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The Effect of Microbiota and Related Blood Tryptophan Metabolites on Pain in Patients Undergoing Lumbar Disc Herniation Surgery

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Introduction: The gut microbiota plays a critical role in many pain conditions. In light of these mechanisms and pathways, we investigated the relationship between tryptophan metabolites and acute pain including the correlation between VAS scores and tryptophan metabolites.

Materials and Methods: Adult patients who would undergo LDH surgery under general anesthesia were included in our study. Blood samples were taken from the patients before surgery, at the 8th and 24th hours after surgery, and VAS scores were recorded simultaneously. The correlation between tryptophan metabolites and VAS scores was evaluated. At the same time, demographic data, vital signs, surgery time, anesthetic drugs and VAS correlation were evaluated.

Results: A significant difference was found between the preoperative VAS score of our patients and the 24-hour postoperative VAS score. Tryptophan and its metabolites in blood samples; It was determined that there were statistically significant changes in picolinic acid, kynurenic acid, xanthinuric acid data. Moderate positive correlation was found between 24-hour postoperative VAS and 24-hour postoperative quinolinic acid. There was a moderate positive correlation between preoperative picolinic acid and 8-hour postoperative picolinic acid with age. The change between preoperative 3-OH kynurenine and 8-hour postoperative 3-OH kynurenine was moderately negative and poorly correlated with operative time.

Conclusion: Our findings support a relationship between microbiota and acute pain and suggest that tryptophan metabolites detected in blood may be a biomarker for pain treatment. Large sample size and more comprehensive clinical studies are needed to better understand the relationship between acute pain and microbiota metabolites.

Keywords: Tryptophan, Picolinic acid, Kynurenic acid, Xanthinuric acid, Quinolinic acid, Microbiota, Acute Pain

Proposal for a Tool to Measure Our Interoceptive Acuity to Pain

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Background: Interoception, this ability to perceive our internal signals, is currently based on three distinct concepts proposed by Garfinkel and his collaborators: precision, sensitivity and interoceptive awareness. However, this process is mainly evaluated and measured clinically by protocols involving the cardiac or even pulmonary modality. This study aims to develop a methodology to examine the modality of pain.

Objectifs: Our goal is to establish a framework for quantitatively measuring pain perception ability. We hope, through this, to better understand the dysfunction of painful information processing and its impact on health.

Methods: A painful stimulation (thermal and mechanical) is sent to the subject, the latter must stop the signal when he estimates that his pain reaches a level of 3/10, 5/10 and 7/10on a VAS. Between each stimulation, it estimates that the signal is more or less intense than the previous one. Our recruitment concerns healthy subjects and subjects with chronic pain.

Results: This preliminary study shows a correlation between the increase in stimulation intensity and the increase in pain levels and a significant distinction between these levels. The subjects make a number of errors, more important for the cold modality and it is in this modality that the difference between the 2 groups is marked, the pathological subjects make fewer errors than the healthy subjects.

Conclusion: This protocol is a first step to evaluate and measure our perception of pain. We hope that in the future, this type of protocol will allow us to deepen our knowledge of both interoception and chronic pain.

Arthralgia (joint pain and muscle aches) in midlife Singapore women is independently associated with poor muscle strength, obesity, and menopausal vaginal dryness

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Background/Objectives: Arthralgia is a common menopausal complaint in midlife women, and its causes remain unclear. In this study, we examine its prevalence and associated factors among midlife Singaporean women.

Methods: The Integrated Women's Health Program comprised of community-dwelling women aged 45-69 years attending well-women clinics at the National University Hospital, Singapore. Sociodemographic, lifestyle, menopausal, reproductive, and health data were obtained with validated questionnaires. Blood pressure, muscle strength, physical performance, and dual-energy X-ray absorptiometry were measured. Arthralgia was assessed using the Menopausal Rating Scale, a validated and widely recognised tool to examine menopausal symptomatology and its severity. Women with moderate to very severe symptoms were classified as having arthralgia. Multivariable logistic regression analyses examined risk factors of arthralgia.

Results: Arthralgia was reported in one-third of 1,120 women (mean age 56.2 ± 6.3). Menopausal symptoms, such as vaginal dryness (aOR: 2.64, 95% CI: 1.64, 4.24) and physical/mental exhaustion (aOR: 2.83, 95% CI: 1.79, 4.47), were independent risk factors for arthralgia. Poor muscle strength (aOR: 2.20, 95% CI: 1.29, 3.76), obesity (aOR: 1.94, 95% CI: 1.13, 3.32), and rheumatoid arthritis (aOR: 7.73, 95% CI: 4.47, 13.36) were also independently associated with arthralgia after adjustment for demographic, lifestyle, sleep, and other health factors. Age and ethnicity were not associated with arthralgia.

Conclusions: Arthralgia in midlife Singaporean women was associated with menopausal symptoms, suggesting that interventions to alleviate these symptoms could help ease arthralgia severity. Affected women should engage in muscle strength training, ensure optimal body weight, and receive prompt identification and treatment for rheumatoid arthritis.

Multidimensional Aspects of Patients in Pain Clinic Center: Epidemiological Study

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Background: The heterogeneity among patients suffering from chronic pain poses challenges for improving their management. The objective of this study is to gather epidemiological data that can aid in understanding the characteristics and factors associated with chronic pain.

Methods: A retrospective analysis was conducted 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 pain at the CMETD between 2007 and 2017 was included. Data collection encompassed sociodemographic information and diagnoses.

Results: We examined 1000 medical records, of which 73% represented women. The average age of patients was 49 years, and they had experienced symptoms for a median duration of 4 years. Approximately 43.6% were professionally active, and the most common occupation among them was that of cleaning staff. In contrast, 30.3% were on disability. The lumbar region was the most affected anatomical area, accounting for 42.7% of cases, and 42.4% of patients reported suffering from depression. Additionally, depression was significantly more prevalent among women.

Conclusions: Our findings highlight the complex relationship between prognostic factors across various domains and support the notion that clinicians should adopt a multidimensional approach in their management of patients with chronic pain.

Benefit of Mesotherapy in Patients at a Chronic Pain Unit

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Introduction: Mesotherapy, an injectable intradermal and subcutaneous medical technique, has been used for pain treatment since 1958, despite the lack of robust scientific evidence supporting its efficacy. This study assesses its benefit in pain control, whether administered alone or in combination with other techniques.

Materials and Methods: We conducted a retrospective observational study of mesotherapy procedures between June 2002 and 2023 at UDC-CHEDV. Pain intensity was recorded using the Visual Analog Scale (VAS) before and 7 days post-procedure, along with patient-perceived improvement in percentage terms. Informed consent was obtained.

Results: A total of 72 procedures were performed, predominantly on female patients (81%), with an average age of 62.9 years. Degenerative osteoarticular pathology affected 83% of the patients, with low back pain (n:25) being the most common complaint. Other etiologies included Chronic Post-Surgical Pain, Complex Regional Pain Syndrome (CRPS), and Fibromyalgia. Mesotherapy was performed as a standalone treatment in 12 patients (17%) and in combination with other techniques in 60 patients (intra-articular infiltration, peripheral nerves, periligamentous/tendinous, myofascial release, and epidural analgesia).
It was manually administered using a 27G hypodermic needle and a 5% glucose solution. In the other techniques, a mixture of local anesthetic (LA) (1% lidocaine + 0.2% ropivacaine), LA + corticosteroid (0.2% ropivacaine + 40mg methylprednisolone), and LA + 15% glucose was administered. Regarding pain intensity, the results are presented in Table 1.
The majority of patients reported a reduction in pain after seven days, with 59 indicating an improvement ≥50% and 2 with 90% improvement. Reported side effects included bruising (n:3) and local pain lasting 72 hours (n:3).

Discussion and Conclusion: After 7 days, there was an overall reduction in pain intensity. Only one patient did not experience improvement. In conclusion, mesotherapy, whether administered alone or in combination with other techniques, proves beneficial in pain reduction. Furthermore, it is considered safe, with a low incidence of complications and side effects.

Characterization of Chronic Non-Specific Neck Pain Osteopathic Management

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Background: Chronic neck pain is defined as any continuous pain in the cervical spine region lasting 3 months or more. Chronic pain is sustained by a sensitization process specific for each type of pain. In this study ,we aim to define the algo-mechanical approach with which osteopathy addresses nociceptive pain.

Method: 30 patients participated in this study. They fulfilled the "Neck Pain and Disability Scale" in order to score their pain and functional disability before and after an osteopathic treatment. During the session, 4 osteopaths, who treated the group of patients, completed two documents created for the study. The first one recording clinical evaluation of cervical range of motion (RoM) and vertebrae intersegmental mobility perception, the second one recording treatment localization and manual techniques applied.

Results: In frontal and transversal planes, 90.9% and 87.5% of patients had decreased range of motion (RoM) associated with pain, respectively. 26,67% to 43,34% of the patients had a loss of RoM in the upper thoracic spine.
Concerning restricted vertebrae identified by therapists and combinations of restricted movements each patient showed their own pattern.
During treatment, we observed a personalization and adaptation of techniques used according to vertebral levels and muscles chosen to be treated.

Conclusion: Our results suggest that patients suffering from non-specific chronic neck pain present each one their algo-mechanical pattern related to their nociceptive pain. Osteopathic treatment is a therapeutic approach adapted for each algo-mechanical pattern identified during the screening phase.

Sensory Phenotypes of 612 patients with Complex Regional Pain Syndrome

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Background: The exact underlying pathophysiological mechanism for Complex Regional Pain Syndrome (CRPS) has been under debate in recent years. In fact, previous work identified potential CRPS subtypes, which were characterized as "cold" and "warm" (Bruehl et al., 2016) or peripheral and central phenotypes (Dimova et al., 2020).

Objective: Thus, the aim was to examine CRPS patients via a comprehensive somatosensory testing and thereby identify potential subgroups.

Methods: In total, 612 patients (age: 51.8 [±13.5], female: 441) with CRPS underwent Quantitative Sensory Testing according to the DFNS protocol (German Research Network on Neuropathic Pain). Thereby, 13 parameters including thermal and

mechanical detection and pain thresholds were generated - indicating one distinct sensory profile for each participant.

Results: We identified three distinct sensory phenotypes. The largest group was characterized by hyperalgesia (n=387), a second group was characterized by loss of sensation (n=203). A third, small, but consistent group exhibited strong allodynia and hyperalgesia (n=22).

Conclusion: Here, we report a new way of stratifying patients with CRPS based on sensory phenotypes. The therapeutical implications for each subtype are unknown but still may add to a personalized pain treatment of CRPS in the future.

Clinical Proof-Of-Concept of LAT8881 as a First-In-Class Non-Opioid Treatment for Chronic Moderate-to-Severe Lumbar Radicular Pain

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Background: LAT8881 is a peptide with analgesic properties in rodent models of neuropathic pain, which appears to act via LanCL, a novel therapeutic target for neuropathic pain.

Objectives: In this Phase 1b trial we investigated whether LAT8881 can safely provide analgesia in subjects with chronic moderate-to-severe lumbar radicular pain, along with characterization of LAT8881's pharmacokinetic and pharmacodynamic profile.

Methods: This was a placebo-controlled randomized double-blind cross-over safety and efficacy study in 17 patients with lumbar radicular pain. Subjects were enrolled with persistent pain radiating into a lower limb for at least 3 months duration, with average pain intensity of between 4/10 and 9/10. Subjects were allowed to continue existing stable analgesic medication. Placebo or LAT8881 was given intravenously over 10 minutes on two consecutive days. The primary outcome measure was the change in baseline pain between Treatments during the 6 hours post-infusion. Exploratory outcome measures included the impact of a leg raise provocation on any pain response.

Results: Housing subjects in a sedentary state during the treatments days reduced baseline pain considerably, with no differences in "at rest" pain reduction from either Treatment observed. However, LAT8881 was more effective than Placebo in reducing provoked pain, particularly during the 1-2 hours post-dose. The pharmacokinetic profile of LAT8881 and its active metabolite was characterized. LAT8881 was well tolerated, with no serious adverse events and no dose-limiting safety events. Analysis for potential biomarkers is ongoing.

Conclusions: Clinical "proof-of-concept" of LAT8881 as a novel first-in-class therapeutic for the treatment of neuropathic pain has been demonstrated.

Local injection of a freshly manufactured 35 kDa hyaluronan fragment reduces neuropathic and inflammatory pain

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Purpose: To investigate the effects of a low-molecular weight hyaluronan fragment, HA35, in relieving neuropathic and inflammatory pain, including postherpetic neuralgia and shoulder, neck, back and temporal pain.

Methods: Thirty-six patients with postherpetic neuralgia and shoulder, neck, back and temporal pain were studied and assessed. The 35 kDa hyaluronan fragment HA35 was prepared by mixing hyaluronidase PH20 and 100 mg of high molecular-weight HA at room temperature for 20 minutes. This mixture was locally injected once at the pain point or where the nerve trunk innervated the pain point. Patients scored their pain and comfort on the Numerical Pain Rating Scale (NPRS) and the General Comfort Questionnaire (GCQ).

Results: After treatment, the NPRS scores, pain improvement scores and GCQ scores improved. Relative to the treatment period, patients with postherpetic neuralgia and shoulder, neck, back and temporal pain had significantly lower NPRS scores at 30 min to 180 min, and the effects at 180 min were more obvious (P 0.001). The GCQ scores after treatment for 24 h were significantly higher than those before treatment (P 0.01). No adverse reactions occurred.

Conclusion: The 35 kDa hyaluronan fragment HA35 could effectively relieve postherpetic neuralgia-induced neuropathic pain and shoulder, neck, back and temporal inflammatory pain.

AmyloScan® – A simple screening tool for hereditary transthyretin amyloidosis

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Background: Hereditary transthyretin (ATTRv) amyloidosis is a progressive, life-threatening disease caused by systemic deposion of transthyretin amyloid fibrils. Beside cardiac dysfunction, a length-dependent polyneuropathy with a broad spectrum of sensorimotor and autonomic symptoms is characteristic. Due to the heterogenous clinical presentation, misdiagnoses and delayed treatment are common which is fatal as the median survival time for untreated patients is around 7 years.

Objective: The aim was to develop and validate an easy screening tool, the AmyloScan®, for early detection of ATTRv amyloidosis in patients with polyneuropathies of other cause.

Methods: A first AmyloScan version was developed by identification of potential items via literature analysis, patients interviews and examination of ATTRv amyloidosis patients (n=10) and controls (chronic inflammatory demyelinating polyneuropathy, n=16; diabetic polyneuropathy, n=16). The AmyloScan 1.0 was validated in 83 patients with polyneuropathy caused by ATTRv amyloidosis (n=21), CIDP (n=19) or others (n=43). The most discriminant item combinations for ATTRv amyloidosis were identified via discriminant and sensitivity analyses. Receiver-Operator Curves were plotted and optimal cut-off values were determined.

Results: The final AmyloScan® consisted of 12 questions and two bedside tests. The bedside tests (22°C metal cube temperature perception; 4 mL pressure pain) were performed in an individually defined border zone area. A cut-off score of 4/14 indicates an increased chance of amyloidosis (sensitivity: 95.2%, specificity: 72.6%) and 6/14 indicates a high chance (sensitivity: 81.0%, specificity: 93.5%).

Conclusion: The AmyloScan® is a combination of a brief questionnaire with two simple bedside tests with good discriminative value that can be easily used in clinical practice to confirm the suspicion of ATTRv amyloidosis and to initiate further diagnostic steps.

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Observation on the Clinical Efficacy of Shu Gan Tiao Shen Needling Method Combined with Medication Treatment for Postherpetic Neuralgia

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Objective: To observe the efficacy of Shu Gan Tiao Shen (liver-soothing and mind-regulating) needling method combined with gabapentin in the treatment of Postherpetic neuralgia (PHN) patients.

Methods: 66 patients were randomly divided into acupuncture group and control group (n=33) by the random number table method. The control group was given the oral administration of gabapentin and sham acupuncture, while the acupuncture group was given Shu Gan Tiao Shen needling treatment plus Gabapentin. Numerical Rating Scale (NRS), State Trait Anxiety Inventory (STAI) and Pittsburgh Sleep Quality Index (PSQI) were used as the pain related symptom. The clinical efficacy and adverse events of gabapentin were also evaluated during the treatment.

Results: After 8 weeks of treatment, the NRS scores for two groups were significantly lower than those before treatment (all P0.05) at all time points, which were statistically significant difference between the groups (all P0.05). The scores of STAI and PSQI of the acupuncture group were significantly better than the scores before treatment (all P0.05). The scores of T-AI for anxiety symptom and PSQI of the acupuncture group were significantly better than control group (all P0.05), and the total effective rate of the acupuncture group was significantly higher than control group (P0.05). The incidence of adverse reactions of gabapentin for acupuncture group was significantly lower than control group (P0.05).

Conclusion: Shu Gan Tiao Shen needling method combined with drug treatment could alleviate the pain, relieve the anxiety symptoms, promote sleep, and reduce the adverse reactions of gabapentin in PHN subjects.

Study on the Changes of Cortical Excitability in patients with Postherpetic Neuralgia evaluated by Transcranial Magnetic Stimulation

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Objective: To explore differences of cortical excitability and inhibition assessed by transcranial magnetic stimulation (TMS) between patients with postherpetic neuralgia (PHN) and healthy controls.

Methods: A total of 30 PHN patients and 30 age- and sex- matched healthy controls underwent single- and paired-pulse TMS applied to the left and right motor cortex in the first affiliated outpatient department of Guangdong Pharmaceutical University from August 2022 to March 2023. TMS measures included rest motor threshold (RMT), silent period (SP), short intracortical inhibition (SICI) at 2-ms interstimulus intervals and intracortical facilitation (ICF) at 12-ms interstimulus intervals. The severity of pain symptoms was measured with course of disease, Visual analog score of pain (VAS) and frequency of pain attack.

Results: Compared with healthy controls(55.25±5.05), patients with PHN demonstrated significantly increased RMT values (60.91±5.52) in contralateral hemisphere(P0.05), while average MEPs, SP and SICF showed no significant differences between PHN patients and healthy controls (P0.05). PHN patients showed a significant hemispheric asymmetry in SICI (0.81±0.09) under the 70% conditioned stimulus of TMS Compared with healthy controls [(0.73±0.08), P0.05)]. Correlation analysis found that the values of SICI under the 70% conditioned stimulus of TMS in the contralateral hemisphere of PHN were positively correlated with the course of disease(r=0.323,P0.05).

Conclusion: These results provide evidence for the lower excitability of motor cortex and the motor cortical inhibition for contralateral hemisphere of PHN patients. There exists a relationship between the course of disease and inhibitory deficits in the contralateral hemisphere of PHN.

Harnessing Artificial Intelligence/Machine Learning in Rare Diseases: Living with Arachnoiditis - an International Study by Arachnoiditis & Chronic Meningitis Collaborative Research Network (ACMCRN)

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Background: Arachnoiditis is a rare and painful disorder caused by inflammation of the spinal cord arachnoid membrane. AI and cloud computing can aid in research and treatment by enabling data analysis, pattern identification, and global collaboration. The ACMCRN Stuff That Works (STW) Survey used AI and cloud computing to conduct the largest patient-reported survey on Arachnoiditis.

Objectives: The study aimed to assess treatment effectiveness, provide a platform for patient experiences, and improve understanding of the condition. By leveraging technology and patient participation, the study sought to enhance patient care, treatment outcomes, and overall knowledge of Arachnoiditis.

Methods: From 2021-2022, ACMCRN implemented a series of health-related surveys within their international community, conducted through the Stuffthatworks.health Platform and disseminated via a combination of targeted social media campaigns and word-of-mouth strategies, with 1250 respondents.

Results: 78% indicated symptom onset in adulthood. Among a wide variety of symptoms, back and leg pain, (including difficulty sitting) and numbness were most frequently reported. Participants listed aggravating factors, comorbid conditions, and ranked 34 popular arachnoiditis treatments as either tried, effective, or detrimental.

Conclusion: This early attempt at employing an AI and machine-learning software platform appears to indicate that the traditional burdens of recruitment in Rare Disease may be overcome with the use of virtual software. Combined with the recruitment potential via disease advocacy/support groups, it exceeds past traditional attempts at recruiting a sizeable cohort.
These findings will be expanded upon through the ACMCRN International Arachnoiditis Patient Registry in upcoming studies. Please see more registry information at www.acmcrn.org.

Adverse Drug Reactions Associated with the Prescription of Oral Cannabis-Based Medicinal Products: A Post-Marketing Pharmacovigilance Study

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Background: Like Germany and the UK, several Latin American countries have authorized the prescription of cannabis-based medicinal products (CBMPs) for their therapeutical use as adjuvants in the clinical management of different types of chronic pain. However, no clinical trials have been conducted to provide evidence on the safety of these specialties in post-marketing stages.

Objectives: The aim of this study is to characterize the safety profile of five oral CBMPs in a convenience patient cohort.
METHODS: An analysis of reports of adverse drug reactions (ADRs) received by the pharmacovigilance system of a pharmaceutical establishment between March and October 2022 was performed.

Results: A total of 1060 patients who received treatment with CBMPs were included in the study and only 135 (12.7%) reported at least one adverse reaction. Women reported significantly more ADRs than men ($\chi 2=27.4$; P0.001) and most of the ADRs (77.8%) occurred in the first 4 weeks of treatment. The distribution of ADRs associated with each product was proportional to the frequency of prescription of the product and no higher incidence was found in CBMPs containing Δ9-tetrahydrocannabinol (THC). The most frequently reported adverse reactions corresponded to nervous system disorders (47.2%) and gastrointestinal disorders (17.9%), the preferred terms were dizziness (17.9%), drowsiness (12.7%) and dry mouth (5.7%). Ninety-three percent were characterized as "mild" and 50.2% as "possible".

Conclusion: This is the first systematic description of adverse reactions associated to CBMPs in Peruvian patients in a real clinical setting and confirms the safety profile previously reported for these pharmaceutical preparations.

Enhancing Quality of Life in Painful Diabetic Peripheral Neuropathy (PDPN): Multi-Centre Clinical Trial of Duloxetine and Pregabalin

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Introduction: PDPN greatly impact patients' quality of life (QoL). Our trial aimed to evaluate the impact of two generic drugs pregabalin (Pregabalin Krka) and duloxetine (Dulsevia®) on pain and QoL in patients with PDPN.

Methods: In this open label multi-centre clinical trial, 201 patients were randomised to the pregabalin (99) and duloxetine (102) arms for 12 weeks. We evaluated worst pain intensity in the last 24 hours (24h-WPI) on a 100-mm scale and QoL, using 36-Item Short Form Health Survey (SF-36), at the beginning and at the end of the trial.

Results: At the end of the trial, 24h-WPI significantly decreased in both groups by 59%. Patients' QoL significantly improved after 12 weeks of treatment with pregabalin and duloxetine.

In the pregabalin arm, the largest improvement was observed in Role functioning/emotional (43.4 ±42.5 vs. 62.4 ±39.5), Role functioning/physical (36.1 ±37.3 vs. 50.9 ±39.3), Physical functioning (54.6 ±25.7 vs. 66.2 ±24.7), and Health change (42.4 ±25.5 vs. 55.0 ±27.9).

Similar results were obtained for the duloxetine arm: Role functioning/emotional (50.7 ±42.5 vs. 65.6 ±40.0), Role functioning/physical (37.5 ±42.0 vs.

50.7 ±41.3), Emotional well-being (57.2 ±17.8 vs. 67.7 ±17.2), Social functioning (63.5 ±25.6 vs. 73.8 ±20.9), and Health change (40.9 ±26.1 vs. 51.4 ±30.0). The only item where no significant change was observed in either of the groups was General health.

Conclusion: Our results demonstrate that Pregabalin Krka and Dulsevia® successfully reduce neuropathic pain and significantly improve QoL of patients with PDPN.

Lifestyle factors and psychological factors are associated with central pain processing in service members with persistent low-back pain: a cross-sectional exploratory study

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Objective: Persistent low-back pain (LBP) is highly prevalent in the military. Altered central pain processing is one of the mechanisms found to underlie persistent LBP. Our aim was to explore which factors are associated with altered pain processing in Dutch service members with persistent LBP. This knowledge may provide clinicians directions in what factors to address in the treatment of dysfunctional pain processing in service members.

Methods: Twenty-one service members with persistent LBP (18 males, mean age 34.0 years) were included in this cross-sectional exploratory study. Participants completed questionnaires regarding lifestyle and psychological factors. Altered central pain processing was measured by temporal summation of pain (TS) and by conditioned pain modulation (CPM). Univariable and multivariable linear regression analyses were performed.

Results: A higher TS on the lower back was associated with a longer sitting time, a higher level of physical activity and a higher level of pain catastrophizing. A more efficient CPM measured on the lower back was associated with a higher level of pain catastrophizing, anxiety and depression symptoms, and with a lower sleep quality. A more effective CPM measured on the forearm was associated with a higher level of physical activity, a higher body mass index and a shorter sitting time.

Discussion: This study succeeded in identifying lifestyle and psychological factors associated with altered pain processing in service members with persistent LBP. Prospective studies are needed to examine causality in these relationships.

"The pain is not necessarily less, but I experience it differently": A qualitative study about how people with persistent pain experience physiotherapy care blended with a biopsychosocial digital intervention

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Background: A blended intervention consisting of face-to-face physiotherapy and psychologically-informed digital health was developed to optimize the management of people with persistent spinal pain who also have psychosocial risk factors associated with the development or maintenance of persistent pain. This study aimed to gain insights into how participants experienced this blended intervention.

Methods: An interpretative qualitative study using semi-structured interviews was conducted. Eleven people with persistent non-specific spinal pain who received the blended intervention within a randomized clinical trial were included. All interviews were recorded, transcribed verbatim, and analyzed independently by two researchers. Data were analyzed using a thematic inductive approach.

Results: The analysis identified four themes: (1) Experiencing a better understanding of the relationship between own physical and mental health; (2) Importance of the physiotherapist's active involvement in biopsychosocial blended care, which describes the crucial role of physiotherapists in supporting participants in this; (3) Appreciation of digital health, to better understand persistent pain and make meaningful lifestyle changes; and (4) Trials and triumphs, revealing gains such as better coping, but also challenges with implementation of changes into long-term routines.

Conclusion: Participants of the blended intervention experienced positive changes in thoughts and behaviors, which highlights the feasibility and acceptability of the blended intervention as a more holistic treatment within pain management. The differences in personal preferences for receiving psychologically informed digital health pose challenges for the implementation of blended biopsychosocial care in evidence-based practice.

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