SLEEP DIFFICULTY: A THREE-MONTH FOLLOW-UP STUDY IN PATIENTS UNDERGOING PAIN TREATMENT IN A CLINICAL SETTING

K. Yamada[1,2], M. Sullivan[3], H. Ikemiya[2], A. Kawai[2], S. Chiba[2], S. Hamaoka[1,2], A. Hara[2], K. Yamaguchi[1,2,4], M. Iseki[1,2]

[1]Juntendo University Graduate School of Medicine, Tokyo, Japan, [2]Juntendo University Faculty of Medicine, Tokyo, Japan, [3]McGill University, Montreal, Canada, [4]Juntendo Tokyo Koto Geriatric Medical Center, Tokyo, Japan

Methods: We analyzed 134 patients who underwent standard treatment and were followed up over a three-month period after their initial consultation at a pain clinic in a Japanese university hospital from December 2018 to May 2021. Perceived injustice and sleep were assessed using the Injustice Experience Questionnaire-General Health (IEQ-G) and the Athens Insomnia Scale-5 (AIS-5), respectively. A cross-lagged panel model with the bootstrapping method was used to investigate the associations between initial sleep and perceived injustice, as well as their changes over a three-month follow-up. Covariates were age, gender, and pain duration.

Results: The fit for the cross-lagged panel model was acceptable. The initial IEQ-G score was predictive of subsequent changes in the AIS-5 score ($\beta = -0.25$, $p<0.001$), whereas the initial AIS-5 score did not predict subsequent changes in the IEQ-G score.

Conclusions: This study found that higher perceived injustice may predict subsequent difficulties to improve sleep over a three-month period in patients undergoing standard pain treatment; the inverse was not observed. This highlights the potential role of perceived injustice as a barrier to sleep improvement in these patients.

1393

A POOLED ANALYSIS OF REAL-WORLD STUDIES OF NALOXEGOL FOR OPIOID-INDUCED CONSTIPATION IN PATIENTS WITH CANCER PAIN: EFFECT ON CONSTIPATION SYMPTOMS AND QUALITY OF LIFE (NALOPOOL)

A. Lemaire[1], J. Serna Mont-Ros[2], J.-M. Sabate[3], V. Montesarchio[4], C. Beato-Zambrano[5], R. Namane[6], S. Martín Baccarelli[7], F. Rico-Villademoros[7], M. Cobo[8]

[1]Valenciennes General Hospital, Valenciennes, France, [2]Hospital Universitari Campus Vall d'Hebron, Barcelona, Spain, [3]Hospital Avicenne, AP-HP, Bobigny, France, [4]Monaldi Hospital, Napoli, Italy, [5]Hospital Universitario de Jerez, Jerez de la Frontera, Spain, [6]Kyowa Kirin International plc, Galashiels, Selkirkshire, United Kingdom, [7]Apices Soluciones S.L., Pinto, Spain, [8]Regional and Virgen de la Victoria University Hospitals, Malaga, Spain

Methods: We pooled individual patient data from three multicenter observational studies conducted with naloxegol in this population. Efficacy was evaluated at week 4 by means of the frequency of spontaneous bowel movement (SBM), the Patient Assessment of Constipation Symptoms (PAC-SYM), the Bowel Function Index (BFI), and the Patient Assessment of Constipation Quality of Life Questionnaire (PAC-QOL). All analyses were performed using a visitwise approach. Heterogeneity was assessed with Cochran›s Q or Levene's test.

Results: Baseline characteristics are summarized in Table 1. Most patients (83%) received an initial dose of naloxegol of 25 mg. Mean changes from baseline in the constipation symptoms were statistically significant and clinically relevant (Cohen's $d\geq0.50$) both as evaluated with the PAC-SYM and the BFI (Table 2). Mean changes from baseline in the quality of life (PAC-QOL) were statistically significant and clinically relevant (Table 3). Twenty-six (6%) of the 427 patients discontinued treatment due to adverse reactions and 3 patients (0.7%) reported serious adverse reactions.

Table 1. Baseline Characteristics

	Kyonal	Move	Nacasy	Total
Age, years, mean (SD)	61.5 (12.2)	62.1 (12.1)	64.1 (12.4)	62.7 (12.2)
BMI, mean (SD)	25.0 (4.6)	23.8 (4.7)	25.0 (5.3)	24.6 (4.9)
Gender, female, N (%)	52 (41.3)	55 (44.4)	78 (54.5)	185 (47.7)
Opioid treatment at Visit 1, N (%)				
Fentanyl	92 (73,0)	36 (29,0)	41 (28,7)	169 (43,0)
Oxycodone	15 (11,9)	101 (81,5)	38 (26,6)	154 (39,2)
Morphine	33 (26,2)	55 (44,4)	20 (14,0)	108 (27,5)
Opioid treatment duration (weeks), mean (SD)	23.6 (33.9)	34.7 (59.7)	16.8 (33.7)	24.9 (44.5)
Previous laxative treatment, yes, N (%)	118 (93.7)	123 (99.2)	97 (67.8)	338 86.0)

Table 2. Mean changes (SD) from baseline in constipation symptoms

	Kyonal	Move	Nacasy	Pooled	Cohen's d	Homo-geneity
PAC-SYM - Abdominal	0.6 (0.9)	0.8 (1.0)	NR	0.7 (0.9)	0.70	0.007
PAC-SYM - Rectal	0.7 (0.9)	0.6 (1.0)	NR	0.7 (0.9)	0.74	0.015
PAC-SYM - Stool	1.2 (1.2)	1.1 (1.0)	NR	1.1 (1.1)	1.04	0.015
PAC-SYM - Total	0.8 (0.8)	0.8 (0.7)	NR	0.8 (0.8)	1.03	0.622
BFI -Ease of defecation	NR	27.4 (33.8)	28.4 (32.3)	28.0 (32.8)	0.85	0.801
BFI-Feeling incomplete evacuation	NR	25.8 (33.6)	24.3 (37.0)	24.9 (35.6)	0.70	0.418
BFI-Self judgment of constipation	NR	39.8 (33.7)	32.2 (34.8)	35.3 (34.5)	1.02	0.322
BFI-Total score	NR	30.9 (29.9)	28.1 (31.5)	29.2 (30.8)	0.95	0.677

Table 3. Mean changes (SD) from baseline in the quality of life

	Kyonal	Move	Nacasy	Pooled	Cohen's d	Homo-geneity
PAC-QoL–Physical discomfort	0.9 (0.9)	0.8 (0.9)	0.9 (1.0)	0.9 (1.0)	0.91	0.379
PAC-QoL–Psychosocial discomfort	0.6 (0.9)	0.5 (0.9)	0.8 (0.9)	0.6 (0.9)	0.69	0.391
PAC-QoL–Worries & Concerns	0.8 (0.9)	0.6 (0.9)	0.8 (1.0)	0.7 (0.9)	0.78	0.478
PAC-QoL–Satisfaction	0.8 (0.7)	0.7 (0.7)	0.6 (0.7)	0.7 (0.7)	0.91	0.193
PAC-QoL–Global	0.7 (0.8)	0.6 (0.7)	0.8 (0.8)	0.7 (0.8)	0.93	0.063

Conclusions: Treatment with naloxegol for the OIC in patients with cancer pain in the real-world setting is associated with significant and clinically relevant improvements in constipation symptoms and quality of life; it is well tolerated and safe.

1395

IN-CHILDPAIN: THE INTERNATIONAL NETWORK ON CHRONIC PAIN IN CHILDHOOD

J. Miró[1], E. Pogatzki-Zahn[2], M. Jensen[3], E. Sánchez-Rodríguez[1], S. Lord[4], A. Fernandes[5], I. Gobina[6], L. Moscaritolo[7], F. Reinoso-Barbero[8], J. Wager[9], R. Wicksell[10], A. Finley[11], H. Koechlin[12], R. Andersen[13], J. Cebreros[14], L. Goubert[15], P. Ingelmo[16], C. Liossi[17], V. Mohabir[18], M. O'Keefe[19], D. Rosenberger[2], M. Ståhl[20], C. Wood[21]

[1]Universitat Rovira i Virgili, Tarragona, Spain, [2]University Hospital Muenster, Muenster, Germany, [3]University of Washington, Seattle, United States, [4]Hunter Medical Research Institute & John Hunter Children's Hospital, Newcastle, Australia, [5]Nursing School of Coimbra, Coimbra, Portugal, [6]Children's Clinical University Hospital Latvia, Riga, Latvia, [7]Regina Margherita Children's Hospital, Torino, Italy, [8]Hospital La Paz, Madrid, Spain, [9]Witten/Herdecke University, Datteln, Germany, [10]Karolinska Institutet, Stockholm, Sweden, [11]IWK Health Centre, Halifax, Canada, [12]University Children's Hospital Zurich, Zurich, Switzerland, [13]Telemark Hospital Trust, Skien, Norway, [14]ESTEVE Healthcare, Barcelona, Spain, [15]Ghent University, Ghent, Belgium, [16]McGill University, Montreal, Canada, [17]University of Southampton, Southampton, United Kingdom, [18]The Hospital for Sick Children, Toronto, Canada, [19]European Pain Federation EFIC, Brussels, Belgium, [20]Finnish Centre for Children and Adolescent Pain Management and Research, Helsinki, Finland, [21]Univerdity Hospital of Poitiers, Poitiers, France

Methods: In August 2022, the ERA-NET NEURON (https://www.neuron-eranet.eu/) issued a call for networks on chronic pain research. We submitted a proposal to develop an international interdisciplinary network focused on chronic pain in childhood: the International Network on Chronic Pain in Childhood (or IN-ChildPain). The proposal was approved in April of 2023.

Results: The IN-ChildPain network includes 24 experts, mainly from Europe but also from Australia, Canada, and the United States of America. The network includes clinicians and researchers from multiple disciplines, as well as individuals representing those with chronic pain, industry, and a European Pain Federation.

Conclusions: The poster will describe the aims and planned actions of the IN-ChildPain network about the identified knowledge gaps in chronic pain assessment and treatment in childhood.

1396

CHARACTERIZATION AND IMPACT OF CHANGES IN POSTOPERATIVE PAIN MANAGEMENT IN A LARGE TERTIARY HOSPITAL IN ISRAEL

D. Goldsmith[1], S. Hazan[1], Y. Lior[1], S. Brill[1]

[1]Division of Anesthesia, Intensive Care Medicine and Institute of Pain Medicine, Tel Aviv Medical Center, Tel Aviv, Israel

Methods: The study was conducted at the Tel Aviv medical center, from mid-2019 until early 2020. Consenting patients undergoing orthopedic surgery were given a questionnaire on POD 1 as part of the large, international PAINOUT registry. Participants were compared to a previous dataset from 2010- 2014.

Results: 88 patients were included and compared to 665 patients from previous dataset. We found significant differences in anesthetic technique and pain management trends: higher utilization of regional anesthesia, local wound infiltration, use of non-opioid medications, less general anesthesia and less opioid administration.

setting	interventions	Total pop.	Early - 2010)data (2014	current 2019-)data (2020	P-value
	n	753	665	88	
Operating room	Non opioid meds	310 (41.7%)	256 (39.0%)	54 (62.1%)	<0.001
	opioids	737 (99.1%)	652 (99.4%)	85 (96.6%)	0.01
	Local wound infiltration	62 (8.4%)	40 (6.1%)	22 (25.0%)	<0.001
	General anesthesia	456 (94.2%)	380 (96.0%)	76 (86.4%)	<0.001
	Regional anesthesia	113 (23.3%)	61 (15.2%)	52 (59.1%)	<0.001
Recovery	non opioid meds	243 (32.6%)	209 (31.8%)	34 (38.6%)	0.2
	opioids	460 (61.8%)	432 (65.9%)	28 (31.8%)	<0.001
Wards	Non opioid meds	513 (68.6%)	450 (68.2%)	63 (71.6%)	0.52
	opioids	511 (68.5%)	450 (68.4%)	61 (69.3%)	0.86
	Regional anesthesia	30 (4.0%)	20 (3.0%)	10 (11.4%)	0.001

However, pain management outcomes did not differ between groups: maximal pain, duration of time with severe pain and overall satisfaction. There was less interference with activities out of bed and less nausea in the more recent sample, and patients also felt better informed about pain management.

Medians of outcome	Total population	- 2010)Early data (2014	2019-)Current data (2020	P-value
n	753	665	88	
(IQR)Maximal pain	8 (5-9.75)	8 (5-10)	8 (5-9)	0.27
(IQR) Minimal pain	3 (1-5)	3 (1-5)	3 (0-4)	0.005
(IQR)(out of POD 0 %)Time with severe pain	0.3 (0.1-0.7)	0.3 (0.0-0.7)	0.2 (0.1-0.5)	0.37
(IQR)Interference with breathing	0 (0-2)	0 (0-2)	0 (0-2.75)	0.15
(IQR)Interference with sleeping	4 (0-8)	4 (0-8)	4 (0-8)	0.87
(IQR)Interference with activity while lying down	8 (4-10)	8 (4-10)	7 (3-10)	0.24
(IQR)Interference with standing\walking	7 (3-9)	7 (3-10)	3 (1-8)	0.002
(IQR)Nausea intensity	0 (0-5)	0 (0-5)	0 (0-3)	0.05
(IQR)Median improvement in pain after treatment	0.5 (0.0-0.7)	0.5 (0.0-0.7)	0.5 (0.3-0.8)	0.09
(IQR)General satisfaction with pain treatment	8 (6-10)	8 (6-10)	8 (6-10)	0.46

Conclusions: Although postoperative pain management practices have changed considerably over the years, including in greater utilization of regional and multimodal anesthesia approaches and a reduction overall opioid use, the current study demonstrates that these changes failed to significantly impact patients' experience. Therefore the ways to significantly improved pain management during postoperative hospitalization remains elusive.

1399

THE NEURAL DYNAMICS OF PAIN-RELATED EXPECTATION GENERATION: A COMBINED EEG-FMRI STUDY

C. Wittkamp[1], M. Wolf[1], M. Rose[1]

[1]Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Methods: To test the neural mechanisms underlying the effects of expectation generation, we examined 50 participants in a combined EEG-fMRI study. Positive, negative, or no expectations were induced by verbal instructions and a conditioning procedure of differently colored visual stimuli on a trial-by-trial basis using a sham-BCI. Participants were presented with heat pain stimuli at an individually calibrated fixed target intensity in each trial. EEG and fMRI data as well as expectation and pain ratings were collected for each trial.

Results: The expectation manipulation procedure proved to be effective, as participants reported higher expected and perceived pain in the negative compared to the positive expectation condition. Moreover, there were significant differences in the anticipation phase between both expectation conditions (positive/negative) and the no-expectation condition in the fMRI domain (e.g. anterior insula, lingual gyrus, and ACC) and in the oscillatory power in the EEG domain. EEG-informed fMRI analyses were used to reveal brain areas whose activity corresponds to those oscillatory power differences.

Conclusions: These results show that modulating expectations and pain perception is possible using a sham-BCI. Moreover, the combination of EEG and fMRI can be used to examine neuronal effects with high temporal and spatial resolution.

1400

PHASE-ENCODED MAPPING OF TEMPERATURE AND PAIN IN THE HUMAN BRAIN

A.G. Mitchell[1], C.S. Deolindo[1], B. De Haas[2], M. Debock[3], M. Allen[1], F. Fardo[1]

[1]Aarhus University, Aarhus, Denmark, [2]Justus-Leibig Universitat Geissen, Geissen, Germany, [3]Montpellier University, Montpellier, France

Methods: We used individual thermal pain thresholds to calibrate innocuous cold and warm, as well as noxious cold and heat stimuli. These stimuli followed a slow continuous wave, with temperatures increasing or decreasing from baseline (30ºC) at a rate of 3.5º/sec. Phase-encoded maps of neural response populations to innocuous and noxious stimuli will then be extracted using a customised sinusoidal pRF model.

Results: Data from six participants showed clusters of activity within the left somatosensory cortex, thalamus and cingulate cortices in response to both innocuous and noxious thermal stimuli. Next, we will model neuronal pRFs from these areas in our full sample (n=40), to determine whether (a) phase encoded temperature maps exist in the human brain and (b) the pattern of response to noxious is more distributed than that to innocuous stimuli.

Conclusions: This study is poised to offer novel insights into the neural coding of temperature and pain, potentially reshaping our understanding of thermosensation in humans. Alongside, the use of pRF mapping allows for individual characterisation of stimulus response, providing a deeper understanding of the subjective experiences of temperature and pain.

1403

WRITTEN NARRATIVES TO UNDERSTAND THE EXPERIENCE OF PEOPLE WITH PAIN

R. Nieto[1], M. Serrat[2,3], B. Sora[4], M. Edo-Gual[3], P. Ureña[5], H. Vall-Roqué[6,7]

[1]Faculty of Psychology and Educational Sciences. Universitat Oberta de Catalunya, Barcelona, Spain, [2]Unitat d'Expertesa en Síndromes de Sensibilització Central, Servei de Reumatologia, Vall d'Hebron Hospital Universitari, Barcelona, Spain, [3]Departamento de Ciencias de la Salud. Escuelas Universitarias Gimbernat (EUG), Universitat Autònoma de Barcelona, Barcelona, Spain, [4]Department of Psychology. Faculty of Education Sciences and Psychology. University Rovira i Virgili, Tarragona, Spain, [5]Faculty of Health Science Manresa, University of Vic-Central University (UVIc-UCC), Manresa, Spain, [6]Department of Clinical Psychology and Psychobiology, Faculty of Psychology, Universitat de Barcelona, Barcelona, Spain, [7]Institut Universitari Avedis Donabedian, Barcelona, Spain

Methods: Individuals with fibromyalgia were invited to write about their experiences. They were offered some queues to facilitate their writings, but it was remarked that they were free to write about their experience by commenting on the aspects more relevant to them. Standardized questionnaires were also administered to assess fear-avoidance beliefs and fibromyalgia impact.

Results: A qualitative descriptive thematic analysis was conducted with 46 texts. Participants provided relevant information about their pain experience, diagnosis process (usually experienced as a difficult process), pain consequences of different kinds, different pain coping strategies and pain triggers, and interventions they have tried. At this moment, we are finishing the analyses and performing correlations with quantitative data.

Conclusions: Written narratives seem useful to approach experiences of people with pain from their perspective, obtaining information that is not always elicited from standardized questionnaires. There is also room for the development of systems based in artificial intelligence to learn from narratives in an automatized manner.

1404

LACKING CONTROL OVER PAIN LEADS TO THE DEVELOPMENT OF DEPRESSIVE SYMPTOMATOLOGY

W. Gandhi[1], P. Byrne[1], T. Salomons[2], C.M. van Reekum[1]

[1]University of Reading, Reading, United Kingdom, [2]Queen's University, Kingston, ON, Canada

Methods: Eighty-three healthy participants were randomly allocated to a controllable or uncontrollable pain condition. During the pain task, participants saw 'Where is Wally?' scenes, while being exposed to moderately painful shocks. They were told the stimulation would stop eventually or, immediately, if they found Wally. Pain was rated after each of the 50 trials, and effort to find Wally after every 5th trial. While the controllable group could indeed stop the pain prematurely, this was impossible for the uncontrollable group. Importantly, pain stimulation was matched between groups. Before and after the task, participants completed anxiety and affective state questionnaires.

Results: Anxiety and negative affect increased and positive affect decreased due to uncontrollable, but not controllable pain (time-by-group interactions, p's<0.01). Effort to find Wally decreased over time in the uncontrollable pain group only (p=.002). Pain ratings increased in both pain groups (p=.050), but even more in the controllable group (p=.013). Strikingly, the controllable group spiked in pain ratings in unsuccessful trials, while the uncontrollable group no longer showed any increases in pain ratings after the 10th trial (negative feedback was probably expected by then).

Conclusions: Uncontrollable pain causes depressive symptoms. Importantly, these symptoms are not driven by pain intensity/input per se, but rather by the uncontrollability of the aversive situation.

1405

TEN FOOTSTEPS TRAINING – EVALUATING AND DEVELOPING PRACTITIONER TRAINING IN SELF-MANAGEMENT SUPPORT OF PAIN WITH USE OF WEB BASED PROGRAMME

C. Penlington[1], J. Seeley[1], J. Cullen[1], L. Trewern[2], P. Chazot[3], L. Hissey[2], F. Cole[2,3]

[1]Newcastle University, Newcastle, United Kingdom, [2]Live Well with Pain, Derbyshire, United Kingdom, [3]Durham University Wolfson Research Institute Pain Challenge Academy, Durham, United Kingdom

Methods: Online training was organised around a “live well with pain” web-based resource, freely accessible for both practitioners and those with pain. Training was evaluated with pre and post training questionnaires and focused interviews with participants. Qualitative results were combined with relevant literature by key stakeholders into a set of guiding principles and design features to inform a new “train the trainers” programme to extend the reach of training.

Results: Confidence in key elements of introducing and supporting self-management increased following the training. A key element of training that was highly valued was the integration of lived experience trainers which emphasised the need for a flexible non-manualised and collaborative delivery of content. Access to and awareness of accessible web-based resources that support the self-management message were highlighted as essential for introducing and supporting messages about pain and self-management.

Conclusions: Training primary care and community-based practitioners to introduce and support self-management is feasible despite busy workloads. Further developments of the “train the trainers” programme are expected following initial piloting and to test the sustainability of the training model over time.

1407

AUTOLOGOUS CARTILAGE MICROGRAFTING FOR SECONDARY CHRONIC PAIN TO HIP OSTEOARTHROSIS CASE STUDY WITH 60-DAY FOLOW-UP

H. Hyodo[1], R.T.P. Ambrosio[1,2], C.D. Christ[1], M.V. Perez[1], R.I. Tibiriçá[1]

[1]Santa Casa de Misericordia de São Paulo, São Paulo, Brazil, [2]Universidade paulista - UNIP, São Paulo, Brazil

Methods: The cartilage sample is colleted by punch biopsy from the auricular: after asepsis, blocking of the greater auricular nerve and hydrodissection of the skin/cartilage (Figure 1). Three cartilage samples were collected, then introduced into the RIGENERACONS device with 4ml sterile saline solution, where it was centrifuged for 6 minutes until satisfactory disintegration.

Results: After a follow-up of 15 and 60 days following the procedure, the patient showed improvement in the visual analog scale (VAS), Lower Extremity Functional Scale (LEFS), as well as the 12-Item Short-Form Health Survey (SF-12), as demonstrated in the Figure 2 and 3.

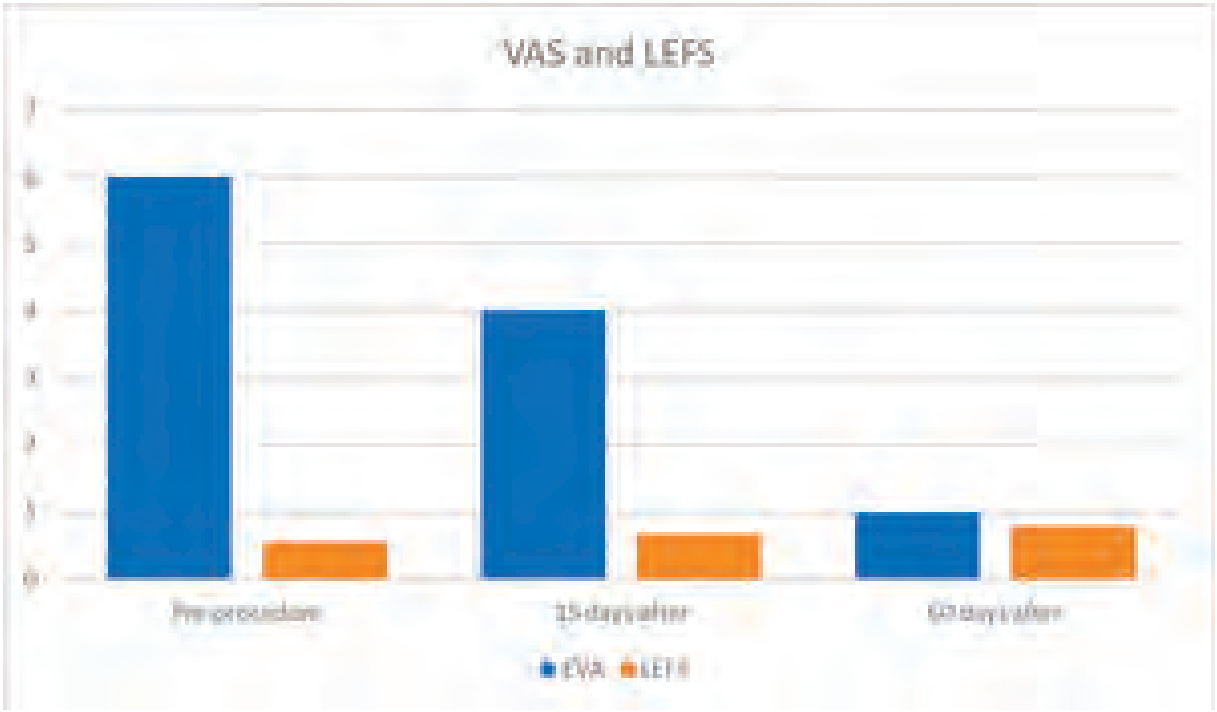


Figure 2: VAS and LEFS

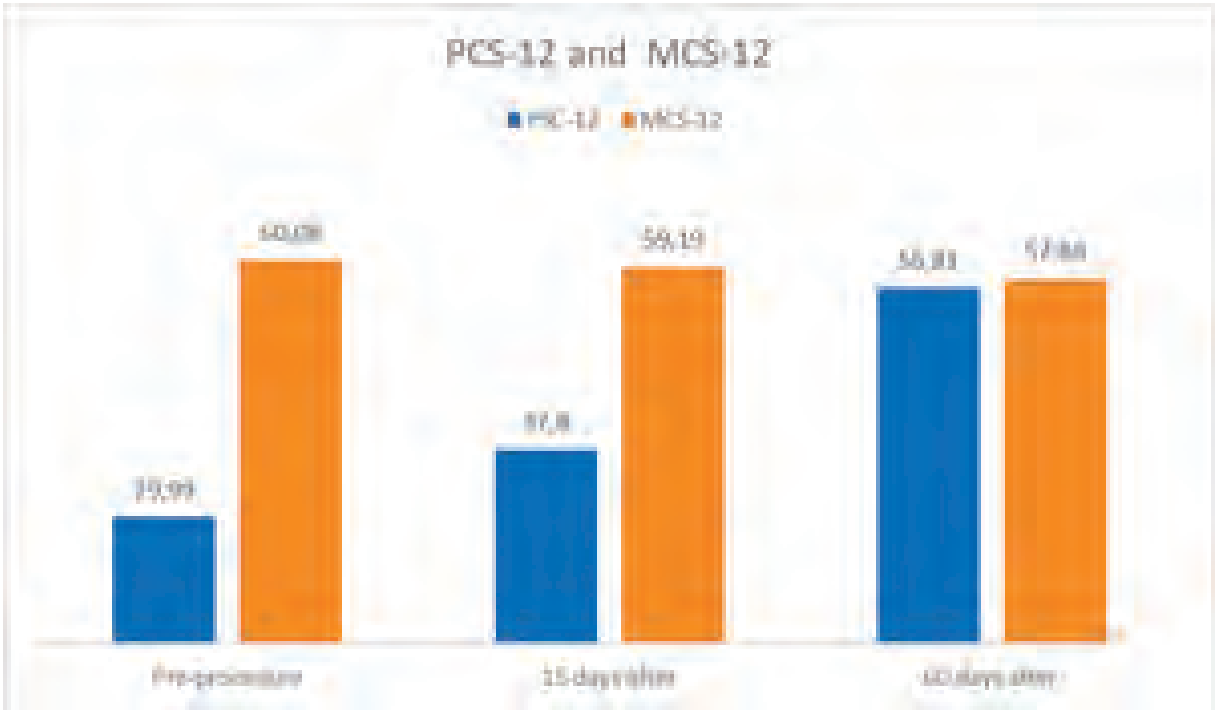


Figure 3: SF-12 dimensions

Conclusions: Autologous microcartilage grafting using the RIGENERA® technique proved to be promising for the treatment of hip osteoarthritis associated with chronic pain, during 60-day follow-up, improving SF-12 quality of life and LIFS functionality, as well as reducing pain by 80% in the VAS and allowing for the return to moderate intensity physical activities.

1408

ASSOCIATION OF PAIN AND POSTURE - STATE OF CURRENT LITERATURE

L. Seefried[1], P. Novak[2], T. Lu[3], P. Bhagat[4]

[1]Clinical Osteology and Clinical Trial Unit, University of Würzburg, Würzburg, Germany, [2]Haleon Consumer Healthcare, Czech Republic, Czech Republic, [3]Haleon Consumer Healthcare, Beijing, China, [4]Haleon Consumer Healthcare, Singapore, Singapore

Methods: Literature search was conducted on PubMed, Embase, and MEDLINE databases before 2 May 2023 for studies investigating the association between posture and pain using search terms pain, posture, ergonomic intervention. Fifty-nine articles were found eligible for inclusion.

Results: Most studies were done in an occupational or educational environment. The prevalence of pain associated with poor posture ranges from 65.4% to 84.6% in the United States, 17.4% to 57% in Europe, and 40.0% to 73.3% in Asia. Neck and lower back pain were most commonly reported anatomic locations related with poor posture. The percentage of subjects reporting posture issues was 20% to 70%. Fifteen studies have demonstrated significant ($p < 0.05$) pain relief because of improvements in posture correction brought on by a variety of interventions, such as education or training on ergonomic principles. However, due to poor and inconsistent reporting of the study population and methodologies, it is difficult to conclude potential impact of improving posture on pain relief.

Conclusions: Current review highlights poor posture as a risk factor for pain that could eventually trigger more chronic condition, if left untreated. Heterogeneity across studies limits informative value and clinical significance. Further studies should contribute to understand how improving posture can assist in alleviating pain.

1409

SHOULDER RANGE OF MOTION AND ACROMIOHUMERAL DISTANCE IN INDIVIDUALS WITH PERSISTENT SHOULDER PAIN

D. Rosa[1], M. Fernandez-Sanchez[2], S. Navarro-Ledesma[3], M. Torrontegui-Duarte[1], A. Luque-Suárez[1]

[1]Universidad de Málaga, Málaga, Spain, [2]Universidad de Almeria, Almeria, Spain, [3]Universidad de Granada, Granada, Spain

Methods: One-hundred thirty individuals with RCRSP (>3months of symptoms) were examined (45.3±9.5years; 64.6.4%women; 54.6% had pain duration > 1year). Shoulder pain and function were evaluated by Shoulder Pain Disability Index (SPADI) Shoulder elevation (ROM) in the scapular plane was measured in standing, using a hydro-goniometer. AHD was quantified by ultrasonography at 0 and 60 degrees of shoulder elevation in the same plane. The same blinded investigator took all measurements. The analysis was based on SPADI total score and its two domains: pain and disability.

Results: There was a significant negative correlation between shoulder range of motion and SPADI total score ($r = -0.22$ $p = 0.01$), SPADI pain score ($r = -0.19$; $p = 0.02$) and SPADI disability score ($r = -0.23$; $p < 0.00$), respectively. A significant negative correlation was also demonstrated between pain duration and AHD 0º ($r = -0.18$; $p = 0.04$) and AHD 60º ($r = -0.24$; $p < 0.00$), respectively.

Conclusions: There was a small association between shoulder pain and function, ROM and AHD in individuals with persistent RCRSP, suggesting that other factors should be taken into account to treat individuals with chronic symptoms.

1411

CONTINUING PAIN SELF-MANAGEMENT AFTER ITS INTRODUCTION BY A PAIN MANAGEMENT PROGRAM: A THEMATIC SYNTHESIS

J. Cullen[1], J. Seeley[1], C. Penlington[1]

[1]Newcastle University, Newcastle Upon Tyne, United Kingdom

Methods: Databases were searched and screened for all relevant studies since 2012. A three-step process of thematic synthesis took place. Line-by-line coding of each study›s results section was conducted, and codes were grouped to form descriptive themes that described categories in the data. Then, a final grouping based on analytic themes was identified by the authors, which identified patterns and relationships across the studies.

Results: Searches retrieved 1143 abstracts, of which 33 were screened at the full-text level, resulting in 12 studies in the final analysis, representing 252 participants. Five analytic themes were identified. Two themes, «Fluctuating uncertainty» and «My pain is still here, and there is not enough support», represented a feedback cycle with negative outcomes. Three themes, «Reconceptualising identity with pain», «Changing orientation to and re-engagement with life», and «Hope for the future», represented a feedback cycle with positive outcomes.

Conclusions: Continuing pain self-management is a journey on which individuals fluctuate between positive and negative feedback cycles. Further research is needed into how individuals can be supported to help ensure the continuation of self-management as a lifelong strategy.

1413

THE ADDED VALUE OF COGNITIVE BEHAVIORAL THERAPY FOR INSOMNIA TO CURRENT BEST EVIDENCE PHYSICAL THERAPY FOR CHRONIC SPINAL PAIN : A RANDOMIZED CONTROLLED CLINICAL TRIAL

A. Malfliet[1], L. De Baets[1], T. Bilterys[1], E. Van Looveren[1], K. Ickmans[1], M. Meeus[2], L. Danneels[3], B. Cagnie[3], O. Mairesse[1], M. Moens[1], J. Nijs[1]

[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]Universiteit Antwerpen, Antwerpen, Belgium, [3]Ghent University, Ghent, Belgium

Methods: Participants: One-hundred-twenty participants with chronic spinal pain and comorbid insomnia

Intervention: CBT-I combined with the modern neuroscience approach (experimental) compared to the modern neuroscience approach alone (control). Both interventions start with three sessions of pain neuroscience education, followed by six sessions of CBT-I and nine sessions of cognition-targeted exercise therapy in the experimental group, or 15 sessions of cognition-targeted exercise therapy in the control group.

Primary outcome measure: self-reported pain severity (Brief Pain Inventory).

Secondary outcome measures: pain sensitivity (pressure pain thresholds, and online questionnaires), sleep-related outcomes (home-based polysomnography and online questionnaires), physical activity (actigraphy), and function (online questionnaires). Online questionnaires were completed at baseline, directly post-treatment, and at 3, 6 and 12 months post-treatment. Polysomnography, pressure pain thresholds and actigraphy was carried out at baseline, post-treatment and at 12 months follow-up.

Results: All analyses have been performed, and results will be ready for presentation at the EFIC congress.

Conclusions: Conclusions will be ready for presentation at the EFIC congress.

1414

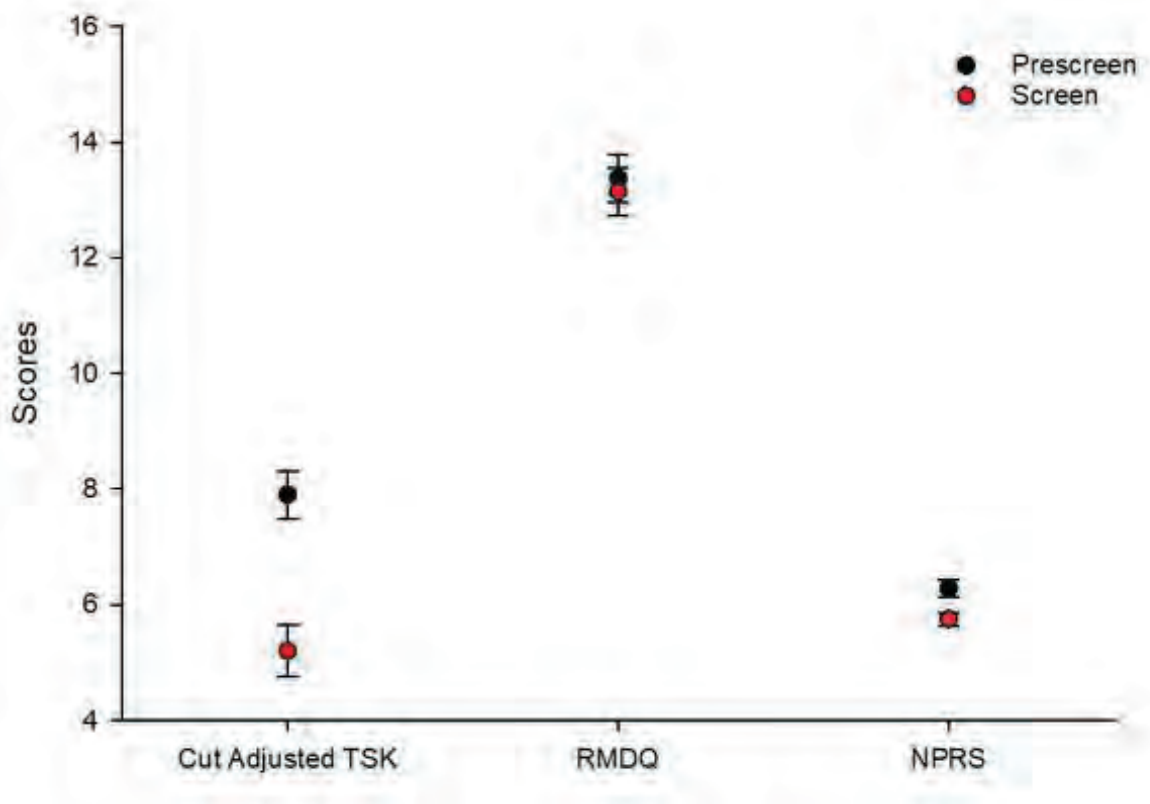
VARIABILITY IN TAMPA SCALE OF KINESIOPHOBIA IN CHRONIC LOW BACK PAIN

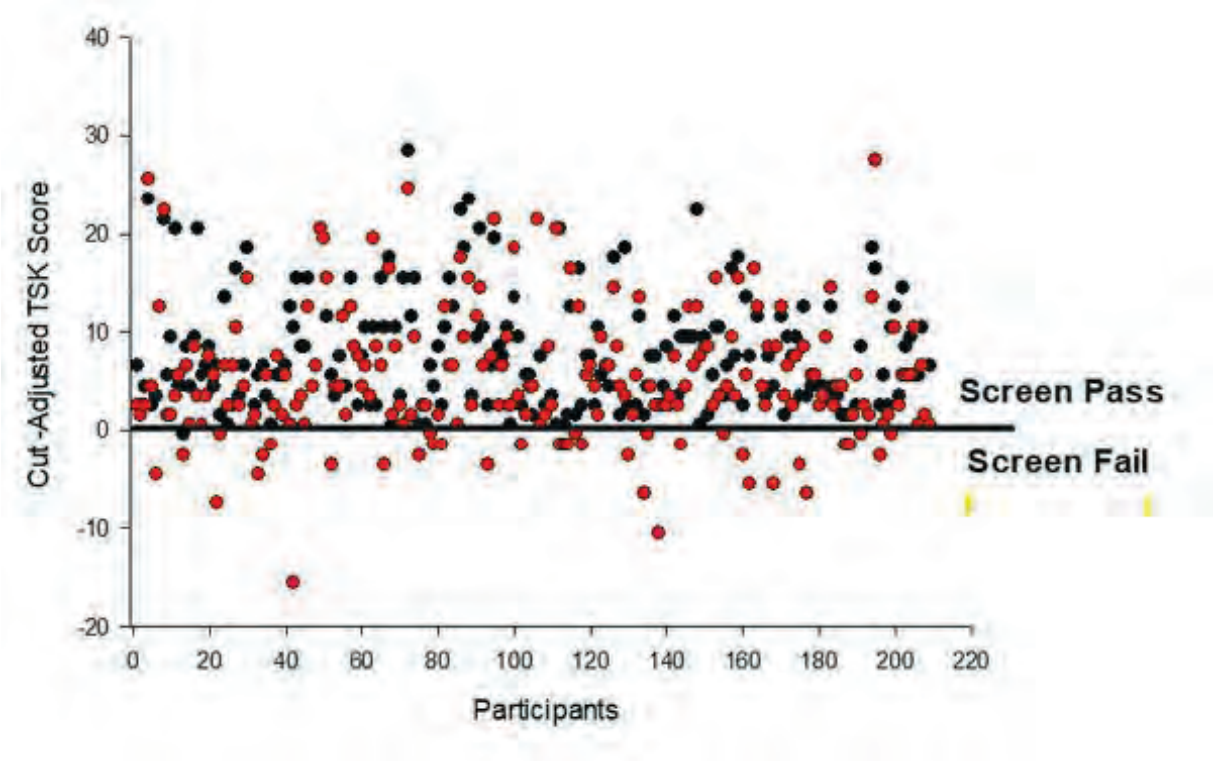
J. Thomas[1], C. France[2]

[1]Virginia Commonwealth University, Richmond, United States, [2]Ohio University, Athens, United States

Methods: TSK scores of > 36 were an inclusion requirement in a clinical trial on the effectiveness of virtual reality dodgeball to reduce pain and disability in participants with chronic low back pain and high fear of movement (i.e., VIGOR Trial). Additionally, participants had to have numeric pain ratings (NPR) > 3 and disability rating > 4 on the Roland Morris Disability Questionnaire (RMDQ). TSK, NPR, and RMDQ scores were assessed in a web-based pre-screening application and when participants completed an in-person screening examination.

Results:





While 210 participants met the inclusion criteria based on pre-screen scores on TSK, NPR, and RMDQ, during the in-person screening, 37 participants had TSK scores that fell below inclusion criteria. TSK scores from pre-screen to in-person screen dropped an average of 2.7 points (S.D. 5.4) $p<0.001$, NPR dropped 0.53 points (SD 1.2) $p<0.001$, and RMDQ dropped 0.22 points (SD 3.1) $p=.172$.

Conclusions: The significant variability of self-report scores on an important assessment tool needs to be examined to better understand the appropriate cut scores and effects of environment on self-report instruments.

1415

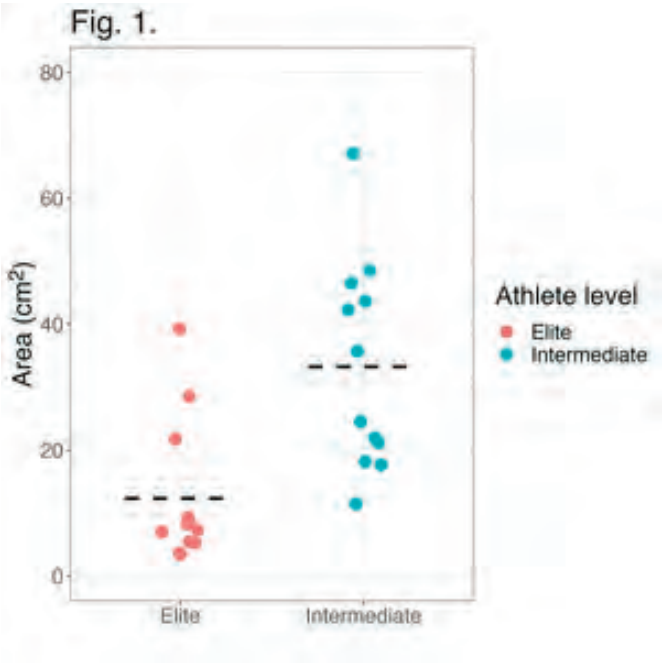
INVESTIGATION OF CENTRAL SENSITIZATION IN HIGHLY TRAINED ATHLETES

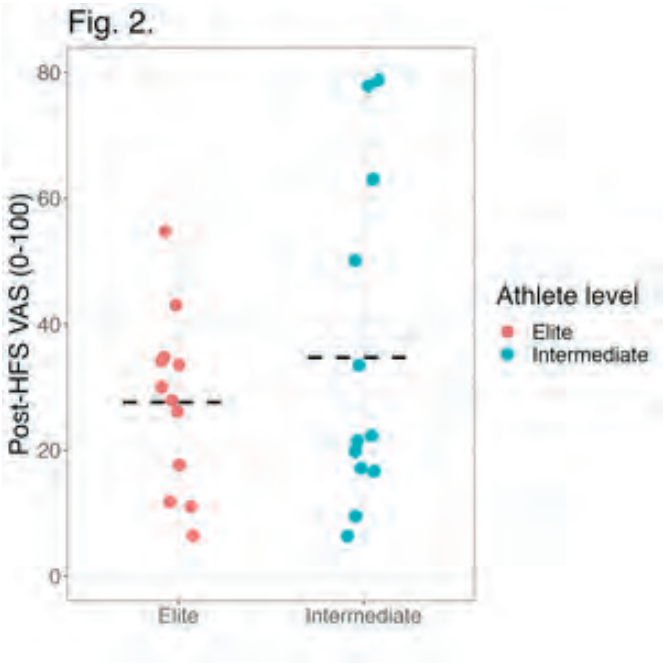
V. Aron[1], C. Lemmens[1], Q. Verwacht[2], A. Mouraux[1], E. van den Broeke[1], C. Lenoir[1]

[1]Institute of Neuroscience, UCLouvain, Brussels, Belgium, [2]Hôpital Nivelles-Tubize, Groupe Jolimont, Nivelles, Belgium

Methods: We investigated mechanical pinprick sensitivity (Visual Analog Scale 0-100) and area of secondary hyperalgesia after high frequency electrical stimulation of the volar forearm skin (HFS), at three time points (20, 30, 35min) in two groups of rugby women (12 elite level *vs.* 12 intermediate). We are currently collecting the same data in male and female endurance athletes, normo-active and sedentary participants (planned sample size = 78).

Results: After HFS, we found a smaller area of secondary hyperalgesia in elite rugby women (overtime average: 12.3±11.4 *vs.* 33.2±16.6 cm^2, Fig. 1) and no significant difference in mechanical pinprick sensitivity (overtime average: 27.6±14.1 *vs.* 34.7±26.1, Fig. 2) compared with the intermediate group. The data collection for the endurance athletes is ongoing.





Conclusions: Women highly trained for a contact sport have a reduced susceptibility for CS induced experimentally using HFS. The upcoming data from male and female endurance athletes will help us disentangle whether this effect is specific for females or relates to exercise training and/or performance of an activity implying repeated nociceptive stimulation.

1417

THE INFLUENCE OF RESILIENCE ON MOOD DISORDERS AND PAIN INTENSITY IN PATIENTS WITH CHONIC PAIN: AN EXPLORATORY STUDY

L.T. Yeng[1], A. Loduca[1,2], B.M. Müller[1], M.J. Teixeira[1]

[1]Pain Group Of The Orthopedic And Traumatology Institute Of The Clinical Hospital Of The University Of São Paulo, São Paulo, Brazil, [2]Faculty Of Human Science And Health Of The Pontifical Catholic University Of São Paulo, São Paulo, Brazil

Methods: This was an exploratory study with 22 female patients with chronic pain of different etiologies who were first treated at the Pain Group in a public hospital in Sao Paulo, between January 15 and April 15, 2023. Participants were assessed according to three groups of variables: sociodemographic (age, marital status, education, and religion), pain-related (duration and intensity), and through the administration of the humor scale and resilience scale. The groups of variables were correlated using the Statistical Package for the Social Sciences program.

Results: The sample consisted of average age of 52.7 years, average pain intensity of 7.5, an average pain duration of 117.1 months, with 31.8% evangelical, 40.9% single, and 72.7% medium to high level of education. Pearson›s correlation test revealed a moderate perfect negative correlation between depression and resilience (p=-0.591). A moderate perfect positive correlation was also observed between pain intensity and anxiety (p=0.552), pain duration and anxiety (p=0.500), and anxiety and depression (p=0.417).

Conclusions: The results obtained from the statistical analysis support the international literature indicating that resilience is inversely associated with depression and anxiety, suggesting that resilience may act as a protective factor against mental health repercussions in patients suffering from chronic pain.

1420

IN HOW MANY WAYS CAN WE CALIBRATE OUR PARTICIPANTS? A SYSTEMATIC REVIEW OF STUDIES USING ELECTRICAL STIMULI

J. Badzińska[1,2], M. Żegleń[2], Ł. Kryst[3], M. Wasylewski[4], P. Bąbel[2]

[1]Doctoral School in the Social Sciences, Jagiellonian University, Kraków, Poland, [2]Pain Research Group, Institute of Psychology, Jagiellonian University, Kraków, Poland, [3]Department of Anthropology, Faculty of Physical Education and Sport, University of Physical Education in Kraków, Kraków, Poland, [4]Department of Philosophy and Bioethics, Faculty of Health Sciences, Jagiellonian University Medical College, Kraków, Poland

Methods: Studies were included if (1) they involved healthy, adult volunteers; (2) the article presented a primary study; (3) electrocutaneous stimuli applied to the forearm were used; (4) calibration methods were used; (5) pain intensity was measured using any pain scale.

Results: 6684 abstracts were read, and finally, 232 studies were included in the data extraction. The most commonly used calibration methods found include the limit method, increasing and decreasing calibration, threshold method, modified threshold method and calibration with a random stimulus sequence. Moreover, numerous data gaps have been found such as: the stimulus duration, the number of stimuli, and the repetition of the calibration, as well as the lack of information about the pain experienced due to the calibration-based stimulus.

Conclusions: Data gaps make it impossible to replicate the calibration methods fully and to assess whether the calibration method was reliable. This, in turn, may be contributing to the current replication crisis in research. Further research into calibration seems necessary to develop an accurate and reliable calibration method. This will not only improve the quality of the study (it will be possible to apply the stimulus at the planned intensity) but will also be important from the perspective of pain research ethics.

1423

LONG-TERM EFFECTS OF INTEGRATED COGNITIVE BEHAVIORAL THERAPY FOR CHRONIC PAIN: A QUALITATIVE AND QUANTITATIVE STUDY

K. Tsubaki[1], E. Shimizu[1], K. Taguchi[1], R. Takanashi[2], T. Yoshida[1]

[1]Chiba University, Chiba, Japan, [2]Teikyo University, Hachioji, Japan

Methods: This observational study followed up on the data collected from our CBT sessions conducted under three studies about chronic pain in 2018-2019. Seven assessment items (NRS, PCS, PDAS, PHQ-9, GAD-7, EQ-5D-5L, and BDI) were statistically analyzed. Thematic analysis was conducted in semi structured interviews.

Results: All scores are compared from pre-treatment to follow-up (two years interval) and post-treatment to follow-up (1.5 years interval). PCS ($F=6.52$, $P=.003$), PDAS ($F=5.68$, $P=.01$), EQ-5D-5L ($F=3.82$, $P=0.03$), and BDI ($F=4.61$, $P=0.01$) exhibited significant changes ($P<0.05$), confirmed by pairwise *t-test*, revealing a moderate to large effect size. From post-treatment to follow-up, all scores showed no significant changes ($P>0.1$). The qualitative data is under analysis.

Conclusions: Our study suggests that integrated cognitive behavioural therapy may improve catastrophic thoughts, disturbances in daily life, and depressed feelings, and this effect lasts at least one year.

1425

MEDICAL AID IN DYING IN CANADA AND THE CARE OF PATIENTS WITH CHRONIC PAIN: A CALL FOR A CLEAR DEFINITION OF REMEDIABLITY IN PAIN

M. Megahed Gheis[1], A. Abed[1], A. Gheis[2]

[1]University of British Columbia, Victoria, Canada, [2]University of Victoria, Victoria, Canada

Methods: 1. Literature review of the MAiD legislation worldwide focused on the legal definitions of remediability in pain.

2. Systematic search for reports of patients with pain and no identified structural pathologies who applied for Medical Assistance in Dying

Results: There is a condition of irremediability or related in most legislations, but the legal definitions of irremediability for MAiD are lacking, variable or unclear.

Conclusions: There is a need for research and advocacy into the definitions of remediability in pain, especially in conditions such as functional neurological disorder, complex regional pain, fibromyalgia and related condition. This need is more pressing as more jurisdictions allow patients with these conditions to seek MAiD. There is a risk that treatable patients with these conditions may attract assessments of irremediability and an eligibility for medical aid in dying, especially in the absence of specialist treatment services for this patient population.

1426

THE RELATIONSHIP BETWEEN LIVED DISCRIMINATION AND HEART RATE VARIABILITY - A PILOT STUDY

K. Steere[1], J. Kasube[1], E. O'Neill[1], S. White[1]

[1]*University of Puget Sound, Tacoma, United States*

Methods: HRV data were collected on thirty nine participants while seated and taking an iPad survey that included sociodemographic and pain information, and the Everyday Discrimination Scale (EDS). Data analysis was performed on 37 participants. Pearson's correlation was used to compare total EDS score to HRV.

Results: Due to the positive skew of EDS and HRV scores, the natural logs (lnEDS, lnHFP, lnLFP) were utilized. Total EDS (lnEDS) was not correlated with either lnHFP (r = -.08, p = .637) or lnLFP (r = .08, p = .658).

Conclusions: This protocol demonstrates a feasible structure for further exploration of the relationship between lived discrimination and HRV. While nonsignificant in this small sample, the relationship between discrimination and HFP is opposite of LFP, suggesting different relationships between these variables. Future research may want to investigate the differences in these relationships in a larger sample between groups of those experiencing no pain, acute pain and chronic pain.

1427

ACTIMETRIC DEVICES TO ASSESS THE AUTONOMIC NERVOUS SYSTEM REACTIVITY TO EXPERIMENTAL PAIN: A DESCRIPTIVE CORRELATIONAL CROSS-SECTIONAL STUDY

J. Landry[1,2], M. Bordeleau[2,1], G. Nivet[1], S. Dallaire[1], H.-O. Bui-Nguyen[1], J. Paquin-Veillette[1], M.Z. Du[1], G. Léonard[2,1]

[1]*Faculty of Medicine and Health Sciences, Université de Sherbrooke, Sherbrooke, Canada,* [2]*Research Center on Aging, Centre intégré universitaire de santé et de services sociaux de l'Estrie - Centre hospitalier universitaire de Sherbrooke, Sherbrooke, Canada*

Methods: Twenty-five healthy participants immersed their arm into 10˚C cold water (cold pressor test, CPT) and lukewarm water (control). HR and EDA were measured with the E4 wristband (actimetric device) and compared with the wired Powerlab system (gold standard). Pain scores were assessed using a numeric pain scale.

Results: Significant changes in HR and EDA were recorded by both devices during the CPT in both sessions ($p < 0{,}001$). The accuracy of the actimetric device remains difficult to confirm as the E4 wristband detected similar but smaller changes. Specificity was confirmed as a significant difference was observed between ANS reactivity during the CPT in comparison to the control condition ($p < 0{,}001$). Comparison between the two CPT sessions confirmed the reproducibility of E4 measurements. No clear association was found between perceived pain and ANS reactivity.

Conclusions: Wrist-worn actimetric technologies show potential for measuring ANS reactivity to pain. Further studies involving larger samples and a methodology that mirrors real-world healthcare settings are needed.

1428

NECK PAIN: PREDOMINATION OF THE KINESIOPATHOLOGICAL AND BIOMEDICAL MODEL IN PHYSIOTHERAPY CLINICAL PRACTICE

J. Arrigoni Coelho[1], M. de França Moreira[2], N. Meziat-Filho[1], I.M. Tavares Correia[1], L.C Lunkes[1]

[1]Augusto Motta University Center, Rio de Janeiro, Brazil, [2]State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil

Methods: Cross-sectional observational study. Questions related to acute and chronic conditions were collected: "Do you evaluate postural parameters during smartphone use in patients with neck pain?", "Do you prescribe orientation and treatment for neck pain based on postural parameters during smartphone use?", "Do you treat patients with neck pain based on the kinesiopathological model, that is, looking for the cause of pain in some body/tissue structure?". Response categories were: disagree, neutral, and agree. The goodness of fit test and the χ2 of independence were used to assess the difference in categories and association between variables.

Results: Univariate analysis indicates that most physiotherapists agree to assess postural parameters during smartphone use and treat based on this information in both conditions.

TABLE. Univariate analysis of the difference between observed and expected frequency in the categories of variables of interest.

	agree, N = 1,289[1]	desagree, N = 688[1]	neutral, N = 435[1]	χ^{2*}
Assess posture during cell phone use				
Acute neck pain	161 (40%) [2.33]	147 (36%) [1.12]	94 (23%) [-3.45]	18.64
Chronic neck pain	186 (46%) [4.49]	138 (34%) [0.34]	78 (19%) [-4.83]	43.70
Treat based on postural parameters during cellphone use				
Acute neck pain	186 (73%) [4.49]	133 (12%) [-0.08]	83 (14%) [-4.4]	39.59
Chronic neck pain	191 (47%) [4.92]	140 (34%) [0.51]	71 (17%) [-5.44]	54.13
Treat based on kinesiopathological model				
Acute neck pain	296 (73%) [13.99]	49 (12%) [-7.34]	57 (14%) [-6.65]	294.01
Chronic neck pain	269 (66%) [11.66]	81 (20%) [-4.57]	52 (12%) [-7.08]	207.14

[1]n (%) [residuals = observed minus expected values]. χ^2 = Goodness of fit test statistic. * All the statistic-related p values <0.001.

The bivariate analysis demonstrates association between treating based on the kinesiopathological model and using smartphone postural parameters.

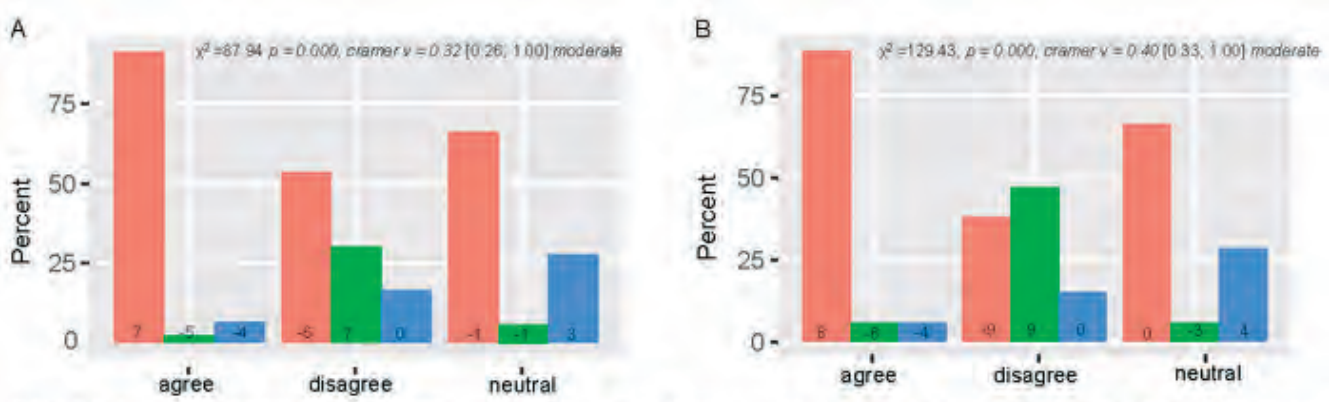


FIGURA 1. Association between treatment based on postural parameters of smartphone use (x-axis) and treatment based on the kinesiopathological model (pink = agree, green = disagree, neutral = blue) in acute (A) and chronic (B) neck pain. Residual values (observed minus expected values) at the bottom of the bars, chi-square statistic, and effect size [95% CI] at the top of the bars.

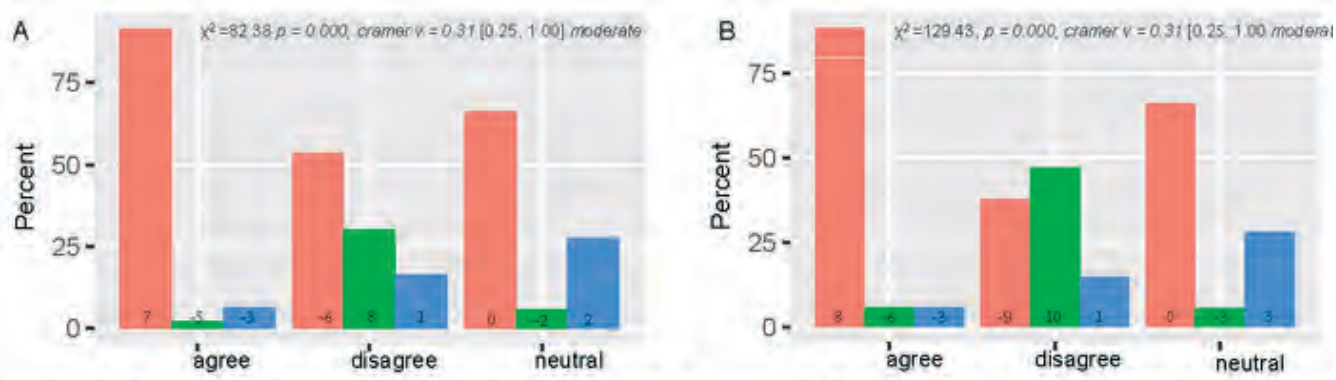


FIGURA. 2 Association between assessment based on postural parameters of smartphone use (x-axis) and treatment based on the kinesiopathological model (pink = agree, green = disagree, neutral = blue) in acute (A) and chronic (B) neck pain. Residual values (observed minus expected values) at the bottom of the bars, chi-square statistic, and effect size [95% CI] at the top of the bars.

Conclusions: Our results indicate that most physiotherapists approach neck pain using the "text neck" criteria, which was associated with election to treat based on the kinesiopathological model. Findings suggest that physiotherapists› clinical reasoning for approaching neck pain is mainly oriented by the biomedical model, where the biopsychosocial perspective has been advocated.

1429

THE TOTAL AND DIRECT EFFECTS OF DYSMENORRHEA ON CHRONIC PAIN IN MID-LIFE WOMEN: EVIDENCE FROM THE 1958 NATIONAL CHILD DEVELOPMENT STUDY

C. Borra[1,2], R. Hardy[3,1]

[1]University College London, London, United Kingdom, [2]Barts Health NHS Trust, London, United Kingdom, [3]Loughborough University, Loughborough, United Kingdom

Methods: We used data from the UK National Child Development Study to measure the total and direct effect of dysmenorrhea and endometriosis on generic CP, chronic widespread pain (CWP), pelvic pain (PP) and vulvodynia. We fit logistic regressions exploring gynaecological, mental health and socioeconomic pathways.

Results: The total effects analysis results confirm an association between dysmenorrhea and CP (OR 1.91, 95%CI 1.57-2.32), which is higher for CWP (OR 2.61, 95% CI 2.06-3.31), PP (OR 10.60, 95% CI 6.40-17.56) and vulvodynia (OR 5.45, 95% CI 3.18-9.36). Our model showed that the direct effect of dysmenorrhea on CP was small with (OR 1.32, 95% CI 0.94-1.85), while it was strong for CWP (OR 1.99, 95% CI 1.30-3.05), PP (OR 9.67, 95% CI 3.81-24.53) and vulvodynia (OR 2.70, 95% CI 1.07-6.77).

Conclusions: Our study shows that there is a strong total effect of both dysmenorrhea on all pain phenotypes and contributes to understanding the role of gynaecological health and possible pathways. Result highlight the importance of access to specialist pain management services for people with dysmenorrhea and the need for chronic pain prevention strategies in this population.

1432

BALANCE AND GAIT IN INDIVIDUALS WITH DIABETIC PERIPHERAL NEUROPATHY

S. Korkusuz[1], B. Seçkinoğulları[2], Z.Ö. Yuruk[3], N. Uluğ[1], S. Kibar[4]

[1]Atılım University, Ankara, Turkey, [2]Hacettepe University, Ankara, Turkey, [3]Baskent University, Ankara, Turkey, [4]Ankara University, Ankara, Turkey

Methods: This study was conducted on 42 adults. The participants were divided into three groups; individuals with DPN and NP (DPN+NP), individuals with DPN without NP (DPN-NP), and the control group, respectively. The Force Plate system and Core Balance System measured static and dynamic postural balance and stability limits. Gait and dynamic plantar pressure distribution analyses were performed with a computerized gait evaluation system.

Results: No significant difference was observed between the groups in balance parameters (p>0.05). The right-left heel maximum forces were lower in both groups with DPN compared to the control group (p<0.05). In terms of spatiotemporal parameters of the gait, there was a difference between the groups only in step width and left single support line parameters (p<0.05).

Conclusions: The results of this study indicate that the individuals with DPN have an increased step width, their left single support line was shortened, and the maximum force on the heel decreased. The NP did not cause any change in balance and gait parameters.

1433

MACHINE LEARNING AND EEG CAN CLASSIFY PASSIVE VIEWING OF DISCRETE CATEGORIES OF VISUAL STIMULI BUT NOT PAINFUL IMAGES

T. Mari[1], J. Henderson[1], H. Ali[1], D. Hewitt[1], C. Brown[1], A. Stancak[1], N. Fallon[1]

[1]University of Liverpool, Liverpool, United Kingdom

Methods: A total of 116 subjects across three samples were recruited. Samples consisted of model development (n=40), cross-subject validation (n=51), and within-subject validation (n=25). EEG was recorded whilst participants passively viewed images of neutral and painful faces and scenes.

Results: Event-related potential (ERP) analysis time-locked to image onset demonstrated an enhanced N170 (142 – 214ms) component for face compared to scene images. Pain scene images elicited an increased late positive potential (LPP; >524ms) relative to neutral scenes, whilst enhanced P3 response (270 – 348ms) was observed for pain, compared to neutral, expressions. The ML results demonstrate the Random Forest (RF) model could accurately classify faces and scenes using single-trial EEG with accuracies of 74.56%, 64.15%, and 68.80%, for the cross-validation, cross-subject, and within-subject validation sample, respectively. However, the RF was unable to classify the neutral or painful images in both the face and scene conditions above chance accuracy levels.

Conclusions: ERP results are consistent with existing research. Additionally, our ML results extend previous literature by externally validating ML models. Results suggest that neural responses from the passive viewing of empathic stimuli are insufficient to be accurately classified using ML. Future investigations should include mechanisms to promote attention (e.g., subjective rating) to prevent attenuated neural responses.

1434

CHRONIC PAIN NEGATIVELY IMPACTS THE PROGNOSIS OF CHRONIC FATIGUE IN THE GENERAL POPULATION (THE HUNT PAIN STUDY)

M. Glette[1,2], P.C. Borchgrevink[1,2], A. Woodhouse[1,2], T. Landmark[1,2]

[1]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Clinic of Anaesthesia and Intensive Care, St. Olavs Hospital, Trondheim, Norway

Methods: A total of 6419 individuals were invited to the study, and 4771 answered questionnaires about feelings of energy/vitality (SF-8) with three-month intervals for 12 months and were included in the analyses. Individuals also answered three follow-up questionnaires at yearly intervals. We used a longitudinal latent class analysis (LLCA) to classify participants into clusters of fatigue. To examine whether chronic pain was associated with improvement from chronic tiredness/fatigue over the following three years, we performed generalized estimating equations to estimate incidence rate ratios (IRRs) with 95% confidence intervals (CIs).

Results: A five-cluster solution was identified and named: “much energy” (n=1471, [31%]), “varying energy” (n = 1445, [30%]), “some energy” (n = 921, [19%]), “low energy” [chronic tiredness] (n = 852, [18%]), and “no energy” [chronic fatigue], (n = 82, [2%]). Most individuals with chronic tiredness or fatigue still reported little or no energy at one to three years follow-up, but 27%-33% reported at least some energy indicating improvement. Chronic pain was negatively associated with improvement (IRR = 0.74, 95% CI [0.60, 0.91]).

Conclusions: Chronic tiredness and fatigue remain stable for about 70% of cases over three years. Chronic pain is negatively associated with improvement.

1435

CROSS- AND WITHIN-SUBJECT EXTERNAL VALIDATION OF MACHINE LEARNING AND EEG FOR PAIN INTENSITY PREDICTION IN HEALTHY INDIVIDUALS

T. Mari[1], J. Henderson[1], H. Ali[1], D. Hewitt[1], C. Brown[1], A. Stancak[1], N. Fallon[1]

[1]*University of Liverpool, Liverpool, United Kingdom*

Methods: A total of 116 participants, across three samples: model development (n=40), cross-subject validation (n=51), and within-subject validation (n=25) were recruited for this study. Pneumatic pressure stimuli were delivered to the fingernail bed at 10 intensities ranging from light touch to moderate pain. Subsequently, participants rated their subjective pain intensity on a 101-point numerical rating scale. Time-frequency features were computed on a single trial basis across 128 electrodes and optimal features were selected using univariate feature selection. A random forest (RF) regressor was trained on the model development sample and evaluated on the cross-subject and within-subject validation datasets.

Results: The results demonstrated that the RF achieved a mean absolute error (on the 0-100 scale) of 19.59, 21.29, and 18.90 for internal hold-out, cross-subject, and within-subject validation, respectively which is comparable to previous research.

Conclusions: This study is the first to externally validate ML and EEG for pain intensity prediction both within and across subjects in a large sample. The models successfully generalised across samples, providing further evidence for ML and EEG›s clinical potential as a pain assessment tool, although further research is needed.

1436

ELECTROENCEPHALOGRAPHY DURING REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION COULD BE A KEY TO PERSONALIZED TREATMENT: A METHODOLOGICAL INSPECTION IN THE FREQUENCY DOMAIN

M. Mahmoodi[1], E. De Martino[1], T. Graven-Nielsen[1], D. Ciampi de Andrade[1]

[1]*Aalborg University, Aalborg, Denmark*

Methods: In ten healthy participants, 64-channel EEG was recorded with a TMS-compatible system (g.tec, Austria) with 10Hz rTMS (3000 pulses) in two conditions: rest-EEG and during 10Hz rTMS to the primary motor cortex (M1). Each block of 100 TMS pulses took 10s (rTMS-EEG) followed by a 20s non-stimulation interval (rest-EEG). After removal of the TMS-induced decay artefact from the EEG and preprocessing, 64x64 channel matrices of magnitude spectrum coherence representing inter-electrode interactions were extracted for comparison between rTMS and rest-EEG conditions. The differences in EEG behaviour in rTMS and rest-EEG were also visually inspected using a Time-frequency spectrogram.

Results: The rest-EEG and rTMS-EEG coherence matrices were similar and comparable, indicating rTMS-EEG has the structural basis of rest-EEG ($p>0.20$). Time-frequency spectrogram of signals also shows hotspots at harmonics of the 10Hz rTMS, which are only evident during rTMS-EEG due to brain response to the 10Hz stimulus.

Conclusions: It is feasible to obtain EEG signals during rTMS at 10Hz to M1, comparable to the post-non-TMS period, which could be a key to estimating connectivity changes predictive of therapeutic outcome.

1437

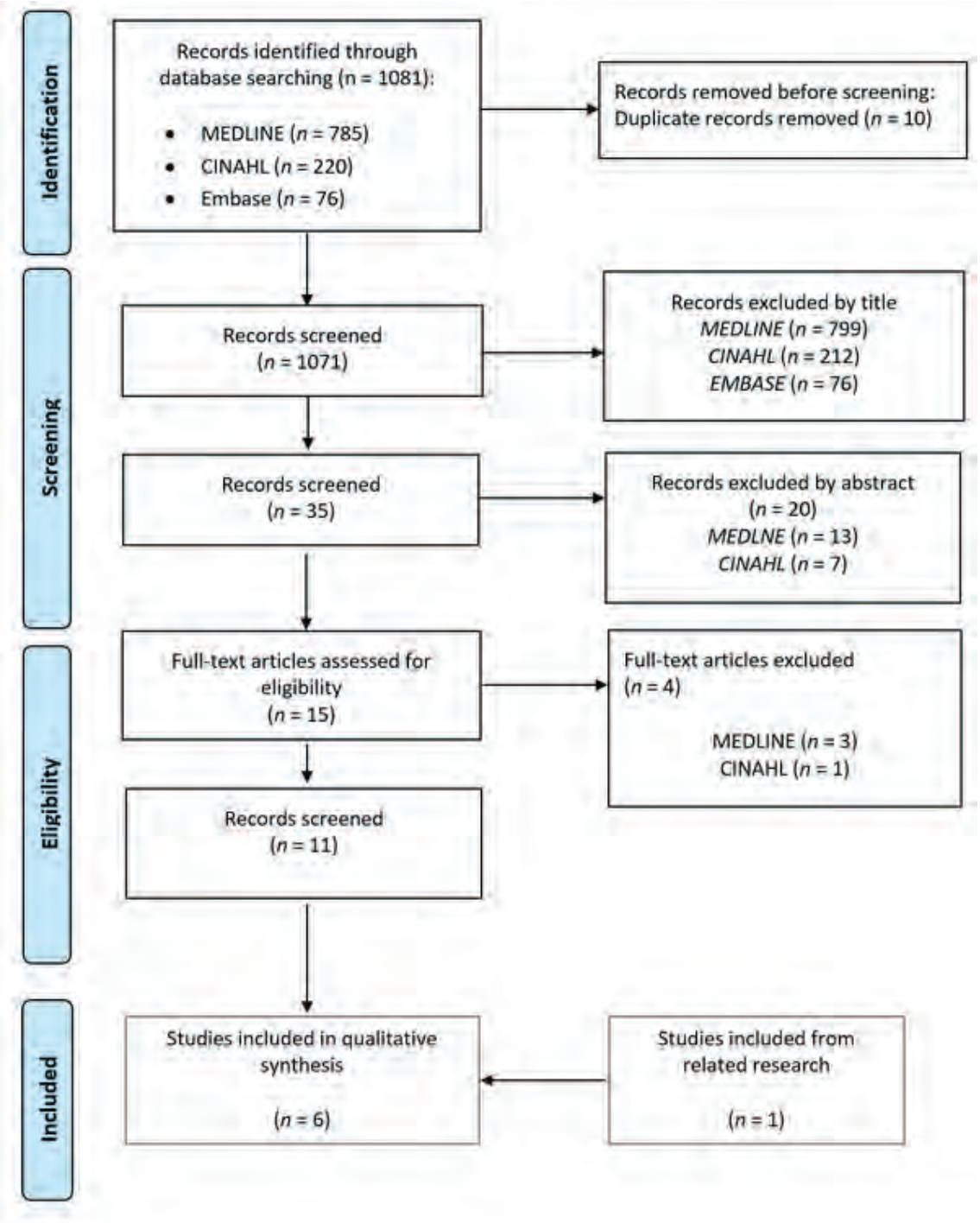
EFFECT OF AN INTERDISCIPLINARY APPROACH IN THE MANAGEMENT OF TEMPOROMANDIBULAR DISORDERS: A SCOPING REVIEW

A. Battaglino[1], N. Brighenti[2], P. Sinatti[3], V. Abuín-Porras[3], E.A. Sánchez Romero[3], P. Pedersini[1], J.H. Villafañe[1]

[1]*Fondazione Don Carlo Gnocchi, Milan, Italy,* [2]*Università del Piemonte Orientale, Novara, Italy,* [3]*Physiotherapy Department, Faculty of Sport Sciences, Universidad Europea de Madrid, Villaviciosa de Odón, Spain*

Methods: This is a Scoping Review of studies investigating the effects of combined therapy on patients with TMD. PRISMA guidelines were followed during this review's design, search, and reporting stages. The search was carried out in the MEDLINE, CINHAL, and EMBASE databases.

Results:



A total of 1031 studies were detected and analyzed by performing the proposed searches in the detailed databases. After the selection process (Figure 1), seven studies were included in the analysis. The methodological quality of the studies ranged from "some concerns" to "good quality". The majority of the included studies showed a positive effect on pain decreasing and improvements in mandibular range of motion after a combined intervention.

Conclusions: The interdisciplinary approach characterized by the combination of manual therapy and splint or electrotherapy can positively influence the perceived symptoms; positively decrease pain; and reduce disability, occlusal impairments, and perception of change.

1438

DETERMINATION AND CHARACTERISATION OF PERSISTENT MUSCULOSKELETAL PAIN IN LONG-COVID PATIENTS IN PRIMARY CARE

L. Barrero-Santiago[1], F. Montero-Cuadrado[2], S. Cuesta-Sancho[1], R. Almansa-Mora[1], D. Bernardo-Ordiz[1], A. Íscar-Mayo[1], J.J. Tellería-Orriols[1]

[1]Universidad de Valladolid, Valladolid, Spain, [2]Active Coping Strategies for Chronic Pain Unit, Valladolid, Spain

Methods: Cross-sectional study. 106 LCP patients were recruited. Inclusion criteria: aged 18-70 yo; had Covid-19 infection, confirmed by PCR + or antigen test +; had musculoskeletal pain for more than 12 weeks› since the onset of infection. Exclusion criteria: history of chronic musculoskeletal pain of 3 months or more prior to infection; a history of major depression, fibromyalgia or pregnancy.

Results: The 80.2% of our patients were women with a mean age of 50 ± 8.62. More than 80% have had LCP for more than 12 months. More than 60% of them present widespread pain. Visual Analogue Scale (VAS) of pain intensity was 53.1 ± 21.51; VAS of the last 4 weeks pain intensity was 59.8 ± 20.4. Central Sensitization Inventory (CSI) was 54.8 ±14.4; Beck Depression Inventory (BDI-II) was 20.9 ± 10.0; Beck Anxiety Inventory (BAI) was 21.1 ± 11.6; Pain Catastrophizing Scale (PCS) was 20.6 ± 12.7; Kinesiophobia Scale (TSK-11) was 23.6 ± 7.6; VAS of quality of life (EQ-5D) was 44.7± 20.9.

Conclusions: LC Patients show indications of moderate chronic pain, with a widespread pattern. Moreover, they showed moderate depression and anxiety, together with elevated catastrophizing and kinesiophobia, and a low QoL. Psychosocial aspects also play a key role in LCP.

1440

UNDERSTANDING PSYCHOSOCIAL FACTORS IN THE DEVELOPMENT AND MAINTENANCE OF CHRONIC PAIN: A TWO STAGE ONLINE STUDY

A. Zeyen[1,2], A. Jordan[3], E. Keogh[3]

[1]School of Business and Management, Royal Holloway University of London, Egham, United Kingdom, [2]University of Johannesburg, Johannesburg, South Africa, [3]Department of Psychology & Centre for Pain Research, University of Bath, Bath, United Kingdom

Methods: Group discussion with individuals with lived experience or academic/clinical experience of pain generated items for a two-stage online consensus study. Survey one required participants to rate individual, interpersonal and societal psychosocial factors in importance for pain. Survey two required ratings of a reduced number of factors according to their importance for further study of pain transitions.

Results: Recruited from pain networks, individuals (n=29 academics/clinicians, n=86 individuals with lived experience of pain) completed survey one. A smaller sample completed survey two (n=7 academics/clinicians, n=59 lived experience). Eight factors were endorsed by ≥ 80% of participants: (1) Pain-related goal limitations (94%), (2) Sleep/fatigue (91%), (3) Supportive relationships with health care professionals (88%), (4) Treatment availability (86%), (5) Pain understanding (85%), (6) Independence (83%), (7) Mental health (82%), (8) other people believing pain is real (80%).

Conclusions: Of the psychosocial pain mechanisms identified, most were focused at the individual level, with only two at the interpersonal level. None of these factors reflected broader social level mechanisms. These findings highlight the importance in taking a multilevel psychosocial approach and suggest the need to consider broader social factors in chronic pain.

1443

THE EFFECT OF UNPREDICTABILITY ON THE PERCEPTION OF PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

F. Pavy[1], J. Zaman[1,2], W. Van den Noortgate[3], A. Scarpa[1], A. Von Leupoldt[1], D. Torta[1]

[1]KU Leuven, Leuven, Belgium, [2]Hasselt University, Hasselt, Belgium, [3]KU Leuven, Leuven, Kortrijk, Belgium

Methods: We included all available experimental studies with adult volunteers manipulating the (un)predictability of painful stimuli and measuring perceived pain intensity or unpleasantness. As there are insufficient studies with patients, we focused on healthy volunteers.

Results: Our results did not reveal any effect of unpredictability on pain. However, several significant moderators of the effect of unpredictability on pain perception were found, i.e. stimulus intensity, expected intensity and state negative affectivity.

Conclusions: The effects of stimulus intensity, expected intensity and state negative affectivity should be controlled in experimental designs as they might be responsible for the effects attributed to unpredictability. Further investigations are necessary to clearly determine the role of trait negative affectivity and controllability for which we could not retrieve much studies. There is a need for more experimental research with patients.

1444

PINPRICK-INDUCED GAMMA-BAND OSCILLATIONS (GBOS) ARE NOT A USEFUL ELECTROPHYSIOLOGICAL MARKER OF PINPRICK HYPERSENSITIVITY IN HUMANS

S. Gousset[1], D. Torta[2], A. Mouraux[1], J. Lambert[1], E.N. van den Broeke[1,2]

[1]UCLouvain, Brussels, Belgium, [2]KULeuven, Leuven, Belgium

Methods: In twenty healthy volunteers, we recorded the electroencephalogram during robot-controlled mechanical pinprick stimulation (512 mN) applied at the right ventral forearm before and after HFS.

Results: HFS induced a significant increase in pinprick sensitivity, but this increased pinprick sensitivity was, at the group-level, not accompanied by a significant increase in GBOs. Visual inspection of the individual data revealed that possible GBOs were present in eight out of twenty participants (40%) and the frequency of these GBOs varied substantially across participants.

Conclusions: The present study investigated for the first time scalp GBOs induced by robot-controlled mechanical pinprick stimulation before and after the induction of pinprick hypersensitivity in humans. HFS successfully induced pinprick hypersensitivity, however, this was not accompanied by a significant increase in GBOs among participants. The low number of participants showing possible GBOs questions the (clinical) utility of mechanically-induced GBOs as an electrophysiological marker of pinprick hypersensitivity in humans.

1445

INVESTIGATING THE EFFECT OF THE OPERANT LEANING IN A FREE RECALL MEMORY TASK UNDER PAINFUL CONDITION

C. Ceruti[1], E. Nedergaard Søholm[2], C. Graversen[1], C. Dahl Mørch[1], L. Petrini[1]

[1]Center for Neuroplasticity and Pain, Aalborg University, Aalborg, Denmark, [2]Aalborg University, Aalborg, Denmark

Methods: Thirteen healthy volunteers were exposed to 120 trials of cognitive task (listening, memorizing and recalling noisy sentences) during a painful stimulation with a cuff pressure to the lower leg at VAS-5 (0=no-pain, 10=maximum-pain). Feedback was given with two auditory signals. The trials were split into two conditions: 1) Negative Reinforcement, where the cuff pressure was decreased to VAS-3 for correct answer and remained unaltered (VAS-5) for incorrect answer, and 2) Positive Punishment, where the cuff pressure was increased to VAS-7 for incorrect answer and unaltered for correct answer.

Results:

Condition	Correct trials	Incorrect trials	Tot trials
Negative Reinforcement	344 (44.1%)	436 (55.9%)	780
Positive Punishment	319 (40.9%)	461 (59.1%)	780
	663 (42.5%)	897 (57.5%)	1560

The preliminary results showed no difference in performance between the Negative Reinforcement and the Positive Punishment conditions (Chi2 = 1.64, p = 0.2, Odds Ratio = 1.1 [0.93; 1.4]). In incorrect trials, the average number

of words repeated correctly was higher during the Positive Punishment (1.8±2.4) than the Negative Reinforcement (0.9±1.9) with p<0.05 (Wilcoxon).

Conclusions: The number of correctly recalled sentences was not different between the operant conditions, but the number of correctly recalled words was higher during the Negative Reinforcement trials.

1446

PLACEBO CONTROLLED SURGERY FOR SACROILIAC JOINT PAIN, A DOUBLE BLIND RANDOMIZED CONTROLLED TRIAL

M. Lalouni[1], M. Pontén[1], S. Blomé[1], W. H Thompson[2], P. Gerdem[3], K. Jensen[1]

[1]Karolinska Institutet, Stockholm, Sweden, [2]University of Gothenburg, Gothenburg, Sweden, [3]Uppsala University, Uppsala, Sweden

Methods: Patients aged 35-60 years, n=23 (22 females), with SI-joint pain were randomized to SI-joint fusion or sham operation in a double-blind trial at Karolinska University Hospital, Sweden. Measures included resting-state functional magnetic resonance imaging and quantitative sensory testing (QST), before surgery and at six months follow up. Last week's average pain and treatment expectation were self-assessed on a VAS scale (0-100). QST included pressure pain thresholds and supra threshold pain (4/10 NRS) on the thigh and the SI-joint pain site.

Results: Last week's average pain was reduced from baseline to follow-up for fusion compared with placebo (P=0.031). Functional connectivity between S1 (hip/back area) and default mode network was decreased in the fusion group compared with placebo. There were no differences in QST change between groups. There was a trend for higher treatment expectations in responders compared with non-responders.

Conclusions: We conclude that the differences between fusion and placebo were small. Because of the small sample size, all results need to be interpreted with caution.

1447

EFFECTS OF ANALGESICS ON EEG BIOMARKERS OF CHRONIC PAIN

P.T. Zebhauser[1,2,3], F. Bott[1,2], C. Gil-Ávila[1,2], H. Heitmann[1,2,3], E. Baki[1,3], M. Ploner[1,2,3]

[1]Technical University of Munich, School of Medicine, Department of Neurology, Munich, Germany, [2]Technical University of Munich , School of Medicine, TUM-Neuroimaging Center, Munich, Germany, [3]Technical University of Munich, School of Medicine, Center for Interdisciplinary Pain Medicine, Munich, Germany

Methods: 228 CP-patients were included ('discovery' sample A *n*=118, 5min rsEEG, 64 electrodes; 'replication' sample B *n*=110, 5min rsEEG, 29 electrodes). Using Bayesian multivariate analysis, we predicted peak frequency, power, connectivity, and network measures based on medication intake (binary-coded for opioids, antiepileptics, and antidepressants) and covariates (age, pain intensity, depressive symptoms). Furthermore, dose-dependent effects of opioids and antiepileptics were evaluated.

Results: 64% of patients (sample A) used opioids, antiepileptics, antidepressants, or a combination thereof. We found moderate evidence for dose-dependent effects of opioids on theta power (BF_{10}=4.7) and of antiepileptics on decreased global efficiency in the gamma band (BF_{10} =3.8). We observed very strong evidence (BF_{10}>100) for age as a negative predictor of peak frequency and moderate evidence (BF_{10}=3) for a negative association of alpha power and pain intensity. Analyses will be repeated in sample B.

Conclusions: Based on preliminary findings, opioid and antiepileptics intake should be considered when conducting and interpreting rsEEG-studies in CP populations. Negative associations of age with peak frequency and pain intensity with alpha power are in accordance with previous studies, validating sample integrity and generalizability of results.

1449

COMPARATIVE ANALYSIS OF THE EPIDEMIOLOGICAL AND CLINICAL CHARACTERISTICS OF PATIENTS WITH CHRONIC PAIN, CONTINUOUS NON-CHRONIC PAIN AND SUBJECTS WITHOUT PAIN. RESULTS PAIN BAROMETER SPAIN, 2022

A. Esquivias[1], I. Failde[2,3,4], M. Dueñas[3,3,4], A. Salazar[2,3,4], H. de Sola[2,3,4]

[1]Fundación Grünenthal, Madrid, Spain, [2]Observatorio del Dolor, Universidad de Cádiz, Cadiz, Spain, [3]Instituto de Investigación e Innovación en Ciencias Biomédicas de la Provincia de Cádiz, Cádiz, Spain, [4]Área de Medicina Preventiva y Salud Pública, Universidad de Cádiz, Cadiz, Spain

Methods: Observational descriptive study in Spanish population between 18 and 85 years old throughout phone and online surveys. To perform this analysis, the population distribution of the three groups of individuals who participated in the surveys (without pain, with continuous non-CP and with CP) was studied according to different socioeconomic criteria, use of the health care system and health status.

Results: Of the 7058 interviews carried out, 25.9% of the survey population suffered from CP (95%CI: 24.8-26.9%), and 7.7% had continuous non-CP (95%CI: 7.1-8.3%). In the CP and continuous non-CP groups, the proportion of women was higher than men vs group without pain (58,7% and 56,9% vs 41,3% and 43,1% respectively). In the group with CP, the proportion of active workers was 50.5%, 10% lower than in the groups without pain and with continuous pain.

Conclusions: Chronic pain shows an increasing scope and magnitude in recent years, and highlights the need to make this disease a health priority in Spain

---

1453

AN INTELLIGENT AND PATIENT-SPECIFIC CLINICAL DECISION SUPPORT SYSTEM AIMING TO ENHANCE THE EFFECTIVENESS OF INTERDISCIPLINARY SPECIALIST CARE IN PATIENTS WITH CHRONIC PAIN

T. Bohman[1,2], L. Vixner[1], R. Nyberg[3], R. LoMartire[4], E. Tseli[1,2], I. Thomas[3], J. Ärnlöv[2], B. Äng[5,4,1,2]

[1]School of Health and Welfare, Dalarna University, Falun, Sweden, [2]Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden, [3]School of Information and Engineering, Dalarna University, Falun, Sweden, [4]Center for Clinical Research Dalarna - Uppsala Universitet, Falun, Sweden, [5]Regional Board Administration, Region Dalarna, Falun, Sweden

Methods: A graphical machine learning-based CDSS will be trained on clinical data from Swedish National databases to identify patient-specific treatment patterns. Longitudinal patient data is synchronised in our already established database FRIDA, which include data from the Swedish Quality Registry for Pain Rehabilitation, and four other national registers, and covers more than 60,000 patients with chronic pain that participated in IDT at any one of the 40 specialist units across Sweden (Figure 1).

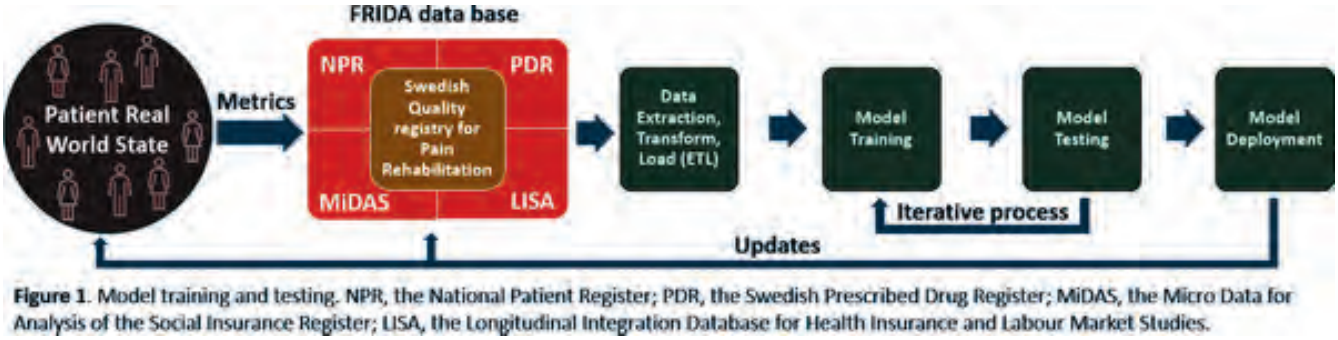


Figure 1. Model training and testing. NPR, the National Patient Register; PDR, the Swedish Prescribed Drug Register; MiDAS, the Micro Data for Analysis of the Social Insurance Register; LISA, the Longitudinal Integration Database for Health Insurance and Labour Market Studies.

When validated, the CDSS will be piloted for feasibility and evaluated in a registry based randomised clinical trial.

Results: Results and conclusion

Our hypothesis is that the CDSS will facilitate patient selection, secure equality in care, and guide individualised treatment strategies. It has the potential to improve clinical praxis, which will result in enhanced quality of life and reduced sick leave, emotional suffering and pain medication in patients with chronic pain, and hence be of great socio-economic value to society.

Acknowledgements

Thanks to the founders of the project; the Swedish Research Council and the Swedish Research Counsil for Health, Working Life and Welfare.

Conclusions: Please, see above

1454

CAN SOCIAL INFORMATION ON PAIN DISTORT OUR PAIN MEMORY AND SHAPE SUBSEQUENT PAIN EXPERIENCES?

H. Bieniek[1], E.A. Bajcar[1], J. Brączyk[1], M. Niedbał[1], P. Bąbel[1]

[1]*Jagiellonian University, Kraków, Poland*

Methods: 66 healthy volunteers are randomized to one of the groups: experimental, control and natural history. The experimental group follows the sequence of: first pain stimulation, first pain recall, memory modification, second pain recall, second pain stimulation phases. During the pain stimulation, thermal pain is applied to the participant's forearm (45.5°C for 1 minute). During pain recall, participants are asked to recall how intense was the pain they felt during the last stimulation and rate it on the Visual Analogue Scale (VAS). In the memory modification phase (that is present only in the experimental group), they are acquainted with pain ratings supposedly provided by other study participants, indicating that they experienced more intense pain (+25 points on the VAS) despite undergoing the same stimulation. In the control group, participants undergo two pain stimulation and two pain recall phases, and in the natural history group participants undergo only the pain stimulation phases.

Results: The data collection is currently ongoing, and the findings will be presented on the poster.

Conclusions: The study has the potential to shed light on the impact of social information suggesting hyperalgesia on both pain perception and memory of pain and its findings have potential clinical implications.

1456

CHRONIC POST-SURGICAL PAIN IN CHILDREN AND ADOLESCENTS: PREVALENCE AND RISK FACTORS 3 MONTHS AFTER SURGERY

E. Sánchez-Rodríguez[1], J. Miró[1], V. Sánchez[2], N. Montferrer[2], R. Perera[2], M. Feliu[2]

[1]*Universitat Rovira i Virgili, Tarragona, Spain,* [2]*Hospital Universitari Vall d'Hebron, Barcelona, Spain*

Methods: Seventy-eight children and adolescents between 8 and 18 years old were interviewed three times: (1) before surgery, (2) 48-72h post-surgery and (3) 3 months post-surgery. They were asked to report data about the pain intensity, quality of life, and pre- and 48-72h post-surgery data on pain catastrophizing, pain anxiety, pain coping strategies and pain beliefs. Percentages to estimate prevalence and logistic regression analyses to identify risk factors were performed.

Results: The prevalence of CPSP 3 months after the surgery was 15%. Neither sex nor age emerged as significant predictors of CPSP. Concerning presurgical variables, disability beliefs predicted CPSP (OR= 5.1; p= .034). In addition, disability beliefs and solicitousness beliefs assessed 48-72h after surgery also predicted CPSP 3 months later (OR= 17.19 and .155; ps= <.05), with beliefs about solicitousness emerging as protective factor of CPSP at 3 months

Conclusions: CPSP is common in children and adolescents. The study findings suggest that psychosocial interventions aimed at changing disability beliefs and promoting more adaptive beliefs may help prevent the development of CPSP. In addition, further research is needed to determine the risk factors for developing CPSP.

1457

INVESTIGATING MULTISENSORY HYPERSENSITIVITY AND SELF-REPORTED PERCEPTUAL ABILITY IN FIBROMYALGIA

H. Shepherd[1], C. Brown[2], E. Poliakoff[1], R. Brown[1]

[1]University of Manchester, Manchester, United Kingdom, [2]University of Liverpool, Liverpool, United Kingdom

Methods: One hundred and eighty-eight people with fibromyalgia and 121 controls completed the Sensory Hypersensitivity Scale (tolerance) and the Sensory Perception Quotient (discrimination/detection).

Results: Pre-registered group comparisons revealed that the fibromyalgia group reported hypersensitivity (reduced tolerance) across all measured sensory modalities and increased judgements of their perceptual ability (discrimination/detection) on all modalities except smell and taste. Exploratory cluster analysis identified two fibromyalgia subgroups who primarily differed in judgements of their perceptual ability.

Conclusions: These findings suggest that fibromyalgia is a heterogenous condition with diverse sensory features that could be addressed through treatments focussing on non-pain perceptual processing. Future research should consider whether the subjective enhancements in perception reported by people with fibromyalgia are matched by superior objective perceptual ability.

1459

TELEMEDICINE: ANALYSIS OF PROS IN A CLINICAL MODEL BASED ON TELEMEDICINE

L. Polino[1,2], T.L. Rodriguez Araya[1], J. Llorente[3], A. Arias Gassol[1], X. Torres Mata[1], E. Beltran Catala[2], A. Pros Simon[2], M.V. Abad Peruga[2], C. Perez Garcia[2]

[1]Hospital Clinic, Barcelona, Spain, [2]Hospital del Mar, Barcelona, Spain, [3]Institut Hospital del Mar d'Investigacions Mèdiques - IMIM, Barcelona, Spain

Methods: Quasi-experimental non-inferiority study based on TM. RA/AS/PSA patients in clinical remission >1 year included. Presencial visits at 0 and 12 months. Follow-up TM visits at 4 and 8 months. **Figure1** shows the variables collected. At inclusion, 4-8 and 12 months, PROs and satisfaction were collected. An analysis of variance has been performed.Figure 1 (Study Design).pdf

Results: Table1 summarizes all the PROS results. No differences were observed in the analysis of the means of the PROs at baseline and final. No differences were found in the mean degree of satisfaction of patients. Analyzed separately, RA and PSA patients express less satisfaction in the TM follow-up despite the fact that the final scores are higher than 8. It is probably related to the greater complexity and peripheral polyarticular involvement of these diseases.Table-1- PROs and Satisfaction Results.pdf

Conclusions: No differences were observed in the PROs analyzed with this model based on TM. No difference in satisfaction was found in this model based on TM.

1460

GENERAL PRACTITIONERS' RESPONSE TO A COPING-ORIENTED TREATMENT-CONCEPT AS AN ALTERNATIVE TO OPIOID PRESCRIPTIONS FOR CHRONIC PAIN (NOMED)

P. Borchgrevink[1], M. Glette[2], P.D. Jost[3], J. Bjertnæs[2], S.H. Butler[4], A. Woodhouse[2], T. Landmark[2], I. Løge[3], A. Steinsbekk[2]

[1]St. Olavs hospital, - Velg -Trondheim, Norway, [2]Norwegian University of Science and technology, NTNU, Trondheim, Norway, [3]NHI, Trondheim, Norway, [4]Uppsala University, Uppsala, Sweden

Methods: A Mentimeter survey carried out at a meeting with 70 (out of 200) GPs from Trondheim city, mapped their current attitudes and experiences with opioid treatment. The survey was followed by a lecture on the NOMED concept that involves mapping of 17 factors that to varying degrees may reinforce and maintain chronic pain. Supported by their GPs, the patients choose one or more factors they want to work with in order to improve coping strategies. In

the following consultation the GP gives advice on the chosen factor(s) based on texts and videos published in the Norwegian online medical handbook.

Factors that may reinforce and/or maintain chronic pain	
Insomnia	Sense of injustice
Fatigue	Previous psychological trauma
Physical decondition	Rumination
Fear and avoidance	Feeling of rejection (by health care)
Catastrophizing	Ongoing desire for further examinations
Anxiety	Ongoing desire for analgesics
Health anxiety	Problems with close relations/ next of kin
Depression	Worries and problems with work situation
Loneliness	

Results: Of 70 GPs, 87% participated in the mentimeter-survey. Almost all the respondents (94%) stated that they were either completely or fairly motivated to use NOMED. While 88% stated that they were confident when to prescribe opioids, the answers on how good they were to avoid prescribing were divided: 51% responded “good” or “very good” and 49% “not good” or “bad”.

Conclusions: It seemed to be a discrepancy between what the GPs thought was right and what they were able to comply with in terms of opioid treatment. NOMED might be a promising alternative to opioid prescriptions for chronic pain.

1461

INVESTIGATING PAIN PERCEPTION UNDER FOCUSED HYPNOTIC ANALGESIA: LOCAL AND REMOTE EFFECTS

A. Van Caekenberghe[1], V. Legrain[2]

[1]UCLouvain, Brussels, Belgium, [2]UCLouvain, Brussels & Louvain-la-Neuve, Belgium

Methods: The experiment consisted on measuring pain perception before, during and after suggestion of focused hypnotic analgesia. To do so, the protective glove technique was used and consisted for each participant on building a protection on one of their forearm in order to protect it against pain and discomfort. Under each experimental conditon, 20 nociceptive stimulations were equally applied to the left and right forearms in a random order using contact heat thermodes. After each stimulation, participants had to rate the stimulation in terms of pain and discomfort. Hypnotic suggestibility was assessed using the ELKINS hypnotizability scale (EHS).

Results: Preliminary results show a decrease in pain perception on the forearm on which hypnotic analgesia is focused as compared to the other forearm. Surprisingly, two tendencies are observed after the removal of the protection. For some participants, a hypersensibility to pain is perceived on the side on which the protection had been applied, where for others pain perception decreases even more after instruction for removing the protection. Finally, the valence of the effects varies according to the participants› hypnotic suggestibility.

Conclusions: Hypnotic analgesia is a process able to selectively modulate pain perception.

1464

EFFECT OF MUSCULAR STRETCHING ON PAIN PERCEPTION THRESHOLDS

C. Kelecom[1], L. Cuchet[1], L. Lahaeye[1], C. Denaeyer[1], J. Mellier[1], D. Zarka[1], W. Salem[1], A. Bengoetxea[1]

[1]Université Libre de Bruxelles, Brussels, Belgium

Methods: 27 healthy subjects (14 women and 13 men) from 19 to 33 years old participated in this study. Pain thresholds to pressure (PPT), to heat (HPT), to cold (CPT) were measured at 4 anatomical locations in the same

dermatome and in 3 ankle positions : plantar flexion (PF), neutral position (NP), dorsal flexion (DF). Thermal measurements were performed with the TSA II (Médoc) and PPT were measured using a force sensor (Optoforce ©).

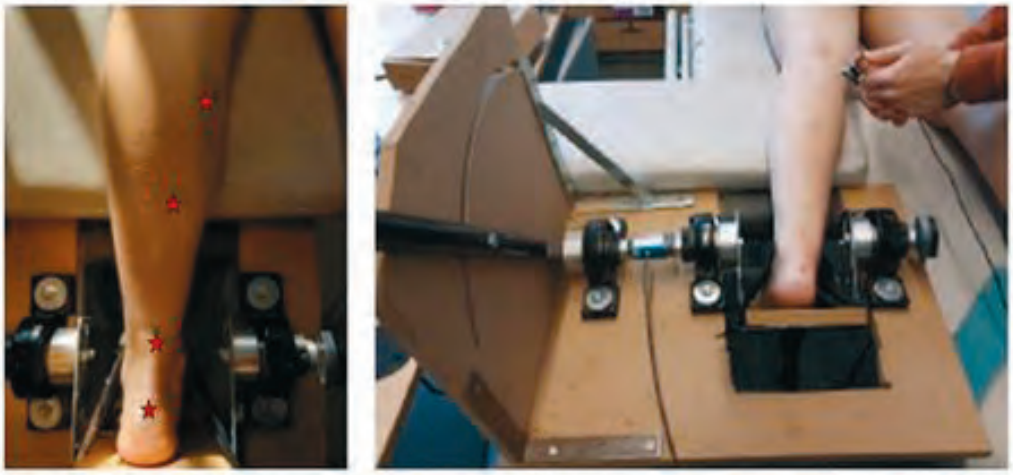


Figure 1 : Anatomical points tested and biomechanical setup for stiffness

Results: Cold pain perception threshold was reduced with increasing tissue stiffness (19.9 (2.6)°C for DF and 22.2(1.8)°C for NP). But for heat and pressure pain perception thresholds, it is the relaxation of the myofascial structures that causes a reduction (44.8(1.2)°C for PF and 45.9(0.9)°C for NP, and 62.6(8) N for PF and 70.5(9.4)N for NP, respectively). With regard to the anatomical location, the most sensitive point is the muscular point compared to the tendinous and osteo-tendinous points, whether for the threshold of perception of pain in cold, heat or pressure.

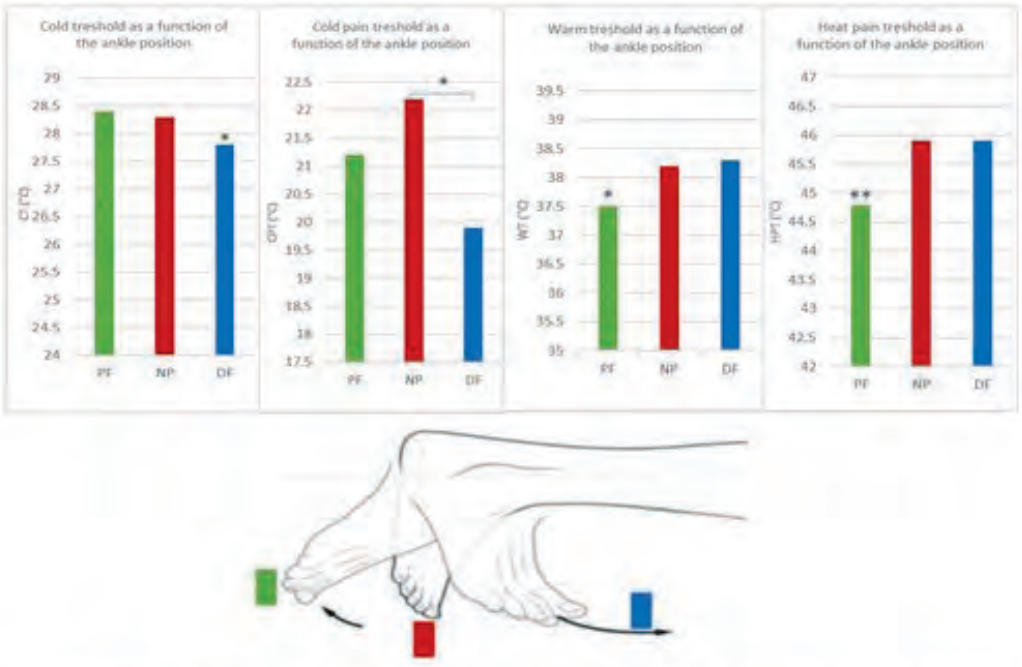


Figure 3 : Cold, cold pain and warm, heat pain perception thresholds for 3 ankle positions

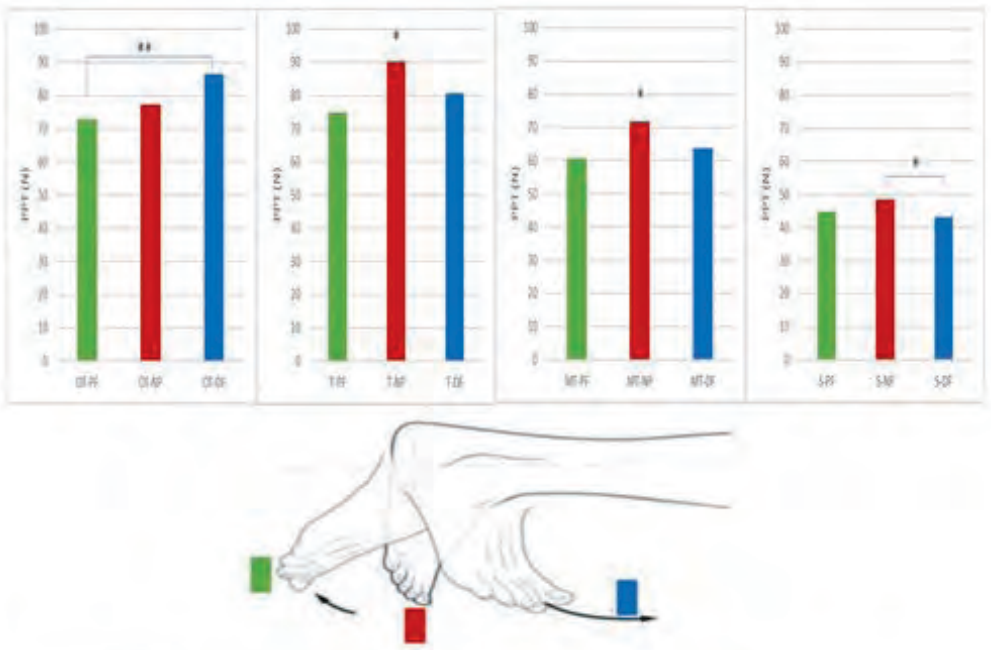


Figure 2 : Pressure pain thresholds for 4 anatomical points and 3 ankle positions

Conclusions: Biomechanical and anatomical parameters of the musculoskeletal system modulate pain perception thresholds for thermal and mechanical modalities.

1465

UNRAVELING THE IMPACT OF ALPHA OSCILLATIONS ON PAIN PERCEPTION: INSIGHTS FROM A REGISTERED REPORT ON AN EEG-BASED NEUROFEEDBACK STUDY

L. Tiemann[1,2], V.D. Hohn[1,2], F. Bott[1,2], E.S. May[1,2], C. Fritzen[1,2], M.M. Nickel[1,2], C. Gil Ávila[1,2], M. Ploner[1,2,3]

[1]Technical University of Munich (TUM), School of Medicine, Department of Neurology, Munich, Germany, [2]TUM, School of Medicine, TUM-Neuroimaging Center, Munich, Germany, [3]TUM, School of Medicine, Center for Interdisciplinary Pain Medicine, Munich, Germany

Methods: We established and pre-registered a sham-controlled, double-blind, electroencephalography (EEG)-based neurofeedback protocol. In two sessions (verum and sham neurofeedback), healthy participants learn to modulate their somatosensory alpha oscillations using attention in two conditions (left and right focus) while receiving painful stimuli to the left hand. Using Bayesian statistics to we assess how the experimental manipulations (attentional focus / neurofeedback) impact alpha oscillations and pain ratings.

Results: Interim results (n = 25) provide strong evidence that the attentional focus modulates somatosensory alpha oscillations (BF_{10} = 90). The evidence for a neurofeedback effect on alpha oscillations is inconclusive (BF_{10} = 0.81 < 0.90). Regarding pain perception, the results provide evidence for a weak effect of attentional focus (BF_{10} = 2.9) and against an effect of neurofeedback (BF_{10} = 0.09 < 0.17).

Conclusions: Our findings confirm a link between attention, alpha oscillations, and pain perception. The evidence for an effect of neurofeedback is currently inconclusive (alpha oscillations) or absent (pain perception). However, as the study is ongoing, more evidence will be gathered. Together, the results emphasize the role of attention and alpha oscillations in shaping pain, which might aid the development of novel, non-invasive treatment approaches for chronic pain.

1467

AN EEG-BASED INTRINSIC BRAIN NETWORK PERSPECTIVE ON CHRONIC PAIN: A MULTI-DATASET STUDY

F.S. Bott[1], P.T. Zebhauser[1], V.D. Hohn[1], Ö. Turgut[1], C. Gil Ávila[1], E.S. May[1], H. Heitmann[1], J. Gross[2], M. Ploner[1]

[1]Technical University of Munich, Munich, Germany, [2]University of Muenster, Muenster, Germany

Methods: To assess the function of intrinsic brain networks, we analyze resting state EEG data from 236 patients suffering from different types of chronic pain recorded in our lab. Further, to test the reliability of results, we have gathered resting state EEG data from at least four sites worldwide comprising, in total, at least 319 patients. Using a pre-specified preprocessing and analysis pipeline, including univariate and machine learning-based techniques, we evaluate connectivity between intrinsic brain networks and investigate how these brain measures relate to the intensity of pain. Secondary analyses will explore additional dependent variables such as type of pain and depression.

Results: To conform with open science guidelines, we preregistered the study on OSF.

Conclusions: We will conduct all pre-specified analyses once the ongoing data transfer from external contributors is complete and will report the results of this first multi-dataset EEG study on chronic pain.

1470

EXPLORING THE DETERMINANTS OF PRESCRIPTION OPIOID USE AMONG CHRONIC PAIN PATIENTS WITH PAIN-ASSOCIATED MEDICAL ILLNESSES: A COMPREHENSIVE PREDICTIVE MODELING APPROACH

A. Zare[1,2], C. Tanguay-Sabourin[1,3,2], G. Guglietti[1,2], J. Norman[1,2], M. Fillingim[1,2], M.O. Martel[1,2], E. Vachon-Presseau[1,2]

[1]McGill University, Montreal, Canada, [2]Alan Edwards Centre for Research on Pain, Montréal, Canada, [3]Montréal University, Montréal, Canada

Methods: Data was obtained from 195,808 CNCP participants from the UK Biobank. Associations between opioid use and 11 major NCIs as well as the number of reported NCIs were described using odds ratios (OR). Separate predictive models of opioid use were developed from 1) sociodemographic, lifestyle, mental health, and anthropometric measures (i.e., pain-agnostic model) and 2) acute and chronic pain location (i.e., pain model). Models' diagnostic abilities were evaluated using Cohen's-d effect sizes comparing NCI groups with NCI-free group.

Results: Opioid use was associated with all NCIs, with ORs ranging from 5.5,[95%CI:5.49-5.84] for musculoskeletal and trauma comorbidities and 1.29,[95%CI:1.24-1.35] for immunological comorbidities. Opioid use was strongly associated with the number of reported NCIs and the likelihood of using opioids linearly increased with the number of illnesses. The pain-agnostic model showed stronger discriminability between NCI groups and the NCI-free group compared to the pain model, with moderate effect sizes across all categories (average Cohen's-d=0.40, P-value<0.001).

Conclusions: Our results suggest that CNCP patients with comorbid conditions are more likely to receive opioid prescriptions. CNCP patients diagnosed with NCIs had significantly higher pain-agnostic risk scores compared to the NCI-free group, indicating opioids may be prescribed to co-treat both pain and overall poor functioning.

1472

MULTISENSORY INTERACTIONS BETWEEN NOCICEPTION AND VISION THROUGH THE LOOKING GLASS

A. Kuzminova[1], L. Filbrich[2], V. Legrain[1]

[1]UCLouvain, Brussles, Belgium, [2]UCLouvain, Brussels, Belgium

Methods: To this aim, we used a visual temporal order judgment task (TOJ) in which pairs of visual stimuli were presented, one to each side of space. Those visual stimuli were preceded by a nociceptive stimulus applied only on one of the hands to attract attention in one side of visual space. Visual stimuli were presented either at a far distance from the participants' hands or at a similar distance but indirectly seen near the hands through a mirror. It

was expected that visual judgments would be biased to the advantage of the visual stimulus presented in the same side of space as the stimulated hand. Moreover, it was hypothesized that the visual bias induced by the nociceptive stimulus will be stronger in the mirror condition than in far condition, i.e. the condition without the mirror, even though stimuli are projected at a similar retinal distance in both conditions

Results: Results showed that indeed, nociceptive stimuli facilitated more significantly the perception of visual stimuli in the mirror condition.

Conclusions: Multisensory interaction between nociception and vision seems driven by a mental representation of the peripersonal space.

1473

INTEGRATION OF OSTEOPATHY IN INTERDISCIPLINARY MEDICINE: A CHALLENGE?

J. Mellier[1,2], M. Bichard[3], D. Zarka[3,4], W. Salem[3], N. Kacenelenbogen[5,6], A. Bengoetxea[3]

[1]Université Libre de Bruxelles/ Research Unit in Sciences of Osteopathy, Brussels, Belgium, [2]Université Libre de Bruxelles/ Research Center in Social Approaches to Health, Brussels, Belgium, [3]Université Libre de Bruxelles/ Osteopathy Sciences Research Unit, Brussels, Belgium, [4]Université Libre de Bruxelles/ Laboratory of Neurophysiology and Movement Biomechanics, Brussels, Belgium, [5]Université Libre de Bruxelles/ Department of General Medicine, Brussels, Belgium, [6]Université Libre de Bruxelles/ Primary Care Research Unit, Brussels, Belgium

Methods: 11 individual interviews and 5 focus groups were conducted. Various actors practicing in French-speaking Belgium were thus interviewed using semistructured interview grids. The analysis was carried out using the inductive method.

Results: A total of 40 participants were interviewed. Confidence, definition of competencies, development of quality and interdisciplinary teaching, participation in congresses and seminars, and reported clinical results are facilitators for the integration of osteopathy. The creation of innovative economic models promotes collaboration and access to this care. The main barriers are financial, organizational, and collaborative: unclear competencies, lack of communication, and gaps in education between professionals. Poor caregiver experiences or biases and limited scientific evidence were also reported as significant barriers. Several benefits of integrating osteopathy emerged from the stories. This integration allows: better accessibility for vulnerable people, simplified communication, mutual enrichment of professionals, better quality of diagnosis and treatment, and reduced costs.

Conclusions: The various obstacles could be minimized by the development of scientific research in osteopathy, by political and organizational will, and by the development of collaborative and quality teaching.

1474

EARLY TREATMENT OF INTER-COSTO-BRACHIAL NEURALGIA IN THE FIRST YEAR AFTER BREAST CANCER SURGERY: A MULTICENTER RANDOMIZED CONTROLLED CLINICAL TRIAL.

D. Dupoiron[1], F. Bienfait[1], V. Seegers[1], A. Julienne[1], Y.M. Pluchon[2], N. Lebrec[1], F.X. Piloquet[1], S. Robard[1], M. Pechard[3], K. Mezaib[4], S. Jubier- Hamon[1]

[1]Institut de cancerologie de l'Ouest, Angers, France, [2]Centre Hospitalier de la Roche sur Yon, La Roche sur Yon, France, [3]Institut Curie, Paris, France, [4]Institut Gustave Roussy, Villejuif, France

Methods: In this randomized-controlled, multicenter, open label, non-inferiority trial, patients were screened and randomized to either treatment with HCCP (A) applied at study sites or, daily doses of up to 300 mg pregabalin (B). After 3 months, patients could continue/switch to the other treatment. Pain intensity was recorded on a numeric pain rating scale (NPRS), other efficacy measures included the mapping of the painful area, the PGIC, EQ-5D and HADS. Furthermore tolerability was assessed. Non-inferiority margin used the average 24 hour maximal NPRS score 2 months after randomisation and was pre-defined (see Figure 2).

Results: Patient disposition is described in Figure 1 and demographic data in Table 1. Non-inferiority of HCCP and pregabalin was demonstrated on the primary endpoint. 52.9% of patients switched after 2 months from pregabalin to HCCP (n= 27); no patient switched from HCCP to pregabalin. Patients who continued HCCP treatment, continued to see improvement in their pain intensity (Figure 3). Adverse events are described in Table 2.

Conclusions: HCCP was shown to be non-inferior regarding pain intensity reductionand superior regarding tolerability of compared to pregabalin. These results confirm the value of HCCP as a first line treatment for cancer patients with PSNP following breast surgery.

1476

PREDICTION OF ACUTE POSTOPERATIVE PAIN INTENSITY AND DURATION OF STAY IN THE POST ANESTHESIA CARE UNIT FROM ASSESSMENT OF PAIN ASSOCIATED WITH VENOUS CANNULATION

T. Ögren[1], C. Ögren[2,3], E. Varkey[4,5], M. Ringdal[6], A. Wolf[7,8,9], P. Andréll[9,7]

[1]Linköping University, Linköping, Sweden, [2]Frölunda Specialist Hospital, Gothenburg, Sweden, [3]Institute of Clinical Sciences at the Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [4]Sahlgrenska University Hospital, Department of Occupational Therapy and Physiotherapy, Gothenburg, Sweden, [5]Department of Health and Rehabilitation/Physiotherapy, Institute of Neuroscience and Physiology, Sahlgrenska Academy, Gothenburg, Sweden, [6]Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [7]Department of Anaesthesiology and Intensive Care, Sahlgrenska University Hospital, Gothenburg, Sweden, [8]Faculty of Health Sciences Department of Nursing and Health Promotion Acute and Critical Illness, Oslo Metropolitan University, Oslo, Norway, [9]Department of Anaesthesiology and Intensive Care/Pain Centre, Sahlgrenska University Hospital, Gothenburg, Sweden

Methods: All adult patients scheduled for elective laparoscopic cholecystectomy at two county hospitals were invited to participate in the study. Pain intensity during VCP was assessed by Numeric Rating Scale (NRS) during VCP before surgery. Primary endpoint was difference in maximum postoperative pain intensity during stay in PACU as well as time in PACU between patients reporting low pain intensity during VCP (NRS ≤2) and high pain intensity during VCP (NRS >2).

Results: In total, 257 patients were included in the study. Patients with VCP NRS >2 reported significantly higher maximum pain intensity during stay in PACU (NRS 5 vs. 4, $p<0.001$) and longer duration of stay (144 minutes vs. 114 minutes, $p=0.001$) compared to patients with VCP NRS ≤2.

Conclusions: The results from the present study further support the predictive ability of pain assessment during venous cannulation regarding postoperative pain intensity. Furthermore, VCP predicts time in PACU. Rating VCP to assess risk of postoperative pain is a simple bedside test that may be easily incorporated into preoperative clinical routine.

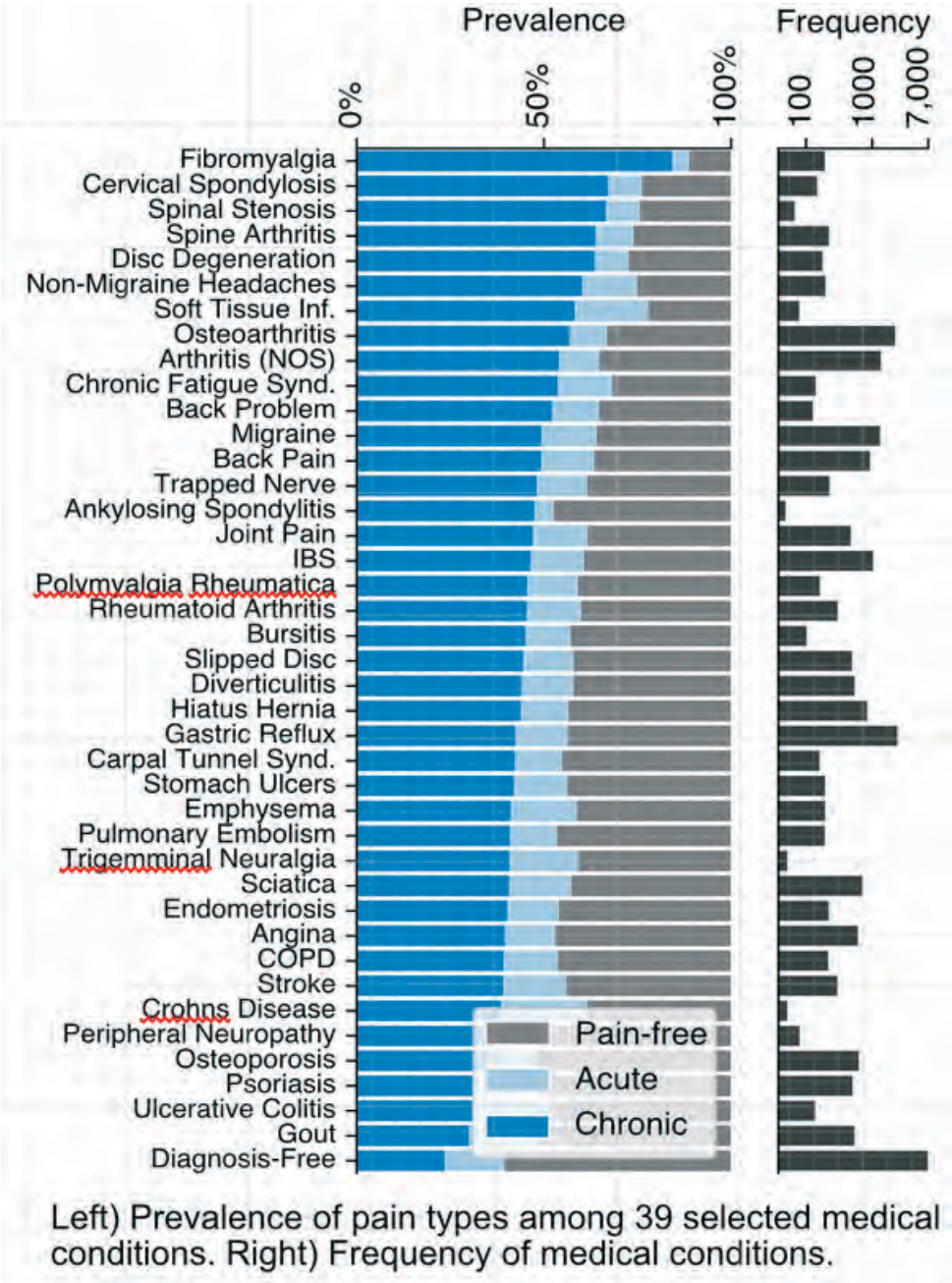
1478

BIOMARKERS FOR SPECIFIC ETIOLOGIES, PATHOPHYSIOLOGIES AND SYMPTOMS OF CHRONIC PAIN

M. Fillingim[1], C. Tanguay-Sabourin[2], A. Zare[1], G. Guglietti[1], J. Norman[1], E. Vachon-Presseau[1]

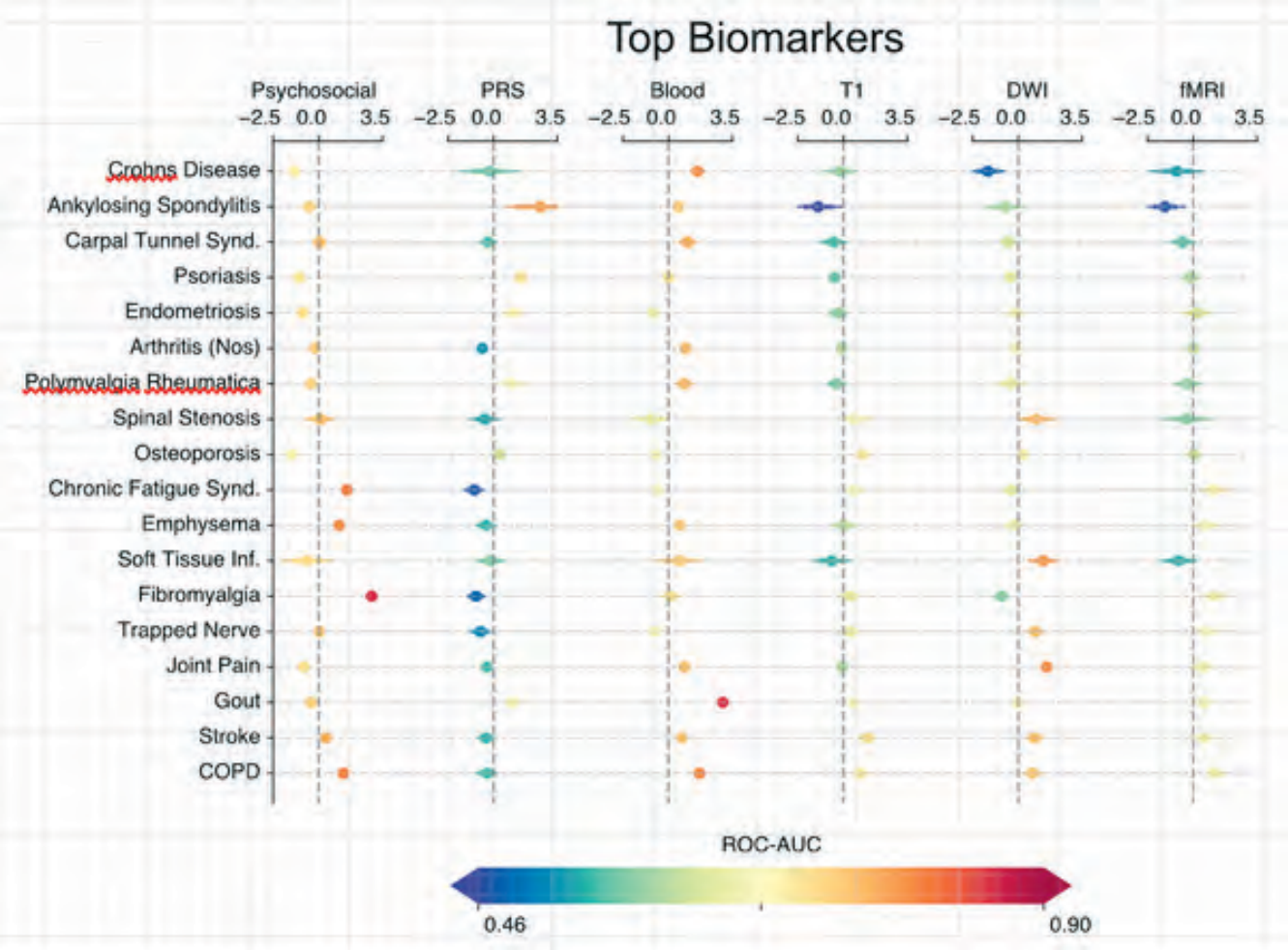
[1]McGill University, Montreal, Canada, [2]University of Montreal, Montreal, Canada

Methods: The study used data from 493,211 UK Biobank participants. We trained machine learning models to predict 39 pain-associated medical conditions (i.e., derive biomarkers) based on brain imaging, blood immunoassays, and genome-wide associations.



Left) Prevalence of pain types among 39 selected medical conditions. Right) Frequency of medical conditions.

Results: Our study findings underline the fact that different biological factors predict various medical conditions. For instance, blood immunoassays proved most effective in predicting gout and Crohns Disease, while diffusion-weighted imaging (DWI) was superior in forecasting conditions such as joint pain and soft tissue inflammation. Further, we found that medical conditions characterized by similar clinical classifications of pain (nociplastic, nociceptive, neuropathic) tended to be predicted by similar biological indicators. For example, resting-state functional magnetic resonance imaging (rsfMRI) proved most effective in predicting nociplastic pain conditions such as widespread pain, fibromyalgia and chronic fatigue syndrome. The top 18 biomarkers, chosen based on their highest ROC-AUC scores in predicting medical conditions are presented below.



Conclusions: Our findings indicate that various biological markers could potentially predict diverse types of chronic pain conditions, furthering our understanding of their etiology and potentially guiding targeted treatment strategies. Additionally, it emphasized the importance of characterizing pain conditions based on etiology and biological factors to identify clinically useful biomarkers.

1479

COMPARISON OF BIOPSYCHOSOCIAL APPROACH AND CONVENTIONAL APPROACH IN THE TREATMENT OF BLADDER PAIN SYNDROME - PRELIMINARY RESULTS OF A RANDOMIZED CLINICAL TRIAL

H. Yazici İlhan[1], S. Özgül[2], T. Akbayrak[2], N. Mangır[2], G. Gülören[2], C. Gürşen[2]

[1]Baskent University, Ankara, Turkey, [2]Hacettepe University, Ankara, Turkey

Methods: Twenty-eight women (Table 1) with BPS were randomly assigned to the biopsychosocial PT (comprising of pain neuroscience education, cognition-targeted exercises, and relaxation training) or the conventional PT approach group (comprising of standard education, TENS, stretching exercises). All interventions were performed twice a week for six weeks. Primary (symptom severity, pain intensity) and secondary outcome measures (disability, pain cognitions, psychological symptoms) were evaluated at baseline and post-treatment (at 6-weeks). Differences in outcome measures within and between groups were analyzed by the two-way ANOVA.

Results: In both groups, the symptom severity, pain intensity, and disability significantly improved over time ($p<0.05$). The significant within-subject effect was found for pain cognitions and psychological symptoms in the biopsychosocial PT group ($p<0.05$). There was no significant groupxtime interaction effect for all outcomes ($p>0.05$) (Table 2).

Table1: Comparisons of outcome measures between and within groups.			
Demographic and Physical Characteristics	**Biopsychosocial PT Approach (n=13)**	**Conventional PT Approach (n=15)**	**p value**
Age (years)	45,77±14,01	50,27±11,05	0,351
BMI (kg/ m²)	26,07±4,99	26,22±4,57	0,937
Primary symptom duration (months)	42,00(24,00-48,00)	36,00(24,00-96,00)	0,395

Table 2: Comparisons of outcome measures between and within groups.				
Outcome	**Time point**	**Biopsychosocial PT Approach (n=13)**	**Conventional PT Approach (n=15)**	**Between Groups Effect (F;p value)**
Symptom Severity (Interstitial Cystitis Symptom and Problem Index)	Baseline	22,69±5,94	24,60±7,35	0,567; 0,458
	At 6 weeks	16,77±7,54	16,73±6,87	
	Within subjects effect F; p value	15,164; **0,002**	15,336; **0,002**	
Pain Intensity Visual Analog Scale (cm)	Baseline	6,35±2,10	6,00±1,97	0,124; 0,727
	At 6 weeks	4,18±2,80	3,98±2,95	
	Within subjects effect F; p value	11,451; **0,005**	6,50; **0,023**	
Pain Disability (Pain Disability Index)	Baseline	41,08±9,52	34,33±10,19	0,939; 0,341
	At 6 weeks	28,15±9,94	27,73±14,45	
	Within subjects effect F; p value	18,131; **0,001**	4,640; **0,049**	
Pain Catastrophizing (Pain Catastrophizing Scale)	Baseline	35,08±10,33	28,73±11,42	0,541; 0,468
	At 6 weeks	21,77±12,44	22,20±14,06	
	Within subjects effect F; p value	16,149; **0,002**	4,352; 0,056	
Self- Efficacy (Pain Self Efficacy Questionnaire)	Baseline	20,85±13,73	28,13±12,76	0,944; 0,340
	At 6 weeks	31,77±11,55	32,87±14,68	
	Within subjects effect F; p value	13,798; **0,003**	1,353; 0,264	
Psychological Status (Hospital Anxiety and Depression Scale)	Baseline	18,69±5,33	16,27±9,48	0,027; 0,870
	At 6 weeks	13,62±5,12	15,13±9,88	
	Within subjects effect F; p value	5,110; **0,043**	0,944; 0,348	

Conclusions: The biopsychosocial PT approach can be promising for improving symptoms and changing maladaptive pain cognitions in the first-line management of BPS. Further RCTs with a larger sample size are needed.

1480

EMOTIONAL REGULATION STRATEGIES AND PAIN IN PERSONS WITH TRAUMA WITH AND WHITOUT POST-TRAUMATIC STRESS DISORDER

E. Miró[1,2], M.P. Martínez[1,2], A.I. Sánchez[1,2], A. Raya[1], G. Medina[1]

[1]Universidad de Granada, Granada, Spain, [2]Mind, Brain and Behaviour Research Centre, Granada, Spain

Methods: A cross-sectional study including 1542 adults of both sexes who completing instruments on traumatic experiences, pain, sleep quality, emotional distress (anxiety and depression) and emotional regulation was carriet out. The instruments are applied online through the LimeSurvey platform and disseminated on social networks. Descriptive statistics and Student's t-test will be computed using the SPSS software (28.0.1.0). Funding: PID2019-109612GB-I00

Results: A 46.9% of the total sample (n = 724) had experienced trauma, and 313 participants met DSM-5 diagnostic criteria for PTSD. The subgroup with trauma showed more pain and less sleep quality than the subgroup without trauma, but no differences in emotional distress or emotional regulation. The subgroup with PTSD showed more pain, less sleep quality, more emotional distress and poor emotional regulation strategies than the subgroup without PTSD.

Conclusions: Emotional processing of a trauma seems to be more important than the occurrence of the trauma per se, however experiencing trauma is associated with more pain and poor sleep even if there is not significant emotional problems.

1481

EXPLORING VARIANCE OF BACK PAIN BELIEFS BETWEEN EDUCATION LEVEL AND WORKING STATUS GROUPS AMONGST ELDERS SEEKING PRIMARY CARE FOR BACK PAIN

R. Nekstad[1], E. Brown[2], Ø.N. Vigdal[3], M. Grotle[3], R. Munk[3], A.T. Tveter[3,4], M.C. Småstuen[3], K. Storheim[5,3]

[1]School of Healthcare Management, Arden University, Coventry, United Kingdom, [2]School of Healthcare Management, Arden University, University of Applied Health Sciences Europe, Berlin, Germany, [3]Department of Rehabilitation Science and Health Technology, Faculty of Health Science, Oslo Metropolian University, Oslo, Norway, [4]Diakonhjemmet Hospital, Division of Rheumatology and Research, Oslo, Norway, [5]Oslo University Hospital, Research- and Communication Unit for Musculoskeletal Health, Oslo, Norway

Methods: Analysis of baseline Back Beliefs Questionnaire (BBQ) data from the Back Pain in Elders study in Norway, where lower BBQ scores (score range 9 -45), indicate more pessimistic BPB, was performed in 3 analysis stages. Using One-Way ANOVA and Post-hoc Bonferroni testing, BBQ scores were analysed for participants aged 55-89 years (*M* = 66.6 years, *SD* = ±8.3) amongst different education level groups (*n* = 395), working and non-working groups (*n* = 369) and employment type and retirement groups (*n* = 327).

Results:

Figure 1: Mean Total BBQ Score per Education Level Group

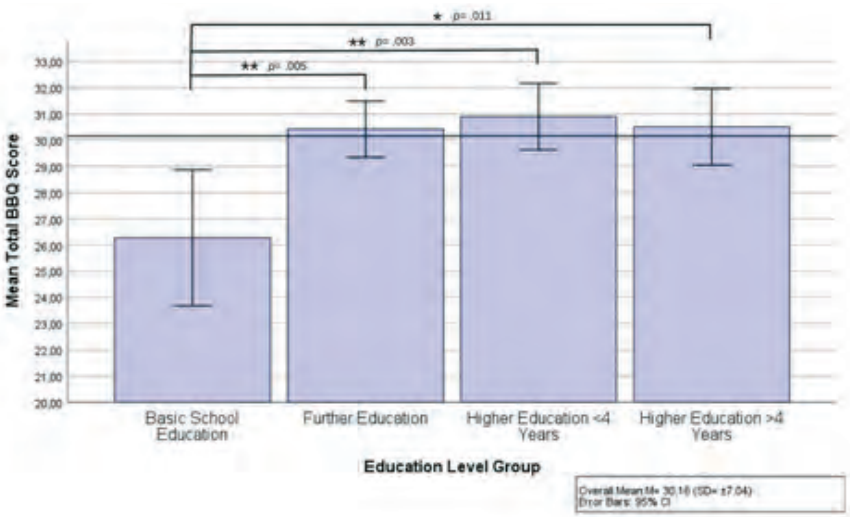


Figure 2: Mean Total BBQ Score per Working Status Group

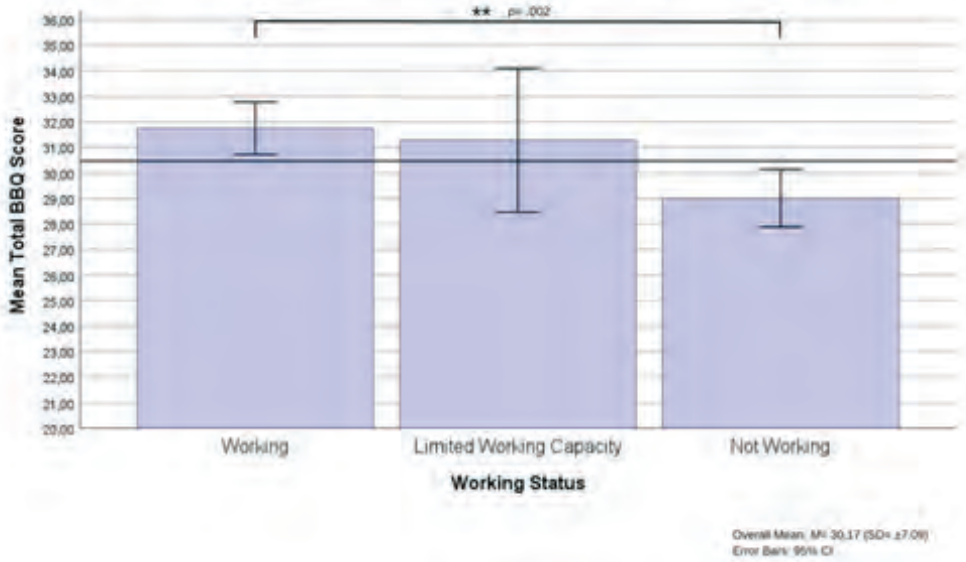


Figure 3: Mean Total BBQ Score per Working Status Group

Findings suggest participants with no education beyond basic school level, displayed significantly more pessimistic BPB compared to all other education level groups (Figure 1). Significant difference in BPB was also observed between working and non-working participant groups, where working participants displayed more positive BPB (Figure 2). Finally, the retired group displayed significantly more pessimistic beliefs than the employed group (Figure 3).

Conclusions: BPB vary amongst different education levels and working status› amongst older adults. Furthermore, results support improved consideration of older adult population specific factors, such as retirement as a unique demographic consideration, in future BP studies.

1483

UNMET NEEDS OF YOUTH WITH CHRONIC PAIN WITHOUT ACCESS TO MULTIDISCIPLINARY PAIN MANAGEMENT: THE PARENTS' PERSPECTIVES

R. de la Vega[1,2], A. Fernández[1], R. Esteve[1,2], C. Ramírez[1,2], A.E. López-Martínez[1,2], G.T. Ruiz-Párraga[1,2], E. Fernández-Jiménez[3,4], S. Oliva[2,5], S. Roldán[6], L. Monfort[7], M.J. Peláez[2,5], M. Leyva[8], A. Calviño[1], S. Márquez[1], C. Ceballos[1], E.R. Serrano[2,1]

[1]University of Málaga, Málaga, Spain, [2]Biomedical Institute of Málaga (IBIMA), Málaga, Spain, [3]Department of Psychiatry, Clinical Psychology and Mental Health, La Paz University Hospital, Madrid, Spain, [4]Hospital La Paz Institute for Health Research (IdiPAZ), Madrid, Spain, [5]Hospital Materno Infantil del Hospital Regional Universitario, Málaga, Spain, [6]Hospital Materno Infantil Virgen de las Nieves, Granada, Spain, [7]Hospital Sant Joan de Déu, Barcelona, Spain, [8]Hospital Universitario Materno Infantil Torrecárdenas, Almería, Spain

Methods: Focus groups with parents (n = 4-6 each) will be conducted at 5 reference hospitals (one per hospital or until saturation is reached). Field notes will be taken and interactions will be audio recorded and transcribed. Inclusion criteria are being a parent of a: 1) Child age 10-17 years; 2) With non-oncologic chronic pain, 3) Speaks and reads Spanish.

Results: At this point, ethics approval has been obtained and recruitment has started at the five hospitals (2 participants are enrolled). Once data is collected, a qualitative framework analysis will be used to synthetize the information. Information will be integrated in the updated CFIR framework. Outcomes will be reported following the COREQ checklist.

Conclusions: With this study, we aim to understand the pain care needs of children with chronic pain in Spain, from their parent's perspective. This study complements a focus group study that will be conducted in parallel with children.

1484

HIGH FREQUENCY, HIGH INTENSITY TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION COMPARED TO INTRAVENOUS OPIOIDS FOR POSTOPERATIVE PAIN RELIEF AFTER LAPAROSCOPIC CHOLECYSTECTOMY – A RANDOMIZED CONTROLLED MULTICENTER TRIAL

C. Ögren[1,2], E. Varkey[3,4], M. Ringdal[5], A. Wolf[6,7,8], P. Andréll[8,6]

[1]Frölunda Specialist Hospital, Region Västra Götaland, Gothenburg, Sweden, [2]Institute of Clinical Sciences at the Sahlgrenska Academy, Gothenburg, Sweden, [3]Region Västra Götaland, Sahlgrenska University Hospital, Department of Occupational Therapy and Physiotherapy, Gothenburg, Sweden, Gothenburg, Sweden, [4]Department of Health and Rehabilitation/Physiotherapy, Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [5]Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, [6]Region Västra Götaland, Department of Anaesthesiology and Intensive Care, Sahlgrenska University Hospital, Gothenburg, Sweden, [7]Faculty of Health Sciences Department of Nursing and Health Promotion Acute and Critical Illness, Oslo Metropolitan University, Oslo, Norway, [8]Region Västra Götaland, Department of Anaesthesiology and Intensive Care/Pain Centre, Sahlgrenska University Hospital, Gothenburg, Sweden

Methods: Patients undergoing elective laparoscopic cholecystectomy at two county hospitals were invited to participate. Patients reporting postoperative pain intensity ≥3 according to Numeric Rating Scale (NRS) in PACU were randomized to receive HFHI TENS vs routine care (iv opioids). TENS treatment was administered with an intensity between 40 and 60 mA for 1 minute and repeated once if insufficient pain relief. If NRS ≥3 after two TENS treatments, the patient received iv opioids.

Results: In total, 163 patients were randomized to receive HFHI TENS (n=85) or iv opioids (n=78). There was no difference between the groups regarding time in PACU (TENS 138 minutes vs opioids 142 minutes, p=0.74), time to pain relief 30 minutes after treatment (NRS TENS 1.9 vs opioids 2.0, p=0.63) and pain at PACU discharge (TENS NRS 1.73 vs. opioid NRS 1.60, p=0.58). Mean opioid dosage in the TENS group was 4.53 morphine equivalents (ME) vs 11.03 ME in the opioid group, p<0.001.

Conclusions: HFHI TENS may be considered an opioid-sparing alternative for postoperative pain relief, with no difference in length of stay, pain at discharge, or time to pain relief, compared to routine treatment with iv opioids

---

1485

CHANGE OF CORE MUSCLE STRENGTH DUE TO PAIN DURING MENSTRUATION

C. Kütük[1], E.S. Şemsipaşa[1], G. Gül[1], Z. Doğan[1], P. Van Der Veer[1]

[1]Istinye University, Istanbul, Turkey

Methods: 20 female volunteers participated in the study.Participants' sociodemographic information and anthropometric measurements were recorded.A visual Analog Scale was used to assess pain and New York Posture Analysis has been used for posture assessment.Core muscle strength and endurance were assessed with manual muscle testing,Biering-Sorenson Endurance test, lateral plank test, and MIP and MEP measurement.

Results: Participants' mean age was 22.30±1.26 and their BMI was 22.57 ±4.28. All the volunteers reported that their menstruation cycle is regular.Mean pain during the menstruation phase was measured at 5.50±1.96 and 70% of the participants reported that they don't use any pain medication.There was a statistically significant difference between the two measurements on Posture Analysis, abdominal muscle strength,also hip circumference (0.05>p).

Conclusions: Changes during menstruation do have an effect on a person's posture, abdominal muscle strength,also hip circumference measurements.These changes are affected by the pain during the menstruation phase.

Keywords: stabilization,pain,posture,menstruation,muscle strength

---

1486

RESULTS AFTER MULTIDISCIPLINARY TREATMENT IN PATIENTS WITH CHRONIC PRIMARY PAIN AND FIBROMYALGIA

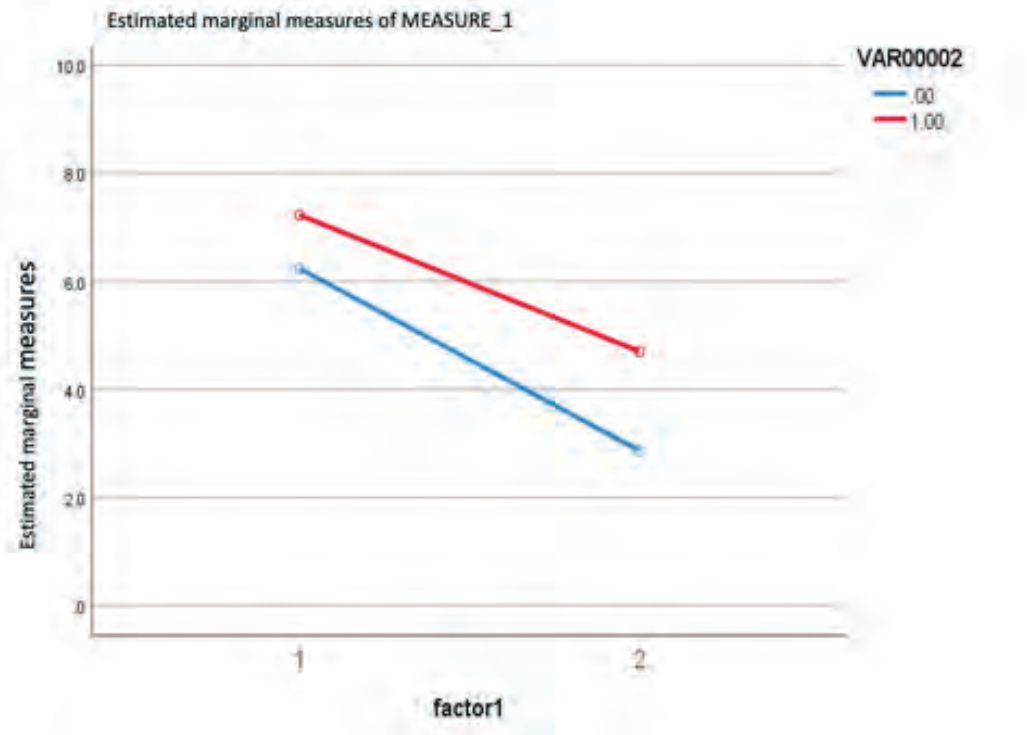
A. Arias Gassol[1], X. Torres Mata[1], T.L. Rodríguez Araya[1], L. Polino[1]

[1]Hospital Clìnic, Barcelona, Spain

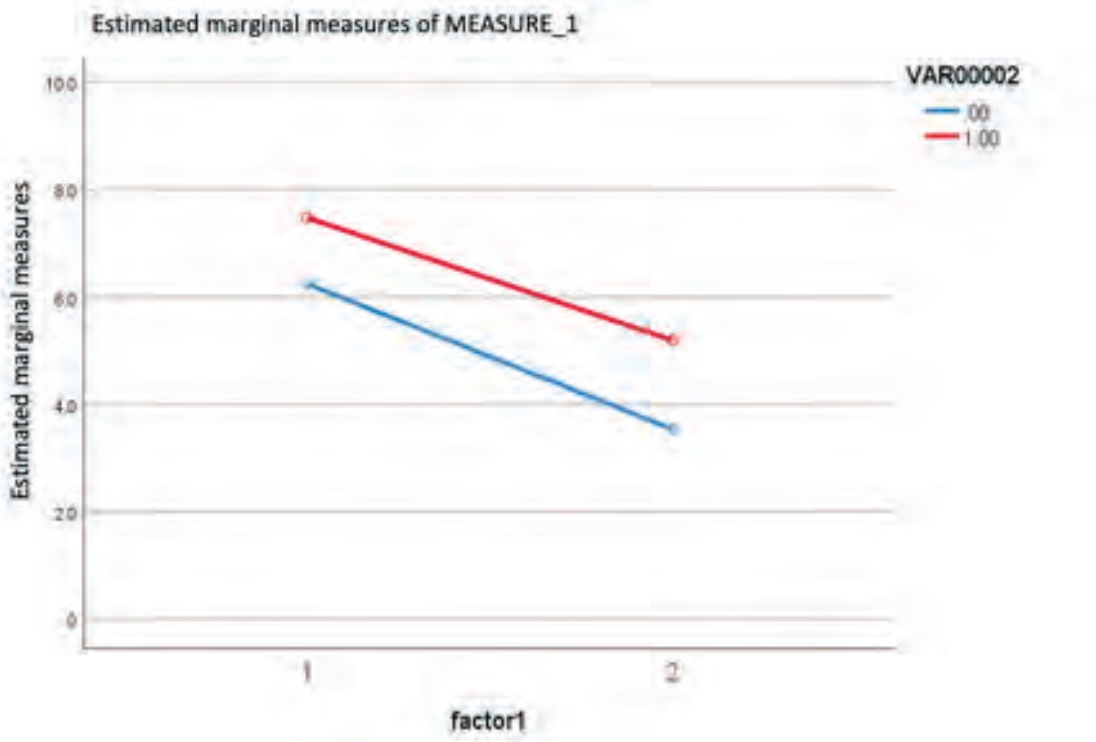
Methods: 109FM patients and 34CPP patients(NoFM) were studied, in order to compare the evolution of pain(VAS), Fatigue (VAS) and Functional capacity (measured by Fibromialgia Impact Questionnaire, FIQ) before and after a MD treatment at the MCFU at Barcelona Clinic Hospital, during 2022. In this therapy, the patient comes to our unit twice a week/six weeks and performs groupal physiotherapy sessions, individual and groupal cognitive behavioral therapy sessions with a psychologist, individual occupational therapy sessions, individual rheumatology sessions and groupal neuroeducational sessions carried out by all the professionals

Results: Pain values at the initial evaluation was VAS=7,22/10 in FM and VAS=6,23/10 in noFM and, at the end of MD therapy, pain VAS=4,702/10 in FM and VAS=2,86 in noFM. Fatigue values at the beginning was VAS=7,47/10 in FM and VAS=6,245/10 in noFM; and, at the end of treatment, VAS=5,19/10 FM and VAS= 3,54/10 in NoFM. Initial functional capacity, was 65,1747/100 in FM and 65,28/100 in noFM, at the end of treatment, FIQ was 41,23 in FM and 29,37/100 in noFM.

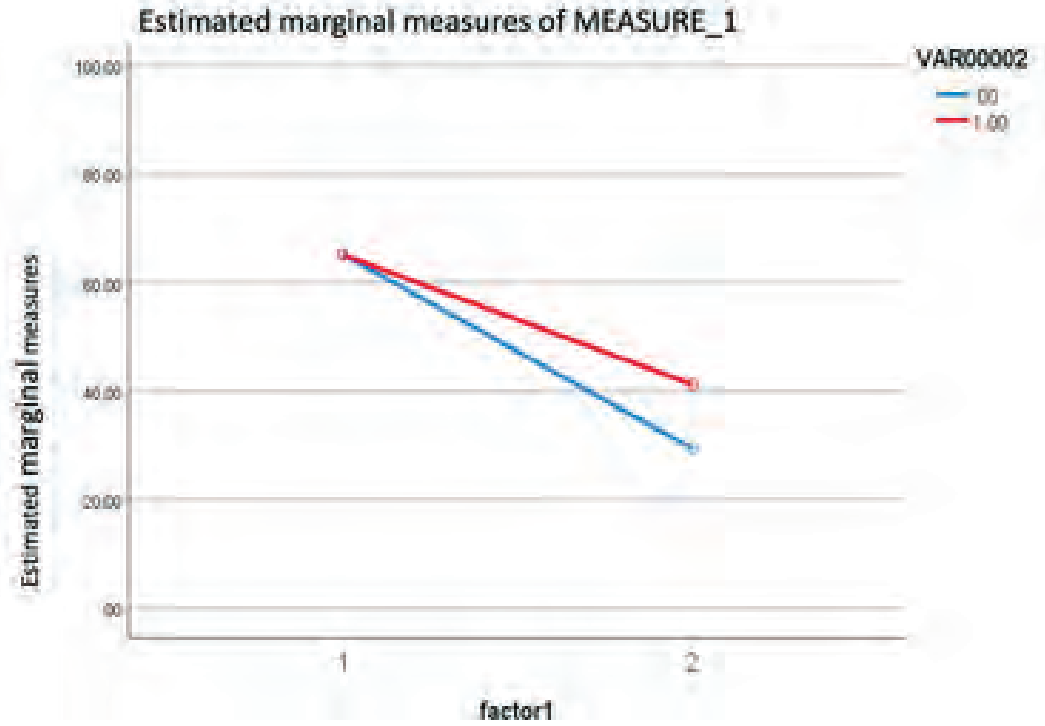
00:00NO FM; 1:00FM



PAIN



FATIGUE



FIQ

Conclusions: Once again, multidisciplinary therapy is at the forefront of therapies to treat chronic pain. In this cohort, it seems more effective in patients with chronic pain pathologies other than fibromyalgia, but it is also effective in the latter.

1489

CLINICAL AUDIT BASED ON BEST PRACTICES IN PAIN MANAGEMENT

B.V. Fontes[1,2], É. Brandão de Moraes[1], J.d.M. Antunes[2], A.M.d.O. de Oliveira[1]

[1]Federal Fluminense University, Rio de Janeiro, Brazil, [2]2- National Institute of Traumatology and Orthopedics Jamil Haddad - INTO, Rio de Janeiro, Brazil

Methods: Descriptive study carried out in a reference hospital in orthopedics in Brazil. We initially performed a context assessment with 30 nurses using the Swot tool (strengths, weaknesses, opportunities and threats). A scoping review was then performed to identify relevant studies. Recommendations are drawn from evidence summaries called JBI Evidence Summary , and best practice recommendation from the American Society of Pain Management Nurses and the American Association of Orthopedic Nurses. The identified items were structured in 3 audit instruments: patient, professional and medical record.

Results: The main evidence found in the review was: the use of non-pharmacological practices for pain relief, patient education, the use of validated pain scales, and individualized care. The instruments have a section for sociodemographic data, assessment of education given to the patient, satisfaction with the care provided, compliance with institutional routines, use of non-pharmacological practices, recording of pain assessment, and use of a validated tool, with a total of 9 questions in the instrument for patients, 17 questions in the instrument for nurses, and 10 questions to assess records in the medical record.

Conclusions: By carrying out a clinical audit, it is possible to identify effective strategies to carry out interventions, with the implementation of improvements for a better quality of care.

1492

ASSESSMENT OF EFFICACY AND SAFETY OF FIRTECH PATCH FOR THE TREATMENT OF MILD-MODERATE ACUTE LOW BACK PAIN: A PHASE III RANDOMIZED AND OPEN-LABEL CLINICAL TRIAL

G. Pickering[1], A. Mobasheri[2,3], M.R. Hamblin[4], B. Giannakopoulos[5], V. Polivka[6], M. Amessou[7], S. Hitier[7], R. Varona[7], J. Gudin[8], J. McSwan[9], P. Plapler[10]

[1]Platform of Clinical Investigation-Inserm CIC 1405; C.H.U. of Clermont-Fd, Clermont-Ferrand Cedex, France, [2]Research Unit of Medical Imaging, Physics and Technology, Faculty of Medicine, University of Oulu, Oulu, Finland, [3]World Health Organization Collaborating Center for Public Health Aspects of Musculoskeletal Health and Aging, Université de Liège, Liège, Belgium, [4]University of Johannesburg, Johannesburg, South Africa, [5]Sanofi, Athens, Greece, [6]AIXIAL Group an ALTEN company, Boulogne-Billancourt, France, [7]Sanofi, Gentilly, France, [8]Department of Anesthesiology, University of Miami, Miller School of Medicine, Miami, FL, United States, [9]GCPHN Persistent Pain Program, PainWISE, Gold Coast, QLD, Australia, [10]Division of Physical Medicine of the Institute of Orthopedics and Traumatology (IOT), Hospital das Clinicas HCFMUSP, Faculty of Medicine, University of Sao Paulo, Sao Paulo, Brazil

Methods: This randomized, open-label, multicentered, clinical trial of FIRTECH-patch vs no-patch control group included subjects (≥18-<65 years) with acute LBP (<1 month duration; intensity ≤6 on 0-10 Numerical Rating Scale [NRS]). FIRTECH-patch was applied to the skin at the painful region and kept on for 5-days. Primary-endpoint was NRS-responder (≥30% decrease from baseline of the NRS score without rescue medication) rate at Day-5(D5). Secondary-endpoints: time to reach no pain (NRS=0), time course of pain intensity difference (PID) and time course of pain-relief over time from baseline-D5, normalized sum of total pain-relief over 5-days ($TOTPAR_{0-5}$) and safety. Descriptive and inferential analyses were conducted.

Results: Amongst 221 randomised subjects (FIRTECH[n=113]; no patch[n=108]) of mean(SD)age 45.2(12.97) years, 54.8% were female. Primary-endpoint demonstrated a clinically relevant decrease in NRS pain intensity (D5) for 72.5 and 49.4% (p=0.002) of patients in FIRTECH vs no-patch arms. Time to reach no pain demonstrated no statistical significance between the arms (p=0.289). Time course of PID(**Figure1**) and pain-relief(**Figure2**) showed that FIRTECH tended to effectively reduce or relieve pain over 5-days than no-patch starting from D1-evening. $TOTPAR_{0-5}$(**Table1**) described a higher pain-relief over 5-days for FIRTECH vs no-patch (LS_{Mean}:1.5 vs 0.8). Device-related TEAEs in FIRTECH-arm:10.5%.

Figure 1

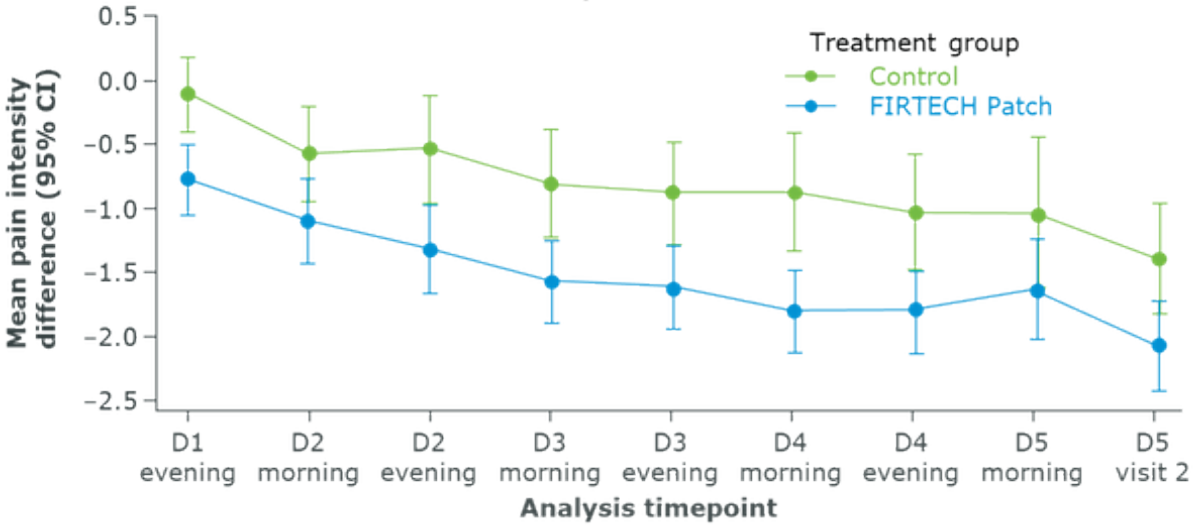


Figure 2

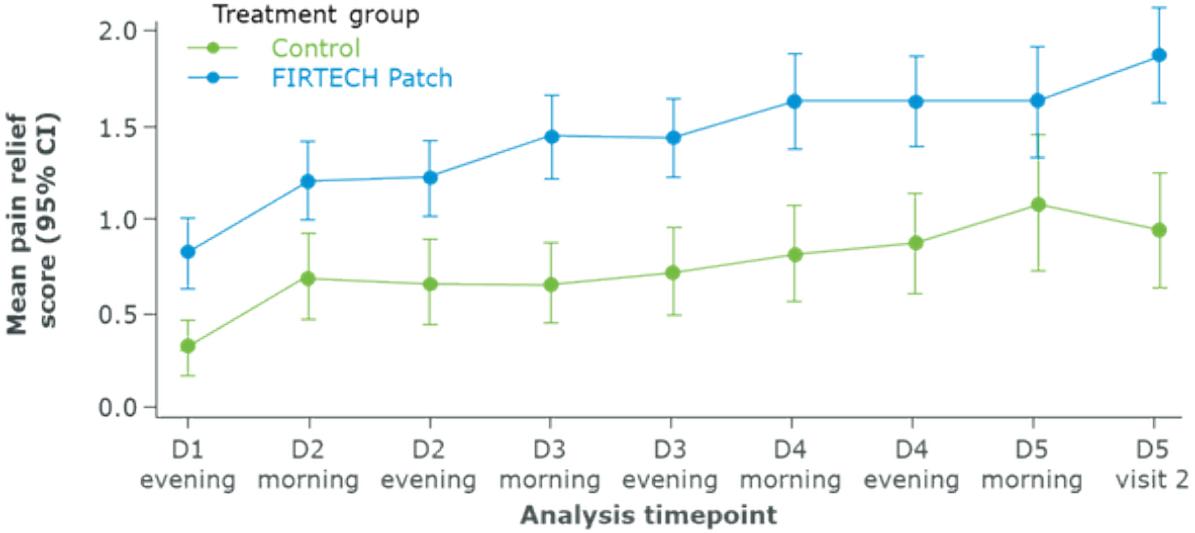


TABLE 1. Normalised sum of pain relief.

Statistics	FIRTECH Patch (N=97)	No Patch (N=84)
Mean (SD)	1.46 (0.834)	0.78 (0.842)
LS Mean†	1.5	0.8
LS Mean† Difference	0.7	
95% CI# for LS Mean Difference	0.415:0.903	
p-value	< 0.001	

*SD - Standard Deviation
†LS Mean - Least Squares Mean
95% CI# - 95% Confidence Interval

Conclusions: Results indicate the efficacy of FIRTECH over 5-days with a favorable safety profile.

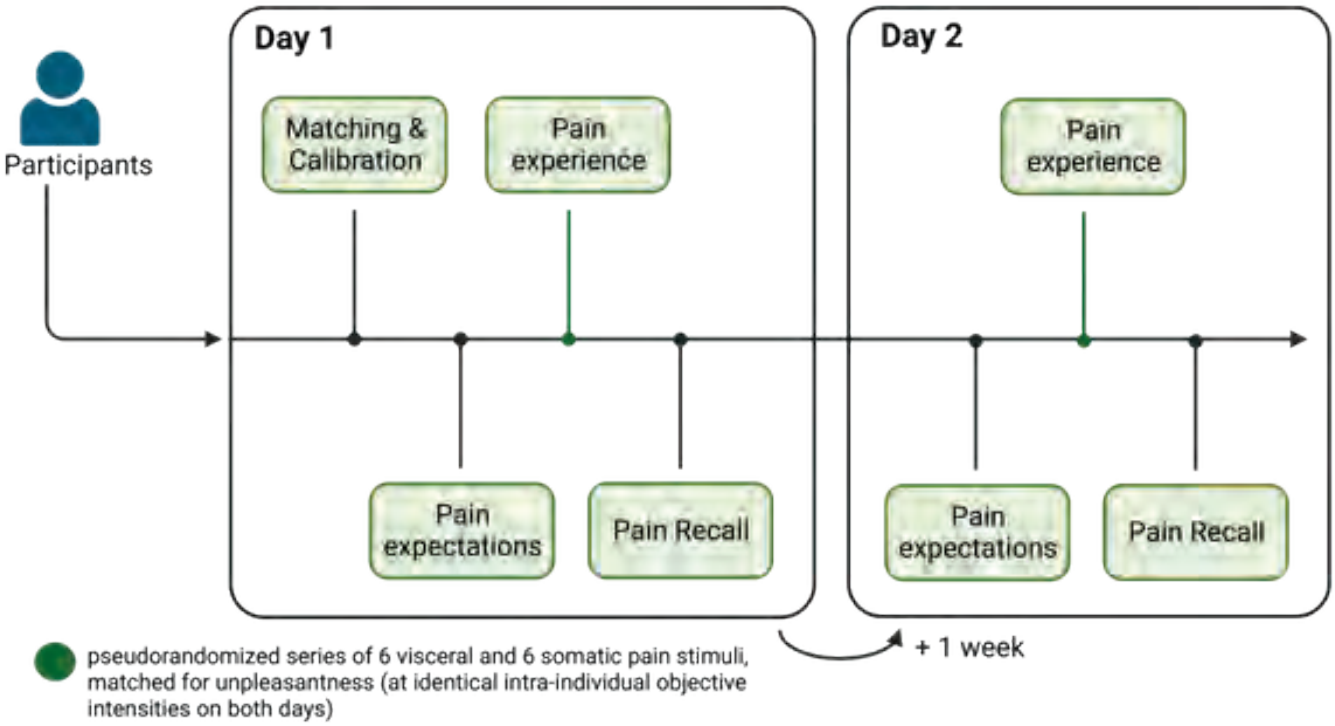
1493

MODALITY-SPECIFIC DIFFERENCES IN PAIN PERCEPTION SUGGESTING GREATER VULNERABILITY TO NOCEBO EFFECTS IN VISCERAL PAIN

J.L. Aulenkamp[1,2], L. Höll[2], R. Draganova[2], R.L. Lanters[2], S. Elsenbruch[2,3]

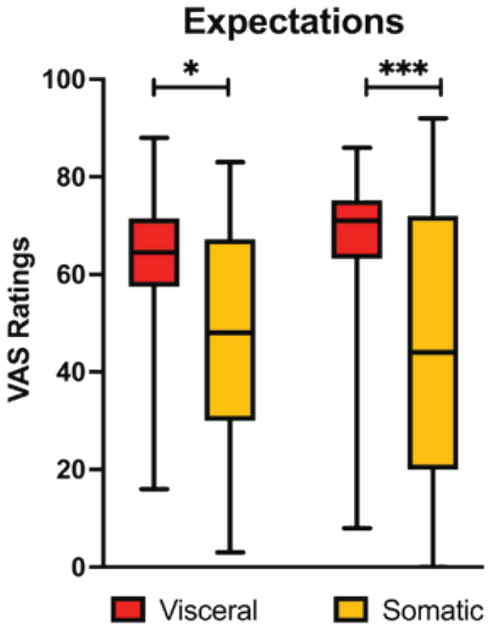
[1]University Hospital Essen, Departement of Anesthesiology, Essen, Germany, [2]University Hospital Essen, Department of Neurology, Center for Translational Neuro- and Behavioral Sciences (C-TNBS), Essen, Germany, [3]Department of Medical Psychology and Medical Sociology, Ruhr University Bochum, Bochum, Germany

Methods:



In a two-day study conducted one week apart, experimental visceral and somatic pain stimuli were matched to intensity and a pseudorandomized series of pain stimuli was implemented in healthy volunteers (n=35). Pain-related expectations, trial-by-trial perceived pain intensity and unpleasantness, as well as pain-related memory recall were assessed (Fig. 1).

Results:



Despite successful matching, expectations, perceived pain, and pain recall regarding intensity and unpleasantness were greater for the visceral modality on both days (Fig. 2). Pain experience on day 1 and future expectations on day 2 corresponded for the somatic modality. In contrast, visceral pain experience was not correlated with future-directed expectations. Visceral pain recall at end of day 1 was more negative, and correlated with greater negative visceral pain-related expectations 1 week later.

Conclusions: The experience of visceral pain is unique when compared to somatic pain even at matched intensities. Negative expectations, experience and pain recall were shown to be enhanced in the visceral modality, suggesting greater vulnerability to nocebo effects in visceral pain with broad clinical implications for patient pain reporting. Further study is warranted to elucidate how expectations shape experience and patient-reported outcomes in clinical populations with chronic visceral pain.

1494

EXPECTANCIES AND EXPERIENCES WITH VALUES-BASED COGNITIVE BEHAVIORAL THERAPY IN INDIVIDUALS WITH PAIN AND DISABILITY POST-WHIPLASH EARLY AFTER INJURY: A THEMATIC ANALYSIS OF INTERVIEWS

S.L. Ravn[1,2], K.K. Roessler[1], T.E. Andersen[1]

[1]University of Southern Denmark, Odense M, Denmark, [2]Specialized Hospital for Polio and Accident Victims, Roedovre, Denmark

Methods: Participants in a cognitive behavioral intervention delivered by a psychologist focusing on values and activity engagement were invited to participate in an online, individual, semi-structured exit interview. Interview transcripts were analyzed using reflexive thematic analysis in an inductive manner using a combination of semantic and latent codes. Two authors independently read and coded three interviews and met to discuss codes before coding the remaining interviews in an organic and iterative process before organizing codes into themes.

Results: A total of 19 people participated. At the time of writing, the analysis is ongoing.

Conclusions: The results will provide insights into patients' expectancies and experiences with cognitive behavioral therapy and can be used as a platform to further develop such interventions in pain practice. Also, more specifically, it speaks to some of the issues in performing psychologically informed interventions in this area.

1495

TRANSDIAGNOSTIC RESTING-STATE EEG BIOMARKERS OF PAIN, DEPRESSION, AND FATIGUE

H. Heitmann[1], P.T. Zebhauser[2], V. Hohn[2], P. Henningsen[3], M. Ploner[2]

[1]Department of Psychosomatic Medicine and Psychotherapy / Department of Neurology / Center for Interdisciplinary Pain Medicine, Klinikum rechts der Isar of the Technical University of Munich (TUM), München, Germany, [2]Department of Neurology, Klinikum rechts der Isar of the Technical University of Munich (TUM), München, Germany, [3]Department of Psychosomatic Medicine and Psychotherapy, Klinikum rechts der Isar of the Technical University of Munich (TUM), München, Germany

Methods: To summarize the current knowledge on electrophysiological brain correlates of chronic pain, depression, and fatigue, we performed a series of systematic reviews. MEDLINE, Web of Science Core Collection, and EMBASE were searched for quantitative resting-state electroencephalography (EEG) and magnetoencephalography (MEG) studies in adult patients suffering from each of these symptoms separately (PROSPERO: CRD42021272622, CRD42022330113).

Results: The systematic reviews in patients suffering from chronic pain and fatigue have been finalized and included 76 and 26 studies, respectively. For both symptoms, cross-sectional studies revealed an increase in theta band activity compared to healthy participants. Results for depression patients are pending. Risk of bias, assessed with a modified Newcastle-Ottawa Scale, was high.

Conclusions: These findings point towards increased theta oscillations, which have also previously been described in depression, as a transdiagnostic biomarker for the symptom cluster of pain, depression, and fatigue. The use of theta oscillations to diagnose, monitor and eventually also treat this burdensome comorbidity, e.g. using neuromodulation techniques, should be further evaluated.

1497

TRAUMATIC EXPERIENCES AND CENTRAL SENSITIZATION SYNDROMES: THE ROLE OF SEX DIFFERENCES

M.P. Martínez[1,2], E. Miró[1,2], N. Pagola[1], A.I. Sánchez[1,2]

[1]Department of Personality, Assessment and Psychological Treatment (University of Granada), Granada, Spain, [2]Mind, Brain and Behaviour Research Centre (University of Granada), Granada, Spain

Methods: A cross-sectional study was carried out in adults from general population who completed several assessment instruments on central sensitization, pain, sleep, emotional distress, trauma and manifestations of post-traumatic stress disorder. The instruments were applied online through the LimeSurvey platform, and disseminated on social networks. Student's test for independent samples, Pearson correlation coefficient and multiple linear regression analysis were computed with IBM SPSS Statistics. Funding: aid PID2019-109612GB-I00, funded by MCIN/AEI/10.13039/501100011033.

Results: A total of 1,542 participants were recruited, of which 462 reported CSS (78.8% women). Women showed more adversity experiences and more severe post-traumatic emotional damage than men. Women with this clinical profile presented more intense and disabling physical manifestations of pain and insomnia. A specific pattern of relationships between variables based on sex was observed.

Conclusions: Identifying people (considering their sex) who present adversity life experiences that have not been adequately processed, can be key to determining the clinical status of CSS and establishing a personalized therapeutic approach.

1498

PSYCHOLOGICAL CHARACTERISTICS OF PERSONS WITH CENTRAL SENSITIZATION SYNDROMES COMPARED TO THOSE OF PERSONS WITH OTHER MEDICAL PATHOLOGIES

A. Sánchez[1], M.P. Martínez[1], C. Aguirre[1], E. Miro[1]

[1]University of Granada, Granada, Spain

Methods: The collected sample was composed by 1,542 adults that completed several self-reports about pain experience, sleep quality, central sensitization, catastrophizing pain, perceived stress, and emotional distress (anxiety and depression). The instruments were applied online through the LimeSurvey platform and disseminated on social networks. Data were analyzed via one-factor ANOVA and as post-hoc test Tukey and Tamhane. The IBM SPSS Statistics was the software used. Funding: aid PID2019-109612GB-I00, funded by MCIN/AEI/10.13039/501100011033.

Results: The participants were divided into three groups: healthy (n=861), CSS (n=467) and other pathologies (n=214). Significant differences were found between CSS persons and the other groups in all variables. Pain experience, catastrophizing, perceived stress and distress emotional were significantly higher and sleep quality was significantly poor in the CSS persons than in the other groups.

Conclusions: CSS are currently conditions difficult to treat. Identifying the psychological factors that intensity the physical discomfort may be especially relevant to design appropriate psychological interventions for these conditions.

1499

DORSAL SCAPULAR NERVE ENTRAPMENT MANAGED BY U/S GUIDED BLOCK

T. Asimakopoulos[1,2], M. Rekatsina[1]

[1]Aretaieion University Hospital, Athens, Greece, [2]School of Medicine, National and Kapodistrian University of Atens, Athens, Greece

Methods: We present a case report of a 29-year-old male, suffering from left posterior shoulder, (in the inner part of scapula) and base of neck pain. The patient reported a fluctuating VAS-score (6-10/10), deteriorating over the past 4 years. He also reported significant left arm pain and tingling. Cervical MRI showed a small left disc bulge on the C6-C7 level. Brachial plexus MRI was unremarkable. EMG of his left arm showed damage of sensory nerves (radial, median, and lateral cutaneous nerves of the forearm) and chronic neurogenic changes in the distribution of left C5 C6 and elements of active denervation of left C8-T1. NCS of left radial nerve showed unrecordable action potential.

Results: We performed a suprascapular diagnostic nerve block and a radial nerve block under U/S which gave 60% pain relief. Due to partial pain relief, we suspected DSn entrapment. We performed a DSn block under U/S which resulted in 100% pain relief and seize of the scapula winging.

Conclusions: Althought dorsal scapular nerve entrapment is a rare diagnosis, it must be considered, especially in young patients presenting with base of the neck and scapula pain. A diagnostic block might further aid to the diagnosis.

1500

A SYSTEMATIC REVIEW OF QUANTITATIVE SENSORY TESTING IN COMPLEX REGIONAL PAIN SYNDROME

D. Pang[1], F. Hasnie[2], W. Magerl[3], A. Goebel[1]

[1]University of Liverpool, Liverpool, United Kingdom, [2]Guy's and St Thomas NHS Foundation trust, London, United Kingdom, [3]Universität Heidelberg, Heidelberg, Germany

Methods: This review was registered with PROSPERO ID-CRD42020216485 and follows the PRISMA guidelines. Databases used were PubMed, Cochrane Library, Google Scholar, EMBASE, Web of Science and Scopus. Studies of adult patients with CRPS who were subject to QST according to the German Research Network on Neuropathic Pain (DFNS) Protocol. 1067 articles were screened and 13 studies that met the inclusion criteria were identified and a narrative synthesis performed.

Results: The most marked feature was a gain of function in pressure pain threshold which was significantly different from the normative reference ranges in 6 out of 12 studies. Also seen were increases in cold and warm detection threshold and corresponding decreases cold and warm pain threshold. Mechanical changes seen were an increase in mechanical detection threshold but a decrease in mechanical pain thresholds and an increase in vibration thresholds.

Conclusions: Quantitative sensory testing shows consistent changes in patients with Complex regional pain syndrome, but the most significant change was a decrease in pressure pain thresholds which implies that patients with CRPS suffer from an increase in deep tissue sensitivity and pain.

1501

RELATIONSHIP BETWEEN DEPRESSION AND PAIN CATASTROPHIZING IN SLOVENIAN CHRONIC PAIN PATIENTS

Z. Brecko[1]

[1]University Rehabilitation Institute Republic of Slovenia, Ljubljana, Slovenia

Methods: A total of 318 chronic pain patients participating in an interdisciplinary pain management program were included in the study. Participants completed the Pain Catastrophizing Scale and Beck Depression Inventory. Linear regression analysis was used to examine the relationship between depression and pain catastrophizing.

Results: The linear regression analysis showed a positive and significant relationship between depression and pain catastrophizing ($B = 0.731$, $p < 0.001$), suggesting that depression is a significant predictor of pain catastrophizing in our population.

Conclusions: Our findings suggest that depression is a significant predictor of pain catastrophizing in Slovenian chronic pain patients. Results of this study contribute to the growing body of literature on the relationship between depression and pain catastrophizing.

1502

COGNITIVE-AFFECTIVE APPRAISAL OF PAIN IN WOMEN WITH FIBROMYALGIA AND PSYCHOLOGICAL TRAUMA

M.P. Martínez[1,2], A.I. Sánchez[1,2], S. Carmona-Martos[1], J.M. Ventura-Lucena[1], G. Prados[3,2], R. Cáliz[4], E. Miró[1,2]

[1]Department of Personality, Assessment and Psychological Treatment (University of Granada), Granada, Spain, [2]Mind, Brain and Behaviour Research Centre (University of Granada), Granada, Spain, [3]Department of Nursing (University of Granada), Granada, Spain, [4]Rheumatology Service (Virgen de las Nieves University Hospital), Granada, Spain

Methods: A total of 110 women with FM completed an interview and self-reports about traumas, PTSD, pain, pain-related anxiety, pain catastrophizing, pain awareness/vigilance, pain acceptance, and disability. IBM SPSS Statistics and ModGraph-I were used. Subgroups were established considering trauma and severity of PTSD and compared via the Student's t-test. The moderating role of PTSD in the relationship between pain and disability was examined through hierarchical regression analysis. Funding: aid PID2019-109612GB-I00, funded by MCIN/AEI/10.13039/501100011033.

Results: There were no differences in pain between the groups with and without trauma. The group with high PTSD-symptoms showed more sensory pain, fear, catastrophizing, and attention to pain, and less pain acceptance than the group with low PTSD-symptoms. PTSD symptomatology showed a tendency (not-significant) to moderate the effect of pain on disability.

Conclusions: Women with FM and PTSD have a more disturbing pain experience. Considering the contribution of trauma sequelae on FM, the psychotherapy focused on mind-body link and emotional processing are recommended in a multidisciplinary approach.

1503

MANIFESTATIONS OF CENTRAL SENSITIZATION IN THE GENERAL POPULATION

A. Sánchez[1], M.P. Martínez[1], N. Aguerre[1], E. Miro[1]

[1]University of Granada, Granada, Spain

Methods: The collected sample was composed by 1,542 adults that completed a battery of instruments: Perceived Stress Scale, McGill Pain Questionnaire, Pittsburg Sleep Quality Index, Hospital Anxiety and Depression Scale, and Central Sensitization Inventory (CSI). The instruments were applied online through the LimeSurvey platform, and disseminated on social networks. Participants were divided into two groups (cut-off point of 40 in CSI). The Student's t-test and the Pearson correlation coefficient were computed via the IBM SPSS Statistics. Funding: aid PID2019-109612GB-I00, funded by MCIN/AEI/10.13039/501100011033.

Results: Participants with high CSI-manifestations (n=499) reported more severe levels of perceived stress, poorer sleep quality, anxiety, depression, and pain than participants with low-moderate CSI-manifestations (n=1,043). In each group, a differential pattern of relationships between variables was observed.

Conclusions: Manifestations of CS have a negative impact on the wellness and daily functioning of the affected people. Stress causes tense, increasing the sensitivity to pain.

1504

USING RHYTHMIC SOMATOSENSORY STIMULATION TO ENTRAIN BRAIN OSCILLATIONS FOR THE NON-INVASIVE MODULATION OF PAIN

N. Bruna[1,2,3], E. May[3,2], M. Ploner[3,2,4]

[1]Technical University of Munich (TUM), Elite-Master of Science in Neuroengineering(MSNE, München, Germany, [2]TUM, School of Medicine, TUM-Neuroimaging Center, Munich, Germany, [3]Technical University of Munich (TUM), School of Medicine, Department of Neurology, Munich, Germany, [4]TUM, School of Medicine, Center for Interdisciplinary Pain Medicine, Munich, Germany

Methods: Twenty healthy participants will receive electrical stimulation through two electrodes on the forearm while brain activity is measured by EEG. The study comprises four stimulation conditions, each consisting of five minutes of stimulation and one minute of rest: alpha frequency (10Hz), beta (21Hz), theta (6Hz), and a-rhythmic stimulation averaging 10Hz. We hypothesize that rhythmic alpha stimulation will selectively entrain brain activity at alpha frequencies while not affecting neighboring frequency bands. The other stimulations are used as control cases. To confirm entrainment, we will assess normalized power spectral density (PSD) and inter-trial phase clustering (ITPC) using Bayesian statistics.

Results: The study is ongoing. We will present results quantifying effects on brain activity during (online effects) and after stimulation (offline effects).

Conclusions: If entrainment of somatosensory alpha activity can be demonstrated, we will further investigate its effects on pain. Thereby, findings might open new possibilities for non-invasive pain modulation using a certified, home-usable device.

1505

ADDITIVE EFFECTS OF AGENCY AND TREATMENT EXPECTATIONS IN PAIN

A. Strube[1], B. Horing[1], M. Rose[1], C. Buechel[1]

[1]Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Methods: In this study, heat pain was administered with sham treatment either externally or by the subjects themselves. Predictive cues were utilized to induce placebo or nocebo treatment expectations.

Results: The findings demonstrated that agency and placebo expectations had additive effects. Specifically, greater pain relief was observed during self-treatment and under placebo treatment expectations. Formal model comparisons favored models that allowed for a shift in the likelihood or prior mean based on agency, rather than differences in likelihood precision. Electroencephalography revealed an interaction between expectations and agency, which was also correlated with pain ratings on a trial-by-trial basis. Importantly, this effect temporally coincided with the occurrence of expectations, indicating that the mechanism by which agency is implemented in the Bayesian pain model involves a shift in expectations rather than somatosensation.

Conclusions: This study highlights the importance of considering agency and placebo expectations in the Bayesian pain model. The findings support the notion that the incorporation of agency involves a positive shift in expectations. These insights contribute to a better understanding of the complex interplay between contextual factors and the perception of pain, with potential implications for pain management strategies.

1506

SENSORS – FUTURE TOOLS FOR THE PREVENTION OF THE YOUNG PATIENT'S ANXIETY, FEAR AND PAIN IN DENTAL CARE. A SKILL-ENHANCING METHOD FOR THE TEAM. PILOT STUDY

C. Jaldin[1], T. Fagrell[1], A. Robertson[2], L. Krekmanova[2]

[1]Public Dental Service, Region Västra Götaland, Gothenburg, Sweden, [2]University of Gothenburg/ Institute of Odontology, Gothenburg, Sweden

Methods: Pilot study. The Shimmer3 GSR unit is tested on 40, 14 - 15-year-olds who undergo *planned oral examination (20 patients), *planned orthodontic extraction (20 patients). The patients/their legal guardians were offered participation via oral/written study information. Written consents were required. The unit was tested for differentiation of invasive/non-invasive procedure. Patients evaluated anxiety/fear/pain with validated scales. The dentist evaluated patient›s fear/cooperation with validated scales.

Results: 20 patients (14-15 yrs olds) underwent oral examination. 7 patients (15 years old) underwent 20 orthodontic extractions alltogether. Preliminary results show that all patients reported the Shimmer3 GSR unit to be easily manageable and not stress inducing in itself. The most oral examination patients reported pain only from the X-ray procedure. The most of dental extraction patients reported pain for the injection procedure. A majority of the patients undergoing dental extraction reported fear, in contrast to the patients undergoing oral examination.

Conclusions: All patients reported the Shimmer3 GSR unit to be easily manageable and not stress inducing.

All patients cooperated fully. Most of them reported pain, mainly from the injection and from the X-ray procedure respectively.

1509

TOOL USE EXTENDS THE LIMITS OF NOCICEPTIVE-VISUAL INTERACTION BEYOND BODY SPACE

V. Legrain[1], S. Tshikaya[1], L. Filbrich[1]

[1]Université catholique de Louvain, Brussels, Belgium

Methods: In this experiment, participants made temporal order judgements on visual stimuli occurring nearby vs. away from their body while nociceptive stimulation was applied on one hand. Between sessions, participants used 75-cm grabber tools to displace objects close to distant visual stimuli.

Results: Whereas visual temporal order judgements were more particularly biased for near visual stimuli than distant visual stimuli during pre-tool use session, such a difference disappeared after tool use. This was due to an increase in bias for distant visual stimuli, as if the distant space had become closer to the participants.

Conclusions: This study suggests that mechanisms underlying the nociceptive-visual interaction can be extended beyond body space to potentially optimize defensive responses against more distant threats.

1510

MANAGING LOW-BACK PAIN IN RURAL UGANDA: A QUALITATIVE STUDY EXPLORING THE PERCEPTIONS AND PRACTICES OF HEALTH WORKERS IN PRIMARY CARE

P. Harscouet[1], G. Ndekezi Chimpaye[2], H. Kazibwe[2], J. Kabakyenga[2], C. Blake[1], D. O'Callaghan[1], B. Caulfield[1], C. O'Sullivan[1]

[1]University College Dublin, Dublin, Ireland, [2]Mbarara University of Science and Technology, Mbarara, Uganda

Methods: A qualitative design using semi-structured focus-group discussions was employed. Purposive sampling allowed us to identify relevant participants based on their roles as healthcare professionals working in primary care context in rural South-West Uganda. Data was analysed using thematic analysis.

Results: Clinicians reported that LBP was a common presentation in clinical practice. Excessive manual labour was deemed a common cause of LBP, as well as several severe pathologies (tuberculosis, fracture). LBP management practices included education, prescribing treatment in accordance with patients' expectations and needs (painkillers, x-ray). Finally, they highlighted major barriers for patients within the referral system to hospital care or physiotherapy.

Conclusions: To our knowledge, this study is the first to explore the perceptions and practices of primary care clinicians in Uganda. It showed that lack of resources, including access to education, limited the quality of care. Enhancing knowledge of clinicians about LBP will greatly improve access to quality affordable care in rural health centres.

1511

PREDICTORS OF INDIVIDUAL EEG-BASED NEUROFEEDBACK PERFORMANCE TO MODULATE PAIN

C. Fritzen[1,2], V.D. Hohn[1,2], F. Bott[1,2], E.S. May[1,2], L. Tiemann[1,2], M.M. Nickel[1,2], C. Gil Ávila[1,2], M. Ploner[1,2,3]

[1]Technical University of Munich (TUM), School of Medicine, Department of Neurology, Munich, Germany, [2]TUM, School of Medicine, TUM-Neuroimaging Center, Munich, Germany, [3]TUM, School of Medicine, Center for Interdisciplinary Pain Medicine, Munich, Germany

Methods: In a sham-controlled, double-blind, electro-encephalography (EEG)-based neurofeedback protocol designed as a registered report, we assess the influence of alpha oscillations on pain perception. In a Bayesian linear regression analysis, we evaluate the influence of sociodemographic, psychological, and neurophysiological factors on the ability to up- and downregulate alpha oscillations.

Results: In an interim analysis (n=25) evaluating psychological and sociodemographic parameters, evidence was inconclusive for all variables. Out of all variables, motivation to participate was most likely to affect neurofeedback performance (BF=1.7). As uncertainty for all variables was high, we expect more conclusive evidence with a higher sample size.

Conclusions: Results of the interim analysis of a low sample size (n=25) yielded inconclusive results. Larger sample sizes of this ongoing study promise more conclusive evidence for predicting neurofeedback performance. Ultimately, the study might help to customize neurofeedback protocols and therefore enable further steps towards personalized treatment of chronic pain.

1512

RELATIONSHIP BETWEEN SUBJECTIVELY AND OBJECTIVELY TESTED WALKING PERFORMANCE/LEG FUNCTION ACROSS SIX DIFFERENT MEDICAL DIAGNOSES

T. Benz[1,2], S. Lehmann[1], P. Sandor[1], F. Angst[1]

[1]Research Department, Rehaklinik Bad Zurzach, ZURZACH Care Group, Bad Zurzach, Switzerland, [2]ZHAW Zurich University of Applied Sciences, School of Health Sciences, Institute of Physiotherapy, Winterthur, Switzerland

Methods: Walking performance/leg function was measured by the SF-36 Physical functioning (SF-36 PF) and by the 6-minute-walking-distance test (6MWD) and assessed by correlation coefficients. Across the 6 cohorts, the relationship between the two scores was compared by the ratio between the two assessments.

Results: The correlations between the two scores were mostly moderate to strong at baseline and follow-up (up to r=0.739), and weak to moderate for the differences (up to r=0.408). The ratios of the SF-36 PF to the 6MWD were 1.144 – 1.508 at baseline and 2.499 – 6.090 for the changes and depended on pain and mental health.

Conclusions: Moderate to strong cross-sectional and moderate to weak longitudinal correlations between the 6MWD and the SF-36 PF were found. Pain and mental health should be considered when interpreting walking performance/leg function. For a comprehensive, the combination of self-rated and tested walking performance/leg function measures is recommended.

1513

THE TEMPORAL STABILITY OF EEG OSCILLATORY AND BEHAVIORAL EFFECTS OF POSITIVE AND NEGATIVE EXPECTATIONS ON PAIN

M.-I. Wolf[1], C. Wittkamp[1], M. Rose[1]

[1]Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Methods: 50 participants (*N* = 41 for session 2 approximately one week later) took part in this study. In the first session, verbal instructions and a conditioning procedure induced positive (placebo), negative (nocebo), or neutral expectations (control) for differently colored visual cues using a sham-BCI. Expectations were not further reinforced in the second session. In both the first and second session, these expectations were then varied on a trial-by-trial

basis and participants rated the expected and perceived intensity of 90 individually calibrated heat pain stimuli (VAS60) while EEG data was recorded.

Results: Participants expected and perceived the pain stimuli in line with the cues. This effect was stable over both sessions. Single-trial expectations correlated with subsequent pain ratings. Differences in the EEG oscillatory activity in the anticipation phase were found e.g., between placebo and nocebo vs. control in the first session. In the second session, oscillatory activity significantly differed between placebo and nocebo condition.

Conclusions: Without reinforcement, our paradigm using a sham-BCI yielded temporally stable behavioral effects of expectations on pain perception while EEG oscillatory mechanisms differed.

1515

IMPROVING LOW-BACK PAIN CARE IN RURAL UGANDA: THE CASE OF THE BACKTRACK APP DEVELOPMENT

G. Ndekezi Chimpaye[1], P. Harscouet[2], P. Megyesi[2], B. Caulfield[2], H. Kazibwe[1], C. Blake[2], D. O'Callaghan[2], S. Mugisha[3], J. Kabakyenga[1], A. Turose[1], C. O'Sullivan[2]

[1]Mbarara University of Science and Technology, Mbarara, Uganda, [2]University College Dublin, Dublin, Ireland, [3]Streamline Health, Mbarara, Uganda

Methods: The app content was based on a literature review followed by consensus by clinical working group. We used an iterative agile co-design approach whereby each participating clinician (n=19) gave cyclical qualitative feedback on the app on 3 occasions via one face to face group meeting and two telephone interviews. The quantitative data gathered by the app served as a complementary source of feedback. This feedback was incorporated into the final version of the app.

Results: The app was deployed in a context of high technology literacy. It was deemed useful by clinicians who highlighted the influence of the app in improving LBP management, reducing painkillers consumption, and providing basic rehabilitation services at community-level. End-user feedback to enhance the app included the need for faster operational times, reduce the sensitivity of the red flag questions and further education and training for clinicians about LBP presentations and the theoretical basis for screening and self-management approaches.

Conclusions: All feedback received was incorporated into the app until no feasible improvement was deemed necessary to clinicians and researchers. This iterative process informed the deployment of the app for a feasibility study that will be explored elsewhere.

1516

CHRONIC NECK PAIN INFLUENCES TIMING OF CERVICAL MUSCLE ACTIVATION AND MUSCLE ACTIVATION PATTERN DURING CERVICAL FLEXION MOVEMENT – A PILOT STUDY

H. Sageshima[1], D. Pavlů[1], D. Dvořáčková[1], D. Pánek[2]

[1]Charles University, Prague, Czech Republic, [2]Czech Technical University, Prague, Czech Republic

Methods: Five young females with CNP (age: 24.6±2.1, Neck Disability Index: 11.8±4.5) and five age- and sex-matched asymptomatic controls participated in this study. They performed Janda's cervical flexion movement pattern test five times while measuring muscle activation from bilateral suprahyoid (SH), infrahyoid (IH), sternocleidomastoid (SCM), anterior scalene (AS), and upper trapezius (UT) muscles with surface electromyography. Onset time during the task movement was compared with Mann-Whitney U test between two groups, and Kruskal-Wallis One-Way ANOVA was used to calculate a muscle activation sequence within each participant.

Results: In CNP group, the onset time of all measured muscles was earlier than in the control group, with significant differences in SH, AS, and UT ($p<0.01$, $p<0.05$, and $p<0.05$, respectively). Regarding the muscle activation sequence, the control group showed significantly earlier activation of SCM and IH compared to UT ($p<0.001$ and $p<0.05$, respectively). In contrast to the control group, only one subject in CNP group showed the same activation pattern. In another participant, SH activated in advance of other muscles, and in three participants, AS activated first.

Conclusions: In CNP conditions, earlier onset of muscle activation was found in superficial cervical muscles and hyoid muscles during the cervical flexion movement, and the muscle activation patterns varied across individuals. Further investigations are required.

1517

LIFE EXPERIENCES OF INDIVIDUALS > 65 YEARS WHO ARE LIVING WITH PAIN AND FRAILTY - A LIFE STORY NARRATIVE STUDY

L. Cottrell[1], M. Briggs[1], H. Hurst[2]

[1]Manchester University, Manchester, United Kingdom, [2]Salford University, Manchester, United Kingdom

Methods: The study design used a narrative methodological approach to obtain life story narratives from 12 older people living with pain and frailty. In semi-structured interviews participants were asked to tell their life stories. The interviews were recorded and transcribed. A life history calendar was provided with questions to prompt explorative discussion around their experience.

Results: All Participants reported a strong connection between pain and frailty. The themes highlight the complex interplay between pain and frailty, and this will be presented.

Conclusions: This study is the first to deepen our understanding of the lived experience of pain and frailty. The study plots the chronological narrative structure through which people understand and describe the relationship between the events and choices they made about pain and frailty over the course of their life.

1518

INVESTIGATING THE EFFECTS OF MULTISENSORY INTERACTION BETWEEN NOCICEPTION AND VISION ON THE MOTOR SYSTEM

L. Filbrich[1,2], J. Lambert[2], V. Legrain[2]

[1]KULeuven, Leuven, Belgium, [2]UCLouvain, Brussels, Belgium

Methods: Nociceptive heat stimuli were applied on the right hand, followed by a dynamic visual stimulus rapidly approaching a location either near or far from the stimulated hand. CSE was assessed as motor-evoked potentials (MEPs) in the right first dorsal interosseous muscle of the stimulated hand, elicited by single-pulse transcranial magnetic stimulation over the left primary motor cortex hand representation. Conditions comprising only nociceptive or visual stimuli (near or far) were also presented.

Results: Results show a general reduction of MEPs 200 ms after the potential occurrence of the nociceptive stimulus, but no significant difference between conditions.

Conclusions: These results suggest that the reduction in n-CSE is not specific to the nociceptive modality and that our experimental setting did not allow to highlight specific visual-nociceptive interaction effects on the motor system.

1519

EVALUATING THE FEASIBILITY OF USING THE BACKTRACK APP TO IMPROVE LOW BACK PAIN MANAGEMENT IN RURAL UGANDA

G. Ndekezi Chimpaye[1], P. Harscouet[2], P. Megyesi[2], B. Caulfield[2], J. Kabakyenga[1], H. Kazibwe[1], C. O'Sullivan[2]

[1]Mbarara University of Science and Technology, Mbarara, Uganda, [2]University College Dublin, Dublin, Ireland

Methods: We trained clinicians and deployed the app in 10 rural health centres for 12 weeks. During deployment, semi-structured interviews were conducted with participating clinicians (n=19) to understand the feasibility and impact of BACKTRACK on their abilities to manage LBP. Qualitative data were transcribed verbatim and thematic analysis was undertaken.

Results: Training and app usage helped clinicians to stratify patients into LBP care pathways. Clinicians engaged well with the app which was perceived as easy to use and it integrated well into their clinical practice. They reported reducing drug prescriptions and spending more time educating and referring patients. Clinicians cited the reduction of health expenditures and unnecessary investigations as beneficial to patients. However, referral issues (transport, costs, navigating the health system) remain major barriers to optimum care. Training was deemed mandatory and the continuous real-time support offered by the research team was highly valued.

Conclusions: The BACKTRACK app is deemed useful in rural Uganda despite limits inherent to the app and the system within which it is operated.

1521

USING MACHINE LEARNING AND NEURAL NETWORKS TO PREDICT PATIENTS' RISK FACTORS FOR BECOMING LONG-TERM USERS OF SHORT-ACTING OPIOIDS

S. Hoffensitz Nielsen[1], M. Kirstine Andersen[1], J. Søndergaard[1], L. Bjørnskov Pedersen[1,2]

[1]Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Odense, Denmark, [2]DaCHE – Danish Centre for Health Economics, Department of Public Health, University of Southern Denmark, Odense, Denmark

Methods: This study uses population-based national registry data from the Danish National Prescription Registry, socioeconomic registries of Statistics Denmark, National Patient Register, Health Service Registry, and Provider Registry. Encrypted CPR numbers will link data, and supervised machine learning and neural networks will be employed for analysis.

Results: We seek to identify pre-treatment risk factors for continuous long-term use of short-acting opioids for non-malignant pain. Data processing have been initiated and preliminary results are expected in the fall.

Conclusions: This project›s findings will provide valuable evidence at both individual and societal levels. Opioid prescribing practitioners can utilize the results when considering or initiating opioid treatment, allowing for personalized treatment planning based on individual risk factors and opioid necessity. This approach has the potential to prevent unnecessary treatment, addiction and the related human and societal costs.

1522

EVIDENCE OF INTERPLAYS BETWEEN THE VASCULAR AND NOCICEPTIVE SYSTEMS REVEALED BY AN EFFECT OF LIMB POSTURE ON CAPSAICIN-EVOKED PAIN

A. Courtin[1,2], S. van Neerven[2], A. Mouraux[2]

[1]Aarhus Universitet, Aarhus, Denmark, [2]Université catholique de Louvain, Brussels, Belgium

Methods: Twenty healthy volunteers received a 2% capsaicin patch on one forearm and a vehicle patch on the other. Patches were kept in place for 60'. The sensation caused by the patch was assessed repeatedly, in resting position and when the arm was raised vertically, before, during and until 60' after patch removal. Capsaicin-induced secondary hyperalgesia was assessed using pinprick stimuli. Half of the participants were seated upright while the other half were lying supine, to assess whether the effect of limb position could be due to gravity.

Results: After a few minutes of patch application, raising the capsaicin treated arm (but not the vehicle treated arm) led to a strong increase of the pain experienced at the patch. This effect of raising the arm did not differ between participants in the supine and seated groups and is therefore likely related to the position of the arm relative to the ground (gravity) rather than to the body. Mechanical secondary hyperalgesia and the arm raising effect were strongly decorrelated at the last time point after patch removal, indicating that the underlying mechanisms differ.

Conclusions: Taken together, our results indicate that capsaicin-evoked pain can be strongly modulated by limb posture and that this effect may be caused by an interplay between vascular and nociceptive systems.

1523

REPEATED RESTRAINT STRESS ENHANCES AND PROLONGS MECHANICAL AND THERMAL POST-SURGICAL HYPERSENSITIVITY AND INCREASES C3 GENE EXPRESSION IN THE SPINAL CORD OF MALE RATS

A. Bella[1,2,3], A.M. Diego[4,2,3], C. Di Marino[4,2,3], I. Yalcin[5], D. Finn[4,2,3], M. Roche[1,2,3]

[1]Physiology, School of Medicine, University of Galway, Galway, Ireland, [2]Galway Neuroscience Centre, University of Galway, Galway, Ireland, Galway, Ireland, [3]Centre for Pain Research, University of Galway, Galway, Ireland, Galway, Ireland, [4]Pharmacology, School of Medicine, University of Galway, Galway, Ireland, [5]Centre National de la Recherche Scientifique, Université de Strasbourg, Institut des Neurosciences Cellulaires et Intégratives, Strasbourg, France, Strasbourg, France

Methods: Male Sprague-Dawley rats were exposed to repeated restraint stress (RRS, 6h/day) or handling (non-RRS) and mechanical (von Frey) and thermal (Hargreaves' test) nociceptive thresholds were assessed for 3 weeks prior to and following paw incision or sham surgery. Affective behaviour (Forced swim, Elevated Plus Maze, Open Field and SucroseSplash Tests) and latent sensitization were assessed. Expression of markers of microglial (*Itgam*) and actrocyte (*Gfap, C3, S100a10*) activation, glutamate transporters *(Glt1, Glast)* and Bdnf was evaluated in the ipsilateral dorsal horn of the spinal cord (DHSC) using RT-qPCR.

Results: RRS exposure did not alter nociceptive responding prior to surgery, but enhanced and prolonged mechanical and thermal hypersensitivity post-surgery compared to non-RRS counterparts. RRS prolonged naloxone-induced reinstatement of thermal, but not mechanical, hypersensitivity in surgery animals. RRS increased immobility and decreased swimming in the FST, but not affective responding post-surgery. *C3* expression was increased in the DHSC of RRS-Surgery rats when compared to non-RRS counterparts.

Conclusions: RRS increased despair-like behaviour and post-surgical hypersensitivity, an effect associated with increased expression of proinflammatory astrocyte markers in the spinal cord. The role of neuroimmune signalling in stress-induced enhancement of post-surgical pain remains to be determined.

1524

HOW DO WE LEARN ABOUT PAIN? TEST RETEST RELIABILITY OF PAIN LEARNING RATES FOR A CUE BASED REVERSAL LEARNING TASK

A. Courtin[1,2], M. Vejlø[2], F. Fardo[2], M. Allen[2]

[1]Université catholique de Louvain, Brussels, Belgium, [2]Aarhus Universitet, Aarhus, Denmark

Methods: Fifty healthy volunteers participated in two sessions one week apart. At each session, participants had to complete a reversal learning task during which they had to learn probabilistic contingencies (80% congruent trials) between two arbitrary visual cues and two stimulus intensities (selected to be reliably perceived as (non-)burning heat). The learning task lasted for 160 trials and included 10 reversals.

Cue-stimulus contingencies and the predictions that participants made at each trial will be fit using various computational learning models (e.g. HGF, RW…). The best model will be selected through model comparison.

Intra-class correlation will be used to assess the test-retest reliability of individual learning parameters derived from the winning model.

Results: Data collection is complete but modeling is still ongoing. Learning rate ICC for a simple RW model is 0.877[0.786,0.940], suggesting good-to-excellent reliability.

Conclusions: Assessing the reliability of pain learning will provide valuable information for future studies and should clarify if learning rates are trait or state.

1527

A FUSION PROTEIN OF THE CYTOKINES IL4 AND IL13 RESOLVES CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY

J. Prado[1], S. Gonçalves[1], S. Versteeg[1], L. Almandoz-Gil[1], F. Boisnard[1], Y. Yeoh[1], O. Kranenburg[2], T. Dinklo[3], N. Eijkelkamp[1]

[1]Center for Translational Immunology, University Medical Center Utrecht, Utrecht, Netherlands, [2]Laboratory Translational Oncology, University Medical Center Utrecht, Utrecht, Netherlands, [3]Synerkine Pharma B.V, Naarden, Netherlands

Methods: His-tagged IL4-13FP was produced in HEK293F cells. Neuroprotective effects of IL413FP were assessed by determining neurite length of sensory neurons. Pain-related behaviors were assessed over time using von Frey in mice.

Results: IL4-13FP but not the combination of IL4 and IL13 protected sensory neurons from paclitaxel and oxaliplatin-induced loss in neurite length *in vitro*. *In vivo*, established paclitaxel-induced mechanical hypersensitivity was reversed by a single intrathecal or intraperitoneal injection of IL4-13FP for more than a week, whilst the combination of IL4 and IL13 inhibited allodynia for ~4 days. Mechanistically, we observed that IL4-13FP activated kinases in the dorsal root ganglia of paclitaxel-treated mice differently compared those treated with a combination of IL4 and IL13. Multiple intrathecal injections of IL4-13FP, but not the combination of IL4 and IL13, completely resolved oxaliplatin-induced CIPN which was associated with reduced spinal astrogliosis.

Conclusions: Combining IL4 and IL13 into one fusion protein increases their activity to protect neurons from and resolve mechanical hypersensitivity induced by multiple chemotherapeutics. Therefore, a fusion protein of IL4 and IL13 hold promise for the treatment of CIPN.

1529

LATERAL INHIBITION IN NOCICEPTION: PRELIMINARY DATA FROM LOCALIZATION-SHIFT PARADIGM

J. Nastaj[1], K. Luedtke[2], W.M. Adamczyk[1]

[1]The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland, [2]University of Luebeck, Luebeck, Germany

Methods: Five healthy participants took part in this within-subject experiment. Electrocutaneous noxious stimuli were applied by two electrodes for 60s in two different conditions: control constant frequencies (one electrode: 35Hz, second electrode: 35Hz) or experimental varied frequencies (35Hz, 50Hz). During each trial subjects rated shifts of sensation magnitude continuously using a computerized visual analogue scale (CoVAS).

Results: Standard deviations were used as an index of shift in sensation magnitude during stimulation. Results show significant difference between standard deviation means from control ($M= 4.84$, $SD=2.49$) and experimental ($M=10.27$, $SD= 5.49$) condition: $t(4)= 2.78$, $p < 0.05$.

Conclusions: The proposed method involving noxious stimulation at different frequencies has successfully produced a shift of pain sensation magnitude and may be a prelude to further research on lateral inhibition on nociception

---

1530

SELECTED CANNABINOIDS FOR CHEMOTHERAPY-INDUCED CHRONIC NEUROPATHIC PAIN - PRELIMINARY IN VITRO AND IN VIVO DATA

V. Bild[1], D.-C. Ababei[1], L.-E. Filipiuc[2], I. Creanga[2], A. Szilagyi[2], D. Cojocaru[2], C. Solcan[3], T. Alexa Stratulat[4], G.-D. Stanciu[2]

[1]Pharmacodynamics and Clinical Pharmacy Department, Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania, [2]Advanced Research and Development Center for Experimental Medicine (CEMEX), Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania, [3]Faculty of Veterinary Medicine, Ion Ionescu de la Brad University of Life Sciences, 700490 Iasi, Romania, Iasi, Romania, [4]Medical Oncology-Radiotherapy, Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania

Methods: JWH182 - SC compound, EU-GMP *Cannabis sativa L* dried plant and extract – NC1 and NC2. Fibroblast viability was measured *in vitro*. Acute *in vivo* toxicity was performed using OECD 423 guidelines. To evaluate the analgesic effects on PTX-induced CIN, a standard pain test battery was used.

Results: On fibroblast cultures, all compounds demonstrated dose dependent cell viability values of over 80%. No lethal effect was observed at maximum tested doses of 300 mg/kg b.w. for SC and 2,000 mg/kg b.w. for both NC1 and NC2. Additionally, no clinical signs of toxicity or gross pathological findings were observed. Pain tests confirmed promising efficacy in PTX-induced CIN.

Conclusions: Translating cannabinoids into the clinic is difficult, but identifying innovative approaches for treating CIN holds the promise of improving the daily life of millions of cancer survivors.

Funding: This work was supported by a grant from the Ministry of Research, Innovation and Digitization, CNCS/CCCDI—UEFISCDI, project number PN-III-P4-ID-PCE-2020-1247, within PNCDI III.

1531

RESPONSE GENERALIZATION OF THE NOCEBO EFFECT INDUCED BY VERBAL SUGGESTION. A PILOT STUDY

M. Jakubinska[1], J. Skalski[1], W.M. Adamczyk[1]

[1]*Academy of Physical Education in Katowice, Katowice, Poland*

Methods: Ten volunteers participated in the study, randomly allocated to one of two groups: control (n=5) and nocebo (n=5). Compression stimuli were applied using a blood pressure cuff, inducing two symptoms simultaneously: pain and paraesthesia. Participants rated the level of symptoms experienced in real-time using coVAS sliders. The experiment consisted of two parts: «pretest» and «posttest,» with identical pressure parameters and a 10-minute break between. In the nocebo group, verbal suggestion was used to suggest an increase in compression strength.

Results: In the control group, there were no significant differences between pretest and posttest for pain (p=0.23) or paresthesia (p=0.14). In the experimental group, a statistically significant nocebo effect for pain was observed (p=0.04). However, the groups did not differ in symptom severity at posttest (p=0.35).

Conclusions: The results suggest that the verbal suggestion may induce a nocebo hyperalgesia effect, but it did not generalize to another symptom. Although a trend towards generalization was observed, further research with a larger sample size is necessary to answer the question of whether response generalization of the nocebo effect is possible using verbal suggestion.

1532

STIGMA SURROUNDING PSYCHOLOGICAL TREATMENT METHODS FOR CHRONIC PAIN: A THEMATIC SYNTHESIS

J. Seeley[1], J. Cullen[1], C. Penlington[1]

[1]*Newcastle University, Newcastle-upon-Tyne, United Kingdom*

Methods: Web of Science was used to search for relevant articles, which were then screened on Rayyan for relevance to the research question. Data were first categorised into descriptive themes followed by generation of analytical themes which included a further level of analysis of the data.

Results: The search for treatment for chronic pain was conceptualised as a “journey”. This is represented by two overarching themes, “the rise of biological (and downfall of psychological) explanations” and “a change in attitude”. Patients described factors that influenced them to favour biological explanations and solutions to their pain and to dismiss psychological explanations, both in medical and everyday settings. For some, the experience of psychological therapy (usually as a last-ditch effort) led to positive results which changed their attitude

Conclusions: Studies described a prevailing attitude that “real” pain is best fitted to biological explanations, whereas for some cases, the term “psychological” was used synonymously with “imaginary”. These perspectives from patients were therefore seen as dismissive and stigmatising. Further research is needed to explore the role of this stigma and aim to reduce it.

1533

RELATION BETWEEN NEUROTICISM AND DEPRESSION SYMPTOMS IN SLOVENIAN CHRONIC PAIN PATIENTS

A. Šuster[1]

[1]*University Rehabilitation Institute, Republic of Slovenia, Ljubljana, Slovenia*

Methods: 285 patients with diagnosis of chronic pain took part in this study. Patients completed the Beck's Depression Inventory and the Big Five Inventory as part of the rehabilitation program. For the research, we used scores on the neuroticism scale and the total score of Beck's Depression Inventory. Assessment was implemented after completion of the rehabilitation program. Data was analysed in the IBM SPSS Statistics 26 program, using linear regression as a model.

Results: Higher neuroticism is a significant predictor of higher Beck Depression Inventory score ($B = 0.423$, $p < 0.001$). This suggests that emotional instability in Slovenian chronic pain patients may predict the severity of depressive symptoms.

Conclusions: Higher levels of neuroticism and depression are associated in a Slovenian chronic pain patient sample. This suggests that personality assessment can inform the future personalization of the program, with higher neuroticism patients perhaps needing more focus on pain decatastrophizing.

1534

CHARACTERISATION OF NOCICEPTIVE BEHAVIOUR IN MALE AND FEMALE RATS FOLLOWING HIND LIMB ISCHEMIA WITH REPERFUSION

C. Healy[1,2,3,4], M. Redmond[1,2,3,4], G. Gethin[5,6,4], A. Pandit[4], D.P Finn[1,3,2,4]

[1]*Pharmacology and Therapeutics, University of Galway, Galway, Ireland,* [2]*Centre for Pain Research, University of Galway, Galway, Ireland,* [3]*Galway Neuroscience Centre, University of Galway, Galway, Ireland,* [4]*CÚRAM, SFI Research for Medical Devices, Galway, Ireland,* [5]*Alliance for Research and Innovation in Wounds, University of Galway, Galway, Ireland,* [6]*School of Nursing and Midwifery, University of Galway, Galway, Ireland*

Methods: Male and female Sprague-Dawley rats (220-350g, n=11/12 per group) underwent I/R or sham procedure. Mechanical, cold and heat hypersensitivity of the ipsilateral and contralateral hind paws were assessed at baseline, and up to Day 29 post-I/R, via electronic von Frey, acetone drop and Hargreaves' tests, respectively. The place-escape avoidance paradigm (PEAP) was carried out on Day 23 post-I/R to assess the affective component of pain.

Results: Persistent mechanical and cold hypersensitivity were observed in male I/R rats vs male sham post I/R injury ($p<0.05$), but not in female I/R rats vs sham ($p>0.05$). Acute heat hyperalgesia was observed in male I/R rats vs male sham post I/R injury ($p<0.05$), but not in female I/R rats vs sham ($p>0.05$). Both male and female I/R rats had higher percentage positive response to ipsilateral paw stimulation vs sham in the PEAP ($p<0.05$). Analysis of pain-related avoidance behaviour is ongoing and will be presented.

Conclusions: These results indicate a persistent pain-related behavioural phenotype in male I/R rats and indicate that this model may be suitable for 1) the study of sex dimorphism following I/R injury and 2) investigation into the role of ischemia-reperfusion injury in wound-related pain.

Funding provided by the Irish Research Council Postgraduate Scholarship, Science Foundation Ireland, and B. Braun Hospicare, co-funded under the European Regional Development Fund (Grant Number 13/RC/2073-P2).

1538

CLASSICALLY CONDITIONED SPATIAL DIMENSION OF PAIN IN HUMANS: PRELIMINARY DATA

N. Kruszyna[1], D. Nowak[1], J. Nastaj[1], J. Skalski[1], K. Luedtke[2], W. Adamczyk[1]

[1]*The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland,* [2]*University of Lübeck, Lübeck, Germany*

Methods: Ten healthy subjects took part in the study in a within-group design. Two blocks of classical conditioning were used in which visual stimuli displayed to participants were associated with a small (CS-) or large (CS+) pain

distribution. The nociceptive stimuli were applied by activating two (large distribution) or one (small distribution of pain) electrode attached to the participant›s hand. The pain distribution was digitally drawn after each trial. Subsequently, subjects were given a verbal suggestion. In the final trial, subjects were presented with the same visual stimuli (CS+ and CS-), but only one electrode was activated.

Results: Results show non-significant difference in reported pain distribution between CS+ (M=5.01cm, SD=3.31) and CS- (M=4.31cm, SD=2.68) stimuli in testing phase: t(9)= -0.69, p = 0.08.

Conclusions: Current pilot data do not support the hypothesis that pain distribution can be conditioned. However, a small sample size can be responsible for this negative finding together with short duration of learning phase. The results show a trend towards conditioning effect.

1539

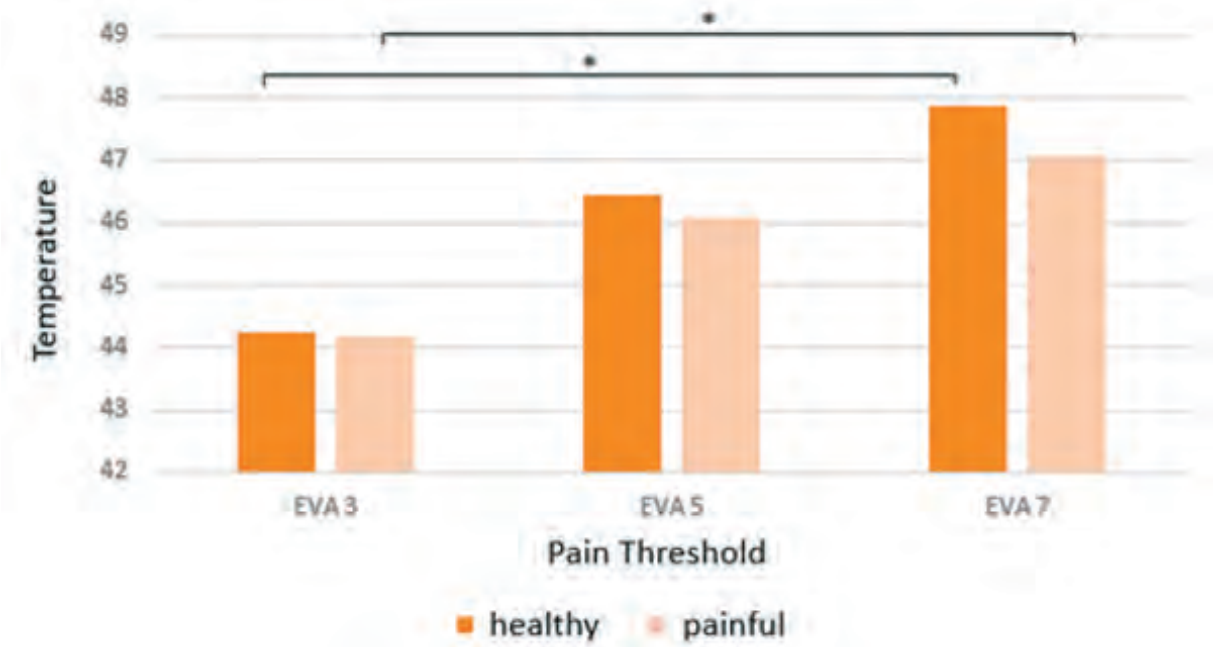
STUDY OF THE PERCEPTION OF PAIN VIA THE ANALYSIS OF ITS INTEROCEPTIVE PROCESS

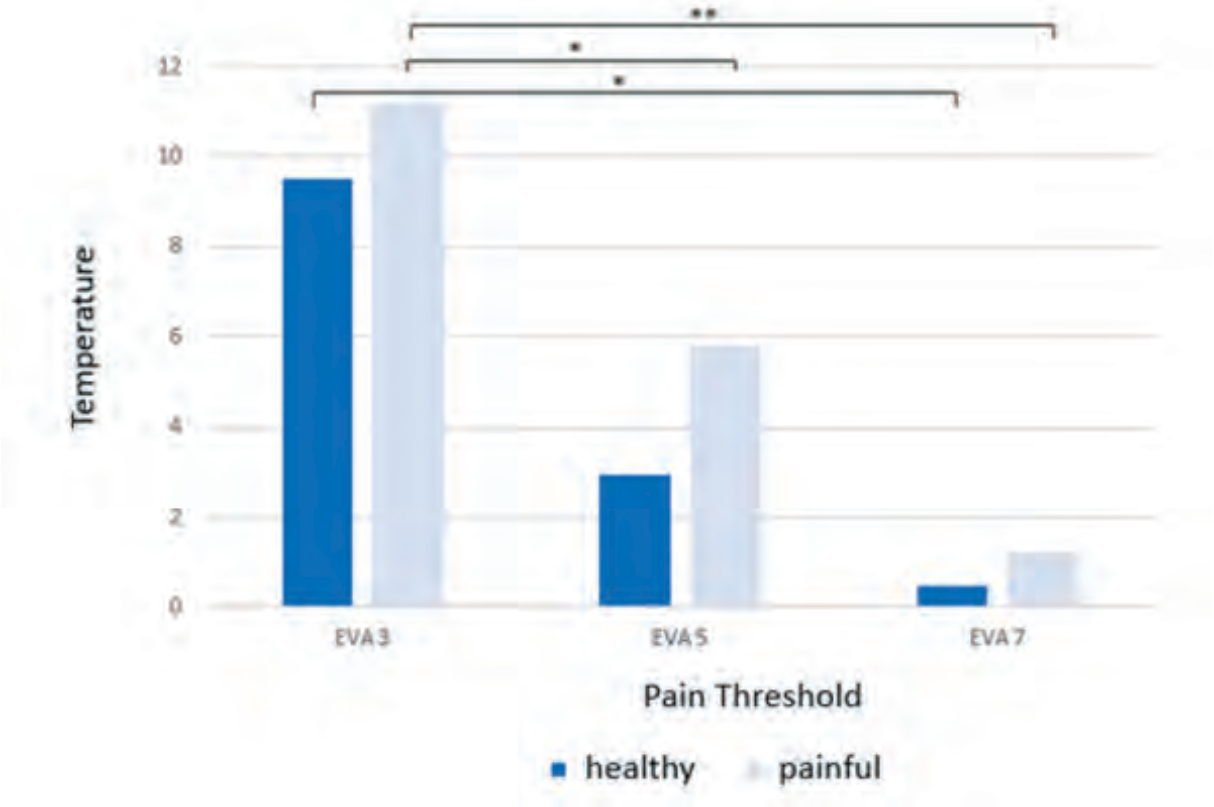
L. Lahaeye[1], M. Lecompte[1], C. Denaeyer[1], J. Mellier[1], D. Zarka[1], W. Salem[1], A. Bengoetxea[1]

[1]*ULB, Bruxelles, Belgium*

Methods: The experiment frames healthy and pathological subjects. The measurement concerns 3 modalities (hot and cold thermal, mechanical). The subject focuses on a pain level representing a 3/10; 5/10 and 7/10 on a VAS and stops the signal progression.

Results: Preliminary data show us for the different levels, healthy subjects go from approximately 44° to 46.5° to 48° (warm thermal) and 9°at 3°at 0° (cold thermal) and pathological subjects go from 44° to 46° to 47° and 11° to 6° to 1°. Chronic pain group present the same behaviour than healthy group concerning the positive correlation between VAS and thermal intensity, but for pain perception moderate to low for the cold, the temperatures exceed 2°C those of healthy subjects.





Conclusions: These results first show the correlation between the perception of pain and the increase in the intensity of the stimulation for the 2 groups. We hope that in the future, this type of protocol will allow us to evaluate subjects' interoceptive capacity and acuity for the pain modality.

1542

TONIC PAIN LEADS TO CHANGES IN MOTOR CORTICAL EXCITABILITY AS MEASURED BY TRANSCRANIAL MAGNETIC STIMULATION-EVOKED POTENTIALS

D. Sulcova[1], A. Courtin[1,2], L. Filbrich[1,3], C. Lenoir[1], A. Mouraux[1]

[1]UCLouvain, Brussels, Belgium, [2]Aarhus University, Aarhus, Denmark, [3]KU Leuven, Leuven, Belgium

Methods: In 20 subjects, we recorded TEPs and MEPs evoked by TMS over the primary motor cortex and assessed their modulation by tonic pain elicited by topical application of capsaicin on the contralateral hand. The effect was evaluated in comparison to vehicle using a within-subject design. Both measures were acquired at baseline and every 15 minutes during capsaicin/vehicle application (75 minutes).

Results: Capsaicin elicited long-lasting pain accompanied by a suppression of MEP amplitudes, whereas vehicle led to a progressive MEP increase. At cortical level, capsaicin caused an increase of the early TEP component P30, likely reflecting pain-induced changes in motor cortical excitability, while certain later components were reduced, possibly reflecting several parallel processes. The earliest TEP component N15, previously associated with cortico-spinal motor output, increased over time in both conditions, possibly due to cortical disinhibition by repeated stimulation.

Conclusions: This is the first study using TEPs to characterize functional changes at cortical level during experimentally induced tonic pain. It shows a dissociation between pain-induced changes in TEPs and MEPs, suggesting the occurence of pain-motor interactions at both cortical and spinal levels.

1543

REHABILITATION PROGRAM IN CHRONIC PAIN AND JOINT DAMAGE MANAGEMENT IN HEREDETARY HAEMOPILIA - 2 YEARS EXPERIENCE

I. Vaide[1,2,3], L. Toplaan[2], M. Vipp[2], L. Hanso[2], T. Tuuling[2], M. Murd-Rang[2], A. Õun[2], H. Kivi[2], E. Laane[1,2]

[1]University of Tartu, Tartu, Estonia, [2]Kuressaare Hospital, Kuressaare, Estonia, [3]Pärnu Hospital, Pärnu, Estonia

Methods: Patients participating in the program staid 3 days in hospitl for following activities: Physiotherapist evaluation and measurement of HJHS (haemophilia joint health score), practical individual physiotherapy in gym and in pool. Based on the initsial evaluation, the individual rehabilitation plan was designed with guidance for the exercises at home for the next 6-12 months. Quality of life questionnaire was completed at both visits.

Results: 21 patients participated in the program. 15 patients completed 2 visits, 4 patients could not participate in the second evaluation, 2 patients joined in the end of the project. In our results HJHS improved in 9/15 (55%) and remained stable in 4/15 (27%) patients. For 19/21(90,5%) patients psychological assistance was provided, as well consultations from social worker.

Conclusions: Haemophilia patients who participated in the program had an improved quality of life and joint health.

1544

CORTICAL GS-COUPLED RECEPTORS AS THERAPEUTIC TARGETS FOR CHRONIC PAIN

L. Jonker[1], F. Franciosa[1], A. Bisco[1], M. Acuna[1], K. Valentinova[1], N. Ntamati[1], M. Falkowska[1], N. Nevian[1], S. Schneider[1], M. van Wyk[1], E. Lacivita[2], M. Leopoldo[2], S. Kleinlogel[1], T. Nevian[1]

[1]University of Bern, Bern, Switzerland, [2]University of Bari Aldo Moro, Bari, Italy

Methods: We used novel and established optogenetic, pharmacogenetic and pharmacological approaches to activate Gs-coupled signaling cascades in excitatory neurons of the anterior cingulate cortex (ACC) in the chronic constriction injury (CCI) model of neuropathic pain and assessed their effect on pain behavior. *In vivo* two-photon imaging and ex vivo electrophysiology was employed to elucidate the neuronal network and single cell effects of Gs-coupled GPCR signaling.

Results: We found that the activation of Gs-GPCRs in the ACC resulted in strong analgesia in chronic neuropathic pain. The underlying cellular mechanism after activation of the Gs-coupled receptors acted via adenylate cyclase, cAMP and PKA resulting in reduced cellular excitability. *In vivo* two-photon fluorescence microscopy demonstrated that the pharmacological activation of the Gs-coupled $5HT_7$ receptor caused a decrease in spontaneous and stimulus-evoked network activity in the ACC.

Conclusions: Thus, Gs-coupled GPCRs might be a so far neglected, but potential target for novel treatment strategies in chronic pain. In this respect, the application of approved drugs acting on Gs-GPCRs for off-label use should be considered. Furthermore, the application of opto- and pharmacogenetic tools might also have therapeutical potential.

1545

OCCIPITAL NEURALGIA DUE TO SCHAWNNOMA. CASE REVIEW

I. Dapia Garcia[1], A. Cuadrado Mancy[1], M.D. Bedmar Cruz[1], J. Olarra Nuel[1], A.M. Rincon Higuera[1], M.J. Guinaldo Elices[1], M.B. Rodríguez Campoó[1], C. Ais Davila[1], R. Arroyo Garrido[1], M.I. Rodriguez Seguín[1]

[1]Hospital of Fuenlabrada, Madrid, Spain

Methods: We present a 42 years old female, with history of:

- Graves-basedow syndrome.
- Neurofibromatosis type 1.

Clinic of one year cervicalgia irradiated to nape, neck and jaw. Tenderness on the occipital nerve.

An MRI of the cervical spine was performed with diagnosis of Schawnoma of C1-C2 nod.

Firstly, it was treated with nonsteroidal anti- inflammatory drugs and pregabalin as coadjutant, achieving control of the pain. Occipital nerve block was offered.

However, due to worsening of the pain and increase of the size of the schawnoma and interventional management was decided.

She was intervened by a neurosurgical team who performed an incomplete resection of the tumor achieving management of the pain. However, our patient had hypoesthesia and neuropathic pain in left arm as sequels. This has been treated with pregabalin, and it is in remission at the moment.

Results: Occipital neuralgia is defined as:

- Paroxysmal stabbing pain in the distribution of the occipital nerve.

- Tenderness over the affected nerve.

- Pain is eased temporarily by local anesthetic block.

There are multiple underlying etiologies, organized in four groups: Neurogenic, osteogenic/muscular, iatrogenic, and vascular.

RM is consider a vital tool as it enables visualization of the surrounding cervical and occipital soft tissues.

Treatment varies from solving the underlying causes to symptomatic treatment (pharmacological or invasive approaches).

Conclusions: Importance of differential diagnosis of occipital neuralgia and choosing the adequate treatment in each case.

1547

BURNOUT AND ATTACHMENT IN HEALTHCARE PROFESSIONALS PROVIDIN GONCOLOGY AND PALLIATIVE CARE

F. Gonçalves[1,2], M. Gaudêncio[3,2]

[1]Faculdade de Ciências da Saúde da Universidade da Beira Interior, Covilhã, Portugal, [2]Instituto Português de Oncologia de Coimbra, Coimbra, Portugal, [3]Faculdade de Medicina da Universidade de Coimbra, Coimbra, Portugal

Methods: Cross-sectional descriptive and correlational study with a sample of 337 health professionals working in a tertiary hospital dedicated to oncology care. The evaluation protocol included a sociodemographic questionnaire, two Burnout (CBI and MBI) and attachment (AAS) scales.

Results: In the sample, there is a predominance of female gender (83,7%) and professionals working in oncology services (76,8%). Comparing professionals who work in oncology services and palliative care, it appears that just over half have high levels of personal burnout, however the groups do not differ significantly (53.5% vs 56.8%, p=0.619); the same is observed in work- related (p=0.626) and patient-related burnout (p=0.672). It is verified that the two groups do not differ in all dimensions of the MBI and attachment scales.

Conclusions: The constant exposure to pain and the suffering of others places high emotional demands on oncology and palliative care professionals, making them vulnerable to burnout. According to this study and others, burnout is a complex process that appears to depend on both environment and personal factors.

1548

PREDICTORS OF ACUTE AND PERSISTENT POSTOPERATIVE PAIN AFTER VIDEO-ASSISTED THORACIC SURGERY IN LUNG CANCER PATIENTS – AN EXPLORATORY STUDY

P. Sperling[1], A.V. Danielsen[1], R. Giordano[2], K.K. Petersen[2], B.S. Rasmussen[1], J. Bisgaard[1]

[1]Aalborg University Hospital, Aalborg, Denmark, [2]Aalborg University, Aalborg, Denmark

Methods: One hundred patients undergoing elective VATS due to confirmed or presumptive lung cancer will be included. Patients will be tested with a battery of QST, psychological questionnaires and blood samples collected before and 48 hours after surgery. Postoperative pain is assessed by Numeric rating scale twice daily until 48 hours postoperatively and persistent postoperative pain intensity will be assessed after one year.

Prediction models for acute postoperative pain and persistent postoperative pain will be computed.

Results: The study was commenced in November 2022 and as of May 2023, 88 patients are included. Running recruitment is expected until early July 2023.

Conclusions: Preliminary results on QST, psychometric factors, and pain will be presented.

1550

ULTRASOUND GUIDED PENG AND PONG PULSED RADIOFREQUENCY: A CASE SERIES

A. Vieira[1], D. Correia[1]

[1]Hospital Central do Funchal, Funchal, Portugal

Methods: We treated 5 patients with ultrassound guided pulsed radiofrequency of the anterior and posterior pericapsular hip nerve fibres (at the spots described PENG and an adaptation of the PONG described by Del Buono R et al). The treatment was performed at cycles of 42°C for 6 minutes, followed by the injection, in total at the 3 sites, of 6 mL of 0.2% ropivacaine and 8mg of dexamethasone. BPI and LAI were used prior to the procedure, at the 1 and 3 month follow-up appointments.

Results: All 5 of our patients had an satisfactory outcome, with a reduction of 28,13% when asked the question “how much pain you have right now” of the BPI at the 1 month follow-up, from a mean of 8/10 pre procedure. There was no difference in the LAI(preprocedural μ=16.3), but there was a reduction in most BPI interference items.

The results of the 3month follow-up are still pending.

Conclusions: With our case series it seems to be possible to add the previously described PONG approach to the PENG with ultrasound guidance to the treatment of hip pain in patients that were refractory to PENG alone.

1551

IMPACT OF PAIN AND SYMPTOM MANAGEMENT ON THE QUALITY OF LIFE IN PALLIATIVE CARE

F. Gonçalves[1,2], M. Gaudêncio[3,2]

[1]Faculdade de Medicina da Universidade do Porto, Porto, Portugal, [2]Instituto Português de Oncologia de Coimbra, Coimbra, Portugal, [3]Faculdade de Medicina da Universidade de Coimbra, Coimbra, Portugal

Methods: Descriptive and correlational study with a sample of 60 palliative patients admitted in a Palliative Care Unit in a tertiary hospital dedicated to Oncology Care. The evaluation protocol included a sociodemographic questionnaire, Edmonton Symptom Assessment Scale (ESAS) and Palliative Care Outcome Scale (POS) scales.

Results: In the sample, there is a predominance of male gender (61,7%), with an average age of 72 years. There is a positive correlation between global symptomatic lack of control and a perception of worsening quality of life (p<0,01) , as well as in the presence of symptoms such as pain, weakness, depression, anxiety and anorexia. There was no statistically significant correlation between symptomatic control and quality of life in the group of patients coming from consultation or hospitalization.

Conclusions: The ESAS is a reliable instrument for measuring symptoms in palliative care. The POS is a scale used to assess the quality of life of people receiving palliative care. According to this study and others, the symptom management have a huge impact on the quality of life of palliative patient.

1552

THE ROLE OF MECHANOSENSITIVITY IN HEAD POSITION ERRORS IN PATIENTS WITH SEVERE NECK PAIN

N. Acet[1]

[1]*Atılım University, Ankara, Turkey*

Methods: Eighty-three individuals with severe neck pain were included in this cross-sectional study. Mechanosensitivity was evaluated using an algometer device at three locations (1 cm lateral to C5, midpoint of the trapezius, midpoint of the deltoid). Cervical proprioception was assessed using the head position error test in six directions (flexion, extension, left lateral flexion, right lateral flexion, right rotation, left rotation) via a CROM device.

Results: Statistical analysis revealed no significant relationship between mechanosensitivity and head position errors in different directions ($p > 0.05$).

Conclusions: In the presence of severe neck pain, decreased proprioceptive accuracy is not related to mechanosensitivity. Therefore, cervical proprioception should be considered with different parameters, apart from cervical mechanosensitivity.

1555

TRAJECTORIES OF SCHOOL ABSENTEEISM DUE TO PAIN IN ADOLESCENTS WITH RECURRENT PAIN: PREDICTORS AND A DISTAL OUTCOME

C. Owiredua[1], B. Evans[1], I. Flink[1], K. Boersma[1]

[1]*Örebro University, Örebro, Sweden*

Methods: The study used a prospective cohort design with three-point measurement. The study sample was 873 Swedish high school adolescents (mean age =16.5; 59.8% girls; 11.7% immigrants) with recurrent pain (headache, abdominal and/or musculoskeletal pain ≥ 1/week for 6 months). Absenteeism due to pain was measured with a single indicator categorized as; No absenteeism(0), 1-3 times(1), and ≥4(2). Predictors of trajectories were socio-demographics, pain characteristics, and stressor domains. The outcome variable was expectancy for the future.

Results: Using a latent class growth analysis, a 3-class trajectory emerged as the model that best fit the data. The trajectories identified were labeled as persistently high absenteeism (PHA) (18.1%), persistently low absenteeism (49.4%), and persistently no absenteeism (32.5%). Compared with the other trajectories, the PHA group differed in terms of pain intensity, depression, the stress of school attendance, and performance and future expectancies.

Conclusions: Overall, the findings suggest the existence of a latent subgroup of adolescents with recurrent pain that maintains persistently high levels of absenteeism over time and differs on key contextual factors compared with the other trajectories identified.

1556

EXPERIMENTAL TRAUMATIC OCCLUSION DRIVES IMMUNE CHANGES IN TRIGEMINAL GANGLION

M. Napimoga[1], V. Mendes[1], C. Trindade-da-Silva[1], A. Paranhos[1], F. Andrade-e-Silva[2], W. Buarque-e-Silva[2], J. Clemente-Napimoga[1], H. Abdalla[1]

[1]*Faculdade São Leopoldo Mandic, Campinas, Brazil,* [2]*UNICAMP, Piracicaba, Brazil*

Methods: ETO induced by metal crowns with 0.4 and 0.7mm of discrepancies were cemented in the lower first molar of rats .The trigeminal ganglion was removed after 28 days of ETO induction. RT-qPCR, ELISA, western blotting and immunohistochemistry were carried out in the trigeminal ganglion.

Results: ELISA reveals enhanced levels of TNF-α and IL-1β in TG after 28 d of ETO. ETO groups improved the release of CX3CL1, and higher CX3CR1+ -immunoreactive cells. Immunohistochemistry and electrophoresis of the P2X7 receptor were found in ETO groups. The mRNA levels of IBA1 are upregulated in the 0.7-mm ETO group, while

immunohistochemistry showed higher IBA1+ -immunoreactive cells in both ETO groups. The expression of CD68 was observed in the ETO groups. For last, ELISA revealed increased levels of IL-6, IL-12, and CCL2 in the groups.

Conclusions: This study showed that ETO activates SGCs in TG, and purinergic signaling and CX3CL1/CX3CR1 axis were upregulated. We uncovered the involvement of a distinct subtype of macrophages, named sensory neuron–associated macrophage activation (sNMAs), and detected an expanded number of infiltrated macrophages onto TG. These findings reinforce that ETO induces chronic/persistent immune response.

1558

SOLUBLE EPOXIDE HYDROLASE INHIBITOR REDUCES MICROGLIA ACTIVATION IN SUBNUCLEUS CAUDALIS

J. Clemente-Napimoga[1], R. Basting[1], C. Trindade-da-Silva[1], H. Abdalla[1], B. Durso[1], L. Martins[1], H. Cavalcanti[1], B. Hammock[2], M. Napimoga[1]

[1]Faculdade São Leopoldo Mandic, Campinas, Brazil, [2]University of California, Davis, United States

Methods: It was anlyzed the impact of pharmacological sEH inhibition on a persistent model of albumin-induced arthritis in the TMJ, in two scenarios: first, as post-treatment, in an installed arthritic condition, and second, the protective role, in preventing the development of an arthritic condition. In addition, we investigate the influence of sEH inhibition on microglia cell activation in the trigeminal subnucleus caudalis (TSC) and *in vitro* experiments. Finally, we examined the astrocyte phenotype.

Results: Oral administration of TPPU, acts in multiple pathways in a protective and reparative post-treatment, at least in part ameliorating the preservation of the TMJ morphology, especially on the pretreatment, reducing the hypernociception, with an immunosuppressive action reducing neutrophil and lymphocytes and pro-inflammatory cytokines in the TMJ of rats. In TSC, TPPU reduces the cytokine storm and attenuates the microglia activated P2X7/Cathepsin S/Fractalkine pathway. In addition, TPPU reduces the astrocyte activation and glutamate levels.

Conclusions: sEH inhibition mitigates hypersensitive nociception through the regulation of microglia activation and astrocyte modulation

---

1560

HEADACHE-RELATED DISABILITY ACCORDING TO THE HEADACHE IMPACT TEST (HIT-6™) AND HEADACHE-RELATED DISABILITY INDEX (HDI-BRAZIL) QUESTIONNAIRES

J. Pradela[1], G. Ferreira Carvalho[2], F. Dach[1], D. Bevilaqua Grossi[1]

[1]University of São Paulo, Ribeirão Preto, Brazil, [2]University of Lübeck, Lübeck, Germany

Methods: 132 individuals with headache diagnosis were screened. A descriptive analysis stratifying the groups by severity and the chi-square test to analyze the association of headache disability according to classification of the HIT-6™ and the subscales of the HDI-Brazil questionnaires were perfomed.

Results: The mean age was 39.6 (12.7) years and 71.2% were women. Regarding to disability, 67% of individuals were classified as having severe impact according to the HIT-6™ and migraine patients were the ones who most presented severe impact (90.4%). According to the subscales of the HDI-Brazil, individuals classified as having severe impact had greater disability related to emotional aspects. The chi-square test with the primary and secondary headache sample showed an association between the HIT-6™ classification and the HDI-Brasil functional subscale (X^2=146.494; P=0.000) with a magnitude of 0.608 and with the emotional subscale (X^2=141.853;p=0.000) with a magnitude of 0.599. There was also an association between the HIT-6™ classification and the HDI-Brasil total score (X^2=295.192; p=0.000) with a magnitude of 0.863.

Conclusions: The data suggest that migraine is the most disabling and the emotional aspects are related to disability of headache, with a significant association and a strong magnitude of headache disability according to the disability questionnaires.

1561

THE IMPACT OF EARTHQUAKE EXPERIENCE ON PAIN INTENSITY IN UNINJURED SURVIVORS: A CROSS-SECTIONAL STUDY IN TURKEY

N. Acet[1], N. Uluğ[1], S. Begen[1]

[1]Atılım University, Ankara, Turkey

Methods: A total of 173 participants were included in this study. Pain intensity was assessed using the Visual Analog Scale. Participants were surveyed regarding their pain status in the head, neck, back, waist, shoulder, arm, forearm, elbow, wrist, hand, hip, thigh, knee, leg, ankle, and foot by considering before and after the earthquake.

Results: Statistical analyses revealed a statistically significant increase in pain severity across all body regions assessed ($p < 0.001$).

Conclusions: The findings indicate that the experience of an earthquake leads to heightened pain intensity in various regions, even in the absence of physical injuries.

1564

IMPLICIT BODY PERCEPTION AT THE PELVIC GIRDLE WITH THE TWO-POINT ESTIMATION TASK: COMPARISON OF HEALTHY CONTROLS TO WOMEN WITH PELVIC GIRDLE PAIN

B. Halliday[1], F. Jennifer[1], S. Chatfield[1], J. Marsden[1]

[1]University of Plymouth, Plymouth, United Kingdom

Methods: Data was collected via two studies with repeated 2PE measurements using two variations of the test (1) lateral measure and 2) central measure - two points spanning the midline), plus self-report measures. Cohorts were 1) non-pregnant, pain-free women recruited from a University setting 2) women experiencing post-partum pelvic girdle pain (PPGP) recruited through a randomised controlled trial.

Results: 2PE data was collected on 13 participants with chronic PGP, (mean age 35.92 +/-6.90), Numerical rating of pain mean 4.67 +/-1.78, Freemantle Back Awareness Questionnaire (FreBAQ, mean 14.46 +/-4.49)) and 22 healthy pain-free controls (mean age 40.3 +/-13.3, FreBAQ mean 3.72 +/-4.76)). Overall healthy controls underestimated calliper tip distance in the lateral measure by 47.76% and 31.95% in the central measure. Women with PGP underestimated calliper tip distance in the lateral measure by 42.23% and 16.92% in the central measure.

Conclusions: Overall women with PGP were more accurate in estimating the calliper tip distance compared to pain-free controls. Estimation error was lower in the central measure for both groups.

1566

BIOPSYCHOSOCIAL REHABILITATION IN WORKING POPULATION WITH CHRONIC LOW BACK PAIN: A CONCEPT ANALYSIS

D. Ceulemans[1,2], M. Moens[2], M. Reneman[3], J. Callens[2], A. De Smedt[2], L. Godderis[4], L. Goudman[2], O. Lavreysen[4,2], K. Putman[2], D. Van de Velde[1]

[1]UGent, Gent, Belgium, [2]VUB, Brussel, Belgium, [3]University of Groningen, Groningen, Netherlands, [4]UZ Leuven, Leuven, Belgium

Methods: The concept analysis was conducted according to the eight-step method of Walker and Avant, a framework that provides conceptual clarity and clear theoretical and operational definitions. Five databases were searched, followed by systematic screening. Subsequently, attributes, illustrative cases, antecedents, consequences and empirical referents were formulated.

Results: Of the 3793 studies identified, 42 unique references were included. The following attributes (N=11) were identified: therapeutic exercise, psychological support, education, personalization, self-management, participation, follow-up, practice standard, goal-setting, social support and dietary advice. Subsequently, illustrative cases were described. Antecedents like motivation, preparedness, and a multidisciplinary team were found together with

consequences such as decreased pain, lower sick leave and increased function and work status. Finally, examples of empirical referents are given.

Conclusions: This study identified the attributes necessary to develop BPS-R programs in CLBP. The defined concept of BPS-R in CLBP may serve as a solid base to further develop and apply interventions. Future research should focus on objectification of BPS-R and conceptualization of personalization.

1568

PHARMACOKINETICS AND SAFETY PROFILES OF PRF-110 IN SUBJECTS FOLLOWING BUNIONECTOMY SURGERY

E. Hazum[1], S. Aviel[1], R. Keynan[1], I. Hadar[1]

[1]PainReform Ltd, Tel Aviv, Israel

Methods: A 15 subject pharmacokinetic and safety study has been designed to determine the Cmax (maximum plasma concentration) and safety of PRF110 3.6% ropivacaine 3 mL after instillation into the surgical site following unilateral bunionectomy surgery. Pharmacokinetics of PRF-110 was determined in blood following a single dose instillation into the surgical wound.

Results: PRF 110 was well tolerated, all AEs were mild and no SAEs observed. Mean maximum plasma concentration was 183.47 with plasma levels gradually decreasing through 72hrs. ; the highest plasma ropivacaine concentration detected in any participant was 300 ng/mL. Mean time of ropivacaine concentration maximum (Tmax) was 13.5 hours.

Conclusions: The safety and pharmacokinetics analyses of PRF-110 indicate that the drug is well tolerated and has a favorable pharmacokinetic profile. The highest observed peak plasma concentration of ropivacaine was far below the plasma concentration threshold accepted as being safe (2800 ng/mL). This data suggests that PRF-110 is well tolerated and safe in individuals undergoing bunionectomy.

1569

COMPARISON OF TWO PAIN SCALES AND MORPHINE CONSUMPTION IN ICU

R. Marinova[1], A. Temelkov[1], K. Tzvetanova[2]

[1]UMHAT „Alexandrovska“, Sofia, Bulgaria, [2]Medical University -Pleven, Pleven, Bulgaria

Methods: The study is held in two groups of patients: In Group A (21 patients), pain was evaluated with BPS scale and in group B (20 patients), pain was evaluated with CPOT scale. All patients were sedated with the same protocol and underwent weaning of mechanical ventilation. Pain was assessed every 2 h from 6 a.m. to 00 a.m. for 3 days. The invasive procedures and painful stimulation were comparable in the two groups. Morhine was titrated i.v. and s.c. according to pain scales.

Results: In group A, Morphine consumption was significantly less (72mg ± 5mg) compared to group B (83mg ± 6mg). Patients in group A had less bradycardia episodes and were more hemodynamically stable.

Conclusions: Our study suggests that The Behavioral Pain Scale (BPS) is better to be used in ICU patients for evaluation of pain compared to Critical Care Pain Observation Tool (CPOT) .

1570

IS CENTRAL ASPECTS OF PAIN A STATE OR TRAIT IN PEOPLE WITH CHRONIC KNEE PAIN?

S. Smith[1], J. Patel[1], W. Chaplin[1], B. Millar[1], D. McWilliams[1], D. Walsh[1,2]

[1]Pain Centre Versus Arthritis University of Nottingham, NIHR Biomedical Research Centre University of Nottingham, Academic Rheumatology, Injury, Recovery and Inflammation Sciences, School of Medicine, University of Nottingham, Nottingham, United Kingdom, [2]Sherwood Forest Hospitals NHS Foundation Trust, Nottingham, United Kingdom

Methods: Individuals with knee pain from the Investigating Musculoskeletal Health and Wellbeing cohort with three annual follow-ups were included. Chronic pain was assessed in 2155 participants by questionnaire including CAP, NRS pain intensity, and McGill Pain questionnaire.

Results: All pain variables showed change over time on an individual basis, with individuals' pain scores differing between time points by more than the Minimally Clinical Important Difference ($P \leq 0.01$). Up to 50% of participants displayed minimally important increases or decreases (>2) in CAP scores each year. However, median CAP scores differed little between time points (all medians 8 or 9), but the heterogeneity within individuals over time was statistically significant (Friedman test; $\chi^2=210.131$, 3 df, $p<0.001$).

Conclusions: On a population level CAP behaves as a stable trait. However, CAP, along with NRS and McGill demonstrated clinical important changes on an individual basis. CAP therefore represents a modifiable state. Investigation of the mechanistic underpinning of CAP's unitary factor may reveal novel therapeutic targets.

Acknowledgements: Versus Arthritis (Centre initiative grant number=20777); NIHR Nottingham Biomedical Research Centre

---

1572

FASCIA ILIACA BLOCKS FOR PRE-OPERATIVE PATIENTS WITH A FRACTURED NECK OF FEMUR UTILISING THE PAIN NURSE PRACTITIONER ROLE IN THE ACUTE PAIN SERVICE

S. Donovan[1], M. Rush[1], N. Gauthier[1], H. Thapa[1]

[1]*The Northern Hospital, Melbourne, Australia*

Methods: In 2023 we received hospital funding to provide a daily ultrasound guided FICB to patients with a fractured neck of femur in the perioperative period. We wanted to improve analgesia to assist with nursing care before surgery. The Nurse Practitioner in our Acute Pain Service (APS) has undertaken training in ultrasound guided regional blocks and is largely responsible for managing this service. We are the first health service in Australia to have a Nurse Practitioner performing regional techniques.

Results: All patients who are admitted with a fractured neck of femur are referred to the APS. They are reviewed daily (weekdays only) and unless there is a contraindication the Nurse Practitioner performs a FICB on the ward with 30-35ml of 0.375% Ropivacaine. To date we have been referred 28 patients in the pre-operative period. Analysis of the effectiveness of this intervention is underway.

Conclusions: Provision of safe regional analgesia to patients with a fractured neck of femur prior to surgery is feasible and effective utilising the skills of a Nurse Practitioner working within an acute pain service.

1573

PATIENT SATISFACTION WITH ROBOT ASSISTED LAPAROSCOPIC SURGERY (SINGLE SITE)

J.W. Seo[1]

[1]*National Health Insurance Service Ilsanhospital, Goyang, Korea, Republic of*

Methods: From March 2019 to February 2021, all patients who visited the reproductive endocrine department in National Health Insurance Service Ilsan Hospital for robotic surgery were consecutively enrolled and 164 patients were included in present study. Postoperative symptoms were assessed by 11items assessing symptoms divided into four subscales: pain, psycho-physiological, urogenital and overall. Patients were asked to complete World Health Organization Quality of Life Questionnaire (WHOQOL-BREF), before surgery and after 3 months of operation.

Results: Mean age was 43 years, and mean body mass index (BMI) was 23.7 kg/m2. Total postoperative symptom score with pain was 10 with a higher score reflecting more severe postoperative symptoms (the sum of the score of each five-point scale and ranges from 0 to 40). Overall satisfaction for robotic surgery, as scored by the patients, was 7 out of 10. The physical, psycological, social and environmental components of QOL dis not differ significantly between before and after robotic surgery.

Conclusions: The satisfaction of patients who underwent robotic surgery was higher than expected, though patients pay more than three times the cost for robotic surgery compared to conventional surgery. Further survey in multi-center or large-scale will also be necessary.

1574

DECREASED EFFECTIVE CORTICAL CONNECTIVITY DURING ACUTE EXPERIMENTAL PAIN: A TRANSCRANIAL MAGNETIC STIMULATION COMBINED WITH ELECTROENCEPHALOGRAPHY STUDY

E. De Martino[1], A. Casali[2], S. Casarotto[3], G. Hassan[3], M. Rosanova[3], T. Graven-Nielsen[1], D. Ciampi de Andrade[1]

[1]Center for Neuroplasticity and Pain, Aalborg University, Aalborg, Denmark, [2]Institute of Science and Technology, Federal University of São Paulo, São Paulo, Brazil, [3]Department of Biomedical and Clinical Sciences University of Milan, Milan, Italy

Methods: Twenty-four healthy participants participated in this study. TMS-EEG was used to stimulate the left M1 and DLPFC areas, respectively. TMS-EEG was recorded before, during noxious heat (PAIN) and non-painful warm (WARM), delivered in a randomized sequence. Main frequency bands (α, lower-β, higher-β and ɣ) of TMS-evoked EEG were evaluated in the time interval of 6-300 ms post-stimulation, and the outcomes extracted were event-related spectrum perturbation (ERSP), relative spectral power (RSP) and inter-trial coherence (ITC), in 12 EEG cluster electrodes based on 64 channel recordings.

Results: In M1 stimulation, PAIN decreased the α-band ERSP in medial centro-frontal cluster and α-band ITC in parietal-occipital clusters compared with WARM (all $P<0.05$). In DLPFC stimulation, PAIN decreased lower-β-band RSP compared with WARM in the medial prefrontal cluster ($P<0.05$). A strong correlation was found between increased thermal pain thresholds at baseline and reduction in the α-band ITC during PAIN ($P<0.01$).

Conclusions: Acute pain produced distinct effective connectivity reduction within M1 and DLPFC, suggesting their roles as unique hubs in different brain networks. These results may have relevance for developing non-invasive cortical stimulation therapies in pain.

1579

HARMONIZING PAIN EDUCATION IN PHYSIOTHERAPY IN EUROPE: THE UPPSCALE PROJECT

B. Fullen[1], C. Doody[1], I. Jurack[2], A. Kacin[3], D. Kiseljak[2], S. May[4], E Ille[5], M. Marin[5], U. Puh[3], L. Rusu[5], K. Smart[1], H. Van Dijk[4], H. Wittink[4]

[1]University College Dublin, Dublin, Ireland, [2]Zdravstveno veleuciliste, Zagreb, Croatia, [3]Univerza V Ljubljani, Ljubljani, Slovenia, [4]Stichting Hogeschool, Utrecht, Netherlands, [5]Universitatea din Craiova, Craiova, Romania

Methods: Five institutions offering physiotherapy programmes in Slovenia, Romania, The Netherlands, Croatia, and Ireland participated. The project comprised three phases: (i) needs analysis (curriculum mapping pain science curricula against the EFIC Core curriculum for physiotherapists), (ii) capacity building (development of two Train-the-Trainer Pain Schools to augment teaching gaps), (iii) addressing limitations (Open Education Resource development).

Results: (i)Needs analysis: pain mechanisms, multidimensional nature of pain comprehensively taught; efficacy of interventions, risk factors for chronicity and pain subgroups assessment (older persons, infants) partially taught, pain in those with neurological conditions, and headaches not taught.

(ii) Capacity building: Participants (n=48) identified the combination of theory and practical sessions; incorporation of new teaching approaches, use of a reflective diary, opportunity for networking and open discussions between international colleagues as valuable aspects of the Schools

(iii) An accessible OER will support academic and clinical staff teaching pain science

Conclusions: Given that pain is the main reason patients attend physiotherapy, harmonising pain science education is important. The UPPScAle project offers a roadmap to achieve this and to ensure graduates can meet the evolving challenges of pain management.

1581

SACROPLASTY: PAIN PHYSICIAN'S FRIEND IN NEED FOR SPEEDY MOBILIZATION OF SACRAL FRACTURES IN OSTEOPOROSIS

Y.C. Tay[1], C. Ho[1], S. Chua[1]

[1]*National University of Singapore, Singapore, Singapore*

Methods: Case report

Results: We present an 80-year-old hypertensive roadsweeper who was admitted following a fall at work and sustained Left superior and inferior pubic rami insufficiency fractures, right superior pubic rami fracture

and a right sacral insufficiency fracture (Denis Zone 1 - lateral to foramina).

There was no femoral fractures. He was immediately started on oral opioids, pregabalin before transitioning to patient controlled analgesia(PCA) upon referral to the pain team. We suggested for interventional radiology input for sacroplasty for early management of the fracture. CT guided right sacroplasty was performed under local anesthesia and sedation as Vertacem® cement was injected into the superior (6 ml) and inferior (2.8ml) aspects of the fracture. Patient was mobilized by physiotherapy the next morning as we observed PCA Morphine usage decreased postoperatively. Patient was discharged three days later. Three months follow-up reviewed no pain and cessation of oral analgesia. Patient had returned to active duty a month after discharge.

Conclusions: Early referral for minimally invasive sacroplasty allows immobilization of fracture, immediate restoration of weightbearing bone and reduction of opioids.

1584

THE COLORS ASSOCIATED BY UKRAINIAN REFUGEES WITH THE HORRORS OF WAR AND LEAVING HOME INDICATE A SIGNIFICANT VARIABILITY IN THE INTENSITY OF THEIR CHRONIC PAIN

I. Burmistr[1], D. Dmytriiev[2], S. Manastirschi[1], A. Nerpii[1]

[1]*State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Moldova, Republic of,* [2]*National Pirogov Memorial Medical University, Vinnytsya, Ukraine*

Methods: A descriptive, prospective study. REC approved. Standardized online questionnaire. Recruitment: refugee centers, Republic of Moldova (June-November, 2022). Inclusion criteria: a medical record of chronic pain syndrome (CPS) before the war in Ukraine; irreversible leaving home. Recorded data: pain syndrome type, actual pain intensity (NRS), the color (CMYK system) associated with the retreat experience, and endured pain. Statistics: Kruskal-Wallis H test. Data: mean and IQR (25-75).

Results: Enrolled 265 respondents. Women: 180 (68.2%). Age categories: 18-24 y.o. (28/265, 10.6%); 25-64 y.o. (196/265, 73.9%); 65+ y.o. (41/265, 15.5%). Registered CPS: low back pain (96/265, 36.2%); abdominal/visceral pain (5/265, 2.0%); joint and musculoskeletal pain (51/265, 19.3%); diffuse/generalized pain (6/265, 2.4%); cancer pain (71/265, 26.5%); headache/migraine (22/265, 8.3%); peripheral neuropathic pain (14/265, 5.3%). Pain intensity (NRS) vs assigned color: Red 7.0 (IQR 6.0-8.0), N=48; Blue 5.5 (IQR 4.0-6.75), N=14; Black 7.0 (IQR 7.0-8.0), N=81; Magenta 7.0 (IQR 6.0-7.0), N=40; Cyan 6.5 (IQR 6.0-7.0), N=18; Green 6.0 (IQR 3.5-7.5), N=7; Yellow 8.0 (IQR 7.0-8.0), N=49; White 6.5 (IQR 6.0-7.0), N=8. $\chi 2 = 30.2$, $p<0.001$

Conclusions: The intensity of chronic pain reported by refugees is significantly different, depending on the color with which the person associates the events and experiences lived. This fact could be taken into consideration in the chromotherapy or art therapy of the respective patients.

1585

ESTABLISHING A CELLULAR MODEL OF OXALIPLATIN-INDUCED COLD HYPERALGESIA USING THERMAL AND CHEMICAL COOLING

C. Kerem[1], R.-D. Treede[1], W. Greffrath[1]

[1]Mannheim Center for Translational Neuroscience, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany

Methods: Native dorsal root ganglia neurons from Sprague-Dawley rats underwent in-vitro calcium imaging using Fura-2 AM. Cells were stimulated with L-menthol (130 µM) and icilin (30µM) as TRPM8/TRPA1 agonists, followed by thermal cooling and heating ramps using custom-build setups to 12-20°C and 24-40°C, respectively. Nociception and depolarization were tested with capsaicin (1µM) and KCl (140 mM). Analysis was performed using the machine learning algorithms Cellpose and Suite2p, followed by python scripts.

Results: 130 neurons were analyzed, 27% of which were defined as cold-sensitive. Different cold thresholds were observed at temperatures of 12 – 15°C and 15 – 21°C. 76% of the cold-sensitive neurons reacted to heat stimulation and capsaicin application as well. 20 cells responded to icilin, a mixed TRPM8/TRPA1 agonist.

Conclusions: Our in-vitro model of thermal and chemical stimulation is a viable and reproducible method of studying cold transduction in primary sensory neurons. The model will be next used to compare oxaliplatin-treated neurons with native neurons to investigate the impact of oxaliplatin regarding threshold activation, making a further step towards the underlying mechanisms of OICH.

1586

NURSES-INITIATED PROTOCOL FOR PAIN TREATMENT AFTER ORTHOPEDIC SURGERY

I. Zlatkin[1,2], A. Dvorkin[1], D. Averin[1], O. Istaharov[1], F. Khazin[1], A. Reuveni[1]

[1]Carmel Medical Center, Haifa, Israel, [2]The Max Stern Yezreel Valley College, Afula, Israel

Methods: The subjects constitute 97 patients after orthopedical surgery. The inclusion criteria are: (1)Surgical treatment of limb fractures and total hip or knee replacement. (2)Age below 80. (3)Respiratory and hemodynamically stable patient (4)Creatinine level 1.6 or less. 47 patients (control group) were treated with medications prescribed by the physician according to pain level. The pain of 50 patients (interventional group) was treated by a standardized protocol started by nurses. The protocol consists of intravenous Paracetamol and Metamizole as «around-the-clock» treatment and syrup Oxycodone as SOS medication. The protocol was started by the nursing staff immediately after the surgery for 24 hours.

Results: Significant reduction in pain level and opioid consumption during the first 24 hours after the surgery were found among the intervention group as well as improvement in patients' satisfaction No adverse events were recorded.

Conclusions: The nurses-initiated protocol seems to be a safe and effective method of pain treatment after orthopedic surgery

---

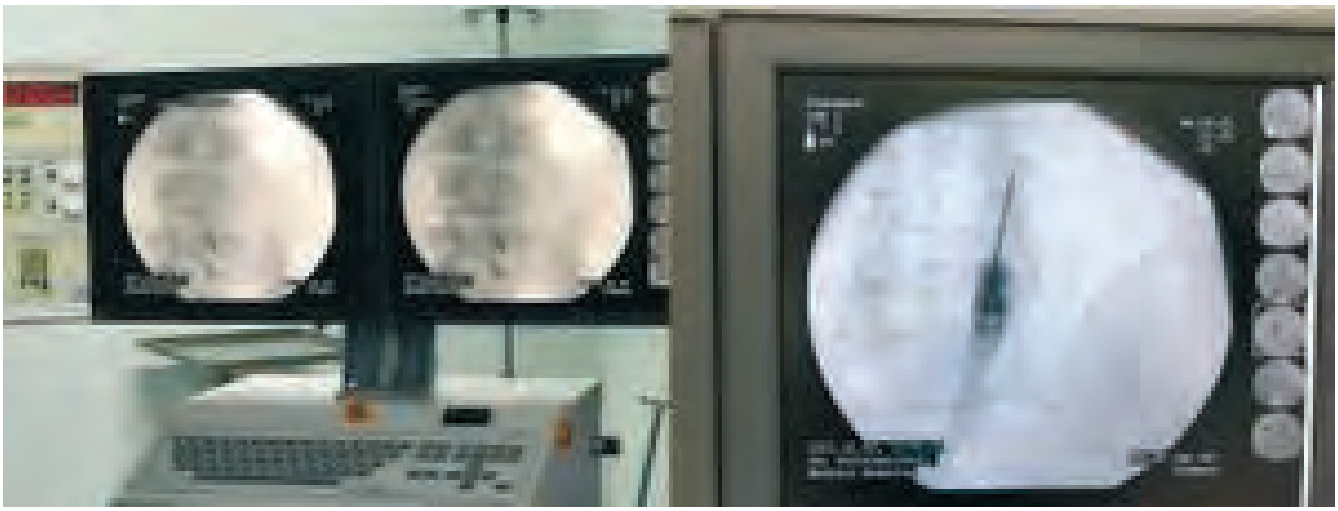
1587

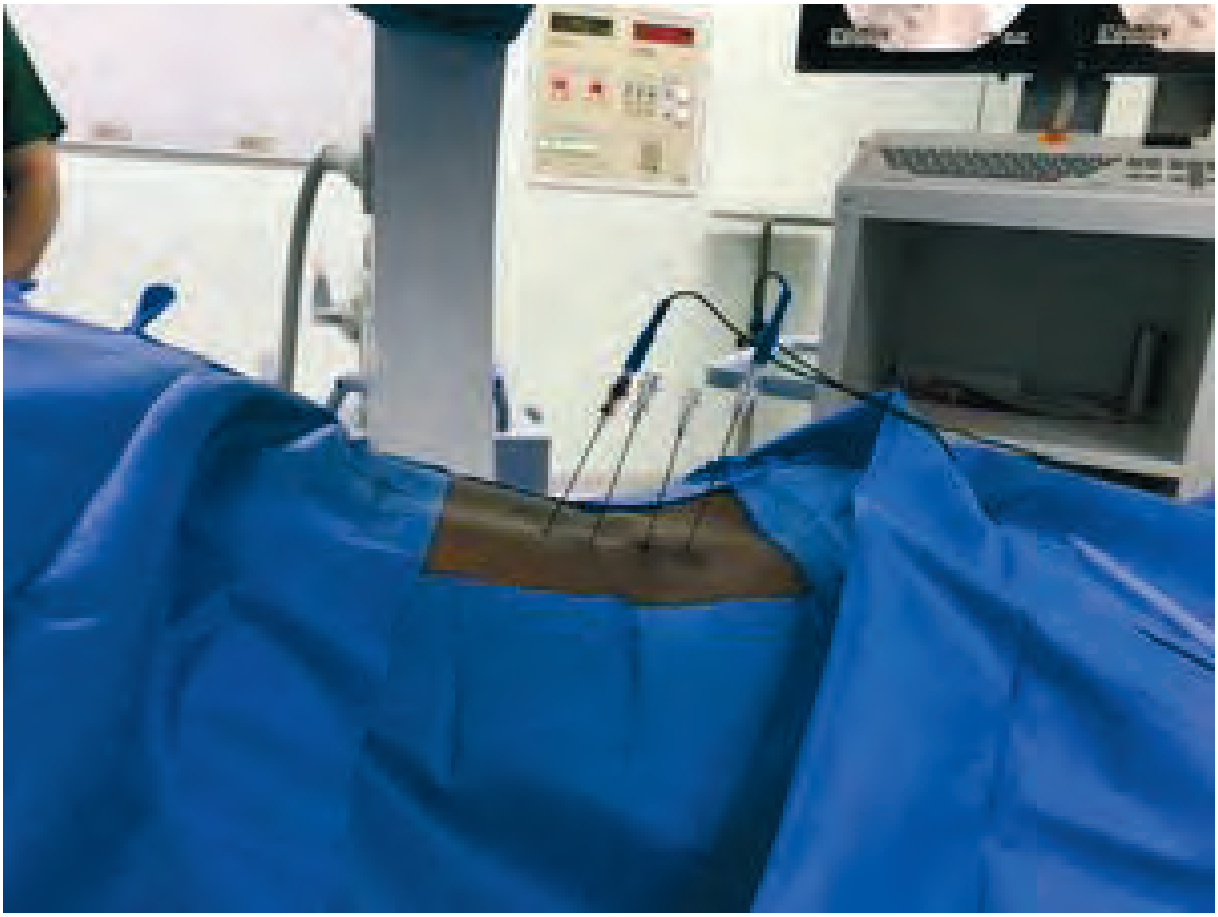
CASE REPORTOF A SUPEROBESE PATIENT WITH 62 BMI WHO UNDERWENT THREE R.F.A PROCEDURES IN PAST TWO YEARS FOR CONFIRMED LUMBAR FACET SYNDROME LIMITING HIS MOBILITY

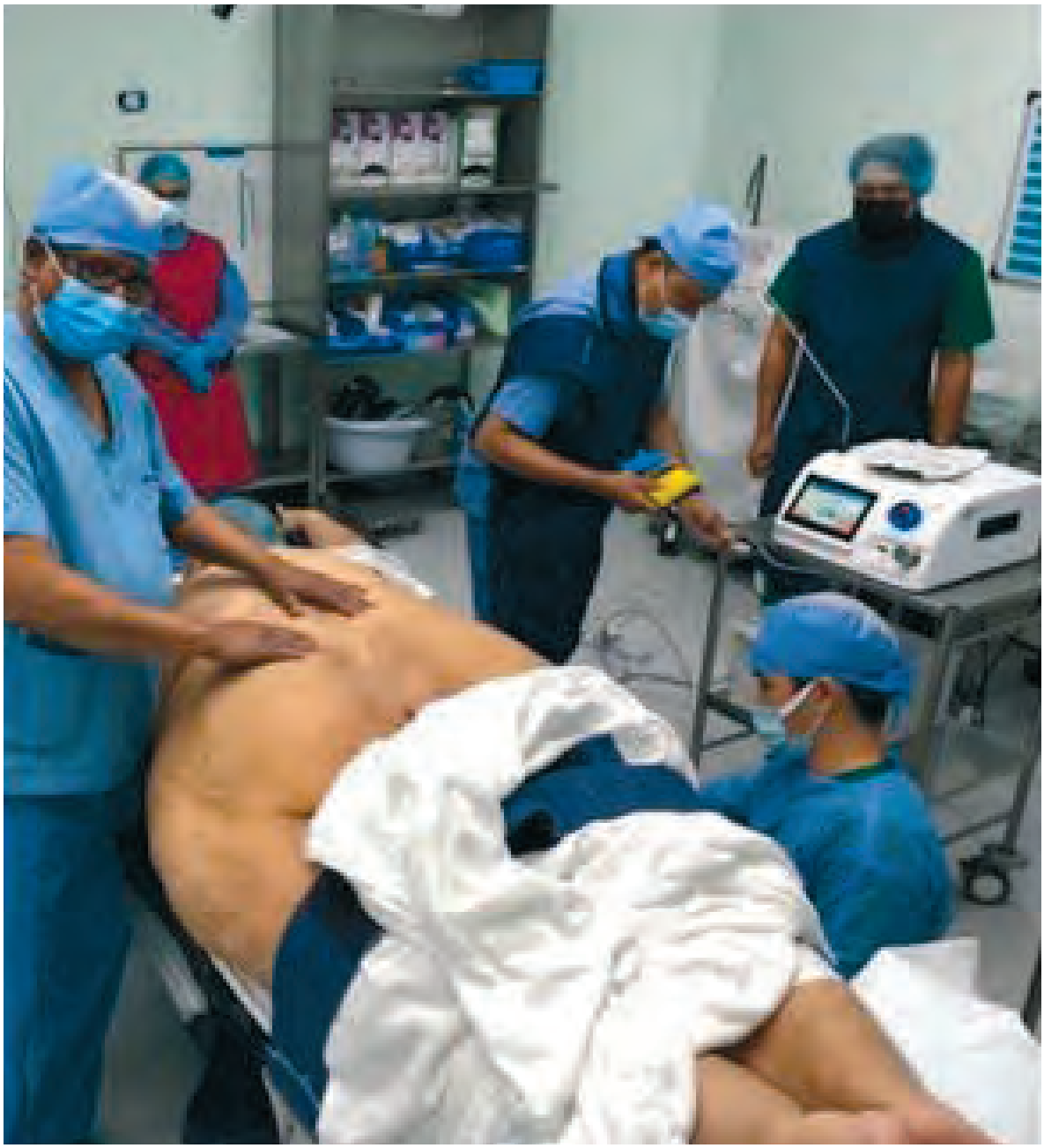
N. Natarajan[1]

[1]MEDCARE Hospital LLc, Dubai, United Arab Emirates

Methods: 30 year old male patient weighing 190 Kg with BMI 62 was diagnosed with L3,L4,L5,S1 bilateral facet joint arthropathy confirmed by MRI and clinical evaluation. He received two RFA using conventional approach (Cosman system with curved tip). .in less than one year followed by Cryo RFA for the third time. Patient was followed up and assessed using a pain score and QOL assessment which was compared after the three procedures.







Results: NRS score was more than **60%** in first follow up 4 weeks after all the three RFA procedures. NRS score after 12 weeks was more than **50%**in first 2 procedures using conventional thermal RFA, where as the NRS score was more than **80%** using the CryoRFA. In the follow up after 6 months after procedures compared to NRS score of less than **25%** in conventional RFA done both times prior However, with CryoRFA the NRS score was more than **60%**.

In all three procedures, quality of life after 4 weeks was better in three or more dimensions. After 6 months QOL was just **1** for TRFA compared to Cryo RFA QOL more than **3**

Conclusions: Systematic follow-up and measurement of pain scores and QOL scores after RFA procedures is vital. And in super obese patients it may be better to use CryoRFA for facet joint athropathy instead of conventional thermal RFA if feasible

1591

THE PLACEBO DILEMMA: A BEHAVIOURAL STUDY ON HOW PHYSICIANS DECIDE BETWEEN PLACEBOS OR ACTIVE ANALGESIC TRETMENTS. PLACEBO OR VERUM: WHAT WOULD YOU CHOOSE?

F. Campaci[1], A. Piedimonte[1,2], F. Borghesi[1], E. Carlino[1]

[1]University of Turin, Turin, Italy, [2]Carlo Molo Foundation, Turin, Italy

Methods: 48 Med school students were recruited to act as "physicians" while volunteers were recruited to act as "patients" and simulate pain responses after sham painful stimulations. Physicians were divided into a belief group (N=24) that received positive information about placebo efficacy and a non-belief group (N=24) that received negative information. During the task, physicians were asked to choose between a real or a placebo treatment while patients were asked to simulate low or high pain responses.

Results: Physicians in the belief group gave significantly more placebos only when they were faced with a patient that simulated a placebo analgesic response ($p < 0.001$).

Conclusions: The administration of a placebo treatment appears to be determined by physicians' prior knowledge of the argument as well as by patient's placebo responsiveness, resulting in a greatly increased probability of administering a placebo treatment only when these two sources of information are in sync. A proper use of placebo treatments is possible providing a proper education about them. It is likely that patient' responsiveness to placebo treatments guides physician' choices.

1592

IMPLICIT BODY PERCEPTION AT THE PELVIC GIRDLE WITH THE TWO-POINT ESTIMATION TASK: A RELIABILITY STUDY

B. Halliday[1], J. Freeman[1], S. Chatfield[1], J. Marsden[1]

[1]University of Plymouth, Plymouth, United Kingdom

Methods: A central 2PE measure was designed and protocolised. Non-pregnant, pain-free adult women > 18 years old were recruited from a university setting. Participants were assessed with repeated 2PE measures (estimating distance between two points (120mm apart) on a digital calliper). 2PE data was collected via two online and two in-person sessions. In-person intra and inter-rater reliability of the 2PE was assessed using intra-class correlation coefficients (ICC). Differences between lateral (Left versus right) and central (pelvic girdle versus lumbar spine) were assessed using paired t-tests.

Results: 22 women (mean age 40.5 +/-13.3) participated. 2PE demonstrated good intra-rater reliability with two repeated measures (lateral ICC=0.71 95%CI [0.49-0.87] / central ICC=0.80 95%CI [0.59-0.91]. Inter-rater reliability ranged from poor to good (lateral ICC=0.48 95%CI 0.58-0.75 / central ICC=0.65 95%CI [0.33-0.84]. There were no differences between the left and right lateral measures (p=.198) but the 2PE was greater for the lumbar compared to the pelvic region ($p<0.005$).

Conclusions: The 2PE task demonstrates good intra-rater reliability of a central and lateral measure. Differences in 2PE between regions may reflect somatosensory representation differences and may have implications for pain perception.

1593

IMPROVING CARE FOR PEOPLE WITH BREAST PAIN – WITH AND WITHOUT CANCER.

M. Briggs[1,2], K. Ellis[3], S. Hartup[4]

[1]The University of Manchester, Manchester, United Kingdom, [2]Manchester University NHS Foundation Trust, Manchester, United Kingdom, [3]Wythenshawe Hospital Manchester University Foundation Trust, Manchester, United Kingdom, [4]St James's University Hospital, Leeds, United Kingdom

Methods: Two connected studies are reported.

The development of a new pathway for people with breast pain A triaging process and telephone clinics were implemented. Patients with symptoms in addition to pain were redirected for clinical assessment. Deferred mammograms were requested for women >40y.

The development of web-based intervention (WBI) - ePainQ post breast cancer surgery. Development included audit (n = 119), clinical pathway exercise, scoping review (web-based educational interventions for chronic post-surgical pain in breast cancer), a systematic review (WBIs for patients' management of post-operative pain) and Focus Groups and Interviews.

Results: Patients (n=1238) were assessed in the new pathway. In 0.6% cancer was confirmed. This was identified on mammogram and not considered related to the pain.

The web-based intervention (ePainQ) was tested in 69 participants undergoing breast cancer surgery. 60/69 (87%) chose to use the intervention and reported finding it acceptable, useable, and supportive.

Conclusions: The new pathway and ePainQ provide improvements in the patients experience of pain.

1594

THE INFLUENCE OF FOAM ROLLING ON PAIN PERCEPTION

A. Schwarz[1], P. Thies[1], L. Siever[1], F. Henkel[1], L. Luebke[2], J. Kohberg[2], W. Herzig[2], G.F Carvalho[2], T. Szikszay[2]

[1]City University of Applied Sciences Bremen, Faculty of Social Sciences, Applied Therapeutic Science – Physiotherapy, Bremen, Germany, [2]Institute of Health Sciences, Department of Physiotherapy, Pain and Exercise Research Luebeck (P.E.R.L.), University of Luebeck, Luebeck, Germany, Luebeck, Germany

Methods: In a preregistered randomized controlled trial with single blinding, pressure pain thresholds (PPTs) were measured once a week in 41 subjects at three points on both lateral thighs. Subjects in the intervention group (n=21) were asked to use a foam roller on one side of the lateral thigh twice daily. Subjects in the control group (n=20) used the foam roller unilaterally once a week at the measurement appointments. PPTs were measured before and after the use of the foam roller. Differences over time were analyzed with Friedman-Test, differences pre/post with Mann-Whitney-U-Test.

Results: Preliminary data showed a significant increase in PPTs for both groups on both measurement sides over the time course of four weeks ($p<0.05$), with no significant difference between control and intervention groups. Except for the first appointment, both groups showed significant differences between pre- and post-measurements ($p<0.01$).

Conclusions: The short-term increase is consistent with the results of comparable studies. The long-term increase in pressure pain threshold does not appear to have resulted from the daily use of a foam roller.

1599

ADDITIONAL EFFECTS OF AEROBIC TRAINING TO NECK EXERCISES ON PAIN IN WOMEN WITH TEMPOROMANDIBULAR DISORDERS: PRELIMINARY RESULTS OF RANDOMIZED CLINICAL TRIAL

L.F. Tavares[1,2], L.B. Calixtre[1], S. Armijo-Olivo[2,3], A.B. Oliveira[1]

[1]Universidade Federal de São Carlos, São Carlos, Brazil, [2]Hochschule Osnabruck University of Applied Sciences, Osnabrueck, Germany, [3]University of Alberta, Edmonton, Canada

Methods: Fifty-eight participants diagnosed with chronic TMD (DC/TMD) were randomized into two groups: (1) neck exercises (NE; n=30); or (2) neck exercises associated with aerobic training (ANE; n=28), that performed additional 30 minutes of moderate exercise on a treadmill (60 – 80% HR reserve). Orofacial pain intensity was assessed with Visual Analogue Scales (0 – 100), before and after 16 treatment sessions (for eight weeks) and at one-month follow-up. The general linear model of repeated measures was used to measure within-group and between-group differences, considering $p < 0.05$ as statistically significant.

Results: Total sample mean age was 31 ± 8.45 years old ($p > 0.5$ between-groups). Baseline orofacial pain intensity average was 61.33 ± 17.16 for NE and 67.85 ± 18.92 for ANE ($p > .05$). Orofacial pain intensity significantly reduced after treatment (29.61 ± 20.67 NE; 31.08 ± 24.36 ANE) and at follow-up (47.28 ± 23.81 NE 44.03 ± 18.02 ANE), however no differences between-groups were detected after treatment and at one-month follow-up.

Conclusions: Preliminary data indicates the beneficial results of neck exercises to treat women with TMD, however moderate aerobic training is not sufficient to promote additional effects. Future studies should consider high-intensity training and longer duration of aerobic sessions to detect changes.

1600

EFFECTIVENESS OF AN 8-WEEK NECK EXERCISE TRAINING ON NECK DISABILITY AND CINESIOFOBIA IN PATIENTS WITH OROFACIAL CHRONIC PAIN: PRELIMINARY RESULTS FROM A RANDOMIZED CONTROLLED TRIAL

A.I.S. Oliveira-Souza[1,2], D. Araújo de Oliveira[2], S. Armijo-Olivo[1,3]

[1]Hochschule Osnabrück - University of Applied Sciences, Osnabrück, Germany, [2]Federal University of Pernambuco, Recife, Brazil, [3]University of Alberta, Edmonton, Canada

Methods: This was a double-blinded randomized controlled trial. It included fifty-four women between 18-45 years old with a diagnosis of masticatory myofascial pain or mixed TMD according to the RDC/TMD. All patients were evaluated with the Neck Disability Index and Tampa Cinesiofobia Scale at baseline, immediately after the end of treatment, four (one-month follow-up), and twelve (three-month follow-up) weeks after the end of the treatment. Participants were equally randomized into three groups: Cervical Training Group (CTG), Manual Therapy Group (MTG), and Placebo Group (PG). And all groups were treated for 12 weeks. A mixed ANOVA with repeated measures was conducted with the Bonferroni post hoc test. All results were performed based on intention-to-treat analyses.

Results: There was a significant difference between groups on neck disability, in which the CTG was better than the PG group at the end of treatment and three-month follow-up, with a large ES (0.8 [CI95%= 0.1, 1.5]), favoring the intervention group, and the MTG presented worst result compared to the PG at the end of the treatment with a large ES (0.9 [CI95%= 0.2, 1.5]). No interaction was found between groups regards to cinesiofobia ($F_{2,51}$= 1.76, p = 0.182).

Conclusions: Neck motor control exercises were effective to improve neck disability but had no influence on cinesiofobia aspects in women with orofacial pain.

1604

WAR REFUGEES SUFFERING FROM POST-TRAUMATIC STRESS SYNDROME SHOW SIGNIFICANTLY INCREASED INTENSITIES OF CHRONIC PAIN OF VARIOUS TYPES

I. Burmistr[1], D. Dmytriiev[2], S. Manastirschi[1], A. Nerpii[1]

[1]State University of Medicine and Pharmacy „Nicolae Testemitanu“, Chisinau, Moldova, Republic of, [2]National Pirogov Memorial Medical University, Vinnytsya, Ukraine

Methods: Descriptive, prospective study. REC approved. Standardized online questionnaire. Recruitment: refugee centers, Republic of Moldova (June-November, 2022). Inclusion criteria: medical record of chronic pain syndrome (CPS) before the war in Ukraine; irreversible leaving home. Recorded data: pain syndrome type, actual pain intensity (NRS), PTSD symptoms. Statistics: unpaired two-tailed t-Student test. Data: mean ± 95CI.

Results: Enrolled 265 respondents. Women: 180 (68.2%). Age categories: 18-24 y.o. (28/265, 10.6%); 25-64 y.o. (196/265, 73.9%); 65+ y.o. (41/265, 15.5%). Registered CPS: low back pain (96/265, 36.2%); abdominal/visceral pain (5/265, 2.0%); joint and musculoskeletal pain (51/265, 19.3%); diffuse/generalized pain (6/265, 2.4%); cancer pain (71/265, 26.5%); headache/migraine (22/265, 8.3%); peripheral neuropathic pain (14/265, 5.3%). Pain intensity (NRS) - Table 1.

Sleep disorders (206/265 – 77.7%)	Symptom present 5.93 (5.75 to 6.11)	Symptom absent 5.15 (4.65 to 5.65)	t 3.55	p 0.0005
Self distruction (204/265 – 77.0%)	5.89 (5.69 to 6.02)	5.29 (4.81 to 5.78)	2.61	0.0097
Life threatening event (210/265 – 79.3%)	5.80 (5.59 to 6.01)	5.59 (5.19 to 5.98)	0.93	0.3520
Blame yourself (177/265 – 66.8%)	5.98 (5.82 to 6.14)	5.30 (4.85 to 5.76)	3.43	0.0007
Difficulties relationships (203/265 – 76.6%)	6.00 (5.84 to 6.17)	4.90 (4.34 to 5.45)	5.17	0.0000
Recurrent bad memories (204/265 – 77.0%)	5.95 (5.76 to 6.15)	5.02 (4.57 to 5.46)	4.18	0.0000
Distressed by sounds etc. (207/265 – 78.1%)	5.88 (5.69 to 6.08)	5.30 (4.83 to 5.78)	2.57	0.0106
No one can be trusted (194/265 – 73.2%)	5.99 (5.80 to 6.18)	5.06 (4.62 to 5.51)	4.46	0.0000
Feel guilty and shame (205/265 – 77.4%)	6.00 (5.83 to 6.16)	4.93 (4.39 to 5.47)	4.95	0.0000
Have new behavior (96/265 – 36.2%)	5.79 (5.54 to 6.05)	5.74 (5.49 to 5.99)	0.27	0.7878

Conclusions: At least three fourths of war refugees present one or more characteristic symptoms of PTSD, which significantly amplify (+70%-100%) intensity of all chronic pain types.

1605

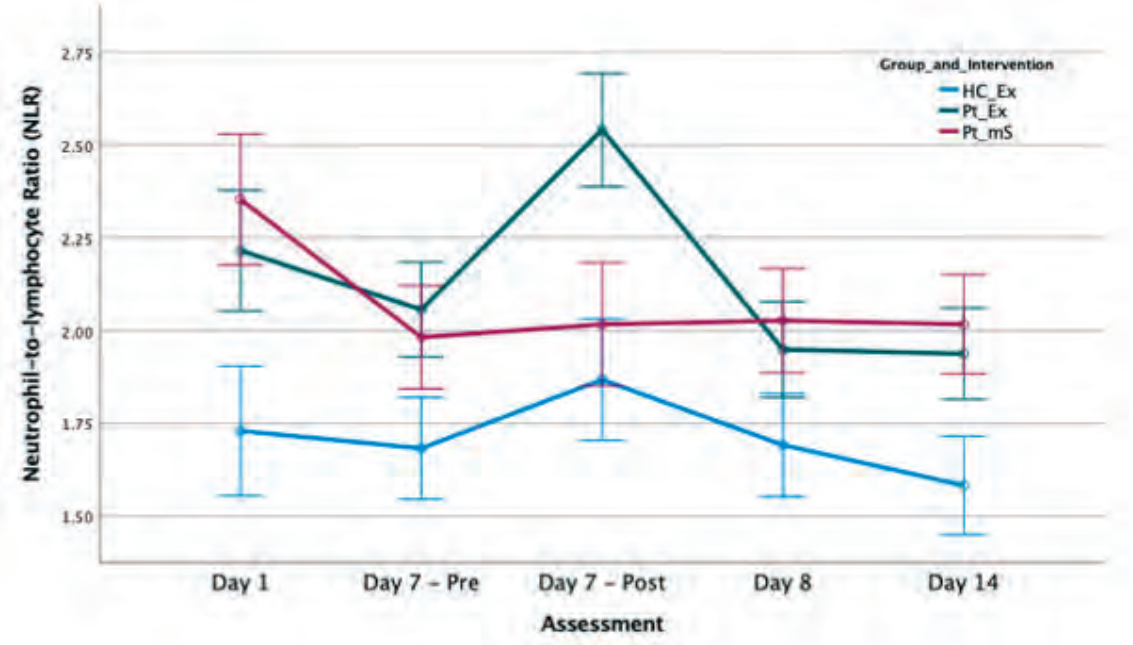
IMMUNE AND NERVOUS SYSTEM RELATED CHANGES AFTER PHYSICAL OR MENTAL STRESS IN PATIENTS WITH MYALGIC ENCEPHALOMYELITIS / CHRONIC FATIGUE SYNDROME (ME/CFS)

A. Polli[1,2], J. Hendrix[1,2], L. Godderis[2], J. Nijs[1]

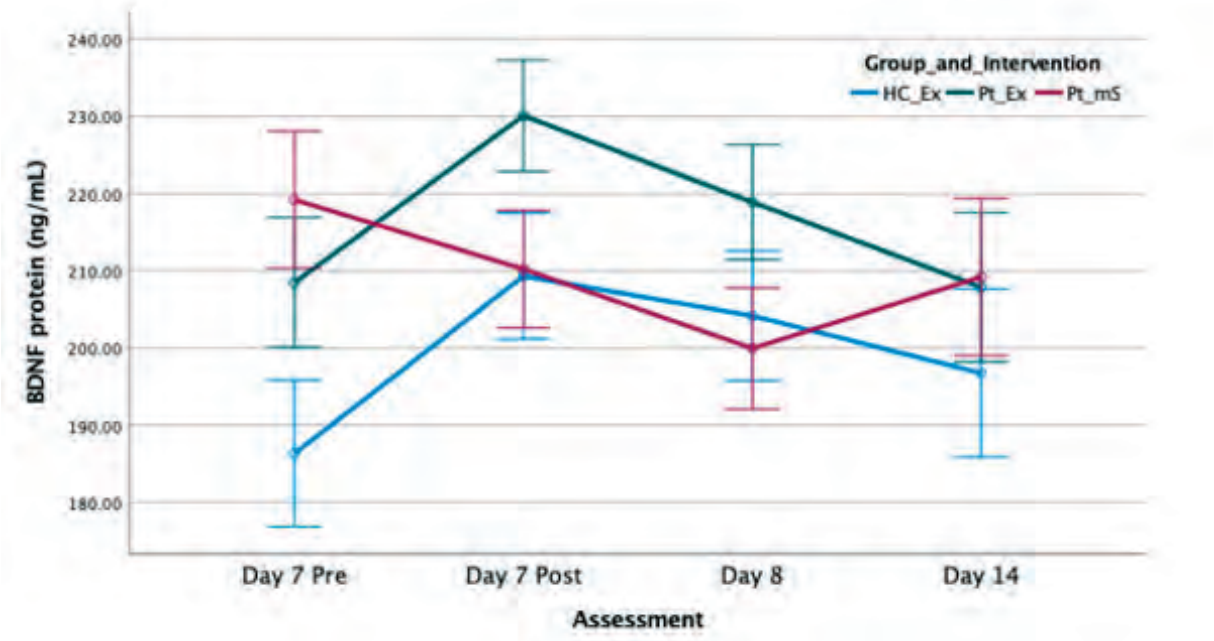
[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]Katholieke Universiteit Leuven, Leuven, Belgium

Methods: We enrolled 104 women - 70 with ME/CFS and 34 age- and BMI-matched HCs. Patients were randomised and underwent either a physical stress test or a mental stress test, while healthy controls only underwent the physical test. We assessed their symptoms before and after the experimental procedure (physical/mental stress test), as well as the day after and a week after. We then collected blood samples to count white cell subtypes, and BDNF protein expression in serum.

Results: PESE was induced only in patients by both experimental procedures. Symptoms worsened the day after the experimental procedure, and lasted for a week (mean difference = 6 pts on the CFS symptom list, p-value < .001). Patients with ME/CFS showed a significantly higher neutrophil-to-lymphocyte ratio (NLR) at baseline (mean diff: .551, p=.03) which further significantly increased only immediately after the physical test (mean diff: .601, p=.001).



Patients showed higher BDNF protein levels compared to healthy controls (mean diff: 27 ng/mL, p=.011). BDNF showed a significant increase after the physical stress test only. BDNF increase was similar in ME/CFS and HCs.



Conclusions: Results suggests that NLR (an easy-to-use marker mirroring the balance between innate and adaptive immune systems) might be relevant in ME/CFS. Results also confirmed previous research on BDNF, showing higher BDNF levels in patients with ME/CFS.

1606

THE EFFECTIVENESS OF AEROBIC EXERCISE ON PAIN AND DISABILITY IN PATIENTS WITH NECK PAIN: A SYSTEMATIC REVIEW

A.I.S. de Oliveira-Souza[1], M. Kempe[1], S. Grimmelsmann[1], L. Dennett[2], J.F. Contreras[3], E.M. De Castro-Carletti[4], L. Gülkner[1], H. Von Piekartz[1], S. Armijo-Olivo[1,2]

[1]University of Applied Sciences Osnabrück, Faculty of Economics and Social Sciences, Osnabrück, Germany, [2]Faculties of Rehabilitation Medicine and Medicine and Dentistry, University of Alberta, Edmonton, Canada, [3]Faculty of Health Sciences, Department of Physical Therapy, Clinical Research Lab, Catholic University of Maule, Talca, Chile, [4]Post Graduate Program in Human Movement Sciences, Methodist University of Piracicaba - UNIMEP, Piracicaba (SP), Brazil

Methods: Systematic review of randomized controlled trials (RCT). Searches were conducted in five electronic databases. Studies were selected if they included patients with NP over 18 years old treated with aerobic exercise (AE) (e.g., cycling, running, hiking, and walking). The main outcome of interest was pain intensity. Qualitative and quantitative data were extracted. The risk of bias (RoB) was determined using the Cochrane RoB Tool-2 and the overall certainty of the evidence with the GRADE recommendations.

Results: Out of 21,585 initial records screened, a total of six individual studies published in ten manuscripts were included. There was a great heterogeneity between protocols, comparisons, and studies' results (different magnitudes and directions). When looking at the effect of aerobic exercise versus control groups or other interventions on pain intensity measured with the VAS, not statistically (nor clinical) significant differences between aerobic exercise and control groups (MD [95%CI] 5.16 mm [-6.38, 16.70]) were identified. The combined effect of AE plus other interventions seems to be effective. Strength exercise obtained better effects than aerobic exercises (MD [95%CI]: -11.34 mm [-21.6, -1.09]).

Conclusions: Aerobic exercise presented positive results to reduce pain intensity, and improving disability, and physical and emotional functioning. However, the evidence is restricted, low quality, and heterogeneous.

AUTHOR INDEX

A

Á

Ä

B

C

Ç

D

E

F

G

H

I

Í

J

K

L

Ł

M

N

O

Ö

Ø

Õ

P

Q

R

S

Š

Ş

T

U

Ü

V

W

X

Y

Z

Ż