POLITICAL BARRIERS FOR OPTIMAL OPIOID THERAPY IN THE EUROPEAN COUNTRIES; WITH FOCUS ON REIMBURSEMENT POLICIES AND GENERIC SUBSTITUTION

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Background:
January 2012 the EFIC Executive Board formed a Task Force with the aim of elucidating the impact of different national reimbursement policies and regulatory restrictions on patients' access to opioids.

Methods:
Data was collected using a questionnaire structured by the Task Force. The questionnaire consisted of four parts:
1. General rules for reimbursement policies
2. General process for national decision on approval/reimbursement
3. Regulatory restrictions on free prescription
4. Current status on reimbursement for each non-parenteral opioid marketed.

The questionnaire was sent to EFIC representatives in the 36 countries November 2012, with request of returning it December 2012.

Results:
January 2015, questionnaires were still not received from the following countries: Albania, Israel, Latvia, Lithuania, San Marino and Slovakia and it were decided to initiate the data management.

The general rules for reimbursement, pricing and the national processes for granting approval and reimbursement differed among the countries. In some countries opioids are automatically reimbursed if the product is approved, whereas in most countries the approval and reimbursement processes are separated.

The number of available opioids was found to be higher in the western European countries, with highest number of different non-parenteral opioid products being available in Germany (47) and the lowest in Ukraine (0). In the eastern European countries, most marketed products were reimbursed, whereas in some of the western European countries, with free pricing, the authorities seem to be reluctant in granting reimbursement to new expensive products, and thus in practice is limiting the access to the products.
Background and Aims

Botulinum toxin type A, is used for the treatment of focal muscle hyperactivity. The effect is believed to result from the blockade of presynaptic nerve terminals releasing acetylcholine. Information from in vitro experiments demonstrated that BTX-A could inhibit neurogenic inflammation, a process that results from the sensitization of C-fibber nociceptors; the effects of BTX-A involved attenuation of the release of neurotransmitters substance P, calcitonin gene-related peptide, glutamate and vanilloid receptor activity.

In this study, we observe the analgesic effects of BTX-A in patients with focal neuropathic pain.

Methods

We have treated 3 patients with Pudendal Neuralgia. They had been treated with Blocks and Radiofrequency procedures. The pain was, persistent, burning, expression less of their face. We treated with 100U of Botulinum Toxin type A in the Ganglion of Walther, the pelvic portion of each sympathetic trunk situated in front of the sacrococcygeal junction. It provides the nociceptive sympathetic supply to the perineal structures.

Results

- First patient improve a 100%, all her symptoms disappearing during 5 months, after them the symptoms start again progressively and we repeat the technique with the same progression.
- The second patient improved a 60 % all her symptoms during three months.
- The third patient improve a 20% during 2 months but his expression has improved and their overall perception of pain also.

Conclusions

These results indicate that BTX-A may induce direct analgesic effects in patients with chronic neuropathic pain independent of its effects on muscle tone.
PREEMPTIVE KETAMINE PROVIDES EFFECTIVE PREVENTIVE ANALGESIA IN PATIENTS UNDERGOING MAJOR ABDOMINAL SURGERY

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Background and aims: Ketamine, a non-competitive NMDA receptor antagonist, is recognized as an intraoperative anesthetic agent. We studied the opioid-sparing effect of a very low-dose bolus of ketamine as part of multimodal postoperative analgesia for opioid abuse patients undergoing major abdominal surgery.

Methods: A total of 95 consecutive patients, ASA physical status I or II, were recruited to the study. Patients were randomized to one of the following groups: group A received 10 ml isotonic saline i.v. 20 minutes before the induction of anesthesia as a placebo; group B received 0.15mg/kg ketamine diluted in 10ml isotonic saline i.v. before the induction of anesthesia. The postoperative analgesia was performed by iv PCA with morphine. Abdominal pain intensity was assessed using the visual analog scale during 48 hours postoperatively. In addition to other standard complications, we focused on the complications related to ketamine. The intergroup differences were assessed using Fischer's exact test and Mann–Whitney U-test, as appropriate.

Results: Pain scores were highest in Group A. Group B, had significantly decreased postoperative pain scores at 0, 6, 12 and 24 h. Postoperative analgesic consumption was significantly less in group B. There was no significant difference in the pain scores among groups A, B, at 36 and 48h. Group B had a significantly higher heart rate and blood pressure than group A at 0 h with 5% incidence of hallucinations.

Conclusions: Preemptive ketamine has a definitive role in reducing postoperative pain and analgesic requirement in patients undergoing major abdominal surgery.
FUNCTIONAL NEUROIMAGING STUDIES IN FUNCTIONAL DYSPEPSIA PATIENTS: A SYSTEMATIC REVIEW

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Background: In addition to the peripheral changes in gastrointestinal tract functions, increasing evidence showed the abnormal central changes in functional dyspepsia (FD).

Objective: This systematic review aims to provide an integrative understanding of the relationship between abnormal brain function and chronic pain, dyspeptic symptoms, and psychological factors of FD. We also suggest further research directions.

Methods: Electronic and hand searches were conducted in PubMed, EMBASE, MEDLINE, and Cochrane Library to identify functional neuroimaging studies involving FD patients. Regardless of study design, language, and publication date, articles were included in this review if 1) they reported a functional brain imaging study, and 2) included FD patients as participants.

Results: 15 studies were included, divided into three categories: 9 resting state analyses, 3 visceral distention, and 3 acupuncture studies. The frequently reported brain areas are the frontal cortex, somatosensory cortex, insula, anterior cingulate cortex, thalamus, hippocampus, and amygdala. However, inconsistent activation patterns and correlation results were also reported.

Conclusions: The results show that FD is associated with functional abnormalities in sensory, emotion, modulation, and homeostatic processing regions (pain and salience network). This shows the overlapping aspects between chronic pain syndrome and FD. The understanding of FD could be improved by including disease adapted study designs by applying food-related tasks, interventions, precisely defined and measured psychological and pain factors.

The research has received funding from the People Programme of the EU’s 7th Framework Programme under REA grant agreement no. 607652 (ITN NeuroGut).
NEW ANIMAL MODEL FOR PLACEBO ANALGESIA: INVOLVEMENT OF DOPAMINERGIC SYSTEM FOR REWARD LEARNING

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Backgrounds: The mechanism of placebo analgesia could be different for diseases, physical/emotional conditions, interventions, and how placebo is induced. The limitations of human studies lead to the need for an animal model of placebo analgesia.

Objectives: Suggest a new placebo analgesia animal model and investigate the role of dopamine/opioid systems.

Methods: Male Sprague-Dawley rats were randomized: Control, Placebo, Placebo+Naloxone, Placebo+Haloperidol. Placebo analgesia was induced by conditioning of visual/tactile cues with low and high heat pain. We performed a conditioned place preference (CPP) test to measure the preference to the cues, and a hot plate test (HPT) to measure the pain response. We also quantified the expression of tyrosine hydroxylase (TH) in the ventral tegmental area (VTA) and of c-Fos in the anterior cingulate cortex (ACC) as a measure of the neural response to learning and pain.

Results: We found enhanced preference for the low pain paired cue and TH expression in the VTA, and Reduced pain responses to high heat pain and c-Fos expression in the ACC in the Placebo group. The place preference effect was blocked by Haloperidol and the placebo analgesia was blocked by Haloperidol and Naloxone.

Conclusion: We demonstrated that conditioning the neutral cue with low pain produced significant preference for the cue as well as placebo analgesia. The cue preference is mediated by reward learning through the dopamine system, whereas the expression of placebo analgesia is mediated by both the dopamine and opioid systems. This study encourages further studies of context/intervention specific mechanism of placebo analgesia.
PRDM12 IS AN EVOLUTIONARILY CONSERVED TRANSCRIPTION FACTOR THAT CONTROLS SENSORY NEURON DEVELOPMENT AND PAIN PERCEPTION

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Background and aims: PR homology domain-containing member 12 (PRDM12) is a transcription factor belonging to a conserved family implicated in cell fate decisions. It has been shown that PRDM12 plays an important role in the development of the neural crest in several species and plays a potential role in pathogenesis of chronic myeloid leukemia in humans.

Methods: Developmental and behavioral studies were performed in Xenopus and Drosophila, respectively. Downstream targets were identified in human patient fibroblasts and disease-causing mutations studied in human embryonic cell lines (HEK).

Results: We found that PRDM12 is a key regulator of sensory neuronal specification in Xenopus. Modeling of human PRDM12 mutations that cause hereditary sensory and autonomic neuropathy (HSAN) revealed remarkable conservation of the mutated residues in evolution. Expression of wild-type human PRDM12 in Xenopus induced the expression of sensory neuronal markers, which was reduced using various human PRDM12 mutants. In Drosophila, we identified Hamlet as the functional PRDM12 homologue that controls nociceptive behavior in sensory neurons. Furthermore, expression analysis of human patient fibroblasts with PRDM12 mutations uncovered possible downstream target genes. Knockdown of several of these target genes including thyrotropin-releasing hormone degrading enzyme (TRHDE) in Drosophila sensory neurons resulted in altered cellular morphology and impaired nociception.

Conclusions: These data show that PRDM12 and its functional fly homologue Hamlet are evolutionary conserved master regulators of sensory neuronal specification and play a critical role in pain perception. Our data also uncover novel pathways in multiple species that regulate evolutionary conserved nociception.
Background and aims: The management of chronic pain is a complex challenge worldwide. Medical cannabis is one of the most discussed and controversial issue in the pain management field. Furthermore, conflicting results leaves the question of cannabis for pain treatment unanswered. This study aimed to conduct a conclusive meta-analysis, which incorporates all RCTs in order to update clinicians and researchers' knowledge, regarding the efficacy of cannabis for chronic and post-operative pain treatment.

Methods: Systemic review and meta-analysis of double-blind, controlled trials (RCTs) that compared the analgesic effects of cannabis to placebo. Electronic search was made in Medline/Pubmed and by Google Scholar by use of Medical Subject Heading (MeSH) on all literature published until June 2015, this was followed by a manual search and included complete cross-check of the papers located. Quality of the studies was measured by the Jadad scale.

Results: 37 RCTs were included in this review and 23 RCTs were eligible for meta-analysis. Efficacy analysis showed that cannabis was a more efficient analgesic for treatment of chronic and post-operative pain, compared to placebo. "active-placebo" -0.35 (-0.56 to -0.14, P

Conclusions: The current papers' results suggest that medicinal use of cannabis should be promoted. Most RCTs conducted with neuropathic pain patients, so it's the most preferred indication for this treatment. Furthermore, inhalation route should be encouraged due to its beneficial analgesic effects.
### Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Study name</th>
<th>Outcome</th>
<th>Hedge's g</th>
<th>Statistics for each study</th>
<th>Hedges's g and 95% CI</th>
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<tbody>
<tr>
<td>Neyes 1975a</td>
<td>THC vs. Placebo</td>
<td>-0.402</td>
<td>-0.969</td>
<td>-0.015</td>
<td>0.043</td>
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<td>Neyes 1975b</td>
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<td>Stargel 1978</td>
<td>NR 4mg vs. Placebo</td>
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<td>THC 5mg vs. Placebo</td>
<td>0.240</td>
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<td>Buggy 2003b</td>
<td>THC 5mg vs. Placebo, 2h</td>
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<td>Buggy 2003c</td>
<td>THC 5mg vs. Placebo, 4h</td>
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<td>-0.888</td>
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<td>Bermon 2004a</td>
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<td>GW-1002-02 (sativus) vs. Placebo</td>
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<td>Roy 2005</td>
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<td>Wróbel 2006</td>
<td>Nabrolne 1mg vs. Placebo</td>
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<td>Blake 2006</td>
<td>CBM vs. Placebo</td>
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<td>Nurmikko 2007</td>
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<td>Frank 2008</td>
<td>Nabrolne 2mg vs. Dihydrocannabinol 240mg</td>
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<td>Skocek 2008</td>
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<td>Wilkie 2008</td>
<td>3.54% cannabis cigarette vs. Placebo</td>
<td>-0.402</td>
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<td>Warse 2010a</td>
<td>2.1% cannabis cigarette vs. Placebo</td>
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<td>Warse 2010b</td>
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<td>Warse 2010c</td>
<td>9% cannabis cigarette vs. Placebo</td>
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<td>Setzger 2010</td>
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<td>Johnson 2010a</td>
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<td>-0.237</td>
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<td>Johnson 2010b</td>
<td>THC 2mg/CBD 2.5mg vs. Placebo</td>
<td>-0.498</td>
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<td>Rinalto 2010</td>
<td>Dronabinol vs. Diphenhydramine</td>
<td>0.975</td>
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<td>Tock 2012</td>
<td>Nabrolne 1mg vs. Placebo</td>
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<td>Wallace 2015a</td>
<td>1% THC vaporizer vs. Placebo</td>
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<td>Wallace 2015b</td>
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<td>-4.000</td>
<td>-2.003</td>
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### Figure 1

Favours Cannabis Favours Placebo
### Table 1: Summary of Studies and Results

<table>
<thead>
<tr>
<th>Model</th>
<th>Study name</th>
<th>Outcome</th>
<th>Std diff in means</th>
<th>Lower limit</th>
<th>Upper limit</th>
<th>p-Value</th>
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<td>Bayes 1975a</td>
<td>THC vs. Placebo</td>
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<td>Stegans 197a</td>
<td>NIB 4mg vs. Placebo</td>
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<td>Skogstad 197b</td>
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<td></td>
<td>Johnson 2010b†</td>
<td>THC 2.5mg/CBD 2.5mg vs. Placebo</td>
<td>-0.583</td>
<td>-0.904</td>
<td>-0.103</td>
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<td></td>
<td>Toth 2012</td>
<td>Nabilone 1mg vs. Placebo</td>
<td>-1.236</td>
<td>-2.097</td>
<td>-0.414</td>
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<td></td>
<td>Langford 2013a</td>
<td>THC 2.5mg/CBD 2.5mg vs. Placebo</td>
<td>-0.045</td>
<td>-0.273</td>
<td>0.182</td>
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<td>Langford 2013b</td>
<td>THC 2.5mg/CBD 2.5mg vs. Placebo</td>
<td>-0.361</td>
<td>-1.201</td>
<td>-0.221</td>
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<tr>
<td></td>
<td>Wallace 2015a</td>
<td>1% THC vaporizer vs. Placebo</td>
<td>-1.152</td>
<td>-1.878</td>
<td>-0.356</td>
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<td></td>
<td>Wallace 2015b</td>
<td>4% THC vaporizer vs. Placebo</td>
<td>-2.286</td>
<td>-3.176</td>
<td>-1.395</td>
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<td></td>
<td>Wallace 2015c</td>
<td>7% THC vaporizer vs. Placebo</td>
<td>-3.079</td>
<td>-4.103</td>
<td>-2.055</td>
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<td>-0.579</td>
<td>-0.762</td>
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**Figure 2:**
### Table

<table>
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<th>Model</th>
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<th>Outcome</th>
<th>Statistics for each study</th>
<th>Std diff in means</th>
<th>Lower limit</th>
<th>Upper limit</th>
<th>p-Value</th>
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<td>Wilksy 2008</td>
<td>3.5-7% cannabis cigarette vs. Placebo</td>
<td>-0.411</td>
<td>-0.742</td>
<td>-0.080</td>
<td>0.015</td>
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<tr>
<td>Ware 2010a</td>
<td>2.5% cannabis cigarette vs. Placebo</td>
<td>-0.086</td>
<td>-0.314</td>
<td>0.243</td>
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<td>Ware 2010b</td>
<td>0% cannabis cigarette vs. Placebo</td>
<td>-0.059</td>
<td>-0.407</td>
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<td>0.788</td>
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<td>Ware 2010c</td>
<td>9.4% cannabis cigarette vs. Placebo</td>
<td>-0.468</td>
<td>-0.919</td>
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<td>Wallace 2015a</td>
<td>1% THC vaporizer vs. Placebo</td>
<td>-1.132</td>
<td>-1.878</td>
<td>-0.385</td>
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<td>-2.286</td>
<td>-3.176</td>
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<td>Wallace 2015c</td>
<td>7% THC vaporizer vs. Placebo</td>
<td>-3.079</td>
<td>-4.103</td>
<td>-2.085</td>
<td>0.009</td>
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<td>Random</td>
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</tbody>
</table>

---

**Figure 3:**

![Plot showing study results](image)

**Legend:**
- **Favours Cannabis**
- **Favours Placebo**

**x-axis:** Std diff in means and 95% CI

-10.00, -5.00, 0.00, 5.00, 10.00
Background and Aims

Chronic orofacial pain (COFP) can have psychological and behavioural effects. This study investigated the effects of patients' level of information about their COFP and their level of education on pain, anxiety and depression experiences.

Methods

335 participants (243 Female: 84 Male: 8 not stated) with COFP completed a facial pain questionnaire during their clinical appointment at King’s College Hospital Dental Institute in London. Education levels and level of information about pain were compared with patients’ Brief pain inventory (BPI) and Hospital Anxiety and Depression scale (HADS) scores to assess effects on pain perception and mood alteration. Data was analysed using SPSS Version 22.

Results

Inadequate information levels increased depression in idiopathic persistent pain patients ($P = .028$), but there was no significant alteration in patients with neuralgic or inflammatory pain ($P > .05$). Those with adequate information experienced significantly less pain than those with inadequate information ($P < .05$). Furthermore, those with adequate information were less anxious ($P = .027$), less depressed ($P = .002$) and had less overall level of anxiety and depression ($P = .011$). Patients who attended College were significantly more depressed than those who attended University ($P = .018$). Pain experienced was also significantly less in University graduates ($P < .05$).

Conclusions

Inadequate information for patients with Idiopathic persistent pain can cause more emotional distress than those with neuralgic or inflammatory pain. Education and level of information provided to the patient can considerably affect pain experience, and significantly affect patients’ emotional status.
PERSONAL RESOURCES AND PSYCHOSOCIAL FACTORS CAN INFLUENCE THE LEVEL OF PAIN EXPERIENCED AND EMOTIONS OF PATIENTS WITH CHRONIC OROFACIAL PAIN

Z. Yilmaz¹, A. Iyer¹, T. Renton¹
¹Oral Surgery Department, King's College London Dental Institute, London, United Kingdom

Background and Aims

Chronic orofacial pain (COFP) often involves emotional and cognitive components. This study investigated the interference of personal resources (cognitive functionality) and social environment on pain, anxiety and depression experienced by COFP patients.

Methods

This study consisted of 335 COFP participants who completed a facial pain questionnaire during their first appointment at the pain clinic in Kings College Dental Hospital, London. Brief pain inventory (BPI) and Hospital Anxiety and Depression scale (HADS) scores of patients were compared with age, marital status and living conditions, and 8 different cognitive functionalities. Data was analysed using SPSS Version 22.

Results

Ability to recognise pain, accept pain at home and at work, self-confidence, solve personal problems, make decisions and motivation to improve despite pain significantly affected pain experience, and levels of anxiety and depression ($P < .05$). Single participants had significantly less pain in comparison to widowed participants ($P < .05$). They had a better relationship with other people despite pain and enjoyed their life better despite pain when compared to those who were married. Patients aged 11 to 29 years ($P = .007$) and 30 to 49 years ($P = .021$) experienced significantly less pain than those aged 70 to 89 years, with no effect of age on the level of anxiety and depression ($P > .05$). Living conditions of patients did not affect pain, anxiety or depression levels ($P > .05$).

Conclusions

Age, marital status and cognitive functionalities can significantly affect pain experiences and the patients' emotions and mood.
PULSED ELECTROMAGNETIC FIELDS IN KNEE OSTEOARTHRITIS: A DOUBLE BLIND, PLACEBO-CONTROLLED, RANDOMIZED CLINICAL TRIAL

G. Bagnato¹, M. Giovanni¹, M. Natale¹, S. Davide¹, B. Gianfilippo¹
¹Clinical and Experimental Rheumatology, University of Messina, Messina, Italy

Background and aims: To explore the effectiveness of a wearable pulsed electromagnetic fields (PEMF) device in the management of pain in knee osteoarthritis (OA).

Methods: In this randomized, with equal randomization (1:1), double-blind, placebo-controlled clinical trial, patients with radiographic evidence of knee OA and persistent pain higher than 40mm on the visual analog scale (VAS) were recruited 60 patients. The trial consisted of 12h daily treatment for 1 month in 60 knee OA patients. The primary outcome measure was the reduction in pain intensity, assessed through the VAS and the Western Ontario McMaster Universities Osteoarthritis Index (WOMAC). Secondary outcomes included quality of life assessment through the SF-36 v. 2, pressure pain threshold (PPT) and changes in NSAIDs/analgesics intake.

Results: After 1 month, PEMF induced a significant reduction in VAS pain and WOMAC scores compared to placebo. Additionally pain tolerance, as expressed by PPT changes, and physical health improved in PEMF-treated patients. A mean treatment effect of −0.73 (95%CI: -1.24, -0.19) was seen in VAS score, while the effect size was 0.34 (95%CI: -0.85, 0.17) for WOMAC score. 26% of patients in the PEMF group stopped NSAIDs/analgesics therapy. No adverse events were detected.

Conclusions: These results suggest that PEMF therapy is effective for pain management in knee OA patients, affecting also pain threshold and physical functioning.
### TABLE 2

**EFFECT OF ELECTROMAGNETIC FIELDS DEVICE THERAPY ON PAIN AND CLINICAL STATUS**

<table>
<thead>
<tr>
<th></th>
<th>PEMF, n=30</th>
<th>Placebo, n=30</th>
<th>Estimated mean group difference (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>1 month</td>
<td>Baseline</td>
<td>1 month</td>
</tr>
<tr>
<td>VAS, mean (SD)</td>
<td>67 (16.6)</td>
<td>60 (16.1)</td>
<td>63.6 (15.1)</td>
<td>61.3 (15)</td>
</tr>
<tr>
<td>WOMAC pain mean (SD)</td>
<td>28.2 (9.9)</td>
<td>21.6 (9.6)</td>
<td>27.6 (7.4)</td>
<td>26.8 (8.2)</td>
</tr>
<tr>
<td>WOMAC function mean (SD)</td>
<td>97.6 (39.9)</td>
<td>81.7 (37.9)</td>
<td>91.2 (36.7)</td>
<td>89.7 (34.4)</td>
</tr>
<tr>
<td>WOMAC stiffness mean (SD)</td>
<td>10.8 (4.2)</td>
<td>8.1 (3.8)</td>
<td>10.4 (2.9)</td>
<td>9.6 (3.1)</td>
</tr>
<tr>
<td>WOMAC total mean (SD)</td>
<td>136.6 (49)</td>
<td>111.5 (48)</td>
<td>129.2 (46)</td>
<td>126.2 (39)</td>
</tr>
<tr>
<td>SF-36 physical health mean (SD)</td>
<td>52 (7.4)</td>
<td>55.8 (6.1)</td>
<td>52.2 (6.2)</td>
<td>53.1 (6.2)</td>
</tr>
<tr>
<td>SF-36 mental health mean (SD)</td>
<td>40.4 (5.8)</td>
<td>43.8 (3.6)</td>
<td>41.8 (6.0)</td>
<td>43.6 (4.7)</td>
</tr>
<tr>
<td>DIP PPT mean (SD)</td>
<td>3.4 (1.4)</td>
<td>4 (1.6)</td>
<td>3.3 (1.2)</td>
<td>3.4 (1.2)</td>
</tr>
<tr>
<td>QDR PPT mean (SD)</td>
<td>12.4 (6)</td>
<td>13.5 (6.2)</td>
<td>12.3 (5.8)</td>
<td>12 (5.3)</td>
</tr>
</tbody>
</table>

Differences between the groups in post-intervention (1 month) values were analysed with ANCOVA with baseline values as covariates. PEMF, patients group treated with pulsed electromagnetic fields device BMI, body mass index; NSAIDs, non-steroidal anti-inflammatory drugs, VAS, visual analogue scale; WOMAC, Western Ontario McMaster Universities Osteoarthritis Index; SF-36 v2: Short Form (36) Health Survey version 2; PPT: pressure pain threshold; DIP: distal interphalangeal joint; QDR: quadriceps femoris.
LATE-BREAKING POSTER SESSION I

EFFECT OF NERVE BLOCKS ON THE PREVENTION OF POSTHERPETIC NEURALGIA WITH ACUTE HERPES ZOSTER: A META-ANALYSIS

J. Kim¹, J. Suh¹, S. Choi¹, J. Leem¹, H. Kim²
¹Department of Anesthesiology and Pain medicine, Asan Medical Center, Seoul, Korea
²Department of Preventive medicine, Korea University College of medicine, Seoul, Korea

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Experimental</th>
<th>Control</th>
<th>Mean Difference</th>
<th>Mean Difference</th>
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<td>Mean</td>
<td>SD</td>
<td>Total Mean</td>
<td>SD Total</td>
</tr>
<tr>
<td></td>
<td>IV, Random</td>
<td>95% CI</td>
<td>IV, Random</td>
<td>95% CI</td>
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<tr>
<td>Makharia 2012</td>
<td>23.8</td>
<td>18</td>
<td>31</td>
<td>43.6</td>
</tr>
<tr>
<td>Makharia 2014</td>
<td>24.6</td>
<td>23.7</td>
<td>70</td>
<td>35.9</td>
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<tr>
<td>Whang 1999</td>
<td>18.5</td>
<td>9.3</td>
<td>33</td>
<td>31.6</td>
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<tr>
<td>Total (95% CI)</td>
<td>134</td>
<td></td>
<td>128</td>
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Heterogeneity: Tau² = 0.00, Chi² = 1.29, df = 2 (P = 0.52); I² = 0%
Test for overall effect: Z = 5.34 (P < 0.00001)

<table>
<thead>
<tr>
<th>Nerve Block</th>
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<th>Weight</th>
<th>M.H. Random, 95% CI</th>
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<td>Events</td>
<td>Total</td>
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<td>Genlin 2009</td>
<td>4</td>
<td>57</td>
<td>18</td>
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<tr>
<td>Lee et al 1999</td>
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<td>10</td>
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<td>30</td>
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<tr>
<td>Makharia 2014</td>
<td>8</td>
<td>70</td>
<td>15</td>
<td>68</td>
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<td>Pasqualucci 2000</td>
<td>36</td>
<td>279</td>
<td>117</td>
<td>274</td>
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<tr>
<td>van Wijck 2006</td>
<td>58</td>
<td>275</td>
<td>63</td>
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<td>Whang 1999</td>
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<tr>
<td>Subtotal (95% CI)</td>
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Heterogeneity: Tau² = 0.35, Chi² = 26.68, df = 7 (P = 0.0004); I² = 74%
Test for overall effect: Z = 2.91 (P = 0.004)

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<th>Weight</th>
<th>M.H. Random, 95% CI</th>
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<td>Makharia 2014</td>
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<td>277</td>
<td>91</td>
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<td>van Wijck 2006</td>
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<td>Subtotal (95% CI)</td>
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Heterogeneity: Tau² = 0.49, Chi² = 22.21, df = 5 (P = 0.0005); I² = 77%
Test for overall effect: Z = 2.46 (P = 0.01)

<table>
<thead>
<tr>
<th>Nerve Block</th>
<th>Control</th>
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<th>Weight</th>
<th>M.H. Random, 95% CI</th>
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<td>9</td>
<td>58</td>
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<tr>
<td>Pasqualucci 2000</td>
<td>15</td>
<td>255</td>
<td>79</td>
<td>230</td>
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<tr>
<td>Subtotal (95% CI)</td>
<td>310</td>
<td>288</td>
<td>100.0%</td>
<td></td>
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Heterogeneity: Tau² = 0.00, Chi² = 0.13, df = 1 (P = 0.72); I² = 0%
Test for overall effect: Z = 6.93 (P = 0.00001)

Test for subarous differences: Chi² = 7.38, df = 2 (P = 0.02), I² = 72.9%
Background and aims:

Postherpetic neuralgia is a common painful complication following acute herpes zoster and in some cases, refractory to various medical treatment. Early nerve blocks in acute phase of herpes zoster have been proposed to reduce the incidence of PHN via attenuation of central sensitization, minimizing nerve damage and anti-inflammatory effects of local anesthetics and steroids.

Methods:

A systematic review with meta-analysis was performed to evaluate the efficacy of nerve blocks in preventing postherpetic neuralgia. We searched MEDLINE, EMBASE, the Cochrane Library, the ClinicalTrials.gov website and KoreaMed without language restriction on 30 April 2014. We included all randomized controlled trials within 3 weeks after onset of herpes zoster comparing nerve blocks with active placebo or standard therapy.

Results:

Nine trials were included in this systematic review and meta-analysis. Nerve blocks reduced the duration of herpes zoster related pain as well as the incidence of PHN at 3, 6 and 12 months after final intervention. Stellate ganglion block and single epidural injection did not achieve positive outcome, but paravertebral block and continuous/repeated epidural block reduced the incidence of PHN at 3 months. None of the included trials reported clinically meaningful serious adverse events.

Conclusion:

Nerve blocks during the acute phase of the herpes zoster shorten the duration of zoster related pain, and somatic blocks including paravertebral and repeated/continuous epidural blocks can be recommended to prevent PHN. For the future study, consensus based definition of PHN, clinical cutoff point defining successful treatment outcome, and standardized outcome assessment tools are required.
THE CHANGING FACE OF ACUTE PAIN

A. Miclescu¹, S. Butler¹, R. Karlsten¹, T. Gordh²
¹Multidisciplinary Pain Clinic, Uppsala University Hospital, Uppsala, Sweden
²Surgical Sciences, Uppsala University, Uppsala, Sweden

Aims To distinguish the risk factors associated with uncontrolled and problematic pain by prospectively assessing the current pain service (APS) activity in an academic hospital.

Method The patients were visited by APS at regular intervals and divided after the number of visits by APS team in three groups: group 1 (one visit and up to 2 follow-ups); group 2 (3 to 4 follow-ups); group 3 (more than 5 times follow-ups). A standardized data collection template was employed. The groups and the difference between groups were analyzed.

Results Patients (n=726) were distributed in medical (39.6%) and surgical (61.4%). Of these, on the last examination before discharge, they reported 25–30% less pain (P=0.002). The APS treated cognitive deficits in 9% of the patients, recognized and treated opioids overdose in 4%. The patients who required more than 5 visits of APS (17%) has several co-factors as psychiatric diseases (32%), drug addiction (18%), and complications of the treatment (26%). The diagnosis of the patients with frequently visits of APS team were cancer related pain (22%), endometriosis (9%), reoperations (12%), burn injury (1%).

Conclusions The benefits of APS were observed in reduction of pain intensity, and in treating opioids side effects. This study revealed the uncertainly role of APS in the treatment of acute pain, because the attributes have been shifted from the traditional treatment of acute pain to other clinical challenges resulted by treating patients with addiction, psychiatric diseases and chronic pain.

Acknowledgements to Lenka Katila, Sylvia Augustini, Mia Berg, Madeleine Eriksson
COMBINED SUBARACHNOID-EPIDURAL ANESTHESIA VS SUBARACHNOID ANESTHESIA IN PATIENTS SUBMITTED RADICAL PROSTATECTOMY

E. LOGOTHEITI¹, G. BELIVANAKIS², K. EFSTATHIOU³, L. ARAMPATZI⁴, P. ARAMPATZIS¹, V. TZORTZIS⁵

¹Anaesthesiology Department and Pain Medicine, General Hospital of Volos, Volos, Greece
²Anaesthesiology Department and Pain Medicine, Anassa Clinic, Volos, Greece
³Urology Department, Anassa Clinic, Volos, Greece
⁴Biochemistry Department, University of Thessalia, Larisa, Greece
⁵Urology Department, University Hospital of Larisa, Larisa, Greece

AIMS

To compare the efficacy of the two anesthetic methods in perioperative course of patients undergoing radical prostatectomy

MATERIAL AND METHODS

We studied 16 patients, who underwent radical prostatectomy. In 8 of them (Group A) combined epidural-subarachnoid anesthesia has been used. We administered subarachnoid ropivacaine 15 mg and 20 mg xylocaine. 30' before the anticipated end of surgical operation, 2 mg epidural morphine were given, and postoperatively as necessary, bolus doses, which included 50c fentanyl, 60 mg xylocaine, 30 mg ropivacaine and 1 mg morphine. At the second group (group B), anesthesia was performed with subarachnoid injection of 15 mg ropivacaine, 20 mg xylocaine and 0,1 mg of morphine, while additional requirements for post-operative analgesia were covered by paracetamol and NSAID's. We recorded the perioperative hemodynamic changes, the time spent in the recovery room, and the adequacy of analgesia postoperatively.

RESULTS

Intraoperatively, no hemodynamic differences were observed. The time spent on recovery was similar for all patients. Regarding postoperative hemodynamic changes, there were also no significant differences, the differences in scale VAS between the 2 groups showed no statistically significant effect.

CONCLUSION

Subarachnoid anesthesia with added opioids provides excellent intraoperative conditions and excellent postoperative analgesia for radical prostatectomy, where the surgeon is fast, effective and minimally traumatic. It is an invasive method with smaller risk of complications in its application, since it is less invasive compared to the combined epidural-subarachnoid anesthesia, which makes it safer. Finally, it is a method with significantly lower implementation costs and therefore preferable for the economy's health.
THE EFFECT OF SCENAR AND TENS (TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION) ON THE PAIN RELIEF IN PATIENTS WITH CHRONIC NECK PAIN

Y. EUN¹, W. Choi²

¹family medicine, St. Vincent’s hospital Catholic University of Korea, Suwon, Korea
²family medicine, St. Mary’s hospital Catholic University of Korea, Seoul, Korea

Background and aims: Chronic neck pain is a common condition entailing the high cost of pharmacological treatment, but it has limited evidence of efficacy and side-effects. This study aims to examine the effectiveness of a new therapy, SCENAR therapy, on pain and disability in patients with chronic neck pain through comparison with Transcutaneous electrical nerve stimulation (TENS) therapy.

Methods: We studied 30 elderly patients with chronic neck pain of more than 3 months duration. The subjects were randomized into two groups receiving (1) SCENAR therapy or (2) TENS therapy (control); three times a week for two weeks. The patients were assessed before and after 2-week treatment using three measuring tools such as Numeric Rating Scale (NRS), Neck Disability Index (NDI), and Range of Motion (ROM).

Results: The SCENAR group showed significantly improved results in NRS, NDI, and ROM after intervention, as did the TENS group. (p<0.05) The comparison of mean changes in the SCENAR group (12.36) before and after intervention showed superior results in the NDI when compared with the TENS group (3.950).

Conclusion: The findings show that both SCENAR and TENS are effective treatment for patients with chronic neck pain. Patients who underwent SCENAR had a significant improvement in Neck Disability Index (NDI) than the TENS group.
Table 1. Comparisons of Pain Variables before and after Treatment

<table>
<thead>
<tr>
<th></th>
<th>TENS</th>
<th></th>
<th>SCENAR</th>
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<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Mean</td>
<td>P-value</td>
<td>Pre</td>
<td>Post</td>
<td>Mean</td>
<td>P-value</td>
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<td></td>
<td>treatment</td>
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<td>ROM</td>
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<tr>
<td>Flexion</td>
<td>85.90±8.85</td>
<td>73.93±10.09</td>
<td>8.571±8.51</td>
<td>0.024</td>
<td>80.91±8.01</td>
<td>71.82±9.02</td>
<td>10.00±13.78</td>
<td>0.011</td>
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<tr>
<td>Extension</td>
<td>57.86±10.87</td>
<td>61.79±12.10</td>
<td>3.929±14.03</td>
<td>0.292</td>
<td>82.73±11.91</td>
<td>71.38±5.95</td>
<td>8.84±12.06</td>
<td>0.017</td>
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<tr>
<td>Lateral</td>
<td>46.43±9.64</td>
<td>50.38±7.46</td>
<td>3.929±3.986</td>
<td>0.005</td>
<td>97.27±8.17</td>
<td>51.82±6.03</td>
<td>4.55±4.16</td>
<td>0.015</td>
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<tr>
<td>Rotation</td>
<td>86.07±6.94</td>
<td>88.21±3.72</td>
<td>2.143±3.780</td>
<td>0.003</td>
<td>90±0</td>
<td>90±0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>NRS</td>
<td>4.57±1.60</td>
<td>2.71±1.59</td>
<td>1.857±1.834</td>
<td>0.006</td>
<td>4.91±2.02</td>
<td>2.18±2.18</td>
<td>2.73±1.85</td>
<td>0.003</td>
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<tr>
<td>NDI</td>
<td>17.81±6.89</td>
<td>13.89±7.75</td>
<td>3.950±5.170</td>
<td>0.01</td>
<td>21.25±10.29</td>
<td>8.89±5.48</td>
<td>12.36±10.89</td>
<td>0.008</td>
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</table>

Table 2. Mean improvement in NRS, NDI and ROM after 2 weeks of treatment.

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Mean improvement ±SD (p-value of within-group comparison)</th>
<th>Between-group difference† p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCENAR(N=11)</td>
<td>TENS(N=13)</td>
<td></td>
</tr>
<tr>
<td>ROM</td>
<td></td>
<td></td>
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<tr>
<td>Flexion</td>
<td>10.91 ± 13.38 (0.011)* 8.571 ± 13.51 (0.024) 0.687</td>
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<tr>
<td>Extension</td>
<td>8.646 ± 12.06 (0.017) 3.929 ± 14.03 (0.292) 0.267</td>
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<tr>
<td>Lateral</td>
<td>4.545 ± 4.156 (0.015) 3.929 ± 3.496 (0.005) 0.767</td>
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<tr>
<td>Rotation</td>
<td>(1.000) 2.143 ± 3.780 (0.063) 0.244</td>
<td></td>
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<tr>
<td>NRS</td>
<td>2.727 ± 1.849 (0.003) 1.857 ± 1.834 (0.006) 0.344</td>
<td></td>
</tr>
<tr>
<td>NDI</td>
<td>12.36 ± 10.89 (0.008) 3.950 ± 5.170 (0.010) 0.044</td>
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</table>
EFIC5-1158
LATE-BREAKING POSTER SESSION I

THERAPEUTIC EFFECT OF EPIDURALLY ADMINISTERED LIPO-PROSTAGLANDIN E1 AGONIST IN A RAT SPINAL STENOSIS MODEL
K. Kim¹, S. Park¹
¹anesthesiology & pain medicine, JNUH, jeju, Korea

Background
A lipo-prostaglandin E1 agonist is effective for the treatment of neurological symptoms of spinal stenosis when administered by an oral or intravenous route. We would like to reveal the therapeutic effect of an epidural injection of lipo-prostaglandin E1 on hyperalgesia in foraminal stenosis.

Methods
A total of 40 male Sprague-Dawley rats were included. A small stainless steel rod was inserted into the L5/L6 intervertebral foramen to produce intervertebral foraminal stenosis and chronic compression of the dorsal root ganglia (DRG). The rats were divided into three groups: epidural PGE1 (EP) (n = 15), saline (n = 15), and control (n = 10). In the EP group, 0.15 μg.kg⁻¹ of a lipo-PGE1 agonist was injected daily via an epidural catheter for 10 days from postoperative day 3. In the saline group, saline was injected. Behavioral tests for mechanical hyperalgesia were performed for 3 weeks. Then, the target DRG was analyzed for the degree of chromatolysis, chronic inflammation, and fibrosis in light microscopic images.

Results
From the fifth day after lipo-PGE1 agonist injection, the EP group showed significant recovery from mechanical hyperalgesia, which was maintained for 3 weeks (P < 0.05). Microscopic analysis showed much less chromatolysis in the EP group than in the saline or control groups.

Conclusions
An epidurally administered lipo-PGE1 agonist relieved neuropathic pain, such as mechanical hyperalgesia, in a rat foraminal stenosis model, with decreasing chromatolysis in target DRG. We suggest that epidurally administered lipo-PGE1 may be a useful therapeutic candidate for patients with spinal stenosis.
Background and aims

Pain management during bile duct procedure is always a challenging situation. Although percutaneous transhepatic biliary drainage (PTBD) and tract dilatation (TD) are very painful procedure, almost that procedures were conducted under local anesthesia and opioid injection due to the lack of manpower and time. Celiac plexus block (CPB) is an interventional technique utilized for diagnostic and therapeutic purposes in the treatment of abdominovisceral pain. CPB decrease the side effects of opioid medications and enhance analgesia from medications.

Methods

We present a case of a patient who underwent PTBD and TD under CPB in order to reduce procedure-related abdominal pain. After PTBD, the patient complained of severe abdominal and PTBD insertion site pain [Numerical Rating Scale (NRS) 8], then pethidine (25 mg) was injected three times. After pethidine injection, the patient complained of severe nausea with vomiting and metoclopramide (10 mg) was injected. CPB with 0.5% bupivacaine (10cc) under fluoroscopy was performed for reducing pain during and after TD and PTBD procedure.

Results

The patient complained of moderate pain (NRS 5) at PTBD insertion site, but not abdomen, and tramadol (50mg) was injected only once. Mild pain (NRS 3) was maintained for about one day after TD and PTBD procedure. The patient was received antibiotic treatment for 10 days and discharged without any complications and pain.

Conclusions

CPB can be a useful alternative technique for pain management during and after biliary interventional procedure, although CPB-induced complication is always kept in mind.
SUCCESSFUL PERIOPERATIVE PREVENTION OF PHANTOM LIMB PAIN: FIRST CLINICAL EXPERIENCE

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²A.Ya.Kozhevnikov clinic of nervous diseases, I.M. Sechenov First Moscow State Medical University, Moscow, Russia
³Neurological Research Department, The I.M. Sechenov First Moscow State Medical University and Moscow Research and Clinical Center for Neuropsychiatry, Moscow, Russia

Background and aims. Prevention of phantom limb pain (PLP) still remains an unsolved problem. Our study presents a novel multimodal approach to prevent PLP using special drug prevention (SDP) scheme composed of 5 components which should be able to suppress specific pathogenetic PLP mechanisms on different levels of nervous system: anticonvulsant (Gabapentin), corticosteroid (Dexamethasone), protease inhibitor (Aprotinin), NMDA-receptor antagonist (Ketamine) and tricyclic antidepressant (Amitriptyline).

Methods. The study included 28 oncological patients aged 48±19 who underwent planned high amputation of lower/upper limb under general anesthesia (Group 1: GA, n=14) or GA+Epidural anesthesia (Group 2: GA+EA, n=14). Standard intra- and postoperative monitoring, VRS 0-4 at rest and during movement, questionnaire 'Pain Detect" were performed. Five components were used in addition to traditional means of anesthesia and analgesia in different combinations 2-4 days before, during amputation and for 6 months after.

Results. During 7-10 days following amputation patients experienced only mild sensory symptoms which were ceased on SDP and mild pain in stump (VRS): 1.38±0.3 (Group 1), 1.4±0.3 (Group 2). During 6-months follow-up none of patients of both groups complained of any phantom symptoms. No complications and SAE were registered. By the time of abstract preparation the presented multimodal approach allowed to completely prevent PLP in 53 patients and became a routine practice in our department.

Conclusions. The novel multimodal 5 component scheme demonstrates high long-term efficacy in phantom limb pain prevention. Implementation of this technology will markedly improve life quality and social activities including the perspective for further prostheses using.
INTRATHECAL MORPHINE INFUSION THERAPY IN MANAGEMENT OF CANCER AND CHRONIC PAIN: PRESENT AND FUTURE IN KOREA
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¹Anesthesia and pain medicine, Chonnam national university hospital, Gwangju, Korea
²Anesthesia and pain medicine, Seoul national university college of medicine, Seoul, Korea

Background and aims: Intrathecal morphine pump (ITMP) infusion therapy is efficient in managing malignant and nonmalignant chronic pain refractory to standard treatment. However, the high cost of ITMP is the greatest barrier for beginning a patient on ITMP infusion therapy. Using the revised Korean reimbursement guidelines, we investigated the cost effectiveness of ITMP infusion therapy. We also conducted a patient survey.

Methods: A retrospective chart review was performed on 12 patients who underwent ITMP implantation. Morphine dose escalation rate was calculated and numeric rating scale (NRS) scores were compared before and after ITMP implantation. We surveyed patients who were already using an ITMP and patients who were candidates for ITMP. All survey data were collected through in-person interviews over 3 months. Data on the cost of medical treatment were collected and projected over time.

Results: The NRS score decreased during the follow-up period. The median morphine dose increased by 36.9% over the first year and a median 24.2 months were required to reach a financial break-even point. Patients were more satisfied with the efficacy of ITMP infusion therapy than with the efficacy of conventional therapy. The expected cost of ITMP implantation is ₩4,000,000–5,000,000 in more than half of ITMP candidates scheduled to undergo implantation.

Conclusions: The high cost of initiating ITMP infusion therapy is challenging, but the present results will help encourage more patients to consider ITMP therapy.

Acknowledgements
Funding: Korea Health Industry Development Institute (KHIDI). No. HI13C-2197-020013.
DOCUMENTATION OF PAIN AFTER APPENDECTOMY IN CHILDREN AND ADOLESCENT

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¹Anaesthesiology and Intensive Care Medicine, University of Eastern Finland, Kuopio, Finland
²Department of Anaesthesia and Operative Services, Kuopio University Hospital, Kuopio, Finland
³Department of Surgery, Kuopio University Hospital, Kuopio, Finland

Background and aims: Postoperative pain is a common outcome in children undergoing appendectomy.¹ Some studies report pain and pain management based on retrospective chart reviews.² The accuracy of this kind of data has not been established.

Methods: We evaluated 26 consecutive appendectomy patients, 16 boys and 10 girls, aged 4-18yrs., at 24 hours after surgery. Firstly; the investigator assessed and recorded pain at rest, during coughing and compressing the wound area with 20N force, secondly; the patient express the pain severity on an 11-point numeric rating scale (0=no pain, 10=most pain), and after these procedures; the patients records were abstracted for the pain documentation.

Results: There was a positive correlation between investigator assessment and patients self-expressed dynamic pain scores (on coughing κ=0.91; during wound compression κ=0.85), but both investigators and patients records rated the pain scores at rest significantly lower than expressed by the patients. Moreover, the dynamic pain recorded in patients charts were significantly lower than those expressed by the patients.

<table>
<thead>
<tr>
<th></th>
<th>Patient records</th>
<th>Patient</th>
<th>Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerical rating scale 0-10</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>At rest</td>
<td>1.6 (0.8); n=25</td>
<td>2.7 (2.4); n=26</td>
<td>1.5 (1.5); n=26</td>
</tr>
<tr>
<td>On coughing</td>
<td>2.0 (0.9); n=19</td>
<td>5.5 (3.0); n=26</td>
<td>5.1 (2.9); n=26</td>
</tr>
<tr>
<td>During wound compression</td>
<td></td>
<td>6.5 (2.6); n=25</td>
<td>6.2 (2.4); n=26</td>
</tr>
</tbody>
</table>

Conclusions: Surveys based on nurse recorded pain scores may underestimate the pain experienced by pediatric patients and overestimate the effectiveness of pain management protocols.

References:
According to the Bulgarian National Cancer Registry the breast cancer is the first most common cause of women cancer. The persistent pain after breast cancer surgery is severe and unpleasant symptom. It may be related to some patients' characteristics, surgical techniques, and adjuvant treatment.

**Aim:** To determine the prevalence and risk factors associated with persistent pain after breast cancer surgery.

**Methods:** In this study were enrolled 59 women aged 33-85 years old, who were undergo breast cancer surgery in Clinic of Surgery at University Hospital Alexandrovska – Sofia in the period 2013-2014 and received subsequent adjuvant therapy. All patients completed standardized questionnaire to characterise the pain on the day before surgery, on day 2, day 7, and 6 months after the surgery. Clinical data were collected from medical records and were statistically analysed together with the questionnaire findings via SPSS package.

**Results:** A total of 23 (39%) patients reported pain. Two (9%) of them had severe pain (VAS≥7), 10 (43%) had moderate pain (VAS=5-6), and 11 (48%) had mild pain (VAS=1-4). Factors, associated with chronic pain were: younger patients (33-41 years; P < .001), axillary lymph node dissection (P< .001), adjuvant radiotherapy (P .05), pain not related to localization of breast cancer (P< .001), and higher preoperative levels of anxiety and sleep disturbances (P< .001).

**Conclusion:** Determination of the risk factors associated to persistent pain after breast cancer surgery helps to identify the highest risk patients. This group specify the target population that could take advantage of preventive interventions.
ARE INTERVENTIONS EFFECTIVE IN CHANGING HABITUAL PHYSICAL ACTIVITY LEVELS IN ADULTS WITH CHRONIC MUSCULOSKELETAL PAIN?

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¹Centre for Health and Rehabilitation Technologies, University of Ulster, Belfast, United Kingdom
²Centre for Public Health School of Medicine Dentistry and Biomedical Science, Queens University Belfast, Belfast, United Kingdom
³Psychology Research Institute, University of Ulster, Belfast, United Kingdom
⁴Chronic Pain Service, Belfast Health and Social Care Trust, Belfast, United Kingdom

**Background:** Individuals with chronic musculoskeletal pain (CMP) are at an increased risk of developing cardiovascular disease, cancer and all-cause mortality compared to those without pain. Although there is robust evidence for the role of physical activity (PA) in managing chronic pain and reducing these risks in the general population; there remains a paucity of research regarding effective techniques that can improve PA in this population.

**Aims:** This systematic review investigated the use of behaviour change techniques (BCT’s) in interventions aimed at increasing PA in adults with CMP.

**Methods:** We included RCT’s in adults with CMP; studies were required to have a PA outcome and a clear aim of increasing PA. Two review authors independently extracted data, and coded intervention content according to the behaviour change taxonomy (v1) of 93 hierarchically clustered techniques.

**Results:** From the 15,987 citations identified; 18 studies involving 3,321 participants met the inclusion criteria; participants had either OA (62%) or CLBP (38%). There was a high degree of heterogeneity in relation to duration, intensity and outcomes of interventions. PA levels were measured using 14 different tools.

PA levels improved from baseline in nearly all studies but only nine demonstrated a statistically significant difference between groups. The mean number of BCT’s coded in effective trials was 7.4 (SD 4.7); higher than those showing no treatment effect 5.1 (SD 3.7).

**Conclusion:** Developing an understanding of effective BCT’s may help establish an evidence base upon which PA interventions could be developed or optimised. Standardising measurement of PA in this population is required.
Even though the association between health and awareness of aging is well verified, there are no studies about the association between chronic pain and awareness of aging. Therefore this study aims to assess awareness of aging and its connections in a group of chronic pain patients. Data from patients aged 40 and above were collected, who participated in a multimodal chronic pain therapy program offered by the outpatient pain clinic of the orthopaedic university clinic Heidelberg. Questionnaires assessing awareness-of-age-related-change, subjective age and future time perspective were used to identify aspects of awareness of aging. Mental health and subjective well-being were used as outcome variables. In addition, the chronic pain patients were compared to a representative control group of older participants who lived in the area of Heidelberg. Statistical analysis was conducted with correlational and regression analyses. To test for differences between the two groups, t-tests and Mann-Whitney-U-Tests were used. The results show a connection between pain and awareness of aging. The connection was especially strong concerning loss-related awareness of age-related-change. The biggest differences between the two groups also existed regarding loss-related awareness of age-related-change as well as subjective age. The coping strategies catastrophizing and increasing activity level were important for awareness of aging. Implications for the clinical practice are the support of a younger awareness of aging, increasing activity level and the reduction of catastrophizing.
AN INITIAL LOADING-DOSE VITAMIN D VERSUS PLACEBO AFTER HIP FRACTURE SURGERY: PAIN LEVELS AND FUNCTION IN THE REVITAHIP STUDY

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1Northern Clinical School, Rehabilitation Studies Unit, Sydney, Australia
2Department of Physiology, University of Sydney, Sydney, Australia
3Office of Medical Education, University of Sydney, Sydney, Australia

BACKGROUND AND AIM:
Undertreated pain is a risk factor for delirium and a barrier to rehabilitation interventions following a hip fracture. To determine whether a single loading-dose of vitamin D administered to older adults within 7 days following hip fracture surgery would improve 25-OHD, pain levels and function in the first 26 weeks.

METHODS:
A double-blind, placebo-controlled trial of 218 older adults, aged 65 years or older, with hip fracture requiring surgery randomly assigned a single loading-dose 250,000 IU of cholecalciferol orally or placebo. Main outcomes: 25-OHD levels, pain levels via NRS, functional outcomes and mortality.

RESULTS:
Hypovitaminosis D (25-OHD<50nmol/L) was present in 46.8%, with mean (SD) NRS pain score 3.5(2.3). More than half (61.9%) had NRS>3 and 18.1% had NRS>5. Using the EQ-5D pain sub-score, 78.1% had moderate pain or discomfort and 7.9% had extreme pain or discomfort. Postoperative NRS was significantly higher in persons with a higher comorbidity count, those previously living independently alone, and surgical fixation with hemiarthroplasty. Active participants were significantly more likely to present with ‘no pain or discomfort’ at Week 26 (96.4% vs 88.8%, p=0.037).

CONCLUSION:
Among older subjects following hip fracture surgery, post-operative pain is often severe and not detected. An initial loading-dose of high-dose cholecalciferol resulted in a improved vitamin D levels, improved pain but no significant differences in functional outcomes at 1 month.
EFFECTIVENESS OF SPLINTING IN LATERAL EPICONDYLITIS: A PROSPECTIVE STUDY

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¹School of Physical Therapy and Rehabilitation, Pamukkale University, Denizli, Turkey
²Orthopedics and Traumatology, Medipol University Faculty of Medicine, Istanbul, Turkey

Background and Aims: Lateral epicondylitis (LE) is one of the most common causes of elbow pain. Orthotic devices are alternatives for conservative treatment. However, the literature is scarce regarding the effects of orthotic devices in LE. The aim of this study is to investigate the effect of splinting with lateral epicondylitis counterforce brace in LE.

Methods: Fifteen patients with unilateral lateral epicondylitis were enrolled in the study. Elbow pain was scored on a 100 mm visual analog scale (VAS). Lateral epicondyle tenderness was evaluated with pressure pain algometer. Hand grip strength and elbow flexion and extension were also evaluated. Quick DASH (disabilities of arm shoulder and hand) Questionnaire was applied to assess the pain, function, and disability. Nottingham health profile (NHP) was used to determine and quantify perceived health problems. The patients were then instructed to use lateral epicondylitis counterforce brace for two weeks, and all evaluations were repeated.

Results: The mean age of the patients was 48.2±10.7 years (8 females, 7 males). The mean symptom duration was 96.9±79.1 days. The mean VAS (p=0.002), DASH score (p=0.008) and NHP total score (p=0.009) decreased significantly. The hand grip strength, lateral epicondyle pressure pain threshold and elbow extension increased, however, the increments were not significant statistically.

Conclusions: Lateral epicondylitis counterforce brace is an effective physical therapy modality for patients with LE in reducing pain, improving disability and quality of life.
Background and aim:
Migraine is one of the most common types of headaches with a unilateral pulsating pain that is usually accompanied by nausea, vomiting and phono/photophobia. It has a significant socioeconomic effects, especially in working population. The frequency of migraine in the general population is about 10%. It is 3-4 times more common in women, particularly at reproductive age. Most of the woman take triptans as a therapy of choice, which are contraindicated in pregnancy. The aim is to evaluate the effect of acupuncture in the treatment of migraine in women of reproductive age.

Methods:
A total of 12 woman of reproductive age received 10 sessions of acupuncture every 6 months for 2 years. Each session lasted 30 minutes and was repeated three times a week. We evaluated the pain intensity with VAS and recorded the number of migraine attacks every 6 months over 2 years.

Results:
Mean value of VAS for pain before acupuncture was 8,3; after first cycle it was 4,9 and after second was 3,8. Further acupuncture did not change the VAS for pain. Mean value of migraine attacks per year before the start of acupuncture was 13,1; after the first year 5,75 and after the second year 2,4.

Conclusion:
Acupuncture is a simple, inexpensive, minimally invasive and effective method of pain treatment due to the proven CNS effects. Acupuncture decreased the intensity of subsequent migraine attacks and lowered the VAS for pain. Furthermore acupuncture decreased the number of migraine attacks per year.
TRANS-FORAMINA INFILTRATION THROUGH THE IPSILATERAL FACET JOINT FOR PAIN RELIEF IN CASE OF CERVICAL RADICULOPATHY: CLINICAL EXPERIENCE AND RESULTS

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¹Department of Anesthesiology, American Medical Center, Nicosia, Cyprus
²2nd Department of Radiology, Attikon University Hospital, Athens, Greece
³Department of Radiology, American Medical Center, Nicosia, Cyprus

Background and aims
Purpose of our study is to assess safety and efficacy of percutaneous, trans-articular infiltrations in cases of cervical radiculopathy. Approach was performed indirectly through the ipsilateral facet joint where the injectate was distributed both in epidural space and at periradicular level.

Material and Methods
During the last 12 months, 20 patients suffering from cervical radiculopathy due to intervertebral disc herniation underwent trans-articular infiltration in the ipsilateral facet joint at the herniation level. Under sterilization and fluoroscopy control a 22G spinal needle was inserted in the facet joint via posterolateral approach. Patient was in supine or sitting position. Intra-articular position of the needle, capsular rupture and epidural dispersion were fluoroscopically verified after injection of small amount of contrast medium. Then a mixture of long acting glucocorticosteroid diluted in N/S (1.5/1 cc) was injected intraarticularly. A questionnaire with NVS scale helped assessing pain relief degree, life quality and mobility improvement.

Results
A mean of 2.3 sessions was performed in the patients of our study. Comparing pain scores prior (mean value 8.80±1.056 NVS units, median 9 NVS units) and after (mean value 2.05±1.468 NVS units, median 2 NVS units) there was mean decrease of 6.75±1.6 NVS units [75% (p=0.000)] on terms of pain reduction, effect upon mobility and life quality.

Conclusion
Transarticular infiltration in the facet joint ipsilateral to neuralgia seems to be a feasible, efficacious and safe approach for treatment of patients with cervical radiculopathy. This approach facilitates needle placement, minimizes risk of complications and inadvertent vascular puncture.
THE DEVELOPMENT OF OSTEOARTHRITIS PAIN IN A MODEL OF ALZHEIMER’S DISEASE

Y. Aman\textsuperscript{1}, C. Ballard\textsuperscript{2}, M. Malcangio\textsuperscript{1}
\textsuperscript{1}Wolfson Centre for Age-Related Diseases, King’s College London, London, United Kingdom
\textsuperscript{2}Old Age Psychiatry, King’s College London, London, United Kingdom

Background and Aims: Osteoarthritis (OA) is a progressive age-related chronic pain condition which has a significant impact on patient’s quality of life especially in the elderly population. Individuals with Alzheimer’s disease (AD) are susceptible patient groups in which pain is an important clinical issue that is often under-diagnosed. However, it is unclear whether decreased pain complaints in AD patients result from elevated pain tolerance or an impaired ability to communicate sensations. The purpose of this study was to assess changes in the development of OA pain in a transgenic mouse model of AD.

Methods: Following an intra-articular injection of monosodium iodoacetate (MIA) into the left knee of double-mutant APP\textsuperscript{swe}×PS1.M146V (TASTPM) and age-and-gender-matched C57BL/6J (controls) were tested for mechanical nociceptive thresholds and weight-bearing for up to day 28. Immunohistochemical analyses of Iba-1 and amyloid precursor protein (APP) in the spinal cord were performed.

Results: MIA injection resulted in hindpaw mechanical hypersensitivity (Day 3) in TASTPM and controls. However from 17-28 days after MIA injection, TASTPM mice displayed higher mechanical thresholds than controls. Moreover, TASTPM mice did not display weight-bearing asymmetry. Furthermore, TASTPM mice exhibited APP-related pathology but did not display significant MIA-induced microgliosis in the dorsal horn of the spinal cord.

Conclusions: This study indicates that APP-related pathology in dorsal horn neurons accompanied by diminished microglial response may underlie the reduced susceptibility to chronic pain maintenance in a model of AD. Whether this is involved in increased inhibition and/or decreased excitation in the spinal cord will be investigated in future studies.
EFIC5-1231  
LATE-BREAKING POSTER SESSION I

RELATED FACTORS AND DEFINITION OF PAIN IN PRESCHOOL CHILDREN  
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²School of Advanced Vocational Studies in Healthcare Services Department of Child Development, Karamanoğlu Mehmetbey University, Karaman, Turkey

Background and aims: To determine related factors and definition of pain in preschool children.

Methods: This study designed as a qualitative research was conducted in children aged 4-6 years in Karaman. The population of this study was 160 children in a special nursery. The sample is not selected, 146 children who agreed to participate were included in the study.

Data were collected through semi-structured questionnaire. A questionnaire for the collection of data was read to the children by researchers, responses were included in the audio recording. Before interviewing children, families were informed about the study and were included in the approval. All children were interviewed separately during the data collection. During the interview to be affected by environmental factors were interviewed in private rooms.

Results: Every age group was assessed in itself, because the age range may vary depending on the answers given by the children. It was discussed with nine girls and four boys in four years old. Children identified pain as abdominal pain, doctor, feel strange. It was discussed with 29 girls and 27 boys in five years old. Children identified pain as vaccine, infancy, doctors, needles, brother, abdomen, bone. It was discussed with 39 girls and 38 boys in six years old. Children identified pain as mother, car, brother, abdomen, bone.

Conclusions: Children in preschool generally defined pain in a similar way, and everything that makes you feel suffering; the pain was being suggested to kids. This was sometimes family members, sometimes hospital equipments and medical staff.
THE PROSPECTIVE LINK BETWEEN QUANTITATIVE SENSORY TESTING (QST) MEASURES OF PAIN AND THE EXPERIENCE OF PAIN IN EVERYDAY LIFE: A LONGITUDINAL STUDY

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²Dept. of Psychiatry and Behavioral Sciences, Johns Hopkins School of Medicine, Baltimore, USA
³Dept. of Anesthesiology & Pain Medicine, Harvard Medical School/Brigham & Women’s Hospital, Boston, USA

Background & Aims: Questions have been raised regarding the clinical relevance of quantitative sensory testing (QST), mainly due to the modest and inconsistent associations observed between QST measures and clinical pain outcomes. To date, however, the bulk of work in this area has been based on cross-sectional studies linking QST measures to retrospective, single-occasion reports of clinical pain. The primary aim of this study was to examine the prospective associations between QST measures of pain and everyday life clinical pain outcomes among patients with knee osteoarthritis (KOA).

Methods: In this longitudinal study, 125 patients diagnosed with KOA underwent a series of standardized QST procedures, which included assessment of pressure pain thresholds (PPThs), mechanical temporal summation of pain (TSP) and conditioned pain modulation (CPM). Patients then completed 7 days of electronic diaries, which assessed clinical pain intensity, pain interference, and negative affect on visual analogue scales.

Results: Multilevel analyses indicated that lower PPThs at the affected knee were associated with higher daily levels of KOA pain intensity (p < .05) and pain interference (p < .05) across the 7-day period, even after controlling for a host of pain-relevant variables, such as patient demographics, BMI, and negative affect. Higher TSP at the affected knee was also associated with higher daily levels of pain (p < .05). Effect size estimates for these associations were, on average, 5 times greater than when conducting cross-sectional analyses.

Conclusions: Findings from this longitudinal study provide support for the relevance of QST for understanding everyday life KOA pain.
THE PROFILE OF NEUROPATHIC PAIN FOLLOWING SPINAL CORD INJURY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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²College of Health Sciences Health Sciences Library, University College Dublin, Dublin, Ireland

Background: Neuropathic pain (NP) presents at or below the level of injury with an estimated pooled point prevalence of 53%. One of the most distressing complications following spinal cord injury (SCI), it leads to poor quality of life and is largely refractory to current therapies. This review aims to systematically review the profile of NP following SCI as no consensus currently exists.

Methods: The review included three phases: methodological database search (Pubmed, EMBASE, Web of Knowledge, CINAHL, Cochrane Library and PEDro) (1945–2015) identifying potential papers and screening for inclusion by two independent reviewers; data extraction; and quality assessment using a published valid and reliable scale. Meta-analysis estimated pooled and period prevalence rates using a random effects model.

Results: From seventeen full-text articles (n=2,529) recording NP prevalence with a mean quality rating of 14.5 ± 2.7 indicated good quality studies, three studies categorised NP by age, those aged 50 or older recorded higher pooled point prevalence rates of 49.92% (34.48-65.38) V 37.27% (32.79-41.98). Three studies reported prevalence for tetraplegia and paraplegia separately, pooled point prevalence in tetraplegia was higher at 51.89% (34.38-68.95) V 46.14% (30.32-62.78). Six studies reported at and below level NP separately, pooled point prevalence of below level NP was higher 22.76% (17.61-28.87) V 17.55% (9.15-31.03).

Conclusions: Neuropathic pain was more common, in older patients, in tetraplegia and presented more frequently below the level of injury. Clinically, these populations should be prioritised more thoroughly in screening for NP.
<table>
<thead>
<tr>
<th>Study</th>
<th>Events</th>
<th>Total</th>
<th>Prop (in %)</th>
<th>95%-CI W(random)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siddall (1999)</td>
<td>27</td>
<td>70</td>
<td>38.57</td>
<td>[27.17; 50.97]</td>
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<tr>
<td>Werhagen (2007)</td>
<td>14</td>
<td>95</td>
<td>14.74</td>
<td>[8.30; 22.49]</td>
</tr>
<tr>
<td>Werhagen (2012)</td>
<td>7</td>
<td>66</td>
<td>10.61</td>
<td>[4.37; 20.94]</td>
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<tr>
<td>Random effects model</td>
<td>633</td>
<td></td>
<td>17.55</td>
<td>[9.15; 31.03]</td>
</tr>
</tbody>
</table>

Heterogeneity: I-squared=90.2%, tau-squared=0.006, p<0.0001
THE IMPACT OF A THREE WEEK LOW BACK PAIN PROGRAMME ON PATIENTS’ THOUGHTS, FEARS AND FUNCTIONALITY
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²Psychology, Cardiff University, Cardiff, United Kingdom

BACKGROUND
Research suggests psychological factors have greater predictive value than physical features in the development of chronic disability and persistent LBP. The Back in Action programme is a 58 hour functional restoration programme in which an MDT delivers psycho-education and graded exercise over three weeks to people with persistent LBP. The study aimed to examine the clinical efficacy of the programme across nine psychometric and functional domains.

METHOD
50 of 67 LBP patients who completed the programme from April 2014 to March 2015 met inclusion criteria. 17 patients were excluded due to incomplete data. The percentage of patients achieving a CID was calculated against published CID values on nine measures taken pre and post intervention.

RESULTS
All patients (34 female, 16 male, mean age of 45.2 (range 25-66yrs)) demonstrated a CID in an outcome measure with 78% achieving a CID in five or more outcomes.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>CID Value</th>
<th>% of patients achieving a CID</th>
<th>Number of patients achieving a CID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tampa</td>
<td>&gt;37 or 9.2</td>
<td>70</td>
<td>35</td>
</tr>
<tr>
<td>PSEQ</td>
<td>11</td>
<td>54</td>
<td>27</td>
</tr>
<tr>
<td>PCS-EN</td>
<td>&lt;30 or 30%</td>
<td>88</td>
<td>44</td>
</tr>
<tr>
<td>GAD-7</td>
<td>Category change</td>
<td>62</td>
<td>31</td>
</tr>
<tr>
<td>PHQ-9</td>
<td>Category change</td>
<td>66</td>
<td>33</td>
</tr>
<tr>
<td>ODI</td>
<td>10</td>
<td>48</td>
<td>24</td>
</tr>
<tr>
<td>6 minute walk</td>
<td>54m</td>
<td>74</td>
<td>37</td>
</tr>
<tr>
<td>Timed sit to stand</td>
<td>19%</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td>Fingertip to floor</td>
<td>4.5cm</td>
<td>60</td>
<td>30</td>
</tr>
</tbody>
</table>

CONCLUSIONS
A high proportion of patients achieve a CID in fear of movement, catastrophic thinking and patient function. Within the limitations of the study, the results are encouraging and warrant further statistical analysis that includes long term outcomes.
PAIN MANAGEMENT IN A CHILD WITH INFANTILE NEURONAL CEROID LIPOFUSCINOSIS (NCL)

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²Pediatria, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

NCL is a rapidly progressing lysosomal storage disorder. Profound neuronal degeneration, cortical thinning and overall brain atrophy are prominent features. The symptoms usually develop around 18 months of age and may include visual defects, motor and cognitive deficits, seizures and ultimately early death. Lifespan is short (death typically occurs by respiratory failure).

The authors intend to describe the chronic pain management of a paediatric patient with NCL.

A 12 years old girl, 26Kg, diagnosed with NCL 9 years ago was referred to Chronic Pain Unit (CPU) due to severe pain, particularly during daily hygiene care. The usual medication was tramadol, sodium valproate, levetiracetam and clonazepam. In CPU, morphine 150μg/Kg sc was administered without respiratory depression. An analgesic plan was established and introduced in hospital environment: acetaminophen 15mg/kg t.i.d. and titration with rapid release oral morphine 8mg via gastrostomy. Respiratory depression occurred and the dose of morphine was lowered and then followed by rotation to transdermal fentanyl 6,25μg/h every 3 days. According to the child’s caregiver the pain is now better controlled. The child is frequently re-evaluated to adjust the dose of opioid agents.

Morphine is the gold standard for pain relief in the paediatric population. However, in our country, slow release oral formulations suitable to administer via a gastrostomy are not available. Due to this fact, we decided to opt for a transdermal formulation of fentanyl. The use of transdermal formulations of opioids in the paediatric population is a safe and effective approach, especially after titration with oral opioids.
LATE-BREAKING POSTER SESSION I

THE LONG TERM EFFECTS OF THE ULYSSES COGNITIVE BEHAVIOURAL PAIN MANAGEMENT PROGRAMME

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²The Adelaide & Meath Hospital incorporating the National Children’s Hospital, Department of Anaesthesia & Pain Medicine, Dublin, Ireland

Objectives:
The efficacy of cognitive behavioral pain management programmes (CBT-PMP) is well established, however long term follow-up is limited to one year post programme completion. The study aims to establish the long term impact of the Ulysses CBT-PMP on patient’s physical and psychological function and to investigate levels of adherence to pain management principles.

Methods:
582 participants who completed the CBT-PMP were mailed a questionnaire pack. The questionnaire pack included the following validated questionnaires which patients had previously completed as part of the Ulysses programme: the Roland Morris disability questionnaire (RMDQ), Fear avoidance beliefs questionnaire (FABQ), Hospital Anxiety and Depression scale (HADS), Numerical rating scale (NRS), and Coping strategies questionnaire (CSQ).

Results:
The response rate was 43%(n=251). Controlling for the effect of time, HADS (p=0.001), FABQ-A (p=0.001), FABQ-W (p=0.01), and RMDQ (p=0.01) all showed improvements when compared to baseline scores. The CSQ-subascales of catastrophizing (p=0.001) and increase behavioral activities (p=0.04) also showed improvements, as did NRS scores for worst pain (p=0.001) and pain now (p=0.01). Adherence to CBT strategies accounted for 2-7% of the variance in results. Finally, significant improvements were noted in those who consistently adhered to CBT strategies (relaxation, pacing, goal-setting, exercise, stretching) in the long term compared with those who adhered inconsistently to them and those who did not adhere to any strategies.

Conclusions:
Results suggest that there are substantial positive effects from participation in a CBT-PMP, and adherence accounts for a small significant portion of variance.
EFIC5-1259
LATE-BREAKING POSTER SESSION I

THE CLINICAL OUTCOME OF LUMBAR EPIDURAL STEROID INJECTION IN REDUNDANT NERVE ROOTS SYNDROME PATIENTS
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Background:
The PNR syndrome is characterized by the presence of elongated, enlarged and tortuous nerve roots of cauda equine area in close relationship with a high-grade lumbar spinal canal stenosis. The elongation of nerve roots is caused by mechanical trapping in chronic lumbar stenosis. The aim of this study was to evaluate the clinical outcome of L-ESI between patients with RNR and without RNR as a control.

Methods:
MRI finding of outpatients were evaluated, retrospectively. 77 patients (RNR group: 37, control group: 40) were enrolled according to the following inclusion criteria: age ≥20 years, visualization of spinal nerve in cauda equine area on sagittal image of MRI, moderate and severe degree of lumbar spinal central stenosis, experience of L-ESI. Level of conus medullaris and lumbar stenotic lesion, Length and level of RNR, remote and recent onset of symptom, Pain intensity (NRS) were recorded. Efficacy of L-ESI at 2 week and 1 month following that was recorded: none or moderate response (decrease at least ≥30% or ≥2 point in NRS) or substantial response (decrease at least ≥50% or ≥4 point in NRS).

Results:
Pain duration of RNR group was longer than that in control group. There were no statistically significant differences in substantial response of 1 month after L-ESI between the two groups, and redundant nerve root syndrome is not the independent factor for substantial response of L-ESI.

Conclusions:
Clinical outcomes in the RNR group were not statistically different from those in the control group, although control group showed a little better response.
PSYCHOSOCIAL COPING PROFILES ASSOCIATIONS WITH PATIENT CHARACTERISTICS AND OCCUPATIONAL PERFORMANCE AT A ONE-YEAR FOLLOW-UP AFTER MUSCULOSKELETAL PAIN REHABILITATION

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²Health Science Center, Lund University, Lund, Sweden

Background and aims: A biopsychosocial perspective is important to better understand persistent pain and is used in interdisciplinary pain rehabilitation programmes. The cognitive behavioural theory is used together with practical training sessions in such programmes. However, the associations between a theoretical coping perspective “thinking” and a practical “doing” perspective are mostly unknown.

The aims of the present study were to assess: i) changes in psychosocial coping profiles by use of the Multidimensional Pain Inventory profiles from baseline to follow-up; ii) associations between Adaptive Coper profiles at follow-up and improvements in occupational performance (by use of the Canadian Occupational Performance Measure) and: iii) ability to predict Adaptive Coper profiles at follow-up by participants’ baseline characteristics.

Results: Adaptive Coper profiles increased and Dysfunctional profiles decreased at one-year follow-up. Clinically relevant improvements on Canadian Occupational Performance Measure, “a doing perspective” were associated with having an Adaptive Coper profile, a “thinking perspective” at follow-up. Being Nordic born, having longer education, an Adaptive Coper profile and higher baseline scores on satisfaction with performance predicted an Adaptive Coper profile at follow-up.

Conclusions: Pain rehabilitation seems to result in sustainable favourable coping strategies at follow-up and improved occupational performance is associated with favourable coping at follow-up. As thinking and doing seem linked, although different phenomenon, pain rehabilitation should include talking-based (thinking) and performance-based (doing) interventions. Patients at risk for unfavourable health need modified interventions.
BACKGROUND AND AIMS
Cognitive behavioral therapy (CBT) is effective in reducing the frequency and intensity of chronic pain in adolescents. However, CBT seems not to be considered acceptable by all adolescents. The main aim of our study was therefore to evaluate the effects of a guided Internet-delivered self-help for adolescents with chronic pain.

METHODS
Because of treatment attrition and loss to follow-up we could not apply the originally proposed between-group design but had to employ a within-group design, comparing the waiting list trajectory with the treatment trajectory. The Internet intervention consisted of seven weekly interactive Internet modules, which adolescents worked through independently. Additionally, a therapist contacted the respondents weekly by e-mail or telephone. Adolescents (N=69) were assessed on the outcome measures (pain, coping, disability, catastrophizing, rewarding of pain behavior by parents, and quality of life). Measures were taken seven weeks before treatment, pre-treatment, post-treatment, and at three months follow-up. Multi-level modelling was used for longitudinal analysis of the data.

RESULTS
Pain intensity, interference caused by pain, rewarding of pain behavior by parents, and sleep problems significantly decreased during the intervention. The quality of life scores for pain, general behaviour, mental health, family activities, and health changes did also significantly improve during the intervention. Concerning coping, only problem-focused avoidance behaviour significantly increased. No significant differences were found for pain-related disability and pain catastrophizing.

CONCLUSIONS
Contrary to expectations, a guided Internet-delivered self-help for chronic pain is difficult to employ in adolescents, as it suffers from treatment attrition and loss to follow-up.
EFIC5-1266
LATE-BREAKING POSTER SESSION I

RELATION OF PAIN INTENSITY AND FUNCTIONAL MOBILITY OF THE LOWER EXTREMITIES IN PATIENTS WITH KNEE OSTEOARTHRITIS
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¹Department of physiotherapy and rehabilitation, mugla university, Mugla, Turkey

Background and aims: Osteoarthritis (OA) is the most prevalent rheumatological disorder, frequently affecting the weight-bearing joints such as knees. The aim of this study was to investigate the relationship between pain intensity and functional mobility level of the lower limbs in patients with OA of knee.

Methods: A total of 129 patients (99 females, 30 males, mean age=61.05±11.11) with knee OA were included in this study. After obtaining informed consent approvals, the physical characteristics of the subjects were recorded. Pain intensity due to OA of knee was assessed on a visual analogue scale (VAS). Functional level of lower extremities was evaluated by using Timed Up & Go Test (TUG) and the Turkish Version of the Lower Extremity Functional Scale (LEFS).

Results: Pearson correlation analysis revealed significant correlations between LEFS and VAS scores (r=−0.332, p=0.000); LEFS and TUG scores (r=−0.589, p=0.000) and; TUG and VAS scores (r=0.179, p=0.042). LEFS explained 59% of the variance of TUG (R²=0.347, R² adjusted=0.342, F=67.511, p=0.000), and 33% of the variance of VAS scores (R²=0.110, R² adjusted=0.103, F=15.702, p=0.000).

Conclusions: Findings pointed out that pain intensity was correlated with measures of the functional level of lower extremities in patients with knee OA. LEFS, as a self-report questionnaire, seems to be a predictor for TUG scores in these subjects.
MOBILE PHONE MESSAGING REMINDERS FOR INCREASED ATTENDANCE OF PATIENTS AT PAIN CLINIC APPOINTMENTS

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1Behaviour Medicine Pain Treatment Services, Karolinska University Hospital, SOLNA, Sweden

Background and aims

Evaluate if mobile phone messaging (simple text message, sms) reminders would increase attendance of pain patients at a tertiary pain clinic. A decrease in non-attendance has been found in other settings and populations, and sms-functionality has been made available from within administrative electronic systems. However, there is a paucity of data on effectiveness for the chronic pain clinic population.

Methods

All patients attending the Behavior Medicine Pain treatment services at Karolinska University Hospital, Sweden, were included in a prospective controlled study with an ABAB-design during nine consecutive months during 2012-2013. Sms-reminders were sent out two days before the appointment. No-shows and cancellations within the last 24 hours before the appointment were registered. Rate of attendance at healthcare appointments was the primary outcome measure. Generalized Estimating Equations was used for analysis. Use of the covariates sex and age restricted the population to adults.

Results

81 no-shows, 58 late (within 4 hours) and 149 early cancellations (4 to 24 hours before appointment start) were registered in addition to the 1497 appointments carried out with 271 patients. No-shows and late cancellations were significantly fewer with than without sms-reminder, 5.5 vs 10.5%, odds ratio 0.49 (95% CI 0.32-0.75) adjusted for age, sex and diagnoses.

Conclusions

Sms-messaging had similar benefits in the adult chronic pain patients attending a tertiary behavioral medicine pain clinic as shown in other settings. Optimal timing of the sms and possible use of multiple reminders to increase utilization of resources remain to be studied.
EFIC5-1269
LATE-BREAKING POSTER SESSION I

IMPACT OF SUGGESTION AND EXPECTATION ON A HUMAN EXPERIMENTAL MODEL OF COLD AND MECHANICAL HYPERALGESIA AFTER TOPICAL APPLICATION OF HIGH-CONCENTRATION MENTHOL IN COMPARISON TO ETHANOL

S.M. Helfert\textsuperscript{1}, M. Reimer\textsuperscript{1}, L. Barnscheid\textsuperscript{2}, J. Rengelshausen\textsuperscript{2}, R. Baron\textsuperscript{1}, A. Binder\textsuperscript{1}

\textsuperscript{1}Department of Neurology University Hospital Schleswig-Holstein, Division of Neurological Pain Research and Therapy, Kiel, Germany
\textsuperscript{2}Grünenthal GmbH, Early Clinical Science Translational Science & Strategy, Aachen, Germany

Background

Previous trials in healthy human subjects demonstrated that the topical application of 40% menthol is suitable to induce cold and mechanical hyperalgesia. The objective of this study was to evaluate the impact of suggestion and expectation on this pain model.

Method

The study was a randomized, double-blind, 2 period cross-over trial in 16 subjects. Within a balanced placebo design trial, the subjects received half of the testing the correct information about the applied substance (topical menthol (40%) or as placebo topical ethanol) and half of the testing the incorrect information. Cold and mechanical hyperalgesia were determined by quantitative sensory testing (QST).

Results

In the multivariable models, no suggestion effect could be detected for all parameters. Cold hyperalgesia was reliably induced by menthol. Minor suggestion effects on the cold pain threshold could be seen in a subgroup of subjects unfamiliar with menthol. Mechanical pain threshold and sensitivity only changed marginally after menthol application and seemed to be influenced by treatment sequence and period effect.

Conclusion

The high-concentration menthol model is a reliable, non-suggestible model to induce cold hyperalgesia. Mechanical hyperalgesia is not as reliably to induce. Future studies should consider a prior demonstration of menthol to familiarize the subject with the menthol effect.

Acknowledgments

The research leading to these results is part of the Europain Collaboration, receiving support from the Innovative Medicines Initiative Joint Undertaking (Grant Agreement No. 115007), resources of which are composed of funding from the European Union’s Seventh Framework Programme (FP7/2007–2013) and EFPIA companies’ in kind contribution.
CONDITIONING PAIN MODULATION AGGRAVATES NEUROGENIC INFLAMMATION BUT DOES NOT AFFECT ITCH INDUCED BY INTRA-EPIDERMAL HISTAMINE- INJECTIONS IN HEALTHY MALE VOLUNTEERS

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²Clinical Development Department, Clinical Development Center, Asahi Kasei Pharma Corporation, Japan
³Department of Child and Adolescent Psychiatry, Centre for Psychosocial Medicine University of Heidelberg, Heidelberg, Germany
⁴The Allergy Clinic, Copenhagen University Hospital, Gentofte Copenhagen, Denmark

Background and aims: Associations between stress, inflammation, and pain are shown to be important in chronic episodic inflammatory conditions, e.g. psoriasis, asthma, rheumatoid arthritis and interstitial cystitis, all characterized by a neurogenic inflammatory component. This study investigated the effect of acute heterotopic deep somatic pain stimulation (conditioning pain modulation: CPM) on neurogenic inflammation induced by intra-epidermal histamine using vasomotor, psychophysical and autonomic outcome measures.

Methods: 24 healthy male subjects (age 28.1±4.8) were included. The study was conducted sequentially (two sessions 45 minutes apart) with and without concomitant cuff pain-stimulation (conditioning stimulus) applied to the lower leg. Neurogenic inflammation and itch were induced by two intra-epidermal punctures of 1% histamine at the volar forearms. Individual pressure pain tolerance to cuff-stimulation was established and a conditioning pain-stimulus intensity at 60% hereof was applied in parallel with the histamine-injection (conditioning stimulus onset was 1 min before injection). Neurogenic inflammation was monitored by laser speckle flowmetry at baseline, 2, 5 and 10 minutes post injection. Concurrently, itch (test-stimulus) was monitored on a computerised visual analogue scale, wheals were measured and autonomic nervous system activity assessed by skin conductance and heart rate variability (HRV).

Results: While itch intensity was unaffected the conditioning stimulus increased neurogenic inflammation at 2, 5 and 10 minutes post histamine-injection (P>0.05). Additionally, pseudomotor activity increased during the conditioning stimulation indicating increased sympathetic activity, and vagally-mediated HRV decreased.

Conclusions: Conditioning pain stimulation does not modulate histamine-induced itch but was found to significantly aggravate neurogenic inflammation, likely facilitated by increased sympathetic activity.
THE EFFECT OF WHOLE BODY VIBRATION IN PATIENTS WITH KNEE OSTEOARTHRITIS: A PRELIMINARY STUDY
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¹Physical Therapy and Rehabilitation, Pamukkale University - Faculty of de, Denizli, Turkey
²Orthopaedic Traumatology, DENİZLİ STATE HOSPİTAL, Denizli, Turkey
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BACKGROUND AND AIM: Vibration produced in oscillating/vibratory platform generate whole body vibration (WBV) exercises, which are important in sports, as well as in treating diseases, promoting rehabilitation, and improving the quality of life. There is limited study about WBV training effects in patients with knee osteoarthritis (OA). The purpose of this study was to investigate the effects of whole body vibration training on the pain, physical performance, disability and muscle strength in individuals with knee osteoarthritis.

METHODS: Individuals who were between 40 to 65 years of age and had been diagnosed with chronic OA in at least one knee were eligible. Six patients with knee OA aged 50±9,77 years participated in this study. Patients received in this study WBV training program three times a week for 12 uninterrupted weeks. The WBV program was included lower limb exercises. Outcome measurements assessed pre-training and post-training period. Pain intensity was measured with the Visual Analog Scale (VAS), physical performance was measured with the Timed-Up- and- Go Test (TUG), disability was measured with Turkish Western Ontario McMaster score (WOMAC), quadriceps femoris muscle strength was measured with handheld dynamometry.

RESULTS: After WBV training, pain was reduced (p<0,02), TUG score (p<0,02), and WOMAC score (p<0,02) were reduced too and quadriceps femoris muscle strength was increased (p<0,02).

CONCLUSION: WBV training has positive effects on pain, physical performance and disability and muscle strength in individuals with chronic knee OA. This study was a preliminary study. Future studies are needed with long term follow-up.
COMMUNICATION SKILLS TRAINING TO PROMOTE ADHERENCE TO HOME-BASED REHABILITATION FOR CHRONIC LOW BACK PAIN: RESULTS FROM THE "CONNECT" RANDOMISED CONTROLLED TRIAL

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Background and aims: CONNECT is a self-determination theory-based communication skills training intervention for physiotherapists working with individuals seeking treatment for chronic low back pain (CLBP). This study examined the effect of this intervention on patients' perceived competence and motivation to complete their home-based rehabilitation programs and their adherence to these programs.

Methods: This was a single-blinded cluster randomized controlled trial. Outpatient physiotherapy centers (N=12) in Dublin, Ireland were randomly assigned to the experimental or control condition. Physiotherapists in the experimental condition attended 8 hours of training. Participants (N=255) with CLBP completed assessments at baseline, 4, 12, and 24 weeks after their first appointment. Measures included questionnaires designed to assess autonomous motivation, controlled motivation, amotivation, perceived competence and adherence. Linear mixed modeling tested between condition differences in changes from baseline in competence and motivation scores. Between condition differences in adherence were also examined.

Results: Changes from baseline on the autonomous and controlled motivation variables were not significantly different across the two conditions. In contrast, there were significant intervention effects on the amotivation and perceived competence variables. Relative to the control condition, experimental condition participants reported decreases in amotivation and increases in perceived competence (p < .05). Overall, participants in the experimental condition reported greater adherence than controls (p < .05); however, this difference was not maintained at 24 weeks.

Conclusion: CONNECT training led to increased patient competence perceptions and decreased amotivation towards home-based rehabilitation. Training also produced initial improvements in patient adherence, but long-term maintenance may require additional support.
Background and aims: Little is known about pain diagnoses in the general population based on clinical examination. The aim of the study was to classify pain using the ICD-10 and ICD-11 classification system in a chronic pain population.

Methods: From a large general population survey (HUNT-3), 28% reported pain lasting for 6 months or more of moderate to severe intensity, here defined as chronic pain. From this survey, 551 accepted an invitation to be examined by a physician and a physiotherapist, based upon a structured protocol. Subsequently, they were classified by a team of specialists from neurology, physical medicine, and pain medicine.

Results: A total of 337 participants reported chronic pain, with an average number of 4.2 pain diagnoses per individual. Chronic pain of unknown etiology was found in 59.8% of the 337 participants. The most common locations of the primary pain diagnoses were low back pain (13.6%), neck pain (9.8%), shoulder pain (5.9%), hip pain (5.0%), headache and orofacial pain (4.8%), cervicobrachialgia (3.9%) and abdominal/pelvic pain (3.9%). Among the 40.2% with known etiology, the most common conditions were osteoarthritis (13.4%), and neuropathic pain (9.5%). Chronic inflammatory conditions were rare (3.3%). According to the beta version of ICD-11, 22.5% could be classified as "widespread chronic primary pain", and 37.4% as "localized chronic primary pain". The remaining 40.2% could be classified as "secondary chronic pain".

Conclusions: In this study, chronic pain conditions were classified in subjects from a general population according to ICD-11 and almost 60% classified as “chronic primary pain”.
NICOTINE-INDUCED IRRITATION AND PAIN ARE ATTENUATED BY EUCALYPTUS OIL
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Background and aims Nicotine is known to cause irritation when applied to the oral tissues. These sensations are mediated by the transient receptor potential ankyrin member 1 and may be reduced by cooling compounds such as eucalyptol. The aim of this study was to investigate the modulatory effects of eucalyptus oil on nicotine-induced irritation and pain when administered by chewing gum. As a secondary aim, the effect of interruptions in a continuous chewing regime was investigated. It is hypothesized that nicotine self-desensitization will occur after repeated applications of nicotine.

Methods Double-blinded, randomized crossover study of 22 healthy non-smokers participating in three sessions receiving one of three chewing gums containing either nicotine, eucalyptus oil, or a combination of nicotine and eucalyptus oil. Cardiovascular and psychophysical assessments were obtained prior to, during and after each session. The subjects performed a 10 minute standardized continuous chewing regime. Ten of the subjects participated in a fourth session where they received a nicotine gum and performed a 13-minute chewing regime with three one-minute interruptions.

Results The intensity of nicotine-induced irritation and pain was initially attenuated in presence of eucalyptus oil, while the reported area was unaffected. Interruptions in a continuous chewing regime markedly lowered the intensity of irritation in the throat. All nicotine gums exerted similar cardiovascular effects, indicating comparable absorption between the gum types.

Conclusions Eucalyptus oil is able to lower the intensity of nicotine-induced irritation and pain. Furthermore, short interruptions in the chewing regime attenuated irritation in the throat suggesting nicotine self-desensitization.
REAL-TIME SONOELASTOGRAPHY FINDINGS OF NORMAL ARTICULAR CARTILAGE OF KNEE JOINT: A CROSS-SECTINAL STUDY

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Background and aims: Documentation of biomechanical properties of normal cartilage with noninvasive evaluation methods may help to detect the early cartilage changes during the incubation period of osteoarthritis. The objective of this study is to evaluate real-time sonoelastography (RTSE) findings of femoral articular cartilage in knees of healthy individuals.

Methods: Twenty-five volunteers without any symptoms regarding knee joints were involved in this cross-sectional study. We evaluated both knees of the participants by ultrasound, and RTSE. The cartilage thicknesses were measured from medial and lateral condyles and intercondylar area during ultrasound. Color scaling and semi-quantitative strain ratio measurements were performed during RTSE.

Results: The mean age was 29.4±5.5 years, and the mean BMI was 22.3±2.1 kg/m². The mean femoral articular cartilage thickness was 1.36±0.39 mm on the medial femoral condyle and 1.20±0.38 mm on the lateral femoral condyle. The mean articular cartilage thickness at the intercondylar area was 2.11±0.46 mm. RTSE showed hard cartilage structure, corresponding to blue coloring, in 93% of the femoral condyles. However, when RTSE of the femoral intercondylar area was analyzed 94% (47/50) of the knees demonstrated red or orange-red colors, and the rest of the knees were green or green-yellow (n=3). The mean strain ratio of the medial femoral condyle, lateral femoral condyle, and intercondylar area were 0.11±0.042, 0.12±0.048 and 0.43±0.11 respectively.

Conclusion: In vivo characterization of healthy articular cartilage by RTSE was achieved for the first time. These results open the way to the exploration of diseased articular cartilage mechanical properties in vivo by RTSE.
HERPES ZOSTER: AN ADDITIONAL RISK FACTOR TO COMORBIDITY AND POLYMEDICATION IN OLD AGE
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Background: Herpes zoster (HZ) is an infectious disease with a high prevalence in older age. Drug treatment of Post Herpetic Neuralgia (PHN), a painful complication, adds a supplementary difficulty to comorbidity and to multiple medication in elderly patients.

Aims: This study is an ancillary analysis of a large prospective study that was carried out in France in primary care patients (Bouhassira, Pain 2012). The present analysis focuses specifically on comorbidities and drug consumption in the context of pain and functional decline associated with PHN.

Method: Patients over 50 years of age with acute HZ at D0 were included by General Practitioners. Pathologies and medications were recorded. A questionnaire was completed by the patients at baseline (D0) and pain, quality of life and mood questionnaires were repeated by phone throughout a 12 months follow-up period (month 3, 6 and 12).

Results: At the time of inclusion, 77.1% of patients ≥70 years old presented at least one comorbidity, suggesting chronic medications and an increased risk of adverse drug reactions and interactions for most of them. Moreover, relief provided by the treatment was lower in older patients, evolving during the year of follow-up from 68.2 to 72% in <70 years, and decreasing gradually from 61.1% to 28.8% in ≥70 years old.

Conclusions: In elderly patients with age-related comorbidity and polymedication, the occurrence of HZ and the progression to PHN brings an additional burden to pharmacological treatment and comorbid adverse events.
Backgrounds and aims

Capsaicin 8% patch is indicated for the treatment of peripheral neuropathic pain in non-diabetic adults either alone or in combination with other medicinal products for pain. There is scarce information on results of capsaicin treatment for postsurgical neuropathic peripheral pain.

Our aim is to correctly evaluate the area variation of the capsaicin patch between first and last treatment in patients with postsurgical neuropathic peripheral pain.

Methods

In order to compare patch areas of sequential treatments we manually calculated the area of sequential patches. Recognizing the limits of this strategy we have implemented the use of an application which allows area calculation from a photo of the patch.

We selected patients with postsurgical neuropathic localized peripheral pain referred to pain clinic between 2012 and 2015, excluding those already discharged. We compared the area of capsaicin patches from sequential treatments using SketchAndCalc™ - Area Calculator.

Descriptive statistics were calculated with PSPP software.

Results

We recruited 10 patients which completed the treatment in a mean of 4 sessions.

From the first to the last treatment there was a mean area reduction of 55.82cm², standard deviation (SD) of 149.21cm². The mean percentage modification of the last patch from the first one was 25.4% with SD of 38.7%.

Conclusions

Accurate calculation of patch area allowed precise documentation of therapeutic evolution. For capsaicin treatment this could allow crucial information for follow-up of patients.
LIDOCAINE PATCHES 5 % FOR TREATMENT OF RIB FRACTURES PAIN

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Introduction: Fractured rib are a most common thoracic injury, approximately 10% of all patients admitted after blunt chest trauma have one or more rib fractures. Inadequate pain control may result in hypoventilation, retained secretions, increase atelectasis and lobar collapse, pneumonia, and respiratory failure. Optimal management involves assessment of analgesic requirements and timely treatment of any clinical deterioration. Traditional treatment have included systemic opioids, epidural anesthesia, intercostal nerve blocks, intrathecal opioids, intrapleural analgesia, paravertebral blocks, transcutaneous electrical nerve stimulation and non steroidal anti-inflammatory drugs; however, none of these methods work well alone and each of these methods has adverse systemic effects. Lidocaine patches 5 % are a non-invasive method, which to induce a local anesthesia of the skin with little systemic effects.

Methods: A 44 –year- old male was admitted to GICU following a road traffic accident. His injuries were left occipital condyle fracture, unstable T4-T5 fractures, multiple bilateral rib fractures (flail segment), left hemopneumothorax and free fluid around the spleen and pelvis.He receivedlidocaine patches 5% over the site of maximal pain and four time a day 1g IV acetaminophen. The effects on pain were evaluated by pain score.

Results: He made good progress by the use of effective pain control.

Conclusion: Lidocaine patches 5% should be considered in trauma patients with rib fractures as good adjunct therapy, which may improve pain control and decrease need for narcotics. In addition, it is safe.
A DESCRIPTION OF CHILDREN AND ADOLESCENTS REFERRED TO THE PAIN CLINIC FROM THE CLINIC OF PEDIATRIC RHEUMATOLOGY WITH LONGSTANDING PAIN

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BACKGROUND

The Pain Treatment service receives many referrals from the unit of pediatric rheumatology, Astrid Lindgren’s pediatric hospital. In this study we want to describe what kind of patients were referred during 2009-2014 and what treatment they received.

METHOD

Data was collected from the referrals’ information and clinical records, considering blood samples, clinical examination and radiology.

We also collected data from Behavioural Medicine Pain Treatment Service, Karolinska University Hospital’s clinical record concerning what kind of treatment they received, short or long term, individually or in a group setting.

Data from the collected standard self-report pre- and post- treatment questionnaires was also selected.

RESULTS

80 patients 7-16 years old, with a median age of 14 are described here, 14 boys and 66 girls.

42 patients had a clinical examination that showed signs of arthritis before referral to the pain clinic. 20 had signs of arthritis on radiology-examinations, 40 had no signs and 20 we do not know. No one had a positive rheumatoid factor, 48 were tested negative and 32 we do not know from our background material. 11 had a positive ANA, 40 negative and the rest we do not know. 7 had elevated CRP and 68 had normal CRP and 5 we do not know. 6 tested positive on the HLA-27-test and 35 negative and 39 we do not know.

54 received treatment.

CONCLUSION

Results from this clinical description, including follow-up data for the some of the patients, will be presented in the poster.
PAIN SYNDROMES IN NEUROMYELITIS OPTICA SPECTRUM DISORDERS

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Pain is prevalent among patients with Neuromyelitis Optica Spectrum disorders (NMOSD). Neuropathic pain (NeP) has been reported in these patients, though its diagnosis can be challenging. The profile of NeP symptoms in NMOSD has never been described nor which pain syndromes are more prevalent in this population. It's not clear if the severity of NeP symptoms correlates with greater interference in daily life.

Aim: To assess the correlation between disability and neuropathic pain in this population and characterize the pain syndromes that are more prevalent in NMOSD.

Methods: Spinal cord-restricted demyelinating disease patients (last relapse at least 12 months prior to the evaluation) and complaint of pain underwent full physical examination and filled out DN-4, BPI, NPSI, SF-12. Pain was classified as 'at-level', 'above-level' and 'bellow-level'. The most severe and secondary pain were assessed. A pain specialist classified them according to the presence or not of defined neuropathic pain using the IASP definition.

Results: Fifty-Four patients were included (38 females, 47.5±10.6 y.o). At-level NeP was present in thirty two (59.3%), and bellow-level in twenty (37%) patients. Only 8 (14.8%) patients had low back pain as their main pain syndrome. Thirty eight patients (70.3%) had more than one pain syndrome. DN4 was positive for NeP in 46 (85.2%) patients, 40 of which met criteria for defined NeP according to IASP criteria. Sensitivity was 87% and Specificity, 42.9%. There was a strong correlation between NPSI score and BPI interference scores (rs = 0.355).

Conclusions: Nep is frequent in patients with NMOSD. The most frequent main pain syndrome was 'at level' and neuropathic. The greater severity of NeP symptoms correlated with a greater interference of pain in daily life.
PAIN AND ANXIETY DURING BONE MARROW BIOPSY: A PROSPECTIVE STUDY.
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Background and aims: A bone marrow biopsy is considered to be painful, for the majority of patients, even if this procedure is performed according to many different protocols. Pre-procedural anxiety aggravates pain. The primary aim of this observational study is to assess pain before, during and after the procedure. We also analyzed the associated factors related to pain intensity.

Methods: Prospective open descriptive study in 40 patients undergoing bone marrow biopsy. Patient’s pain and anxiety were assessed using a visual analogic scale (0-100). Population’s characteristic, the analgesic used, the procedure’s length, and the physician’s experience were recorded.

Results: Mean level of pain intensity during procedure was 36 mm. Mean level of anxiety before the procedure was 40 mm. There was a significant association (p<0.05) between anxiety and pain during biopsy. Prophylaxis, duration or repetition of the procedure and experience of the operator had not significant impact on the pain ratings.

Conclusion: Intensity of pain could be influenced by different factors, like preprocedural anxiety. Identification of anxious patients before bone marrow biopsy and premedicating them may reduce procedural pain.
THE EFFECTS OF SOME MITOCHONDRIAL MODULATORS ON THERMONOCICEPTION IN MICE

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Background: Although mitochondrial disorders are associated with different types of pain, the role of mitochondria in pain processing is far for being understood.

Aim of the study: to investigate the effects of a single dose of mitochondrial inhibitors (cobalt-chloride-CoCl₂, disulfiram) stimulators (riboflavin, methylene blue-MB) or oxidative stress modulators (curcumin, ascorbic acid) on thermonociception.

Materials: The experiments were done in BALBc mice, divided into 7 groups with at least 8 animals/group. Mice received intraperitoneally MB, CoCl₂, riboflavin ascorbic acid, saline and orally disulfiram and curcumin. The hot plate (HP) test and tail flick (TF) tests were used to measure thermonociception. The percentage changes from baseline over a 4 h period after drug administrations were recorded and analysed using ANOVA and univariate general linear model.

Results: Mitochondrial inhibitors, stimulators or oxidative stress modulators have different effects on the two tests used by us to evaluate thermonociception. Thus riboflavin, disulfiram, nitroglycerin and curcumin have a significant analgesic effect (p<0.01) on both TF and HP tests while methylene blue and cobalt chloride have opposite effects on HP and TF tests. MB produced analgesia on HP test (p<0.01) while CoCl₂ on TF test (p<0.05).

Conclusions: By transitory disruption of the mitochondria aldehyde dehydrogenase level, ATP or ROS production we demonstrate that mitochondria is involved in thermonociception process through different mechanisms. Further studies are necessary to elucidate the biochemical underlying mechanism of mitochondrial analgesic or algesic effect.

Acknowledgements: study was supported by Romanian National Authority for Scientific Research; project number PN-II-ID-PCE-2011-3-0875.
EXPLORING PAIN MEDICINE CURRICULA AND EDUCATION PROGRAMS FOR PHYSICIANS

Background and Aims

Morbidity and mortality related to prescription opioid medications are well documented, underscoring the importance of physician competence in managing pain. Despite numerous clinical guidelines and medical educational curricula developed to educate and guide physicians in pain management for over a decade, deficiencies in physician knowledge and skills are still observed. Recently, Hwang et al. in June 2015 found similar themes among primary care physicians, particularly the lack of knowledge and skills regarding opioids.

Methods

Using search databases, publications pertaining to undergraduate and postgraduate pain medicine education and curricula were reviewed to investigate the complexity of issues involved with physician knowledge, skills, and attitudes in medical education. Common issues, themes, and effectiveness of medical education programs and published curricula were explored.

Results

Recent studies identify key themes including physician knowledge and skills, gaps in medical education, variations in clinical experience, importance of clinical mentoring, among others. In July 2015, Choo et al. have just reported their analysis of global interdisciplinary discourse (innovatively utilizing free social media) from 433 countries and identify additional key themes, further highlighting that the issues regarding pain medicine education effectiveness are international.

Conclusions

There is an international need for physicians who are equipped to manage pain, emphasizing the importance of effective pain medicine education programs. Effective pain education programs should contain particular elements, including medical knowledge and clinical experience, and ideally, should be part of core educational curricula. Creating global dialogue, perhaps using social media and technology, could begin to offer innovative solutions.
TWO DISTINCT ATTENTIONAL BIAS PATTERNS FOR PAIN-RELATED INFORMATION

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Background and aims:
Little is known regarding inter-individual differences in attentional biases for pain-related information. For example, whereas some studies indicate that healthy participants may be hyper-vigilant for pain-related information, others have demonstrated primarily avoidance-like behaviour, or reported no attentional bias at all.

Methods: The present study investigated attentional bias patterns for pain-related information, with specific focus on comparing subgroups. Forty-one participants, aged 21 (SD=2.67, 25 female), were recruited from the local student population. Participants performed a dot-probe task, where neutral and pain-related words were used to create neutral, congruent, incongruent, and double (two pain-related words) trials. They additionally completed self-report measures regarding depression, personality, somatosensory amplification, and pain cognitions.

Results: Without separating the population into two subgroups, no evidence for an attentional bias was apparent. After making a distinction between participants showing either increased vigilance or avoidance-like behaviour (based on the bias index), multiple measures correlated significantly with reaction time differences, but not similarly for both subgroups. An increase in somatosensory amplification scores was associated with an increase in avoidance-like behaviour in the avoidance-group, whereas an increase in pain-related scores (e.g. anxiety) was associated with an increase in vigilance in the other subgroup.

Conclusions: The current study clearly demonstrates two distinct attentional bias patterns can be distinguished, with one primarily showing increased vigilance and the other showing increased avoidance. Furthermore, avoidance and vigilance are uniquely associations with several psychological constructs. Separating these subgroups could benefit the validity of many studies, specifically for patients suffering from pain and pain-related symptoms.
PAIN DISTRIBUTION IN 745 CONSECUTIVE PATIENTS WITH PERSISTENT PAIN AFTER WHIPLASH TRAUMA
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Backgrounds and aims

A significant proportion of patients who do not recover after whiplash trauma are reported to have increased sensitivity to pain.

We aimed to investigate the impact of age, gender, and type of trauma on pain distribution in patients with persisting symptoms after whiplash trauma, referred to and assessed at a Pain rehabilitation clinic in specialized neck pain teams.

Methods

Data on age, gender, type of trauma, and pain distribution were collected from the medical records of 745 consecutive patients with persistent pain after whiplash trauma from 2010 to 2014. The data had been recorded in a prospective manner according to a pre-established checklist. Pain distribution was diagnosed clinically in consensus as widespread, regional, or local. The data on age and gender distributions were compared to a previous study of acute whiplash trauma in the same geographic area from 2007 and 2008.

Results

Age and type of trauma did not seem to affect the pain distribution.

However a shift in age and gender distribution was observed from the acute to the chronic stage towards higher age and higher proportion of women. Widespread pain was more common in females, but the difference was less than expected.

Conclusions

Widespread pain is common in patients who do not recover after whiplash trauma. Females were overrepresented in the chronic stage and the question is if the higher propensity to develop widespread pain could explain this or if the altered gender distribution has its explanation indifferent reactions to the initial trauma.
THE ROLE OF SIGMA-1 RECEPTOR IN CCL2 MEDIATED MICROGLIA ACTIVATION IN ZYMOSAN INDUCED INFLAMMATORY HYPERALGESIA

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Although intrathecal blockage of sigma-1 receptor (Sig-1R) produces a potent anti-nociception through neuronal regulation in several pain models, it is unclear interactions between neuron and microglia under inflammatory condition. Here we are aimed to address anti-nociceptive mechanism of BD1047 (a selective Sig-1R antagonist) through regulation of chemokine CCL2 mediated microglia activation. Intraplantar injection of zymosan in rats elevated spinal microglia activation with phosphorylated p38 (p-p38), and increased CCL2 immunoreactivity in dorsal root ganglion (DRG) but not in spinal neurons and glia. Intrathecal blockage of CCL2 reduced zymosan-induced hyperalgesia (evoked by thermal and mechanical stimuli) accompanying spinal Fos elevation as well as microglia/p-p38 activation. In spinal cord slice patch-clamp, incubation of CCL2 significantly increased inward current and p-p38 expression, which was reversed by pretreatment of microglia inhibitor (minocycline). RT-PCR and immunohistochemical study revealed that Sig-1R was predominantly located in DRG, which was overlapped with CCL2. In DRG primary culture, zymosan dose-dependently increased secretion and synthesis of CCL2 with reversed by BD1047. Oral administration of BD1047 dose-dependently inhibited zymosan-evoked hyperalgesia as well as CCL2 elevation, microglia/p-p38 activation. Taken together, our results indicated that anti-nociception of Sig-1R antagonist in inflammatory pain was mediated by the blockage of CCL2 induced microglia activation in the spinal level.
SUBCORTICAL AND CORTICAL RESPONSES TO NOCICEPTIVE INPUT ARE INHIBITED BY TOUCH

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Background and aim.
The neural mechanisms of the powerful analgesia induced by touching a painful body part are controversial. A long tradition of neurophysiological studies in anaesthetized, spinal animals indicate that touch can gate nociceptive input at spinal level. In contrast, recent studies in awake humans have suggested that supra-spinal mechanisms can be sufficient to drive touch-induced analgesia. To investigate this issue, we evaluated the modulation exerted by touch on established electrophysiological markers of nociceptive function at both subcortical and cortical levels in humans.

Methods.
Aδ and C skin nociceptors were selectively activated by high-power laser pulses. As markers of subcortical and cortical function, we recorded the Laser-Blink Reflex (LBR), which is generated by brainstem circuits prior to the arrival of nociceptive signals at the cortex, and Laser-Evoked Potentials (LEPs), which reflect neural activity of a wide array of cortical areas. If subcortical nociceptive responses are inhibited by concomitant touch, supraspinal mechanisms alone are unlikely to be sufficient to drive touch-induced analgesia.

Results and conclusions.
Touch induced a clear analgesic effect, suppressed the LBR, and inhibited both Aδ-fibre and C-fibre LEPs. Thus, we conclude that touch induced-analgesia is likely to be mediated by a subcortical gating of the ascending nociceptive input, which in turn results in a modulation of cortical responses. Hence, supra-spinal mechanisms alone are not sufficient to mediate touch-induced analgesia.
EFIC5-1129
LATE-BREAKING POSTER SESSION II

CHANGES IN AREA OF SPONTANEOUS PAIN AND ALLODYNIA FOLLOWING REPEAT TREATMENT WITH CAPSAICIN 8% PATCH (QUTENZATM) IN PERIPHERAL NEUROPATHIC PAIN
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Background and aims
The primary aim of STRIDE was to assess the long-term safety of repeated applications of the capsaicin 8% patch in a broad range of peripheral neuropathic pain (pNP) conditions.

Methods
This Phase IV, multicentre, open-label, single-arm, 52-week, observational study enrolled 306 patients (mean ± SD daily pain intensity: 6.6 ± 1.4) and pNP conditions included postherpetic neuralgia (n=107), post-traumatic nerve injury (n=99), HIV-associated neuropathy (n=80) and other pNP (n=20). Capsaicin 8% patches (1–4) were applied for 60 min (30 min for the feet) at up to six treatment visits, with 9–12 week intervals. Results for the secondary endpoints area of maximal spontaneous pain and mechanical allodynia are presented.

Results
In the total sample of patients who received 1–6 applications, the mean±SD area of maximal spontaneous pain decreased from 365.0±313.9 [range: 117.0-519.0] cm² to 322.7±324.2 [range: 82.0-472.0] cm² and the mean±SD area of mechanical allodynia decreased from 241.9±259.1 [range: 62.5-323.5] cm² to 219.9±286.7 [range: 36.0-282.0] cm². In patients who received four consecutive capsaicin applications (n=100), the mean±SD area of maximal spontaneous pain decreased from 310.1±275.4 [range 97.5-437.5] cm² to 268.5±254.4 [range 74.5-409.5] cm² and the mean±SD area of alldynia decreased from 227.4±268.5 [range 51.5-282.5] cm² to 213.4±254.4 [range 43.0-299.0] cm².

Conclusions
Repeated applications of capsaicin 8% patch in various pNP conditions is associated with a reduction in the area of maximal spontaneous pain and mechanical allodynia, with a consistent decrease observed in the total sample and following four consecutive applications.
Background

It has been widely reported that patients from minority groups receive inferior pain management. However, this has largely been demonstrated in the USA or Great Britain and in emergency room or delivery room settings. In this study, we aimed to determine whether this assumption is true in the postoperative setting, as effective postoperative pain management is an essential component of high quality medical care.

Methods

248 post-surgical Israeli patients were included in the study (124 natives and 124 non-natives citizens). Data was gathered from the European Union's "PAIN-OUT" registry, an ongoing post-operative pain management questionnaire-based survey. Quality of care measures were analyzed separately as well as grouped into three clusters termed composite pain score, composite side effects score and composite emotional score.

Results

Opioid consumption did not differ between the two groups. Composite pain, side effects and emotional scores were significantly higher among natives compared to non-natives. While the amount of time spent in complete pain relief was comparable between the groups, natives rated their pain as severe significantly more often than non-natives.

Conclusions

In this study, immigration status was not a predictor of inferior postoperative pain control. Moreover, non-natives seemed to benefit more from analgesic care. We suggest this stems from differing patient expectations and attitudes toward pain management between the groups, with higher expectations for analgesia on the part of native patients accounting for these observations.
MINDFULNESS MEDITATION MODULATES PAIN THROUGH ENDOGENOUS OPIOIDS

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Introduction

A growing body of research has provided support for the beneficial effects of mindfulness meditation (MM) on acute and chronic pain. However, the neural mechanisms underlying this analgesic effect remain poorly understood. We used an opioid blocker (Naloxone) to examine whether MM induced analgesia is mediated via endogenous opioids.

Methods

15 experienced MM practitioners participated in a double-blind, randomized, placebo-controlled, crossover study. Participants rated the pain and unpleasantness of a cold stimulus before and after a MM session. Participants were then randomized to receive either intravenous Naloxone or saline, after which they meditated again, and then rated the same painful stimulus.

Results

A (3) x (2) repeated measurements ANOVA revealed a significant time effect for pain and unpleasantness scores (both p<.001) as well as a significant condition effect for pain and unpleasantness (both p<.04). Both further revealed a significant interaction between time and condition. Post-hoc comparisons revealed that pain and unpleasantness scores were significantly reduced after natural MM and after placebo, but not after Naloxone administration. Furthermore, there was a positive correlation between the differences in pain scores following Naloxone versus placebo and participants' MM experience.

Discussion

These findings show, for the first time, that meditation involves endogenous opioid pathways, which in turn mediate its analgesic effect and which become resilient to external suggestion with increasing practice. Cultivating a robust ability to endogenously modulate pain using meditation could hold promising therapeutic implications, and further elucidate the fine mechanisms involved in human pain modulation.
ALTERED GAIT AND BALANCE IN PATIENTS WITH FIBROMYALGIA ARE ASSOCIATED WITH PAIN SYMPTOMS

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Fibromyalgia is a common chronic pain condition that exerts a considerable impact on patients’ daily activities and quality of life.

Objectives: The main objective of the present study was to evaluate the kinematic and kinetic parameters of gait, functional performance and balance in women with fibromyalgia syndrome.

Methods:
The study included 26 female patients with fibromyalgia (49.2±8.0 yrs) according to the criteria of the American College of Rheumatology, as well as 16 pain-free women (43.5±8.5 yrs). Gait and balance parameters were extracted from video recordings of participants performing several motor tasks. Nonlinear dynamic of body sway time series was also analyzed by computing the Hurst exponent. In addition, subjective measures of motor function and clinical pain were obtained by using self-report questionnaires.

Results:
Walking speed was significantly diminished (p<.001) in FM patients as compared to pain-free controls, probably as result of significant reductions in stride length (p < .001) and cycle frequency (p < .001). Analyses of balance also revealed significant differences between fibromyalgia and pain-free controls on body sway in the medial-lateral and anterior-posterior axes (all ps < .01). Deficits in gait and balance were mostly correlated with fibromyalgia symptoms such as pain, stiffness or depression, rather than with physical impairment or anxiety.

Conclusion: Our analysis revealed that FM patients displayed gait and balance characteristics similar to those observed during aging. These results suggest that assessment of impairments and strategies underlying functional performance in postural stability and gait would be necessary for optimal rehabilitation and fall prevention in fibromyalgia.
SAFETY OF A FIXED DOSE COMBINATION WITH IBUPROFEN PLUS CAFFEINE: RESULTS OF A DOUBLE-BLIND, RANDOMISED TRIAL IN 562 TREATED PATIENTS

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Background and Aims
This randomized, active- and placebo-controlled, double-blind, single-center, 2-stage parallel group study in patients undergoing dental, surgery investigated efficacy and safety of a fixed dose combination (FDC) of ibuprofen/caffeine (400/100mg) versus ibuprofen (400mg), caffeine (100mg), and placebo. Ibuprofen and caffeine both have a well-established safety profile over a long history of use.

Methods
Safety in this study was assessed by means of adverse event (AE) reporting. To account for the highly different exposure to treatment in the treatment groups, exposure-normalized incidence of AEs in a treatment group was calculated via expressing the number of patients with AEs as proportion of the total number of tablets taken in this group.

Results
Exposure-normalized incidence of AEs was highest in the placebo arm (4.3%) compared with caffeine (2.9%), ibuprofen/caffeine (1.8%), and ibuprofen (1.0%). Overall, AEs with highest incidence for the FDC were nausea (0.6%), insomnia and dizziness (0.3%). The majority of AEs was of mild to moderate intensity. Highest incidence of drug-related AEs was observed in the caffeine arm (caffeine: 2.9%, ibuprofen/caffeine: 0.3%, ibuprofen: 0.1%). Overall, most common drug-related AE incidences were nausea and vomiting. No drug-related serious events occurred. The majority of patients assessed the tolerability of ibuprofen/caffeine as 'very good' or 'excellent'.

Conclusions
The overall exposure-related frequencies of patients with AEs were low in this trial. The most frequent drug-related AEs are known side effects of ibuprofen or caffeine. The FDC provided a safety profile comparable to that of ibuprofen.

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Funding: Boehringer Ingelheim
IS AN ISOFORM OF ANGIOTENSINOGEN UPREGULATED IN THE CEREBROSPINAL FLUID OF NEUROPATHIC PAIN PATIENTS?

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Background and aims

Pain medicine lacks objective biomarkers to guide diagnosis and treatment. The aim of this observational, cross-sectional pilot study was to explore the cerebrospinal fluid (CSF) proteome of patients with severe persistent neuropathic pain and healthy controls to identify a putative proteomic fingerprint distinctive of this pain condition.

Methods

CSF was collected from patients with severe peripheral neuropathic pain due to trauma and/or surgery refractory to conventional treatment (n=11), and healthy controls (n=11). Two-dimensional gel proteomics was combined with Orthogonal Partial Least Squares – Discriminant Analysis (OPLS-DA).

Results

The OPLS-DA regression model was significant (p=0.005) by CV-ANOVA. We identified seven proteins with a very high discriminatory power between the two groups, i.e., Variable Influence on Projection ≥2: an isoform of angiotensinogen (upregulated in patients), two isoforms of alpha-1-antitrypsin (downregulated in patients), three isoforms of haptoglobin (upregulated in patients), and one isoform of pigment epithelium-derived factor (downregulated in patients).

Conclusions

In this hypothesis-generating pilot study, an isoform of CSF angiotensinogen had the highest discriminatory power between groups (p<0.001). It has recently been hypothesized that the renin-angiotensin system (RAS) may play a role in the pathophysiology of neuropathic pain, and a clinical trial of an angiotensin II receptor antagonist was recently published. It is therefore noteworthy that when searching for neuropathic pain biomarkers with a purely explorative methodology, it was indeed a RAS-protein that had the highest discriminatory power between patients and controls in the present study. These preliminary findings have to be confirmed in larger hypothesis-driven studies.
LOW NADIR CD4 ≤ 200 CELL/ML AS RISK FACTOR FOR NEUROPATHIC PAIN IN HUMAN IMMUNODEFICIENCY VIRUS PATIENTS IN SANGLAH GENERAL HOSPITAL DENPASAR

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Background: Peripheral neuropathy is a common neurological complication of HIV/AIDS patients. Low nadir CD4 correlates with high viral load and presumably causes neuropathic pain (NP) in HIV patients. The main cause of NP is peripheral nerve damage caused by the virus itself or by anti-retroviral (ARV) therapy.

Aims: To determine whether the low nadir CD4 is a risk factor for NP in HIV patients.

Methods: A case control study was conducted with subjects taken from Voluntary Counseling and Testing clinic at Sanglah General Hospital since December 2013 until February 2014. HIV patients with CD4 ≤ 200 cell/μL defined as cases and patients with CD4 > 200/μL as controls.

Results: A total number of 66 eligible subjects were divided into case and control groups, with each group consisted of 33 patients. There were 27 (81.8%) patients in case group compare to 12 (36.4%) in control group. The majority of patients were ≥ 30 years old (81.8%) and mostly female (57.6%). High stage HIV (stage III and IV) patients were 90.9%, duration infected with HIV ≤ 1 years was 75.8%, duration on ARV treatment ≤ 6 months was 63.6%. In bivariate analyzes, there was significant relationship between nadir CD4 ≤ 200 cell/μL and incidence of neuropathic pain on HIV patients (p< 0.001) with OR 7.88; CI 95% (2.53-24.47).

Conclusions: Low nadir CD4 ≤ 200 cell/μL was a risk factor for NP in HIV patients.

Keywords: HIV, low nadir CD4, neuropathic pain
Background: Peripheral neuropathy is a common neurological complication in HIV patients. The main cause of neuropathic pain (NP) is nerve damage caused by the virus itself or by anti-retroviral (ARV) therapy. Nucleoside and Nucleotide Reverse Transcriptase Inhibitors (NRTIs) ARV may cause NP through its effect on depletion of mitochondria.

Aims: To determine whether NRTI’s ARV therapy for ≥ 12 months is a risk factor for NP in HIV patients.

Methods: A case control study was conducted with subjects taken from Voluntary Counseling and Testing clinic at Sanglah General Hospital since December 2013 until February 2014. HIV patients with NP defined as cases and patients without NP as control. All subjects were examined with LANSS pain scale.

Results: A total number of 66 eligible subjects were divided into case and control groups, with each group consisted of 33 patients. There were 27 (81.8%) patients on NRTIs therapy for ≥ 12 months in case group compare to 11 (33.3 %) in control group. The majority of affected patients were ≥ 30 years (72.2%) and mostly were female (51.5%). HIV stage III and IV patients were 87.9% with nadir CD4 100-200 cell/μL were 84.5%. In bivariate analyzes, there was significant relationship between duration of NRTI’s therapy for ≥ 12 months and incidence of NP in HIV patients (p=0.001) with OR 6.25; CI 95% (2.13-18.33).

Conclusions: NRTI’s therapy for ≥ 12 months was a risk factor for NP in HIV patients

Keywords: HIV, NRTI’s ARV therapy, neuropathic pain
PROTECTIVE EFFECT OF PIOGLITAZONE ON MORPHINE-INDUCED TOLERANCE AND NEUROINFLAMMATION IN THE RAT LUMBAR SPINAL CORD

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Background and aim: Morphine-induced tolerance is associated with the spinal neuroinflammation. The aim of this study was to explore the effects of oral administration of the pioglitazone on the morphine-induced neuroinflammation in the lumbar region of the male Wistar rat spinal cord.

Methods: Various groups of the rats received saline and vehicle or morphine and vehicle, or morphine and pioglitazone once a day for 17 days. In order to determine the possible involvement of the PPAR-γ in the pioglitazone effect, one group of rats received PPAR-γ antagonist, GW-9662, and pioglitazone and morphine once daily for 17 days. The nociception was assessed daily using a tail flick apparatus and the percentage of the maximal possible effect was calculated as well. The lumbar spinal levels of tumor necrosis factor alpha, interleukin-1beta, interleukin-6 and nuclear factor-kappa B activity were determined on day 18 (one day after tolerance completion of the morphine and vehicle treated group).

Results: Co-administration of the pioglitazone with morphine not only attenuated morphine-induced tolerance, but also prevented the up-regulation of pro-inflammatory cytokines (tumor necrosis factor alpha, interleukin-1beta, and interleukin 6) and nuclear factor-kappa B activity. Administration of the GW-9662 antagonized the above mentioned effects of the pioglitazone.

Conclusions: It is concluded that oral administration of the pioglitazone attenuates morphine-induced tolerance and the neuroinflammation in the lumbar region of the rat spinal cord. This action of the pioglitazone may be, at least in part, due to an interaction with the spinal pro-inflammatory cytokines.
Introduction

Cancer pain control continues to be an unsolved problem of modern oncology that affects millions of cancer patients.

Aims

1. To determine the frequency of cancer pain greater than NRS ≥ 4/10 among hospitalized cancer patients in Palliative care department.

2. To evaluate the influence of sociodemographic factors on pain experience.

3. To assess prevalence of inadequate pain treatment using Pain Management Index (PMI).

Materials and Methods


Results

We examined 3048 medical records. Pain NRS > 4/10 at admission was recorded in files of 2,213 patients. The mean pain intensity was NRS=6.196/10. 42.0% of head and neck cancer patients experience pain >7/10 as did 47.9% of those with bone metastases. Patients with poor performance status experienced more often, more severe pain R= 0.316, p<0.001. Analysis reveal that 987(32.4%) patients had no pain treatment at admission, 341(11.2%) had only NSAIDS, II-step opioids 892(29.3%) and III-step 828. Negative PMI was scored in 780 (25.6%) PMI (-3) 11 ; PMI (-2) in 204 and PMI (-1) in 565 patients.

Conclusion

Moderate to severe pain is frequent symptom experienced by more than 2/3 of the advanced cancer patients. Almost ¼ of patients had inadequate pain treatment. Some of demographic factors may predict poor pain control. Younger, unemployed, poor educated male patients often experience more severe pain. PMI was negative more often in women, patients < 50y.o those with lower education and in farm workers.
RANDOMIZED CONTROLLED TRIAL OF SUBANESTHETIC INTRAVENOUS KETAMINE INFUSION IN CONJUNCTION WITH CONTINUOUS EPIDURAL INFUSION FOR TREATMENT OF REFRACTORY CRPS.

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Background and Aim: Ketamine treatment for complex regional pain syndrome (CRPS) is an increasingly widespread practice, supported by a sparse body of evidence. The optimal dose, timing, and potential for durable benefit due to ketamine infusion therapy are unknown. The aim of our study was to determine whether a 5-day inpatient ketamine infusion followed by three half day infusions at one month intervals resulted in superior pain relief in ketamine treated patients as opposed to placebo treated patients over six months following treatment.

Methods: After screening, subjects were admitted for the 5-day inpatient infusion. On admission, an epidural catheter was placed and both placebo and ketamine groups were treated with inpatient physical therapy and epidural infusion during the 5-day inpatient phase. Subjects then returned at weeks 4, 8, and 12 for half-day booster infusions.

Results: The study was terminated due to under-enrollment. Over the first year, we assessed 173 patients for eligibility, identifying 16 candidates for the study of whom 3 agreed to proceed with randomization. During the inpatient phase, all subjects experienced reduction in NRS while treated with epidural infusion. One remaining subject still needs to complete the final study visit; therefore, we plan to present available data from the three randomized subjects after August 2015 unblinding.

Conclusion: Inpatient ketamine treatment followed by monthly booster infusions may maintain12 relief in patients treated with outpatient ketamine therapy.
Background and aims

We recently showed that the capsaicin 8% patch is non-inferior to pregabalin for pain relief in a broad range of peripheral neuropathic pain (pNP) conditions. Here we present results from a priori assessment of intensity and area of dynamic mechanical allodynia following capsaicin 8% patch and pregabalin treatment.

Methods

This Phase IV, open-label, 8-week study randomised patients with pNP to a single treatment with capsaicin 8% patch (n=282) or optimised dosing of pregabalin (n=277). At screening, baseline and study end in all patients, dynamic mechanical allodynia was measured using a brush moving along 6–8 radial spokes, beginning in an area with normal sensation, with the boundary of allodynia determined by the brush-evoked pain reported by the patient. Intensity of allodynia was recorded after three rapid brush strokes in 5 seconds.

Results

At baseline in the capsaicin 8% patch and pregabalin groups, mean [SD] intensity of allodynia was 5.9 [2.5] and 5.8 [2.7], respectively; area of allodynia was 205.3 cm² [249.0] and 201.4 cm² [265.4], respectively. From baseline to Week 8/study end, least squares (LS) mean change in intensity of allodynia in the capsaicin and pregabalin groups was -2.6 and -2.0, respectively (LS mean difference [capsaicin–pregabalin] [95% CI]: -0.6 [-0.9, -0.2]); change in area of allodynia was -87.8 cm² and -57.7 cm², respectively (-30.1 cm² [-57.5, -2.7]).

Conclusions

The capsaicin 8% patch was associated with substantially greater reductions in the intensity and area of dynamic mechanical allodynia compared with pregabalin in patients with pNP.
COMBINED TAP AND RECTUS SHEATH BLOCKS IN PEDIATRIC LAPAROSCOPIC SURGERY - A PILOT STUDY

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Background and AIM: To estimate the effect of transversus abdominis plane (TAP) and rectus sheath (RS) blocks in pediatric laparoscopic surgery compared to local anesthesia infiltration at incision sites. METHODS: Patients were randomized to receive ultrasound-guided TAP block + RS block or control.10 patients (1-14 years) were randomly selected and divided in 2 groups: Block group and control group. Blinding was for patients, parents, and nurses assessing the patients at the recovery room and in the ward. All patients were monitored, managed and assessed post operatively by blinded observers. Evaluated outcomes included morphine consumption in the first 24 hours after surgery and post-operative pain scores using visual analogue scale for age of 3-14 years and behavioral observational scales for 1-2 years. Data was examined using Mann-Whitney U test.

RESULTS: There was no difference in pain score or morphine consumption between the 2 groups in the first 24 hours postoperatively. However, there was a positive trend towards a lower intraoperative opioid consumption in TAP + RSB group: median (IQR) of 2.1 (1.5-2.5) mcg iv fentanyl equivalents compared to 3.3 (2-5) in the control group (P = 0.07).

CONCLUSION: TAP + RSB seems to have a clinically important effect in reducing intraoperative opioid consumption. Future studies on a larger scale to confirm the beneficial effects of the TAP + RSB in these patients are warranted and underway at KFSH-RC.

Narcotic Consumption

<table>
<thead>
<tr>
<th></th>
<th>TAP+RS BLOCK</th>
<th>LOCAL INFILTRATION</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>intraoperative fentanyl (µg/kg)</td>
<td>2.1(1.5-2.5)</td>
<td>3.3(2-5)</td>
<td>0.07</td>
</tr>
<tr>
<td>morphine consumption (µg/kg)</td>
<td>258(35-380)</td>
<td>235(30-260)</td>
<td>0.4</td>
</tr>
</tbody>
</table>
THE RELATIONSHIP BETWEEN OROFACIAL PAIN AND ANXIETY ON DENTAL PATIENTS

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Background and Aim: Patients who are about to undergo dental extraction procedure tend to experience anxiety, which can potentially affect the orofacial pain experienced by the patient. The aim of this study is to investigate the relationship between orofacial pain and anxiety on patients who are about to undergo dental extraction.

Method: Three hundred patients (100 males; 200 females) aged 21-45 years old who are about to undergo dental extraction procedure at the Dental Hospital of Faculty of Dentistry, Universitas Padjadjaran, Indonesia that met the Modified Dental Anxiety Score (MDAS) of 10-18 were recruited. For anxiety measurement, all participants were asked to fill the Anxiety subscale of the Depression Anxiety and Stress Scale (DASS) 21. Orofacial pain level was recorded by using Visual Analogue Scale (VAS). The correlation between anxiety and orofacial pain was analyzed by using the Rank Spearman test (α=0.05).

Results: The result showed that 4.5% (n=9) female participants were categorized as severely anxious whilst no male participant fell into this category. As for orofacial pain, it was revealed that 8% (n=8) of the male participants were having severe pain, which was higher compared to female participants that only showed 4.5% (n=9) of participants in this category. The Rank Spearman correlation test showed a significant (p=0.005) positive correlation between anxiety and orofacial pain (r=0.163; d²=0.0256).

Conclusion: The findings of the study suggested that there is a positive significant relationship between anxiety and orofacial pain on patients who are about to undergo dental treatment. Nevertheless, further studies are needed.
CANNABIS USE IN PATIENTS WITH FIBROMYALGIA: EFFECT ON SYMPTOMS RELIEF AND QUALITY OF LIFE

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\textsuperscript{1}Pain Therapy Unit, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy

Introduction: Cannabis-based medications have been a topic of intense study.

Aim: Describe effects of cannabis use and the associated benefits reported by patients with fibromyalgia (FM)

Methods: Patients were psychologically screened prior to the administration and those with psychiatric or personality disorders, history of abuse or dependence for cannabis or others psychoactive substances were excluded. Pain medications, pain intensity (VAS: from 0=no pain, to 100=worst imaginable pain) and QoL using The Fibromyalgia Impact Questionnaire were recorded at baseline (T0), after 3 (T1), 6 (T2) and 12 (T3) months. Cannabis administration was a decoction. The starting dose was 5 mg/daily of THC. Cannabis dosage and adverse effects were recorded during each visit.

Results: 96 patients were treated (mean age 56): 45% were administered 5 mg of THC daily, 36% - 10 mg, 15% 15 mg, 5% - 20 mg. 8% of patients interrupted the therapy, but only 22% of these because of side effects. The remaining 78% interrupted because of therapy inefficacy and excessive cost. However had they continued therapy with higher dosage they probably would have been responders. Pain intensity VAS: T0=76, T1=55, T2=50, T3=48

Assessing the FIQ-I with specific attention to the levels of anxiety, depression, quality of sleep and QoL (using a VAS scale from 0=very low level, to 100=very high level) we found that all levels improved.

Conclusion: In our experience cannabis has proven to be an effective pain treatment in FM patients. However the remarkable advantages were reported in the improvement of moods and sleep quality and as a result QoL.
RETROPERITONEAL HAEMATOMA FOLLOWING BILATERAL POSTERIOR MEDIAL BRANCH BLOCK FOR CHRONIC LOWER BACK PAIN

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Aim
Case report of a 67 year old female, on warfarin, having bilateral posterior medial branch blocks (MBB) of lumbar facet joints L3/4-L5/S1 as a day case for chronic lower back pain.

Method
Pre procedure internationalised normal ratio (INR) was 1.6 (despite stopping warfarin 5 days ago). 24 Hours later, patient presented to accident and emergency with increasing pain in the right thigh and hip. Admitted to the ward for further investigation.

Results
36 hours post procedure, patient showed signs of hypovolaemic shock: haemoglobin level of 56g/l; INR 3.2; White cell count 24; Creatinine 193umol/l and Urea of 32mmol/l. Treated with 10 mg vitamin K and 15 ml/kg fresh frozen plasma intravenously. Transfusion of 6 units of blood was given to treat the hypovolaemia. A computerised tomography (CT) scan, showed a large right sided retroperitoneal haematoma extending down the right hemi pelvis, anterior to the iliopsoas muscle. The warfarin was restarted again several days after her admission but it precipitated a further bleed and she required a further 5 units of blood. Subsequently developed a right femoral mononeuropathy. Proactive management with an inferior vena cava (IVC) filter was initiated to avoid the need for further anticoagulation

Conclusion
This case report highlights the management difficulties of patients on anticoagulants presenting for interventional pain procedures and the possible complications they can experience [1]. Retroperitoneal haemorrhage is a rare clinical entity which requires a high index of clinical suspicion. If treated inappropriately, retroperitoneal bleeding is associated with high morbidity and mortality.
EFIC5-1213
LATE-BREAKING POSTER SESSION II

THE TREATMENT OF CHRONIC NON CANCER PAIN SHOWS VARIABILITY AMONG DIFFERENT AGE GROUPS
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¹Pain Management, Ashford and St Peters NHS Trust, London, United Kingdom

Aim

An important goal of analgesic therapy for chronic pain is to provide sustained analgesia.

Use of pharmacological options should be based on the analgesic ladder developed by the World Health Organisation (WHO).

Method

Audited 30 chronic non-cancer patients of varying ages attending a district general hospital pain clinic.

<table>
<thead>
<tr>
<th>Number of patients seen</th>
<th>18-25 years</th>
<th>35-59 years</th>
<th>&gt;60year</th>
</tr>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66% female</td>
<td>6</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>&gt;12 Months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Site of pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower back</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspect of life affected[1]</td>
<td>I = F = S</td>
<td>F = W &gt; S &gt;&gt; I</td>
<td>F = S &gt; W &gt;&gt;</td>
</tr>
<tr>
<td>Severity of Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 % Severe</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

WHO analgesia ladder assess what medication each group were taking:
1: Paracetamol 83% 66% 75%
2: NSAIDS
   Ibuprofen 50% 50% 8%
   3: Weak opioid
   Codeine 0% 41% 25%
   4: Strong opioid[2]
   Tramadol 50% 50% 8%
   Oxycodone 0% 16% 25%
   Morphine 0% 16% 25%
   Buprenorphine 0% 0% 33%
5: Adjuvants
   Antidepressant 16% 33% 8%
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<th></th>
<th>%</th>
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<th>%</th>
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<tbody>
<tr>
<td><strong>Anticonvulsants</strong></td>
<td>50%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>Non-opioid drug complications/side effects explained by prescribing physician</td>
<td>100%</td>
<td>83%</td>
<td>66%</td>
</tr>
<tr>
<td>Opioid drug complications/side effects explained by prescribing physician</td>
<td>100%</td>
<td>66%</td>
<td>36%</td>
</tr>
<tr>
<td>Patient awareness of the dose and timing of their pain medication</td>
<td>100%</td>
<td>83%</td>
<td>75%</td>
</tr>
<tr>
<td>Patient Compliance with taking their pain medication</td>
<td>100%</td>
<td>66%</td>
<td>25%</td>
</tr>
</tbody>
</table>

[1] I = Intimacy; F = Family; S = Social; W = Work

**Conclusion**

Treatment varies among the different age groups. Compliance an issue in the elderly population.
EFFECTIVENESS OF THERAPEUTIC LUMBAR FACET JOINT INTERVENTIONS DONE UNDER LOCAL SKIN ANALGESIA WITH NO PATIENT SEDATION

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Aim
Assess the Clinical effectiveness of lumbar Posterior Medial Branch Blocks (MBB) and Radiofrequency Ablation (RFA) procedures in treatment of patients with chronic low back pain done in Day Surgery Unit (DSU).

Method
Collected data on type of block performed, analgesia requirement, DSU experience, and measured the impact of the procedure on their Health state using the EuroQol 5D-3L Questionnaire.

Results
32 patients included in the study, all followed up telephonically 48 Hours later with the EuroQol(5D-3L) Questionnaire.

<table>
<thead>
<tr>
<th></th>
<th>Medial Branch Block</th>
<th>Radiofrequency Ablation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases included</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>NHS waiting time</td>
<td>69% waited &lt; 6 weeks</td>
<td>60% waited &lt; 12 weeks</td>
</tr>
<tr>
<td>DSU waiting time before procedure</td>
<td>81 % done within 90min arrival</td>
<td>80 % done within 90 min arrival</td>
</tr>
<tr>
<td>Normal analgesia taken before DSU arrival</td>
<td>62 % yes</td>
<td>70 % yes</td>
</tr>
<tr>
<td>Patient reported procedure painful</td>
<td>37% Yes</td>
<td>30 % Yes</td>
</tr>
<tr>
<td>Needed Analgesia in Recovery</td>
<td>13 % Yes</td>
<td>10 % Yes</td>
</tr>
<tr>
<td>Assess impact of procedure on their Health state(EuroQol 5D-3LScore)</td>
<td>81% improvement</td>
<td>80% improvement</td>
</tr>
<tr>
<td>Procedure make their pain worse</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Overall DSU Experience</td>
<td>Satisfied</td>
<td>Satisfied</td>
</tr>
<tr>
<td>Have procedure done under local again.</td>
<td>87% Yes</td>
<td>70 % Yes</td>
</tr>
<tr>
<td>Recommend the DSU to family and friends</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Conclusion
Both FJI and RFA reduce pain severity and improve quality of life in short term follow up while done under local skin analgesia[1].
JUDICIAL DECISION FOR UNRESTRICTED SUPPLY OF PETHIDINE HYDROCHLORIDE TO PATIENT WITH CHRONIC LOW BACK PAIN

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²Law, Universidade Federal do Tocantins, Palmas, Brazil

Background and aims: The Pethidine hydrochloride opioid synthetic morphine-like analgesic is widely used in Brazil. It has principal action in the central nervous system (CNS) being used in the management of acute and chronic pain. Can lead to tolerance, mental and physical dependence, withdrawal and abuse.

Methods: Patient JJ, 44, male, with trauma in lumbar spine and was subjected to right hemilaminectomy in L5-S1, with the diagnosis of chronic refractory pain and use of pain medication. Presents medical report describing 23 visits to hospital for use of analgesic medications, among them the "venous Dolantina" prescribed by doctor twice a day. Its lack of financial condition to afford privately with continuous spending, he sought a lawyer and filed a lawsuit: "Obligation to afford the medication with moral damages and request early relief" against the health insurance.

Results: The judge granted the request for early relief by issuing mandate that guarantees repayment of the medication, so that the patient continues to use so far.

Conclusions: Despite the analgesic effect, the use of single or repeated dose of Pethidine Hydrochloride may lead to physical dependence, psychological and tolerance in patients. For this reason, many educational and intervention studies have been developed by IASP to replace the use of this drug for other pain medications. Furthermore, the exclusion of this drug in the drug list prohibited by government allows decisions such as that described that support addiction legally.
Chronic pain during adolescence can affect his ability to be autonomous, and the development of his own values and norms. The existing literature suggests the influence of family factors such as, fears and avoidance of pain (FOP), parental protectiveness and psychological flexibility (PF) on functional disability. However, little attention has been given to developmental aspects in adolescents who suffer from chronic pain. Those developmental aspects are strongly related to family factors which influence functional outcomes.

The purpose of the present study is to investigate the relation between adolescents’ and parents’ PF and FOP and adolescent autonomy.

Approximately 100 patients referred to pain centers will complete measures of autonomy, acceptance of pain, FOP and functional disability.

Adolescents’ Parents will complete the measures of autonomy support, parent FOP and PF.

Focus groups with adolescents will be conducted to discuss their feeling of autonomy.

Focus groups with parents will take place to investigate their fears and acceptance concerning their children’s pain and its impact on the family functioning.

We believe that autonomy will be influenced by fears and flexibility. This will be explored on both parental and adolescent levels.

These data can help in our understanding of the influence of adolescent autonomy on chronic pain. Moreover, we will attempt to show how parental and adolescent fears and flexibility influence the management of pain. Clinical applications of this thesis include providing clinicians with concrete tools to help improve their patient’s functional outcomes, and assisting adolescents in finding their autonomy despite their pain.
LEARNING TO FEAR PAIN AFTER OBSERVING ANOTHER’S PAIN: AN EXPERIMENTAL STUDY IN SCHOOLCHILDREN

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²Experimental and Applied Psychology, Vrije Universiteit Brussel, Brussels, Belgium
³Psychology, University of Essex, Colchester, United Kingdom

Background and aims: Evidence suggests that pain problems tend to run in families. However, the contribution of psychological processes herein remains largely unexplored. According to the fear-avoidance model, pain-related fear (PRF) is related to the development of chronic pain in adults as well as children. Therefore, we investigated the effects of observing parental pain on the development of PRF in children.

Methods: Thirty children (13 boys, M_age = 9.4) and their mother (M_age = 42.0) (both pain-free) participated in the study. Children first observed a model (own mother or unknown woman) performing two colored cold pressor tasks (CPT; colored water held at 10°C). In a differential conditioning paradigm one color was linked to painful facial expressions of the model (CS+) and the second to neutral facial expressions (CS-). Subsequently, children immersed their hand in both CPTs themselves (counterbalanced order).

Results: Repeated measures ANOVA revealed that children’s ratings of the model’s pain were significantly higher for the CS+ than the CS-. Furthermore, after the observational phase children expected more pain and expressed more PRF for the CS+ compared to the CS-. They were also more hesitant to immerse the CS+ than the CS-. After immersing the CPTs, the differences between CS+ and CS- were no longer present. Unexpectedly, all effects were the same in both experimental groups.

Conclusions: The results indicate that children can acquire PRF through observational learning and as a consequence become more sensitive to develop pain problems. Furthermore, the findings suggest that exposure therapy can help reducing PRF.
THE SEARCH FOR NEW HIGHLY ACTIVE SUBSTANCES FOR LOCAL ANESTHESIA

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The purpose of the study. Identify the active substances for local anesthesia among the newly of synthesized derivatives piperidine under conduction anesthesia and acute toxicity.

Materials and methods. Experimental study of the activity of the compounds (a laboratory code LAS-175, LAS-180, LAS-182, LAS-183, LAS 184 conducted using tail flick on white rats. Define: duration of complete anesthesia, the total duration of action in comparison with the standard drugs (trimekain, lidocaine, novocaine). The acute toxicity of the compounds was studied when administered subcutaneously to outbred white mice.

Results. The duration of complete anesthesia compounds LAS175 trimekain is superior to 1.7 times, lidocaine - 1.3 times, novocaine - 2.3 times. Relatively well proven LAS-183, LAS 184, with moderate degree was LAS-180, low-LAS182. So, when comparing a: trimekain LAS 183, LAS 184 - they exceed it; lidocaine - everything except LAS-175, inferior to it; with novocaine LAS-183, LAS 184 exceeds its. The compound LAS-180 inferior to novocaine.

The total duration of action LAS-175 statistically significantly exceeds that of the tested compounds and the reference drugs. When compared with trimekain, MAP 183, MAP-184, MAP 180 exceeded and MAV-182 inferior to trimekain. When compared with lidocaine all compounds except LAS 175, inferior to it. When compared with novocaine LAS-183, LAS 184, LAS-180 exceeded the the action novocaine, and the LAS-182 were equal to novocaine. All the compounds tested have shown less toxicity than trimekain, lidocaine and novocaine.

Conclusions. Of all the most active compounds showed itself LAS175, which is of interest for further research.
EFICS-1224
LATE-BREAKING POSTER SESSION II

THE IMPACT OF BODY MASS INDEX ON CHRONIC PAIN
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²European League Against Pain, European League Against Pain, Zurich, Switzerland
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⁵Internal Medicine Rheumatology and Pain Therapy, University Study of Perugia, Terni, Italy

Background and aims. Several studies have suggested an association between obesity and chronic pain (CP). Our aims was to investigate the association of BMI and CP.

Methods. A face-to-face survey has been conducted. The assessment of CP was examined by VAS, and individuals were surveyed regarding height, weight, lifestyle, general health, and pain localization. Standard chi-square test was used for exploratory analyses. To predict the probability and characteristics of CP, multivariate logistic regression analysis was performed. To account a possible departure from linearity BMI was included in the model using a natural cubic spline with one internal knot. R statistical software (www.r-project.org) was used in data analysis. Statistical significance for all outcomes was set at p < 0.05.

Results. A total of 425 individuals were enrolled (response rate 85%). CP affected 35% of individuals and was associated with increasing BMI level (p=0.021). The risk of suffering from a severe CP, at increasing BMI, was higher in females (p=0.014). In the logistic regression model adjusting for age, sex, and diabetes the effect of BMI was found to be significant (p<0.001) and a possible departure from linearity was detected (p=0.060). To account for this nonlinearity, BMI was included in the model using a natural cubic spline with one internal knot. Results are displayed below.

Conclusions. Body mass Index should be considered a marker of risk of CP, independently of the diagnosis of obesity. The risk of CP should be considered increasing also in overweight individuals.
SAFETY, TOLERABILITY AND SENSORY FUNCTION FOLLOWING CAPSAICIN 8% PATCH (QUTENZATM) REPEAT TREATMENT IN PERIPHERAL NEUROPATHIC PAIN: STRIDE STUDY

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²Pain Department, Chelsea & Westminster NHS Foundation Trust, London, United Kingdom
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⁴Department of Neurology, General Hospital Fürth, Furth, Germany
⁵Astellas Pharma Global Development, General Hospital Fürth, Leiden, Netherlands
⁶Pain Department, Centre Stéphanois de la douleur, Saint Etienne, France
⁷Global Development, Astellas Pharma, Leiden, Netherlands
⁸Centre d'évaluation et de Traitement de la Douleur and INSERM U 987, Hôpital Ambroise Paré, Boulogne-Billancourt, France

Background and aims
STRIDE assessed the long-term safety of repeat treatment with the capsaicin 8% patch in a broad range of peripheral neuropathic pain (pNP) conditions.

Methods
This open-label, 52-week, observational study enrolled patients with an average daily pain score ≥4 and naive to the capsaicin 8% patch. At up to six treatment visits (9–12 week intervals), 1–4 patches were applied for 60 min (30 min for feet). The primary endpoint was safety and tolerability. Sensory testing was designed to assess change in function (loss or gain) and ‘bedside tests’ of light brush, pinprick, vibration, warm and cold were performed within the application area before and after capsaicin treatment.

Results
In total, 306 patients with average daily pain score 6.6 [SD 1.43] received treatment (post-herpetic neuralgia, n=107; post-traumatic nerve injury, n=99; HIV-DSPN, n=80; other pNP, n=20). Overall, 130 patients (42.5%) discontinued; 3 (1.0%) discontinued due to drug-related treatment-emergent adverse events (TEAEs); 252 patients (82.4%) reported a TEAE and 207 (67.6%) reported a drug-related TEAE (84 [27.5%] mild; 82 [26.8%] moderate; 41 [13.4%] severe). The majority of drug-related TEAEs were transient application site reactions. Three deaths unrelated to treatment occurred. Sensory testing demonstrated no appreciable reduction of function and fewer patients by EoS reported ‘paraesthetic/dysaesthetic’ or ‘painful’ sensation from light brush (-7.8%, -6.9%), pinprick (-8.1%, -1.0%), warm (-4.0%, -6.4%) and cold (-2.6%, -2.0%) within the application area.

Conclusions
Capsaicin 8% patch repeat treatment over 52 weeks was well tolerated and did not result in detrimental change in sensory function.
WHAT DO JAPANESE NURSES NEED TO FACILITATE PAIN MANAGEMENT FOR OLDER RESIDENTS?

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²Department of Medicine School of health science and nursing, The University of Tokyo, Bunkyo-Ku, Japan

Background. The proportion of older adults in Japanese is 26.0% in 2015, and estimates it’s increasing. Pain among residents in long-term care facilities and the difficulties provide tailored care for this population have been reported. This study aims to examine pain management strategies among nurses for the residents and factors associated to the strategies.

Methods. A cross-sectional descriptive design was used. The sample comprised nurses across 750 long-term care facilities in four Japanese prefectures. The nursing managers at the facilities were requested to choose one full-time nurse and to hand out questionnaires. The questionnaires sought to obtain estimation of pain prevalence among residents, the nurses’ perceptions regarding pain care, implementation of pain management strategies for residents during the previous month. This study was approved by the ethical committee of Gunma University.

Results. A total of 144 (19.2%) questionnaire were returned. The mean [SD] number of residents at the participants’ wards and estimated pain prevalence were 48.5 [22.0] residents and 21.0% [22.1] respectively. The nurses who utilized the strategies to their residents’ pain, for example administration of Acetaminophen, and close observation of side-effects of NSAIDs, were used only by 53 (36.8%) or 81 (56.3%) nurses for a previous month respectively. Although pain care manuals were found at 13 facilities, it was influenced to facilitate to utilize those strategies.

Conclusions. Pain care manuals were possibly needed to facilitate pain care for nurses. We have just developed a pain care manual and put them on the website. We will also introduce it.
THE DARK-SIDE OF FOLLOWING PAIN AVOIDANCE RULES
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¹Department of Experimental-Clinical and Health Psychology Ghent Health psychology lab, Ghent University, Ghent, Belgium

Introduction: Rule-following can prevent us from contacting important changes in the way the world is organized. This consequence of rule-following has been labelled the insensitivity effect and has been thought to be moderated by the type of rule-governed behaviour (i.e. pliance, tracking or augmenting) involved and to be an important feature of psychopathology and health-related problems such as chronic pain. However, research in this area is limited and inconsistent. Therefore, the aim of this study is to investigate the insensitivity effect as a function of pliance and tracking in the context of experimentally induced pain.

Method: 60 healthy participants were randomly allocated to the pliance, tracking or comparison condition. Participants completed a conditional discrimination task consisting of two halves. In the first half, correct stimulus selections led to avoidance of electrocutaneous stimuli. In the second half of the task, however, the previously correct stimulus selections were no longer adequate for avoiding the electrocutaneous stimuli.

Results: The results indicate an insensitivity effect in both the tracking and pliance condition, which was significantly larger in the latter.

Conclusions: Once people have had successful experiences with following socially delivered pain avoidance rules, they tend to persist in adhering to these rules even when doing so may be disadvantageous. This tendency to follow ineffective pain avoidance rules seems to be even stronger if social contingencies are in effect such as in the pliance condition.
IMPACT OF ATTACHMENT STYLE ON PAIN INTENSITY, DEPRESSION AND ANXIETY IN THE THERAPEUTIC TREATMENT PROCESS OF CHRONIC PAIN PATIENTS

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¹Department of Orthopedics Trauma Surgery and Paraplegiology
Outpatient Multidisciplinary Pain Clinic, University Hospital Heidelberg, Heidelberg, Germany

Background. Insecure attachment patterns are related to the onset and development of chronic pain. However, differential short- and long-term effects of pain therapy on patients with different attachment styles are less well documented. Insecurely attached patients seem to benefit from multimodal pain programs in terms in pain intensity and depression. However, it is not clear if they can maintain long-term positive effects in the same way as securely attached patients can.

Methods. Pain intensity and emotional distress (depression, anxiety) before (T1) and after (T2) participation in a 4-week multimodal pain therapy and at a 6-months follow-up (T3) was assessed of n=85/76/67 patients with medically unexplained musculoskeletal pain. All patients completed additional measures of attachment style and attachment dimensions (only at T1).

Findings. Right after treatment (T2), all patients regardless of their attachment style report a significant reduction in pain intensity compared to T1. Over the next six months, pain intensity further declines only for securely attached chronic pain patients, while for the insecurely attached patients the pain intensity goes up again. Insecurely attached patients showed significantly higher scores of anxiety and depression throughout the treatment process. Both global and romantic attachment anxiety predicted depression.

Conclusions. Results indicate insecure attachment patterns seem to be associated with pain intensity and pain-related depression. Moreover, insecurely attached patients seem to be less able to maintain positive treatment results over longer time periods compared to securely attached patients. Therefore, an attachment-oriented approach might help to enhance the sustainability of treatment effects for all pain patients.
EFIC5-1248
LATE-BREAKING POSTER SESSION II

PAIN PORTRAIT: A WAY TO UNDERSTAND THE INDIVIDUAL AND ITS RELATIONSHIP WITH THE PAIN THAT THEY FEEL

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Background and Aims: The literature identifies factors that influence pain conditions and it is important to understand the meaning of pain for each patient. This study aims to present a projective instrument of psychological evaluation.

Method: A descriptive study was conducted with 150 patients with chronic pain receiving treatment in the School Hospital. The participants were evaluated according to variables: sociodemographic; related to pain; and beliefs and expectations concerning the treatment (Pain Portrait).

Results: The sample was composed mostly of women (56.76%), the conviviality time with the pain was ≅ 95 months and the VAS ≅ 6.8. The analysis allowed to classify them into: scenes, monsters, objects, geometric shapes, irregular shapes and doodles and body parts. Around 67% named the pain with words in both physical and emotional sense. In relation to sense of pain, 56.75% attributed negative feelings; 28.37% associated to some physical experience. When describing the conviviality with the pain 52.70% reported as an unpleasant experience; 16.21% said they have got used to the pain. When they asked to associate their pain to other situations worse than living with chronic pain: 49.99% related the pain to other emotional events, 27.02% to physical impact and 22.97% defined the pain as the worst event.

Conclusions: There are few information about the use of projective instruments in studies of evaluation and treatment of chronic pain. The results showed that the Pain Portrait helps the patient to express their suffering and recognize the influence of psychological factors on pain perception.
Background and aims: The British Pain Society Pathway Group recommends lumbar joint radiofrequency denervation for selected group of patients. Different trials and retrospective evaluations show strong evidence for short term relief and moderate evidence for long-term relief from facet joint pain. To determine the effect of radiofrequency denervation of the lumbar facet joints for relief of chronic low back pain a prospective audit was carried out over a period of one year.

Methods: All patients (n= 66) with low back pain of >6 months duration with or without non-radicular radiation to the buttock, hip, and leg were included. Eligible patients underwent standardised diagnostic work-up, a self-reported pain questionnaire, physical examination, review of imaging studies and diagnostic blockades. Those with an appropriate response to single or double diagnostic blocks underwent standardised radiofrequency denervation of the lumbar zygapophysial joints. Patients were asked to estimate total perceived pain reduction on a scale 0%-100% (> 80% excellent, 50%-80% good, <50% acceptable) 6 to 8 weeks after the procedure over telephone.

Results: 56 patients (84%) participated as the remaining patients could not be contacted. In terms of pain relief outcome, 14 patients (25%) were excellent, 13 (23%) were good and 10 (18%) were acceptable and in 19 patients (34%) there was no relief.

Conclusion: Radiofrequency denervation of the lumbar zygapophysial joints provides excellent to acceptable pain relief in 66% of patients for 6-8 weeks. We are going to re-audit to assess long term pain relief at 6 and 12 months following the procedure.
CHRONIC PAIN SYNDROME AND FIBROMYALGIA AND VITAMIN D DEFICIENCY: PRIMARY CONNECTION IS FOUND
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Objectives. Patients with Chronic Pain Syndrome (CPS) and/or Fibromyalgia (F) suffer from persistent devastating uncontrolled widespread pain and are extremely low manageable with current therapeutic methods. None of existing theories completely describe the mechanisms of CPS or F development.

Material and Methods. 924 patients (600 female and 324 male; aged 27-78, mean 51 yrs old), with CPS or F criteria underwent standard blood examination on Vitamin D Deficiency, Thyroid Dysfunction, Homocysteine, Diabetes and Anemia.

Results. Only 3 patients out of 924 were found in lower normal range of Vitamin D (0.3%), while the wast majority of patients has low count of Vitamin D (11-20 ng/ml) or Severely Deficient (0-10 ng/ml), in numbers: 361 patients (39.1%) and 560 (60.6%) respectively. The number of patients with thyroid dysfunction was 303 (or 32.7%), high levels of homocysteine were found in 123 patients (13.3%), Diabetes was found in 185 patients (20%), and only 24 patients had low count in hemoglobin/hematocrit (or 2.6%).

Discussion. Severe deficit of Vitamin D was an outstanding finding in Armenia, considered with annually 333 sunny days. Another investigation in healthy controls (100 person) found Vitamin D deficiency (lower than 20 ng/ml) only in 24 (24%) patients.

Conclusion. 99% of patients with CPS and/or F had severe Vitamin D deficiency, which was found to be solely common finding in all of patients. Additional supplementation with Vitamin D in according dosage was effective in all patients who benefits of lowering of pain level and improvement of the quality of life.
IS NUMBER SENSE IMPAIRED IN CHRONIC PAIN PATIENTS?
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²Department of Medicine, Imperial College London Chelsea and Westminster Hospital Campus, London, United Kingdom
³Pain Medicine, Chelsea and Westminster Hospital Campus, London, United Kingdom

Background and aims
Recent advances in imaging have improved our understanding of the role of the brain in painful conditions. Discoveries of morphological changes have been made in patients with chronic pain, with little known about the functional consequences when they occur in areas associated with ‘number-sense’; thus, it can be hypothesised that chronic pain impairs this sense.

Methods
First, an audit of the use of numbers in gold-standard pain assessment tools in patients with acute and chronic pain was undertaken. Secondly, experiments were conducted with patients with acute and chronic pain and healthy controls. Participants marked positions of numbers on lines, before naming numbers on pre-marked lines. Finally, subjects bisected lines flanked with ‘2’ and ‘9’. Deviations from expected responses (MADER) were recorded.

Results
Four hundred and ninety-four patients were audited; numeric scores in the ‘moderate’ and ‘severe’ pain categories were significantly higher in chronic compared with acute pain patients.
In experiments more than one-third of chronic pain patients compared with 1/10th of controls showed greater deviations from the expected in number marking and naming, indicating impaired number sense.

Line bisection experiments suggest prefrontal and parietal cortical dysfunction as cause of this impairment.

Conclusions

Audit data suggest patients with chronic pain interpret numbers differently from acute pain sufferers. Support is gained by experiments indicating impaired number sense in one-third of chronic pain patients. These results cast doubts on the appropriateness of the use of visual analogue and numeric rating scales in chronic pain in clinics and research.
EFIC5-1255
LATE-BREAKING POSTER SESSION II

PRESENTATION OF AN INTERESTING CASE (CASE REPORT) : PATIENT WITH EAGLE SYNDROME
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P. ARAMPATZIS¹
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Introduction: Eagle syndrome is a disease caused by elongation of styloid apophysis or calcification of stylohyoid ligament, causing variety of symptoms such as pharyngeal or cervical pain, difficulty swallowing, difficulty talking, but mostly pain on turning the head and unilateral glossodynia.

Brief history: Female, 44, came to pain clinic, claiming pain in the anterior and posterior cervical territory, keloid sore, throat pain, difficulty swallowing and glossodynia. From her medical history resulted an operation for disc herniation at the cervical spine and early tonsillectomy.

Treatment: Since usual anti-inflammatory analgesic treatment has been used in the past with no improvement, the decision to infiltrate the painful spots (locus dolenti) with local anesthetic was taken. The patient is relieved slightly. In the next session, infiltration was performed to the minor and major occipital nerve, which gives a temporary relief to the patient. In the next four sessions, lasting one month, a re-infiltration of painful points is done. Then, due to the persistence of the symptoms, the patient was referred for CT and monitoring by ENT.

Results: The 3D CT revealed the left styloid apophysis to be 4,5 cm, (normal range <2,5 cm). The reference at a university ENT clinic with a possible diagnosis of Eagle’s syndrome led to the intervention of the patient by peroral access and definitive remission of her symptoms.

Conclusion: Accurate history taking, careful examination of the patient and conducting of 3D CT which was pathognomonic led to the proper management of the case leading to a good outcome of the patient.
Background and aims. Trigeminal neuralgia (TN) and trigeminal neuropathic pain (TNP) often do not respond satisfactorily to current pharmacological and invasive treatments, which are burdened by many side effects and drop-outs. 5% lidocaine medicated plaster (LMP) is first-choice treatment for localized neuropathic pain, but it has seldom been tested in TN and TNP. We examined the efficacy to LPM in patients with TN and TNP and tried to derive response predictors.

Methods. We report 18 patients (67 ± 14.3 years, 6 males) with TN (primary: n = 10, secondary: n = 3) or TNP (n = 5), who were treated with LMP as add-on treatment (n= 14) or switched from previous therapy to LMP (n = 4). 0–10 NRS was 6.5 ± 1.8 for baseline pain and 8.9 ± 0.8 for shock-like pain. Response to LMP was defined as reduction of both baseline and shock-like pain NRS by ≥50%.

Results. LMP treatment lasted 3.9 ± 3.5 months. LMP was kept on the painful area for 12 hours a day in 13 patients, for up to 16 in one, for up to 18 in three, and for up to 24 hours in one patient. Half of the patients (n = 9) were classified as responders. Response was more common in primary TN and in patients with short-lasting pain. No side effects were reported.

Conclusions. LMP may be an effective and well-tolerated option for primary TN and for patients with short-lasting pain. Future randomized controlled studies should better address this issue.
EFIC5-1258
LATE-BREAKING POSTER SESSION II

TRANSVERSAL SINUS THROMBOSIS IN PATIENT WITH ATYPICAL PROSOPALGIA
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2Neurology Department, General Hospital of Volos, Volos, Greece
3Biochemistry Department, University of Thessalia, Larisa, Greece

Introduction

Venous sinuses thrombosis of brain is an acute condition. The onset of symptoms varies.

History

Female, smoker, admitted to E.R., claiming prosopalgia, with reflection at the neck. Accompanying were reported instability standing and walking. Tooth extraction was performed 10 days ago. Fever has not been reported.

Clinically-Laboratory findings

A neurological assessment showed rigidity of the neck only. Because of suspicion of CNS infection, we asked for emergency CT to perform a lumbar puncture. The CT scan showed hyperdense display along the anatomic region of the right transverse sinus. Then an MRI angiography was done of intracranial vessels, confirmed the thrombosis. Serum has been sent immediately for immunological and thrombophilia. All of above control, proved negative for any systematic disease, except mild pleocytosis with polymorphonuclear type and marginally increased CRP.

Treatment

Patient was placed directly on anticoagulant therapy. There were added ceftriaxone, Vancomycin and hydration. Paracetamol did not relieve the patient, so amitriptylline was added. Over time, and despite the improvement of imaging findings and drope of inflammatory markers, the patient still complains for floating character pain. She was referred to the pain clinic and treated with gabapentin.

Result

After 48 hours, the pain began to remits. The patient is now symptom free, fully functional, having return to work and daily activities.

Conclusions-Discussion

Venous sinuses thrombosis of the brain is a neurological emergency entity, which must not go undetected by the neurologist's diagnostic assessment. A proper history, gaining valuable time especially when it concerns emergency situations, such as brain vascular thrombosis.
Background and aims.

At the pain Treatment Service at Astrid Lindgren Children’s hospital we have had a special interest in CRPS since the start of the unit 1984. The aim of this study was to describe treatment and outcome of all cases diagnosed with CRPS-1.

Methods.

A retrospective case record,

Results.

During the period 1984 to 2014 347 children was referred to the unit receiving the diagnosis CRPS. 85% were female and ages were 8-18 years.

Treatment: A behavior medicine approach with the aim to increase physical activity in spite of the presence of pain was a mainstay in the therapy. Sympathetic block was performed in 254 cases. Drugs were not used except for amitriptyline in a few cases.

In 13 severe cases spinal cord stimulation (SCS) was performed and in one boy continuous intrathecal baclofen was administrated.

Since 2001 the basis of our therapy is a modern model of CBT based on acceptance and exposure to previously avoided activities (Acceptance and Commitment Therapy).

Approximately 22% of the cases reassurance and physical therapy led to restored function and disappearance of pain. In the 244 cases given a sympathetic block approximately 50% became painfree. Reoccurrence rate was 15%. SCS was mostly effective. The effect of amitriptyline was doubtful.

Conclusions

CRPS-1 is not very uncommon in children and has some different characteristics compared to what is seen in adults. The basis of treatment is modern model of cognitive behavior therapy. Sympathetic block was effective in 50%.
BACKGROUND AND AIMS

Epidural Fibrosis or “adhesions” may formed spontaneously or after back surgery and is observed in various mixed low back pain syndromes: Annular rupture disk, herniated intervertebral disks, Hematoma, Infection, intrathecal injection of contrast agent, Post-laminectomy syndrome, etc. Neural fibrosis, is an important generator of recurrent spinal pain. Percutaneous epidural adhesiolysis (PEA) has been described as an alternative to reduce this epidural fibrosis in 70% of cases, it may be combined with a transformaminal advance of a second Racz catheter at the herniated level for adhesiolysis. The aim of the study is to demonstrate the efficacy of PEA in relieving lumbar radicular pain, comparing caudal approach alone Vrs. combined with Transformaminal approach.

METHODS. Prospective study, randomized 50 patients scheduled for PEA, G1 n=25 with caudal approach alone and G2 n=25 patients Transforaminal plus caudal approach. We included patients with lumbar radicular pain diagnosed with: disc protrusions or herniated disks. Pain relief was recorded in followed up assessments during a year, improved VAS, functionality and complications.

RESULTS: Significant improvement in VAS and functionality for both groups at the end of the procedure and posterior 1, 3, 6, 12 months assessment G1=70%, G2=78% but more sustained pain relief at 12 months assessments in G2 (89% Vrs 80%); mild complications reported.

CONCLUSIONS: PEA is an effective alternative for lumbar radicular pain relief. Combined Transformaminal + caudal results in more sustained pain relief compare with caudal approach alone in patients with herniated disks and epidural fibrosis, surgery related or not.
AN EVALUATION OF THE PAIN INTERFERENCE INDEX AND ANALYSES OF THE RELATION BETWEEN DEMOGRAPHIC, PAIN, AND FUNCTIONING IN PAEDIATRIC CHRONIC PAIN

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Background and aims

Pediatric chronic pain is a major health problem commonly associated with disability. Knowledge regarding the complex interplay between demographic variables such as age and gender, pain, and functioning in pediatric chronic pain is sparse. Also, there is a need for instruments that assess the impact of pain on functioning, i.e. pain interference.

The aims were: 1. to evaluate the statistical properties of the Pain Interference Index (PII), 2. To assess demographics, pain and functioning in children and adolescents with chronic pain and to investigate the relationships between these variables, 3. to explore the mediating function of pain interference in the relationship between pain and depression.

Method

The study includes a consecutive sample of children and adolescents referred to a tertiary pain clinic due to chronic pain (n=166). Cross-sectional data was analysed to evaluate the statistical properties of the PII and to investigate the interrelationships between variables. Analyses of indirect effects were used to assess the impact of pain interference on the relation between pain and depression.

Results

PII showed satisfactory statistical properties. Findings illustrate high levels of depression, school absence and pain interference in this sample. Furthermore, pain interference mediated the relationship between pain and depression.

Conclusion

Results support the use of the PII when assessing pain interference in children and adolescents with chronic pain and implies the need for routine assessment of depression in youths with longstanding pain. Pain interference as a key factor in the relationship between pain and depression needs to be further evaluated.
BACKGROUND AND AIMS
Opioids are widely prescribed for the treatment of chronic pain with increasing numbers of patients undergoing surgery taking large doses of opioids preoperatively. For these patients with opioid intolerance, adherence to standard postoperative analgesic regimens may result in unrelieved pain and/or an opioid withdrawal reaction. This is also a significant issue for medical inpatients who are nil by mouth or have abnormal absorptive states. Despite its importance, knowledge of adequate opioid prescribing is often poorly taught to junior doctors. This confusion is further exacerbated by the variety of conversion rates available. The aim of this project was to determine opioid prescribing knowledge amongst junior doctors in North Devon District Hospital.

METHOD
A questionnaire was sent out to the 112 junior doctors across all specialities assessing their knowledge on equivalent doses of codeine, tramadol, oral and intravenous morphine, oxycodone and diamorphine. They were also asked if they would find a standardised hospital conversion chart useful.

RESULTS
- Response rate of 27%

CONCLUSION
This survey identifies a significant lack of knowledge for when converting between oral and intravenous opioids. In previous studies, staff education and the introduction of medical guidelines have been shown to result in improvements in postoperative pain relief and prescribing practices. Therefore, to rectify this situation formal teaching will be initiated and a standardised hospital conversion chart introduced.
REFERENCES

LONG-TERM PAIN RELIEF WITH HIGH DOSE OXYCODONE/NALOXONE PROLONGED RELEASE FORMULATION (OXN PR)

Background and aims:

Oxytocin/naloxone (OXN PR) is a prolonged release formulation with oxycodone and naloxone in a 2:1 ratio. This study evaluates doses up to OXN180/90 mg PR.

Methods:

Patients receiving opioids for non-malignant or malignant pain were randomised 1:1 to 5 weeks of treatment with OXN PR (OXN 50/25–80/40 PR bid) or Oxy PR (50–80 mg bid). A 24-week open label extension phase followed with doses up to OXN90/45 mg PR bid. Patients’ average pain over last 24 hr and adverse events (AEs) were recorded.

Results:

A total of 243 patients were randomised (123 OXN PR and 120 OxyPR) and 209 patients completed the study (105 OXN PR and 104 OxyPR). Average 24 hr pain scores during the double-blind phase are shown below (Fig. 1). The average pain scores in the OXN PR arm were maintained at the same level during the extension phase.
AEs during the double-blind phase were comparable in the two arms; no treatment-related serious AEs (SAEs) were reported. Nevertheless, in the extension phase 13 of the 21 SAEs reported were considered causally related to study medication. No unexpected AEs were reported.

**Conclusions:**

OXN PR proved to have comparable efficacy to Oxy PR, demonstrating that naloxone did not appear to impact on analgesic efficacy. Long-term analgesic efficacy was demonstrated up to 7 months. The AE profile observed was consistent with the existing safety profile of OXN PR.
RESOLVIN RECEPTOR EXPRESSION IN THE PERIPHERAL AND CENTRAL NERVOUS SYSTEM

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Background and aims: Recent studies have demonstrated the analgesic properties of resolvins. These molecules exert their actions via the specific G protein-coupled receptors ChemR23, BLT1, FPR2/ALX and GPR32. This study aimed to characterise the expression of resolvin receptors in both animal and human nervous system tissues.

Methods: Spinal cord and brainstem were collected from Sprague-Dawley rats, under UK Home Office regulations. Human lingual nerve neuromas and tooth pulps were obtained from patients requiring either lingual nerve repair or dental extraction at the Charles Clifford Dental Hospital, Sheffield. Tissues were processed for dual immunofluorescence labelling using primary antibodies raised against specific G protein-coupled receptors and cell markers.

Results: Labelling for ChemR23 was present in neurones within rat brainstem and spinal cord. After sciatic nerve injury, ChemR23 was significantly up-regulated in ipsilateral dorsal horn neurones. ChemR23 is also expressed in Schwann cells in human tooth pulp.

BLT1 labelling was present in Schwann cells in human lingual nerve neuromas. FPR2/ALX immunoreactivity was seen in neurones in rat spinal cord. GPR32 labelling was seen in Schwann cells in human lingual nerve neuromas and human tooth pulp.

Conclusions: Our data indicate that resolvin receptors are expressed in specific cells in the nervous system. In particular, the up-regulation of ChemR23 after peripheral nerve injury suggests that it may be a potential target for improved therapeutics for chronic pain. Further studies are underway to examine any correlation between the expression of these receptors and clinical pain using human lingual nerve neuromas and human tooth pulp.
CELIIAC PLEXUS NEUROLYSIS IN CANCER PAIN CONTROL

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BACKGROUND:

The celiac plexus are neurolytic block targets for relief from pain caused by upper gastrointestinal tumors (GIT). We report the study of the analgesic effect and safety of a celiac plexus block (CPN).

METHODS:
A total of 12 patients were studied, presenting severe uncontrolled visceral pain and upper GIT tumors, as well as undergoing neurolysis with phenol with tomographic control and anterior approach since January 2012 to May 2015. Demographic, clinical, survival, safety and pain control variables were collected.

RESULTS:
Improved pain levels (VAS scale) reported are 3.36, 5.75 and 6.12 by weeks 2, 4 and 8 respectively (p 0.034). However, 25% of the patients (3) needed spinal infusion for pain control, and 66.7% (8) needed a systemic opioids dosage increase. In total, 41.7% of the patients felt better or much better in the Global Clinic Impressions Scale, compared to 33.3%(4) who reported to feel worse or much worse after the procedure, which might be due to technical difficulties (25%). There were no serious adverse effects in any of the cases.

CONCLUSIONS:

The CPN is a safe and effective technique for the control of cancer pain persisting after conventional treatment.

Cancer pain after NPC persists in 50% of the cases; requiring additional therapies such as pharmacological and interventional spinal infusion. The technical difficulty of these techniques can limit their effectiveness; as well as their use as a marginal procedure which is offered too late, sometimes after the tumor infiltration has expanded out of the celiac axis.
ULTRASOUND GUIDED SINGLE VERSUS DOUBLE LEVEL THORACIC PARAVERTEBRAL BLOCK FOR POSTOPERATIVE ANALGESIA IN TOTAL MASTECTOMY WITH AXILLARY CLEARANCE.

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Background & aims

The use thoracic paravertebral block (TPVB) for breast surgery has been shown to be efficacious in reducing postoperative pain. Aim of the study was to evaluate the efficacy and safety of single level versus double level ultrasound guided TPVB in patients of total mastectomy with axillary clearance (TMAC).

METHODS

After institutional ethics committee approval and obtaining consent 60 ASA I and II patients in the age group of 18 - 60 years scheduled to undergo TMAC were enrolled. Patients were randomly allocated to receive ultrasound guided TPVB at T4, single level (Group S, N=30) or double level at T2 & T5 ( Group D, N=30) in sitting position with 0.3 ml/kg of 0.5% ropivacaine. General anaesthesia was induced with iv fentanyl, propofol and atracurium. Postoperatively, patients were monitored for pain at rest and during shoulder movement with numeric rating scale (NRS). I/V diclofenac sodium 1.5 mg/kg was used as rescue analgesia (RA) and was administered if NRS was ≥ 4.

RESULTS:

The median number of segments which showed less sensation was 3 in group S and 4 in group D (p<0.001). The mean time to first request for rescue analgesia was 533±124 minutes in group S and was 611±214 minutes in group D (p = 0.118). The mean total amount of RA received by group S was 175.3±70 mg and in group D was 115.7±48 mg (p =0.002).

CONCLUSION:

Ultrasound guided double level TPVB in comparison to single level TPVB for breast surgery provides better postoperative analgesia.
EFIC5-1294
LATE-BREAKING POSTER SESSION II

IS HEADACHE ASSOCIATED WITH LONG TERM EXPOSURE TO ELECTROMAGNETIC RADIOFREQUENCY RADIATION OF MOBILE BASE STATIONS?

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Background and aims

Electromagnetic radiofrequency radiation (EMRR) levels of mobile phone base stations do not exceed the international limits. However, the bioeffects of long term human exposure to these very low-intensity electromagnetic fields are not clearly known. The aim of this study was to assess the frequency of headache and other self-reported symptoms in the people living in the vicinity of mobile base stations.

Methods

In this cross-sectional study, 1145 subjects living in Shiraz city were investigated. A questionnaire containing questions on demographic data, subjective complaints and occupational and environmental exposure to different sources of electromagnetic fields was administered to all participants. Electromagnetic field strength was measured by a survey meter in each household.

Results

A significant association was found between the occurrence of headache and the residents’ mean daily exposure time (P = 0.01). We also found a significant association between the occurrence of headache and the residence duration in the vicinity of mobile base stations (P = 0.04).

Conclusions

The findings of this study lead us to this conclusion that exposure to EMRR emitted by mobile base stations can increase the occurrence of headache in people living in the vicinity of these stations.
Abstract:

**Background and aims:** The Back Skills Training programme (BeST) uses a cognitive-behavioural approach to improve physical activity for people with low back pain (LBP) and has been shown to be effective in a large pragmatic trial. To support implementation and maximize reach, the clinician training used in BeST was adapted from its original face-to-face format to a scalable online course, which when tested demonstrated similar findings on knowledge and competency to face-to-face training. However, several barriers to implementation were highlighted. This abstract describes our strategy to enhance and evaluate the impact of the online training for clinicians.

**Methods:** The theoretical domains framework was used to enhance the online training for implementation by incorporating specific features to target barriers regarding beliefs about consequence, lack of skills and motivation. The online training will be offered to NHS clinicians across Great Britain and its impact on the implementation of the Back Skills Training Programme will be evaluated in a longitudinal cohort.

**Results:** Uptake and completion of the online training course by NHS staff and their intention and actual use of the Back Skills Training Programme for treating LBP patients will be described. Factors that help/hinder implementation and the required resources for effective implementation will also be explored. Patient outcome data will be collected in a subsample of sites as part of an ongoing service evaluation.

**Conclusion:** This evaluation will assess the impact of a tailored and theoretically based online implementation strategy. The results will inform future dissemination and implementation of important research findings.
EFIC5-1300
LATE-BREAKING POSTER SESSION II

CAPSAICIN 8% TOPICAL PATCH FOR POSTOPERATIVE NEUROPATHIC PAIN
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BACKGROUND:
Capsaicin 8% patch is mainly used to treat postherpetic neuralgia and human immunodeficiency virus-associated neuropathy. Evidence of the efficacy of this treatment in other forms of neuropathic pain is lacking. We tried to report our experience in the use of Capsaicin 8% patch for postoperative neuropathic pain.

METHODS:
We designed a prospective study with postoperative pain patients have been treated with capsaicin 8% patch in our unit. Demographic, clinical and pharmacological variables were collected.

RESULTS:
A total of 18 patients were included. The average time of pain previously the patch was 42.53 months. Improved pain levels (VAS scale) reported were 1.61 and 2.23 by week 4 and 12 respectively, without statistical significance compared to baseline (p=0.95 and p= 0.76). Seven patients (38.9%) were treated with two neuropathic treatments before the application, keeping this percentage to week 12, but decreased the opioids use than 50%. There was a reduction in the painful area more than 50% in 55.6% of cases. Half of patients reported to feel much or minimally improved in the Global Clinic Impressions Scale.

CONCLUSIONS:
Capsaicin 8% patch achieved a reduction of pain without statistical significance, a reduction of the painful area, with a minimal decrease in the pharmacological needings. Postoperative pain is a chronic pain with peripheral origin that produces a phenomenon of central neuroplasticity in its evolution. This could explain the lack of effectiveness in some cases of peripheral treatments, the prevention and early treatment could be the best option.
SOFTWARE DOSE CALCULATION AND SYSTEMATIC PROSPECTIVE DOSAGE OF INTRATHECAL MIXTURES: A WAY TO IMPROVE SAFETY AND ACCURACY IN THE DEVELOPMENT OF INTRATHECAL DRUG DELIVERY.

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Background and aims
Calculation and preparation of Intrathecal mixtures exposed to errors sometimes responsible for over dosage. After a warning in 2012, on the risks related to the use of mixtures and the response of experts, it seems advisable to secure the manufacture of IT mixtures. We use since 2013; a prescription software (Anathec©) and systematic dosages of mixtures are performed. The aim of this prospective study was to determine the accuracy of preparations with this process and to know the exclusion rate in order to prevent adverse events.

Materials and methods
Doses of mixture components were calculated with the software and assays performed by UPLC. Since 2014, we added a systematic monitoring of pH. A deviation of more than 15% exclude the preparation.

Results
No error was observed in dose calculation with the software.
1729 mixtures with Morphine, Ropivacaine and Ziconotide were analyzed.
The average error in relation to the prescription was for morphine: 1.17% + / - 0.28%, for ropivacaine: 0.95% +/- 1.07% and for Ziconotide: 4.82% + / - 0.60%.
144 (8.33%) preparations were excluded, the majority (118) for an error in ziconotide. The accuracy has improved over time, with an exclusion rate of 11.3% in 2013 to 4.9% in 2014.
The average Ph was: 4.83+/0.55.
No serious adverse effects were observed during this period. The maximum deviation observed was + 30% for morphine, 923% for ropivacaine and 203% for Ziconotide.
Conclusion
This approach of prescription, preparation and control allow complying with the recommendations. It is a key element for safety and development of intrathecal analgesia.
EFIC5-1318
LATE-BREAKING POSTER SESSION II

LIDOCAINE PATCH: A NEW TREATMENT METHOD FOR POST-HERPETIC NEURALGIA

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Background and aims: Post-herpetic neuralgia (PHN) is a common and often intractable neuropathic pain syndrome. The first line drugs for a treatment of (PHN) are pregabalin, gabapentin or amitriptyline. Several controlled clinical trials have demonstrated the efficacy and safety of the lidocaine patch 5% (LP) for the treatment of (PHN).

Methods: Twenty subjects with established PHN affecting the intercostals nerves, upper or down limbs in oral use of pregabalin 75mg or gabapentin 300mg or amitriptyline 25mg at night, received topically applied 5% lidocaine patch. All subjects had neuropathic pain states persisting for ≥3 months after rash healing, and had a mean pain intensity as defined by a score ≥4/10 report by the numerical rating scale (NRS): 0 = no pain to 10 = worst pain.

Two patches, covering a maximum of 420 cm², were applied to cover the area of greatest pain as fully as possible, for 8-12h-long at night, during four weeks.

Results: Lidocaine containing patches significantly reduced pain intensity at score of pain < 4 (NRS) after 4 weeks, and reduced the oral doses of pregabalin, gabapentin or amitriptyline. Patch application was without systemic side effects and well tolerated when applied on skin for 12 h.

Conclusions: This study demonstrates that topical 5% Lidocaine in patch form provided localized pain relief for patients (PHN), and (LP) can be considered a valuable treatment option for this patients, easy to use, with minimal adverse effects.
Background and aims

Because of university students are mostly in sitting position during the day, they are one of the groups who needs consideration of musculoskeletal pain. The aim of this study was to evaluate the awareness of low back pain (LBP) of the students.

Methods

407 students of the faculties (medicine, dentistry, pharmacy and health sciences) at Bezmialem Vakif University were voluntary. If they had LBP within the past year, they were asked to answer following questions: What do you think about your LBP was caused by? Do you think your LBP was related to your mood? Does your LBP prevent your activities of daily living? Does your LBP restrict your studying or activities such as sports? Are you comfortable when using desks/chairs at school? What do you do to reduce your LBP? SPSS 16. version was used.

Results

324 (79.6%) had LBP. 363 (81%) students indicated that their LBP was not related to their mood. Activities of daily living of 187 (58%) were not affected with the pain. Studying or activities were not restricted of 107 (33%). 275 (85%) had a pain caused by sitting on a chair with flexing posture. 246 (76%) students were not pleased with desks/chairs. Mostly (224, 69.1%) prefer resting to reduce their pain.

Conclusions

Most of the students had LBP and complain about their uncomfortable sitting positions in the classroom. Ergonomic arrangements and body awareness trainings are needed about approaches on having proper living habits in sitting posture and using of the body mechanics.
ROLE OF SHOULDER PATHOLOGY IN UPPER LIMB PAIN AFTER STROKE

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Background and aims: Upper limb pain, and in particular shoulder pain, is a frequent complication of stroke which is associated with poor functional outcome (Murie-Fernández et al., 2012). It is considered to originate from shoulder subluxation due to upper limb motor paresis (Lindgren et al., 2014). However, several studies have failed to find a relationship between shoulder subluxation and the presence of shoulder pain (Paci et al., 2005). The present study aimed at clarifying the relationship between motor disturbances of the upper limb, shoulder instability/subluxation and upper limb pain in subacute stroke patients.

Methods: In a prospective cross-sectional study, 28 patients (68 years ±14.5; upper limb pain: n=15) were included between 2 and 28 weeks after their first unilateral stroke. Assessments included pain questionnaires (visual analogue scale, brief pain inventory, neuropathic pain scale inventory), full neurological examination of motor disturbances, clinical testing for shoulder subluxation and shoulder instability, and radiological assessment of shoulder subluxation. Between-groups differences (pain vs. no-pain) were assessed with Fischer’s exact test and ANOVA.

Results: Patients with upper limb pain had a higher incidence of clinical shoulder instability than patients without pain (p = 0.005). Clinical and radiological measurements of shoulder subluxation did not differ between patients with and without upper limb pain (p > 0.050).

Conclusions: To our knowledge, this is the first study showing a relationship between shoulder instability and upper limb pain after stroke. Future studies should determine the value of assessing shoulder instability to foresee and prevent upper limb pain after stroke.
EFIC5-1131
LATE-BREAKING POSTER SESSION III

NITROUS OXYDE: A SAFE AND EFFICIENT ALTERNATIVE FOR QUTENZA® INDUCED PAIN AND PROMISING RESULTS FOR CHRONIC PAIN CONTROL.

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Introduction:
Qutenza®, 8% capsaicin patch, is a new treatment for neuropathic pain but application can be painful. Despite pain killer premedication, the capsaicin patch application may remain painful. Some teams are even using loco regional anesthesia to manage pain during the application.

We propose an easier and less intrusive way to handle this situation.

Methods:
We included patients receiving capsaicin 8% application. Pain was rated before and during Qutenza® application, also during the 5th minutes and 15 minutes after the end of Nitrous Oxide

Results:
We used Nitrous Oxide inhalation 2-15 l/min for 20 minutes mean (5-40 minutes). 30 patients were included. Pain before capsaicin was rated 5.9 on the NS (mean). During the capsaicin treatment the pain rose to 7. With the use of Nitrous Oxide, it decreased to 1.33. Pain reduction persisted for 15 minutes after the end of inhalation: 3. (Figure 1)
A sub group of 15 patients experienced severe pain but no pain increase (6, 47 before and 6, 31 during application), pain decreased to 1, 25 in 5th min of the Nitrous Oxide inhalation and stayed low 15 minutes after 1, 93 on NS. (Figure 2)
Few transient (<15minutes) side effects have been noticed: one vagal discomfort, one dizziness.
83, 3% of the patient expressed a great satisfaction (> 6/10 NS) with the Nitrous Oxide inhalation experience.
Conclusion:
The Nitrous Oxide is a safe way to control the pain induced by Qutenza® and can be a useful tool for chronic pain management.
ACUPUNCTURE AND KETAMINE IN TREATING CHRONIC BACKACHE

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Chronic backache is a common clinical symptom in Iraq. Most painkilling medications, such as non-steroidal anti-inflammatory drugs, have undesirable side effects, particularly affecting the stomach. Ketamine is an anesthetic drug that can be used intramuscularly, intravenously, or orally. It has an analgesic effect with no side effects on the stomach if taken orally. This report provides an overview of available clinical data on the use of acupuncture and oral ketamine in the treatment and management of chronic back pain.

Introduction

The primary aim of this research was to determine if the use of oral ketamine is effective, safe, and acceptable for patients presenting with low back pain. The reason for its use in conjunction with acupuncture treatments was to try to reduce the number of acupuncture treatments needed for relief of this condition.

Background

Ketamine, a derivative of phencyclidine, was introduced into clinical practice in 1965 and started being used in Iraq around 1978. This drug is a water soluble compound which may be administered by intravenous (IV) or intramuscular (IM) injection or ingested orally.
Background: Spreading of pain to widespread areas is considered a sign of central sensitization (CS). The aim of this study was to examine whether the extent of pain assessed using pain drawings (PDs) relates to CS and clinical features in patients with knee osteoarthritis (OA) pain.

Methods: Fifty-three subjects with knee OA pain scheduled to undergo primary total knee arthroplasty were studied. All participants were asked to complete PDs using a novel digital device for PDs acquisition and analysis. Pain frequency maps were generated separately for women and men. Patients completed self-administration questionnaires and were assessed by quantitative sensory testing. Spearman’s correlation coefficients were computed to reveal possible correlations between pain extent and quantitative sensory testing and clinical features.

Results: Besides local knee symptoms, pain frequency maps revealed enlarged areas of pain, especially in women. A significant positive correlation was found between pain extent and knee pain severity (.325, P < 0.05) and stiffness (.341, P < 0.05). Pain extent was also significantly correlated with pressure pain thresholds measured at the knee (.306, P < 0.05) and distantly from the knee (.308, P < 0.05) and the degree of subjective CS pain descriptors as assessed with the Central Sensitization Inventory (.456, P < 0.01).

Conclusion: Spreading of pain measured by PDs was correlated with widespread hyperalgesia and centrally mediated symptoms in patients with knee OA pain. PDs may constitute an easy and cost-effective way for the early identification of CS in people with knee OA pain.
ACCULTURATION AND PAIN SENSITIVITY IN ASIAN AMERICANS WITH KNEE OSTEOARTHRITIS

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Background and aims: There are several studies in both healthy populations and in clinical samples suggesting ethnic group differences in pain sensitivity. Some evidence shows that Asians have a higher pain sensitivity compared to majority ethnic groups in Western countries. Acculturation is speculated to be one of the factors contributing to ethnic differences in pain sensitivity. It is possible that Asians, an ethnic minority group with limited history of immigration, may develop more sensitivity to pain as they may deal with acculturation stresses in the new environment. Thus, the purpose of this study was to examine the relationship between acculturation and experimental pain sensitivity in Asians with knee osteoarthritis pain.

Methods: Asians with knee osteoarthritis pain (n = 50) were recruited in Northcentral Florida, United States. Acculturation was measured by the Suinn-Lew Asian Self Identity Acculturation scale, and two modalities of quantitative sensory testing (i.e., heat pain tolerance and pressure pain threshold) were completed to assess experimental pain sensitivity.

Results: Participants mean age was 55 years (SD = 8 years), 62% were female, and 92% were born in East Asian Countries. Acculturation was positively associated with heat pain tolerance and pressure pain threshold (p < .05 for all). In other words, westernized Asian participants with high acculturation had higher heat pain tolerance and pressure pain threshold than less acculturated participants.

Conclusion: These findings suggest that Asians who are less acculturated to the United States tend to have higher experimental pain sensitivity. This finding warrants further investigation.
Background and aims: Low back pain is an important public health problem. Enhanced excitability in the central nervous system, often referred to as central sensitization, is an important phenomenon observed in people with chronic low back pain and suggests an amplification of nociceptive processes. Furthermore, studies on subjects with chronic pain have shown impaired conditioned pain modulation (CPM), including those with chronic low back pain. However, there is no evidence of correlation between age and the change of endogenous pain mechanisms. The aim of this study was to evaluate the correlation between age and pain physiology measures, such as local and segmental pressure pain threshold and endogenous pain inhibition.

Methods: One hundred and fifty people with chronic nonspecific low back pain were recruited. Individuals of both sex, between 18 and 80 years old were included if they presented non-specific low back pain for at least 3 months and had a minimum level of pain of 3 over the last 7 days on the verbal numerical rating pain scale.

Results: There was correlation between age and lumbar PPT ($r = 0.28, p = 0.001$) and age and CPM ($r = 0.17, p = 0.03$). There was no correlation between age and PPT of the tibialis anterior muscle ($r = -0.03, p = 0.79$).

Conclusions: The results suggest that older people with nonspecific chronic low back pain showed enhanced local excitability and deficient endogenous pain control compared to younger people with nonspecific chronic low back pain.
MEMANTINE BEFORE MASTECTOMY PREVENTS POST-SURGERY PAIN - A RANDOMIZED, SINGLE-BLIND CLINICAL TRIAL IN SURGICAL PATIENTS

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Background and aims
Neuropathic pain following surgical treatment or breast cancer is a clinical burden and patients frequently report cognitive, emotional and quality of life impairment. A preclinical study recently showed that memantine administered before surgery may prevent neuropathic pain development and cognitive dysfunction. With a translational approach, a clinical trial has been carried out to evaluate if memantine administered before and after mastectomy could prevent the development of neuropathic pain, the impairment of cognition and quality of life.

Methods
A randomized, single-blind clinical trial included 40 women undergoing mastectomy in the Oncology Department, University Hospital, Clermont-Ferrand, France. Memantine (5 to 20 mg/day; n=20) or placebo (n=20) was administered for four weeks starting two weeks before surgery. The primary endpoint was pain intensity measured on a (0-10) numerical rating scale at 3 months post-mastectomy.

Results
Data analyses were performed using mixed models and the tests were two-sided, with a type I error set at α=0.05. Compared to placebo, patients receiving memantine showed at 3 months a significant difference in post-mastectomy pain intensity, less rescue analgesia and a better emotional state. An improvement of pain symptoms induced by cancer chemotherapy was also reported.

Conclusions
This study shows for the first time the beneficial effect of memantine to prevent post-mastectomy pain development and diminish chemotherapy-induced pain symptoms. The lesser analgesic consumption and better well-being of patients for at least 6 months after treatment suggests that memantine could be an interesting therapeutic option to diminish the burden of breast cancer therapy.
BACKGROUND AND AIMS: The ACR 1990 recommendations for diagnosing FM use CWP and 11/18 tender points (TPs) as criteria. Variations in prevalence data may be due to vagueness of the definitions. Guidelines recommend TP assessment to elicit pain only. Okifuji et al. recommend an NRS scale for pain as well. The aim of this study was to compare prevalence of FMS using Three current definitions of CWP and two NRS levels for TPs.

METHODS: From the HUNT study, a health survey of the population in central Norway, 337 subjects endorsing moderate to severe chronic pain were randomly chosen from the population and evaluated by a physiotherapist and a physician using a semi-structured protocol. CWP and TPs were assessed. Assessment of CWP was done using axial pain plus a minimum of 2 or more, 3 or more, or 4 quadrant involvement. 11/18 positive TPs were required with CWP for a diagnosis of FMS. Guidelines for TP significance are also vague and positivity was judged for =>2/10 NRS as per Okifuji and =>6/10 NRS scores for pressure pain.

RESULTS: There is a considerable variation in prevalence of both CWP (2x) and FMS (3x) using ACR 1990 guidelines and interpretations currently found in studies on both CWP and FMS.

CONCLUSIONS: The wide variance in prevalence of CWP and FMS using accepted guidelines makes interpretation of the literature on CWP and FMS difficult. Full statistics will be presented.
Background and Aims: Chronic back pain (CBP) is a major public health issue with a pressing need for new therapies. A new wearable pulsed shortwave therapy (PSWT) device stimulates afferent nerves reducing pain through non-invasive neuromodulation (unpublished data). This study evaluated PSWT in a broad population of individuals with severe CBP of varying aetiologies.

Methods: The study PSWT device used is available over-the-counter in the EU. A registry of device users was generated by sampling a 7 Day (operating time) trial device. Following the trial, an assessment containing questions on demographics, baseline pain, use of pain medications and other therapies, as well as post treatment pain scores and an intention to continue using the PSWT treatment was completed.

Results: Data from 2080 CBP sufferers was obtained. The average baseline VAS pain score was 8.06 (0-10 VAS scale). The high baseline pain was present despite the use, on average, of two different concurrent pain therapeutic modalities, and a variety of pain medications. Effectiveness of the PSWT device for CBP, defined as a 2 or greater VAS reduction, was 65% (1348 subjects) with an average 56% pain decrease (4.56 VAS) (Figure 1). Seventy percent indicated an intention to continue the use of the non-invasive neuromodulation PSWT device.

Conclusion: This new OTC PSWT device utilizing non-invasive neuromodulation appears to provide a clinically meaningful reduction of chronic back pain caused by a variety of aetiologies for the majority of individuals.

Figure 1.
Background and aims: Chronic low back pain (CLBP) has a prevalence of 18% in adolescents. Local and widespread hyperalgesia have been reported in adults with CLBP. It is currently unknown to what extent these pain mechanisms have manifested themselves in adolescent populations but a better understanding of the reasons behind CLBP could contribute to improved treatment options.

Methods: This is a single-blinded case control study based on 33 females between 15-19 years divided into a CLBP group (n = 22) and a healthy control group. Handheld pressure algometry was used to obtain pressure pain thresholds (PPT) from six sites on the lower back (regional sites) and a distal site (control site) on the upper arm.

Results: The CLBP group had significantly lower PPTs compared with the control group for all regional sites and the control site (P < 0.05).

Conclusions: The current findings show that widespread hyperalgesia is found in adolescents suffering from CLBP, which compares favourably with reports from adult CLBP populations. Given the age of the research participants, the underlying cause is unlikely related to structural pathology suggesting that alternative explanations are needed. The current findings suggest a facilitated response of central pain mechanisms, which may have multiple factors, including biological and psychosocial processes, contributing to it. This was outside the scope of this study but the findings warrant further investigation of this population.

Acknowledgement / Disclosures: This study was kindly supported by funding from Danske Fysioterapeuters Praksisfonde. No disclosures to report.
PROBING THE INVOLVEMENT OF THE PRIMARY SOMATOSENSORY CORTEX IN PAIN PERCEPTION USING HIGH-DEFINITION TRANSCRANIAL DIRECT CURRENT STIMULATION (HD-tDCS)

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Background and aims. The role of the primary somatosensory cortex (S1) in vibrotaction is well established. In contrast, its involvement in nociception remains debated. Here, we test the involvement of S1 in the processing of nociceptive and non-nociceptive somatosensory inputs by comparing, within-subjects, the after-effect of high-definition transcranial direct current stimulation (HD-tDCS) of S1 on the perception and event-related potentials (ERPs) elicited by nociceptive and non-nociceptive stimuli delivered to the ipsilateral and contralateral hand.

Methods. HD-tDCS was delivered using a cathode electrode over C3 or C4, surrounded by four anode electrodes positioned 5 cm from the cathode (20 minutes; 1 mA). Nociceptive (laser heat pulses) and non-nociceptive (short-lasting mechanical vibration and transcutaneous electrical stimulation of the median nerve) were delivered to the ipsilateral and contralateral hand, immediately before and after HD-tDCS.

Results. After HD-tDCS, pain perception decreased similarly in both hands. The N240 wave of nociceptive ERPs followed the same symmetric trend (see Figure). The percept elicited by vibrotactile stimuli remained unchanged. However, as compared to the ipsilateral hand, the N120 of vibrotactile ERPs and the N20 elicited by median nerve stimulation of the contralateral hand were significantly reduced.

Conclusion. HD-tDCS over S1 exerts a differential effect on brain responses elicited by nociceptive and non-nociceptive somatosensory stimuli. The responses to nociceptive stimuli delivered to both hands decreased symmetrically. In contrast, there was an asymmetric reduction of the responses to non-nociceptive stimulation of the contralateral hand. This demonstrates a differential involvement of S1 in the processing of nociceptive and non-nociceptive inputs.
ANXIETY, DEPRESSION, PHYSICAL ACTIVITY AND QUALITY OF LIFE IN STUDENT PHYSICAL THERAPISTS: A CROSS-SECTIONAL STUDY

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Background and aims: Psychological well-being among college students around the world is a current research topic. Despite various number of studies focusing on students who are trained for being a health care specialist, there are no reports on psychological disorders of student physical therapists. The objective of this study is to determine the prevalence of depression and anxiety among student physical therapists and to analyse any possible effects of different parameters on depression and anxiety.

Methods: 158 grade 2 and grade 3 students were enrolled in the study. Beck’s depression inventory (BDI), Beck’s anxiety inventory (BAI), Nottingham Health Profile (NHP), International Physical activity Questionnaire (IPAQ) were used as evaluation measures.

Results: The mean age of the participants were 21.8±1.5 years. 18.9% of the students (n=30) had mild, moderate or severe depression. 40.5% of the students (n=64) had mild, moderate or severe anxiety. Only 10.8% of the participants (n=17) were inactive according to IPAQ scores. Female gender was correlated with higher BAI scores. Academic grade was not correlated with evaluation scores.

Conclusions: The prevalence of anxiety and depression in student physical therapists was high, similar to the other health care professionals. These psychological disorders could influence the academic attainment. Therefore preventive measures and coping strategies may be implemented as an integral part college education.
Background and aims: To investigate the role of real-time sonoelastography (RTSE) in patients with lateral epicondylitis and whether it correlates with clinical parameters.

Methods: Seventeen patients with unilateral lateral epicondylitis were enrolled in the study. Using B-mode ultrasound, color Doppler ultrasound, and RTSE we prospectively examined 34 common extensor tendons elbows of 17 patients. Both color scales and strain ratio were used for evaluating RTSE images. Two radiologists evaluated the RTSE images separately. Elbow pain was scored on a 100 mm visual analog scale (VAS). Quick DASH (disabilities of arm shoulder and hand) Questionnaire was applied to assess the pain, function, and disability. Nottingham health profile (NHP) was used to determine and quantify perceived health problems.

Results: Both color scales and strain ratios of the affected tendon portions were significantly different from that of healthy tendons (p<0.001). There was no significant correlation between NHP, VAS, Quick DASH scores and color scales and strain ratio. Strain ratio of the medial portion of the affected tendon was significantly correlated with symptom duration (r=-0.61 p=0.010) and nocturnal pain (r=0.522 p=0.031). Interobserver agreement was substantial for color scales (κ = 0.74, p = 0.001) and strain ratio (ICC = 0.61, p = 0.031).

Conclusions: RTSE may facilitate differentiation between healthy and affected elbows as a feasible and practical supplementary method with substantial interobserver agreement. Strain ratio of the medial portion of the tendon correlates with nocturnal pain and symptom duration. No other correlations were present between RTSE findings and clinical or functional parameters.
Background and aims

Peritoneal dialysis catheters are commonly inserted under local or general anaesthesia in renal failure patients at various stages of fluid overload. General anaesthesia for the mini laparotomy or laparoscopy may result in hemodynamic changes in the patient with multiple comorbidities besides end stage renal failure, while local anaesthesia and transverses abdominis plane blocks have minimal coverage for visceral pain with short duration of analgesia post-operatively.

Methods

We present a case of an open procedure done under thoracic paravertebral nerve block and sedation for an open right sided insertion of Tenckhoff catheter.

Results

The patient tolerated the procedure well with minimal oral analgesia postoperatively. Dialysis commenced via the new catheter and he was discharged the following day uneventfully.

Conclusions

Thoracic paravertebral nerve block is a viable option for patient in relative fluid overload as an alternative to general anaesthesia with more complete analgesia compared to local anaesthesia and possibly less hemodynamic changes compared to other central neuraxial blocks.
A COMPARISON OF INTRATHECAL LEVOBUPIVACAINE WITH AND WITHOUT FENTANYL FOR LOWER ABDOMINAL SURGERY

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Levobupivacaine has only recently become available in India. Therefore this prospective, randomised, double blind study was planned to compare the effects of isobaric levobupivacaine mixed with either fentanyl or distilled water given intrathecally for lower abdominal surgery under sub-arachnoid block (SAB).

Comparison criteria were: times to onset and achieving of maximum block; times to two sensory spinal segment regression and regression below S2 level; duration of SAB and rescue analgesic consumption in first 24 hours.

Methods:

Eighty ASA grade I & II patients aged 18 to 65 yr posted for lower abdominal surgery under sub-arachnoid block were divided in 2 groups of 40 patients each slated to receive laevobupivacaine mixed with either fentanyl or distilled water. Surgeries were BPH, inguinal hernia, anal fissures and anal fistula etc. Exclusion criteria were weight > 70 Kg, height < 145 cm and contraindication to SAB. Three ml of leavobupivacaine with 0.3 ml of fentanyl / distilled water were used for SAB in each group.

Results:

Addition of fentanyl to levobupivacaine did not result in faster onset or increase in the height of block though there was significant prolongation of motor blockade. Time to 1st rescue analgesic was significantly longer and total rescue analgesic consumption lesser in the fentanyl group. Haemodynamics and side effects were comparable in both the groups.

Conclusion:

Addition of fentanyl to levobupivacaine for SAB provides longer motor and sensory block, better post-operative analgesia with good haemodynamic stability whereas incidence of side effects like hypotension, shivering and pruritus are comparable.
THE CAPSAICIN MODEL TO EXPLORE PAIN SENSORY PROFILES IN HUMANS. A COMBINED PSYCHOPHYSICAL AND FMRI STUDY IN NORMAL CONTROLS

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Background and aims

The capsaicin model is widely used to explore Neuropathic Pain (NP) sensory profiles in humans. Capsaicin allows the study of gain-of-function (hyperalgesia and allodynia) and loss-of-function (hypalgesia) phenomena.

The aims are: (1) to investigate the variability of experimental pain perception in humans by studying somatosensory profiles using mechanical and thermal QST; (2) to investigate the changes of the connectivity in the resting state networks using fMRI before and during experimental pain condition.

Methods

We tested healthy subjects in whom acute cutaneous pain is induced experimentally by topical application of high-concentration capsaicin (8%, patch).

- The QST protocol was performed in a group of 24 volunteers prior to (T0) and after (T1 and T2) topical capsaicin application on the right forearm.

- In the second experimental design 14 healthy volunteers were submitted to a resting state fMRI protocol before and after capsacin path application.

Results

- QST experiment: at T1: significant increase of CDT and CPT; decrease of HPT, MDT, MPT, MPS, WUR and presence of DMA. At T1 on adjacent skin: decrease of HPT, MPT and presence of DMA. At T2: an increase of HPT and CPT. Then we performed a hierarchical clustering of QST parameters.

- fMRI experiment: during capsacin pain model we noticed a stronger functional connectivity in some areas the default mode network (10/14) and of the sensory-motor network (6/14).

Conclusions

A subjective response to a provocative test could be used as a tool to predict the response to NP drugs.
VALIDATION OF FRENCH VERSION OF BREAKTHROUGH PAIN ASSESSMENT TOOL: OFEA: « OUTIL EN FRANÇAIS D’ÉVALUATION DES ACCÈS DOULOUREUX PAROXYSTIQUES »

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Backgrounds:
Breakthrough Pain (BTP) are “a transient exacerbation of pain that occurs either spontaneously, or in relation to a specific predictable or unpredictable trigger, despite relatively stable and adequately controlled background pain”. Impact on Quality of life is significant.
BTP management quality depends on a relevant assessment, on an individualized treatment, and re-assessment. This assessment is based on an acute questioning and a total physical examination.
Research has already shown interest of assessment tools in pain management. Their use is linked to a better pain relief.
BAT (Breakthrough Pain Assessment Tool –BAT) was developed by Katherine Webber et Andrew Davies and validated in English. It is a 14-item scale.

Aims:
Our main goal is to validate, according to psychometric tests, a French Version of BAT, called « OFEA » ( « Outil d’Evaluation en Français des Accès Douloureux Paroxystiques »).

Methods:
- We met the team that designed the tool who gave us their agreement for this study.
- We translated (English to French, then French to English), according to EORTC guidelines.
- We began patient inclusions.
We need to include 130 patients, in order to confirm factorial structure of the scale, its internal consistency, its test-retest reliability, its convergent validity compared to Brief Pain Inventory (BPI), and its responsiveness.

Results:
We would like to present first findings.
LOW-GRADE INFLAMMATION MAY MODERATE THE EFFECT OF BEHAVIORAL TREATMENT FOR CHRONIC PAIN IN ADULTS
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3Stockholm University, Stress Research Institute, Stockholm, Sweden

Background and aims

A low-grade activation of inflammatory processes has been hypothesized as a contributor of non-specific longstanding pain. The utility of behavioral interventions for chronic pain is well established. However, the influence of behavioral treatment on low-grade inflammation is uncertain. In addition, the moderating role of inflammatory markers in behavioral interventions for chronic pain has not been addressed. The aim of this study was to explore the contribution of inflammation to the effects of behavioral treatment of adults with chronic pain.

Methods

In the present study, 48 patients suffering from chronic pain were randomized to 2 different types of cognitive behavioral therapy (CBT): Acceptance and Commitment Therapy (ACT) or Applied Relaxation (AR). Interventions consisted of 12 weekly group sessions. Pain intensity, pain disability, psychological inflexibility, acceptance of pain, health-related quality of life were evaluated by self-assessment questionnaires at pre- and post-treatment, as well as medication intake and circulating concentrations of the inflammatory markers, IL-6, TNF-α and IL-8.

Results

Improvements in the self-report questionnaires were seen following CBT, in particular after ACT. Reduction in medication intake and TNF-α levels were also observed. Concentrations of inflammatory markers prior to CBT significantly moderated the treatment effect, i.e. higher pre-treatment levels of IL-6 and TNF-α were related to less improvement in pain intensity, psychological inflexibility and mental health-related quality of life across conditions.

Conclusions

Altogether, results indicate that behavioral interventions for pain may reduce inflammatory markers and suggest that pre-existing low-grade inflammatory state can reduce the beneficial effect of behavioral treatments.
INTERPROFESSIONAL PAIN EDUCATION FOLLOWING THE IASP CURRICULUM AT AN UNDERGRADUATE LEVEL: DIFFICULTIES AND CHALLENGES

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Background and aims.

Pain education for undergraduate Health Professionals has received little attention. The aim of this study was to develop an interdisciplinary undergraduate pain education program, and study barriers and facilitators for the program from the educator's perspective.

Methods.

An interdisciplinary undergraduate course focusing on interprofessional collaboration was developed based on IASP curricula. Students with different educational backgrounds have participated in this 6 months educational program (840 hours). Participating educators discussed the most important barriers and facilitators.

Results.

Knowledge on the multidimensional nature of pain, pain assessment, and clinical conditions (IASP interprofessional curriculum) were targeted in the first 10 weeks. The next 10 weeks were more in-depth focused on pain treatment and management. At this stage students were divided in two groups: acute and chronic pain management (curriculum nursing); and pain behavior treatment (curricula occupational, physical therapists, psychologist). The program has run twice and a total of 57 students have participated: 24 nursing student, 18 occupational therapists; 11 physical therapists; and 3 psychologists. Participating educators identified three main areas of concern 1) needs for a definition of and appropriate assessments for the undergraduate level of pain knowledge and skills; 2) a need to implement blended learning in pain education; 3) developing additional educational material.

Conclusions.

Interprofessional pain education at an undergraduate level is challenging. A follow-up study will be conducted to develop an international consensus standard for the undergraduate education level and content of the interprofessional education program for the next 5 years.
Background and aims

Several studies indicate the clinical utility of Acceptance and Commitment Therapy (ACT) for longstanding pain. A few studies have explored the mediating role of psychological inflexibility in comparison with other potential mediators e.g. catastrophizing, on pain interference and disability. However, the temporal precedence of changes in the mediator in relation to the outcome has not been assessed in studies evaluating mediation in ACT for chronic pain. In a previous study we evaluated the efficacy of ACT and Applied Relaxation (AR) for longstanding pain. The aim of the present study was to evaluate if psychological inflexibility would mediate reductions in pain interference in the ACT-condition and if catastrophizing would mediate reductions in pain interference in the AR-condition.

Methods

The present study used session-to-session assessments to evaluate if psychological inflexibility, catastrophizing, and pain intensity mediated the effects of treatment on pain interference. Participants (n = 60), adults with longstanding pain (> 6 months) received 12 weekly group-sessions of ACT or AR. Analyses were based on data from a previously conducted randomized controlled trial (n = 60) evaluating the efficacy of ACT and AR. A moderated mediation model based on linear mixed models was used.

Results

Neither catastrophizing nor pain intensity mediated changes in pain interference for any of the treatments. In contrast, psychological inflexibility mediated effects on outcome in ACT but not in AR.

Conclusions

The results add to findings from previous studies that illustrate the role of psychological inflexibility as a mediator in ACT for chronic pain.
EFIC5-1192
LATE-BREAKING POSTER SESSION III

LUMBAR PLEXUS (LP) BLOCK FOR INTRAOPERATIVE ANAESTHESIA FOR FRACTURE NECK OF FEMUR
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Background and aims: Anaesthesia for fracture Neck of Femur (NOF) in high risk patients is challenging. The options were GA, subarachnoid blocks (SAB) or a combination of Sciatic and Lumbar plexus blocks (LP). Literature is limited on sole LP blocks for this surgery. We report its use in this case.

Methods and Results: A 66 year old female was admitted for left sided NOF repair. She had mild dementia, ulcerative colitis, diabetes mellitus, ischemic heart disease and transient ischaemic attacks. GA deferred for side effects like delayed recovery and cognitive dysfunction. Recent Clopidgrel contraindicated SAB. She consented for a sole LP block with conversion to GA if the block failed. Standard monitoring placed with O2 at 2 L/min via nasal specs. Midazolam 1.5 mg was administered. Under aseptic precautions in lateral position, at the intersection of intercristal line and parasagittal line from the posterior superior iliac spine, a 100 mm Stimuplex needle was inserted to perform LP block. Nerve stimulator with the motor response with a current of less than 0.4 mA was achieved. On negative aspiration, 2 mL of 1% Ropivacaine was injected followed by 18ml in 5ml aliquots with repeated aspiration. Ipsilateral sensory block was elicited after 5 minutes from L1-4 and motor blockade in 10 min. The surgeons repaired the fracture in 60min with no further requirement for any analgesia. Overnight stay was uneventful without change in cognitive function.

Conclusions: A single shot LP block as anaesthetic option may be considered for NOF fracture patients with multiple co-morbidities.
Osteoarthritis (OA) is a degenerative joint disease associated with articular cartilage degradation. The major outcome of OA is a complex chronic pain state that includes both nociceptive and emotional manifestations. Emotional alterations, such as anhedonia and other depressive-like symptoms, have been reported to be associated with chronic pain, increasing the pain experience impairing life quality. In this study we evaluated the involvement of the endogenous kappa opioid receptor (kOR) /dynorphin system in the nociceptive, histological and emotional manifestations of OA pain. The murine model of monosodium iodoacetate (MIA) was used to induce OA in knockout mice for kOR (KOR-KO) and prodynorphin (PDYN-KO). Wild type (WT) mice, as well as KOR-KO and PDYN-KO mice developed mechanical allodynia after intra-articular injection of MIA. This allodynia was significantly increased in both KOR-KO and PDYN-KO animals. In addition, both genotypes showed increased microglial and astroglial activation on the lumbar section of the spinal cord after MIA administration. Moreover, the anhedonic state related to chronic pain was also evaluated by measuring the preference for palatable drink (sucrose), using a highly sensitive behavioral device developed in our laboratory. Concurrently to nociceptive behavior, the anhedonic state was significantly increased in both KOR-KO and PDYN-KO mice, when compared to WT mice. Interestingly, we also found an increased gene expression of glucocorticoid receptor (GR) and corticotropin-releasing factor (CRF) on the amygdala and hippocampus. These findings reveal a specific involvement of the kOR / dynorphin system on the nociceptive, emotional and the adaptative manifestations associated to chronic OA pain.
ULTRA-SLOW STEADY-STATE HEAT-EVOKED POTENTIALS TO EXPLORE THE CORTICAL RESPONSES RELATED TO THE ACTIVATION OF SLOWLY ADAPTING HEAT-NOCICEPTORS.

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Background and aims

Based on their response to sustained heat, thermonociceptors can be categorized as slowly- or rapidly-adapting. The recording of event-related brain potentials to a transient heat stimulus (e.g. brief infrared laser stimulation of the skin) is used extensively to study nociception in humans, and to diagnose neuropathic pain. However, these responses are exclusively related to the activation of rapidly-adapting thermonociceptors. Here, we propose a novel method to record, in humans, cortical activity related to the activation of slowly-adapting thermonociceptors, using an ultra-slow periodic heat stimulation to elicit a steady-state evoked brain potential (SS-EP).

Methods

Ten healthy volunteers took part in the experiment. The EEG was recorded while twenty long-lasting thermal stimuli were applied to the hand dorsum using a temperature-controlled CO₂ laser. Each stimulus lasted 75 s, and consisted in a sinusoidal 0.2 Hz modulation of target skin temperature between baseline and 50°C.

Results

The slow rises and decreases of skin temperature elicited a consistent 0.2 Hz SS-EP whose scalp topography was maximal at fronto-central and bilateral temporal electrodes, predominant over the hemisphere contralateral to the stimulated hand, and compatible with bilateral operculo-insular sources.

Conclusions

Reliable SS-EPs related to the periodic activation of heat-sensitive afferents can be elicited using a slow periodic modulation of target skin temperature. These responses could be predominantly related to the activation of slowly-adapting thermonociceptors, considering how they respond to sustained heat. The approach could be used in future studies to explore the function of slowly-adapting thermonociceptors in physiological and pathological conditions.
PERI-NEURAL DEXMEDETOMIDINE AS AN ADJUVANT TO BUPIVACAINE INDUCED ULTRASOUND GUIDED FEMORAL NERVE BLOCK FOR POSTOPERATIVE PAIN MANAGEMENT

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Background and Goal of Study:
Peri-neural dexmedetomidine extends the duration of local anaesthetic induced peripheral nerve blocks in the experimental and the clinical settings. The effects of peri-neural dexmedetomidine on the pharmacodynamic profile of bupivacaine-induced femoral nerve block were not previously explored.

Methods:
Forty five adult patients undergoing arthroscopic knee surgery received ultrasound-guided femoral nerve block 30 min before induction of general anaesthesia. Block was achieved with use of 25ml of bupivacaine 0.5% in all patients. Bupivacaine was combined with 1ml normal saline (n=15), 50 microgram (1 ml) peri-neural dexmedetomidine (n=15), or 50 microgram (1 ml) intramuscular dexmedetomidine (n=15). All patients received standard general anaesthesia after the block. The onset and duration of block, time to first postoperative rescue analgesic, resting and dynamic visual analogue pain scores (VAS) were reported at predetermined time assessment points. Postoperative rescue intravenous morphine consumption over 24 hours.

Results
The onset of sensory block was significantly shorter and its duration was extended with the use of peri-neural dexmedetomidine compared to the control and systemic route of administration. Dynamic VAS was significantly lower in peri-neural dexmedetomidine group compared to the control group.
The time to first request to rescue analgesia was prolonged and total postoperative morphine consumption was reduced in the peri-neural dexmedetomidine group compared to the control group.

<table>
<thead>
<tr>
<th>Sensory and motor block characteristics. Values are means (SD)</th>
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<tbody>
<tr>
<td>Control</td>
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<tr>
<td>Onset of sensory block (min)</td>
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<tr>
<td>Duration of sensory block (hour)</td>
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<tr>
<td>Onset of motor block (min)</td>
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<td>Duration of motor block (hour)</td>
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* Denotes statistical significance compared to the control group.
† Denotes statistical significance compared to the systemic dexmedetomidine group.
Conclusion:

The use of peri-neural dexmedetomidine as an adjuvant to bupivacaine reduces the onset and prolongs the duration of femoral nerve block and improves the duration of analgesia in patients undergoing arthroscopic knee surgeries.
THE EFFECT OF FINAL EXAMINATIONS ON MYOFASCIAL TRIGGER POINT PREVELANCE IN STUDENT PHYSICAL THERAPISTS

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Background and Aims: Myofascial pain syndrome (MPS), characterized by painful trigger points, is one of the most common causes of chronic pain. Acute muscular trauma, repetitive strain and overuse may lead to the development of MPS. There are studies reporting correlation of MPS and psychological stress. Both the physical stress due to increased studying time and the psychological stress increases during the final examination period. The aim of this study is to investigate the effect of final examinations on myofascial trigger point prevalence in student physical therapists.

Methods: Grade 2-3 student physical therapists were invited to participate in the study. Shoulder, neck and back pain were evaluated on a 100mm visual analog scale (VAS). Beck depression inventory (BDI) and Beck anxiety inventory (BAI) were used to assess psychological well-being. Neck, shoulder and back muscles were palpated for the presence of active and latent trigger points bilaterally. The evaluation parameters and physical examination were repeated during the final examination period.

Results: The mean age of the patients was 21.7±1.3 years (73 females, 72 males). Neck pain(p<0.001), Shoulder pain(p=0.007), back pain(p<0.001), total number of active and latent trigger points increased(p<0.001) significantly during the examination period when compared to the lecture only period of the semester. BDI score (p=0.477) and BAI score (p=0.262) were not different between the two evaluation periods.

Conclusions: Final examination period may be a triggering factor for MPS development. The triggering mechanism seems to be increased physical stress rather than psychological stress, according to our results.
Chronic Pelvic Pain is a prevalent non-malignant condition in structures related to the pelvis, of either men or women, lasting for at least 6 months without proven infection or other obvious pathology. It can present as a major challenge to health care providers due to its complex etiology and poor response to therapy. Due to its multifactorial pathophysiology its management requires the knowledge of the pelvic organ systems and an understanding of all possible underlying conditions including musculoskeletal, neurologic, urologic, gynecologic, gastroenterologic and psychologic, which mandates a multidisciplinary approach in synchrony with the chronic pain service.

A 56-year-old woman with chronic pelvic pain, characterized as an intense and constant stabbing sensation accompanied by burning and numbness, underwent an array of investigation and surgical procedures without any relief. The patient was refractory to a 6-months trial of conventional therapy. Unconventional treatment such as radio-frequency, epidural, transcutaneous electrical nerve stimulation and hypnosis, also revealed to be unsatisfactory. A subcutaneous neurostimulator with electrodes implanted on S3-S4 nerve roots was inserted and after 3 months of neuromodulation success was achieved with a decrease in pain and major improvement on quality of life.
HIGH HYPNOTIZABILITY REVERSES THE EFFECTS OF THE CEREBELLAR DIRECT TRANSCUTANEOUS STIMULATION (TDCS) ON PAIN
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Background and aims. The cerebellum is involved in several non motor functions including pain control. Anodal transcutaneous direct current stimulation (tDCS) of the cerebellum reduces pain intensity and the amplitude of nociceptive laser evoked potentials, whereas cathodal stimulation has opposite effects. Behavioral findings (postural control, blink rate, throwing accuracy) and preliminary morphometric studies (negative correlation between the cerebellar grey matter and hypnotizability) indicate that the cerebellar activity of highly hypnotizable individuals (highs) differs from the general population. This suggests that also the highs’ cerebellar modulation of pain following tDCS may display some peculiarities. The aim of the study was to investigate the effects of tDCS in highs.

Methods. We submitted 16 highs (classified according to the Stanford Hypnotic Susceptibility Scale, form A) to laser nociceptive stimulation of the dorsum of the left hand before and after dTCS of the cerebellum (anodal in half of them, cathodal in the others). Laser evoked potentials (LEPs) amplitude and latency and subjective pain experience (VAS) were analysed for each polarization.

Results. After anodal stimulation highs reported increased pain and showed larger N1 and N2/P2 amplitude; in contrast, cathodal stimulation increased the P2 latency. These effects are opposite to what observed in the general population, where tDCS is believed to affect the cerebellar cortex preferentially.

Conclusions. We hypothesize that, in highs, tDCS influences cerebellar nuclei rather than cerebellar cortex. Present findings indicate that hypnotic assessment may be relevant to predict the effects of cerebellar tDCS on pain.
Primary Hyperparathyroidism often presents with asymptomatic hypercalcaemia or minimal, unspecific symptoms. When symptoms do appear, they are often mild and nonspecific, such as a feeling of weakness, fatigue, depression or persistent lower back pain.

Method
67 year old white female presented to the pain clinic complaining of long standing lower back pain which radiates to her right groin. Her opioid pain medication requirements were increasing, in order to control her back pain.

Results
In May 2013 the patient was seen in the clinic after having posterior medial branch block of the lumbar facet joints L2/3-L5/S1. Lower back pain still persisted and now complained of additional right pain in the thumb and middle finger along with associated numbness. In June 2013 the patient underwent Nerve Conduction Test of her right upper limb which showed no evidence of carpal tunnel syndrome. Her repeat bone profile in June 2013 showed elevated corrected calcium levels 2.99mm/l, decreased 25OH Vitamin D levels of 40nmol/l despite vitamin D supplementation and normal liver and kidney function. Her PTH level was elevated and a diagnosis of hyperparathyroidism’s was made. Surgical workups revealed a parathyroid adenoma.

Conclusions
Hyperparathyroidism is an uncommon cause for lower back pain but must be excluded in all patients with a low level of 25OH Vitamin D levels[1] despite normal calcium levels and must be always excluded in patients with hypercalcaemia. This case highlights the importance of blood test in the diagnostic workup of lower back pain.
PERCUTANEOUS SPINAL INFILTRATION: REVIEW OF DIFFERENT TECHNIQUES AND POSSIBLE APPROACHES

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Background and aims
Purpose of our study is to demonstrate the various current techniques of percutaneous spinal infiltrations. In addition we will address indications and contraindications as well as possible approaches and the various imaging guidance systems. Finally we will illustrate advantages and disadvantages for each approach.

Materials and Methods
Spinal infiltrations are minimally invasive, therapeutic or diagnostic procedures involving injection of a long acting steroid with or without local anaesthetic. They constitute a symptomatic treatment for back pain and radiculalgia refractory to conservative medical therapy. In addition, they can clarify whether certain pathology could be the source of pain. However, the main purpose of this technique is to control painful symptoms during the acute phase until natural recovery occurs.

Results
Spinal infiltrations are performed under minimal or no anesthesia. Percutaneous spinal infiltrations include epidural (general) nerve blocks, transforaminal (selective) nerve blocks, caudal infiltrations, as well as facet and sacroiliac joint infiltrations. Image-guided percutaneous spinal steroid infiltrations are more effective concerning pain reduction and mobility improvement than placebo, local anaesthet ic alone or bed rest. Within an average of 6-13 days post the infiltration session, 65% of patients experience at least 50% of pain reduction, an improvement that lasts for an average of 15 months.

Conclusion
Percutaneous spinal infiltrations are safe and cost-effective techniques with significant and long lasting results concerning pain reduction and mobility improvement. They can be proposed as diagnostic tests, initial treatment or attractive supplements to conservative therapy.
Background and aims: Low back pain syndromes are the important link in neurology. Pain as personal experience develops not only due to physical pathology, but as consequence of person’s attitude towards disease, previous experience, described in terms of sensory and emotional disorders. Our aim was to study contribution of psycho-emotional state of patients on back pain syndromes.

Methods: We studied 23 patients with lumbar-sacral radiculopathies. Features of psycho-emotional state were studied using Hamilton scale and Aysenк questionnaire. Pain syndrome was assesses using VAS and DN4 scale.

Results: Disorders like depressive syndrome were observed among 58% patients. Pain syndrome according to VAS was 6.9±0.3 in persons with depressive signs and 5.5±0.2 in persons without the latter. Among the persons with duration of the pain syndrome 2 and more months neuropathic elements developed that were assessed according to questionnaire DN4 (35%). Psycho-emotional disorders were very evident among patients with choleric and melancholic type (according to Aysenk questionnaire). Among persons with melancholic temperament course of pain syndrome was overlapped with depressive signs in 79%, among patients with sanguinic temperament it was not the case. Intensity of the pain syndrome was associated with the next trends: it was higher in persons with melancholic and choleric type (6.7±0.2 and 6.3±0.2, respectively), and lower among persons with sanguinic and phlegmatic type (5.9±0.2 and 4.8±0.3, respectively).

Conclusions: Study of the psycho-emotional features of pain perception, would contribute to optimization of the therapy and rehabilitation among the patients with chronic spinal pain.
BACKGROUND AND AIMS: The procedures made by a needle are the most prevalent and important sources of pain for children. Then, this study aims to compare the effects of buzzy and shotblocker to reduce procedural pain during insulin injection in children between the ages of 7-11.

METHODS: This is a prospective randomized clinical trial. The study was conducted at the pediatric endocrinology clinic of Eskisehir Osmangazi University Medical Faculty, Eskisehir, Turkey. Inclusion criteria were 7-11 year-old patients who have type 1 diabetes mellitus and injected insulin. The data was obtained by interviewing the children and the observer. Procedural pain levels of children was assessed by observer reports using Wong Baker pain scale. Data that were analyzed with SPSS 21.00. p< 0.05 was considered as significant. Parametric data such as pain level of children were compared with the t test. Non-parametric data such as gender and success of blood drawing procedure were compared with percentage of frequency and $\chi^2$ comparisons.

RESULTS: Both experimental groups have significantly lower pain levels than the control group ($p< 0.05$).

CONCLUSION: The result of the study suggests that the both methods effectively decreased pain and anxiety levels of children compared to control group according to self-reports and observer reports.
SELF-MANAGEMENT OF SEVERE ARTHRITIS PAIN WITH A NOVEL OVER THE COUNTER DEVICE

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Background and Aims: Treatment options for self-management of moderate to severe arthritis pain are limited. A novel, over the counter (OTC), non-invasive wearable device, that has shown clinical efficacy for musculoskeletal pain was investigated in a large cohort of rheumatoid arthritis (RA) and osteoarthritis (OA) sufferers in the general population.

Methods: A registry was established through the offer of trialing a sample device that had a 7-day continuous use time. The pulsed shortwave device (PSWT) has a mechanism of non-invasive neuromodulation. After completion of the trial subjects were assessed for pain responses and intention to continue use. A second assessment was conducted at 3 months to evaluate durability of effectiveness of pain self-management. Continued use of the device was dependent on subject purchase from a retail location.

Results: Phase one established a registry of 2200 subjects who trialed the device for pain in various parts of the body caused by RA (680) and OA (1520); baseline VAS scores were 8.37 and 8.15 respectively. Benefit (2> VAS point decrease) was seen in 71% of RA and 65% OA subjects. Average decrease in VAS scores were 58% and 56%. Seventy percent indicated an intention to purchase the retail device and these subjects were reassessed at 3 months. At 3 months pain control was maintained for 93% of the subjects, along with decreased pain medication use and improved quality of life.

Conclusion: This wearable form of non-invasive neuromodulation PSWT device appears to offer a new OTC option for self-management of arthritis pain.
Backgrounds and Aims: The major problem in neuropathic pain situation is found in GABAergic pathways in the spinal cord. The aim of this study is to investigate the effectiveness of GABA\textsubscript{A} and GABA\textsubscript{B} receptor agonist in reversing pain modalities in a central model of neuropathic pain.

Methods: Spinal cord injury was produced by compression of spinal cord at level of T6 –T8 by a micro-vascular clip located vertically for 60 sec in rats. For drug delivery PE10 catheter was inserted into the subarachnoid space. Testing was performed 3 weeks after spinal cord injury. Tactile allodynia was quantitated by withdrawal of the hindpaw in reaction to the von frey filaments. Cold allodynia assessed by acetone drop to the hindpaw. Plantar test and analgesiometer used to estimate the thermal and mechanical hyperalgesia respectively. Motor function was tested using BBB test. At the end of the experiment animals were anaesthetized and transcardially perfused with fixative. Sections of spinal cord were stained with Nissle staining.

Results: Compression injury of the spinal cord produced a small cavity in the dorsal horn of the spinal cord which was coordinated with impairment of the motor function of animals. Spinal administration of GABA\textsubscript{A} agonist, muscimol, decreases thermal hyperalgesia. GABA\textsubscript{B} agonist, baclofen, did not change the thermal hyperalgesia. Both drugs reduced mechanical hyperalgesia and cold and tactile allodynia.

Conclusion: Exogenous administration of GABA\textsubscript{A} agonists reversed spinal cord compression-induced allodynia and hyperalgesia. Spinal GABA\textsubscript{A} agonists may provide a better therapy than GABA\textsubscript{B} agonists for neuropathic pain.
Peripheral neuropathy is one of the most common complications of diabetes affecting about 50% of patients. The most prominent symptoms involve the extremities and occur as both an exaggerated response to noxious stimuli (hyperalgesia) and as mild or non-painful stimuli (allodynia). Hemopressin (Hp) is a nonapeptide, which selectively binds to type 1 cannabinoid receptors (CB1R) and exerts antinociceptive actions in experimental inflammatory and neuropathic pain models. However, there is no data about the efficacy of this peptide in a metabolic-related neuropathy like diabetes mellitus. The aim of this study is to investigate the role of Hp in a mouse model of type 1 diabetes-induced neuropathy, as well as the mechanisms involved in such effect.

Mechanical allodynia was assessed by Von Frey filaments 7, 14 and 28 days after the injection of streptozotocine (STZ; 200 mg/kg, intraperitoneal). Body weight and blood glucose were monitored once a week. After 7 days of STZ injection, Hp was administered once a day for 7, 14 or 28 days (2.5 mg/kg, oral). The effect of Hp on diabetes-induced sciatic nerve demyelination was evaluated by histology. Nerve growth factor (NGF) levels were evaluated by ELISA.

Hp reversed mechanical allodynia of diabetic mice, both acute and chronically, without changing blood glucose levels or body weight. Hp treatment prevented sciatic nerve demyelination of diabetic animals after 14 days of treatment, and protected NGF levels after 28 days.

Taken together these results make hemopressin an attractive tool for the development of cannabinoid-based therapies for the treatment diabetic neuropathic pain.
While the operculo-insular and mid-anterior cingulate cortices are the main regions responding to nociceptive-specific input, the extent and timing of involvement of other cortical areas has been scarcely studied. The aim of the present study is to report the responses to noxious stimuli in various cortical areas and their dynamics of activation within the first second after a phasic nociceptive input.

Responses to laser stimuli were analysed with intra cerebral recordings in 27 epileptic patients. Only regions devoid of epileptic activity were considered, which included frontal (BA 6, 9, 10, 11, 46), parietal (BA 7, 40) and cingulate (BA 23, 24, 31, 32) cortices, as well as the hippocampal formation and amygdala.

The earliest responses were recorded, with almost identical latencies, in the posterior insulo-opercular cortex, the mid cingulate, the motor-premotor cortices and the amygdala. Regions responding with longer latencies included the anterior insula, posterior parietal and prefrontal cortices. The latest activities were recorded from the hippocampal formation, the ventral posterior and perigenual anterior cingulate.

Many regions of the ‘pain matrix’ are activated within the first second after nociceptive stimuli. The virtually identical onset latency of operculo-insular and amygdala responses, together with the lack of significant spectral coherence between them, suggests that nociceptive inputs reach sensory and limbic networks simultaneously and in parallel through spino-thalamic and spino-parabrachial pathways. Both systems appear to converge in the anterior insula. The late activation of the ventral posterior cingulate may reflect the interaction between stimulus processing and self-awareness.
THE RELATION BETWEEN EXECUTIVE FUNCTION AND PSYCHOLOGICAL FLEXIBILITY.
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Background: Executive function refers to a set of cognitive processes used in the management of goal-directed behaviors. Current research proposes a relationship between pain, self-regulatory capacity, executive functions and attention control, suggesting that executive functions and self-regulatory deficits are part of the etiology and maintenance of chronic pain conditions. In ACT a central treatment target is psychological flexibility. Psychological flexibility has been described as much depending on and related to executive functioning (Todd B. Kashdan & Rottenberg 2010). To our knowledge there is to date no study that examines the relation between executive function and psychological flexibility.

Aim: To examine the relationship between executive function and psychological flexibility in a sample of adolescents with longstanding pain

Method: At present, data from 24 subjects have been obtained. A correlational study design is employed to evaluate the degree of association between executive function, psychological flexibility and functional impairment due to pain. The influence of pain level, depression and insomnia is also investigated. Participants are administered four tests from the Delis-Kaplan Executive Function System (D-KEFS) as a direct measure of executive function Self-report assessments are administered for measurement of psychological flexibility (PIPS and AFQ-Y), impairment due to pain (PII), degree of pain (VAS), sleep disturbance (ISI), and depression (CES-DC).

Results & Conclusion: Correlation analyses will be performed in order to clarify the relationships between the investigated variables. Preliminary results for a minimum of 24 subjects will be available for presentation in September 2015.
INFLUENCE OF TWO POSITIVE FACIAL EXPRESSIONS ON PAIN THRESHOLD

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Background and aims

Previous studies have shown that positive facial expressions reduce sympathetic arousal, heart rate variability and thereby suppress stress responses. Other research revealed that even social laughter is correlated with an elevated pain threshold, although very little is known about which positive facial expressions may have an influence on pain threshold. The aim of this study was to investigate the effect of an induction of two facial expressions, genuine (GS) and faked smile (FS), on the pressure pain threshold (PPT).

Methods

We conducted a short-term double-blind controlled experiment where fifty-five participants were randomly assigned to either the GS group (genuine smile activation), FS group or the control group in which neutral facial expression was maintained. Three repeated measurements of PPT were performed during three separate sessions and only during the second session GS or FS were inducted. Participants activate or deactivate selected muscles by holding chopsticks in their mouth. The sEMG biofeedback from desired muscles was used to enhance internal validity.

Results

Our results demonstrated that PPT is elevated during the induction of either GS or FS (P < 0.01). However, this effect was temporary and did not occur during the third measurement session associated with neutral facial expression. In control group the PPTs were similar among the three sessions of measurement (P > 0.05).

Conclusions

PPT was elevated during the induction of either a genuine or faked smile but not when neutral facial expression was maintained.
PAINFUL DIABETIC NEUROPATHY: OUR STUDY ON IMPAIRMENT AND TREATMENT PATTERNS OF OUR TYPE 2 DIABETES CONSULTATION

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AIMS: Painful diabetic peripheral neuropathy (DPN) is described as a superficial burning pain associated with other sensory symptoms affecting the feet and lower extremities. Our aim was to determine the burden of DPN with respect to pain intensity and impact on patient day to day chores.

METHODS: Patients (n=310) with type 2 diabetes, and n=78 with painful DPN. Presentation included multiple symptoms: allodynia, hyperalgesia, dysesthesias, and serious disruption of social functioning and mood. Patients answered a questionnaire that included pain severity and interference in daily life situations. The participating two physicians provided information on disease duration and current medications.

RESULTS: The mean patient age was 63.2±10.2 years; 64% of the patients were over 65 years old. The duration of painful DPN was superior to a year in 90% of patients. The mean Pain Severity Index was 6.0±2.0 (peak); 59% of patients reported moderate pain and 35% reported severe pain. Patients reported significant interference with daily life chores despite 90% of patients being treated with anti-epileptics (60%), standard analgesics (81%), and amitriptyline (14%). Disruption in employment, due to suboptimal pain management was reported by 57% of the patients with 16% being dismissed.

CONCLUSIONS: In addition to glycemic control, other treatment approaches must be taken into consideration in order to restore quality of life for patients experiencing DPN. As differential diagnosis is required, the Internist paper is to isolate DPN from other unexplained chronic pain. Current treatment options for DPN include mainly antidepressants and anticonvulsants, with other agents as tapentadol being recently prescribed.
OFFSET ANALGESIA: PERIPHERAL OR CENTRAL INHIBITORY MODULATION OF PAIN IN HEALTHY VOLUNTEERS?

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Background and aims: Offset Analgesia (OA) is a disproportional decrease in pain perception, elicited by a slight decrease of a noxious cutaneous heat stimulus. This study aimed to investigate the peripheral and central components of OA, using a combination of different stimulation locations.

Method: 24 healthy volunteers participated in the study. Three control-tests (C1, C2, C3) consisting of 30s of 48°C constant heat stimulation were applied to one of the three areas of the forearm (A1, A2, A3 respectively) with a distance from each area of 1cm. Three OA-tests (48°C for 5s, 49°C for 5s, and 48°C for 5s in the same area) were also respectively applied to the areas. Three different stimulation regimes were performed using a combination of stimulation locations to investigate possible central OA mechanisms. Two temperatures were used in the following test sequences (t1=48°C, t2=49°C), with baseline t0=35°C.

[TEST: AREA (A) – TEMPERATURE (T) – DURATION_OF_HEAT]:
Regime1: A1-t1-5s A2-t2-5s A1-t1-20s
Regime2: A1-t1-5s A1-t2-5s A2-t1-20s
Regime3: A1-t1-5s A2-t2-5s A3-t1-20s

Results: OA was confirmed in all three areas. OA potency decreased gradually when the third stimulus was gradually moved away from the first one. The OA associated VAS decreases significantly as compared with control conditions where 32%, 19% and 17% for R1, R2, and R3 respectively. The traditional OA regime (OA1, OA2, OA3) showed a significant mean VAS decrease of 38% compared to control condition.

Conclusion: The data suggests OA is composed of both a peripheral and a central component, operating in conjunction.
A PRELIMINARY STUDY OF PERCEIVED INJUSTICE IN A MILITARY CHRONIC PAIN POPULATION: PREVALENCE & ASSOCIATION WITH PAIN OUTCOMES

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Background & Aims:

Perceived injustice has been associated with poorer rehabilitation outcomes in individuals with chronic pain but to our knowledge has never been assessed in a military population. At the Defence Medical Rehabilitation Centre, Headley Court, the Specialist Rehabilitation department provides treatment to UK military personnel for problems including chronic pain, chronic fatigue, and post-acute illness.

Methods:

Data from routine self-report patient questionnaires collected prior to inpatient multidisciplinary rehabilitation between Jan-Sept 2014 was examined retrospectively.

Inclusion criteria: pain duration >3 months. Outcome measures: patient demographics, the Injustice Experiences Questionnaire (IEQ) and the Brief Pain Inventory (BPI).

Results:

N=69; M:F 45:15; mean age 36.01 (8.18); BPI mean severity 5.64 (1.88), interference 6.12 (2.10). IEQ mean 27.01 (11.88). Clinically significant levels of perceived injustice (>30/48) were reported in 47.8% of the sample.

Pearson correlations examined the relationship between patients’ IEQ and pre-treatment mean pain scores. There was a strong, positive association between total IEQ score and mean pain severity (r=.533, n=69, p<.0001) and mean pain interference (r=.558, n=69, p<.0001). Similar associations were identified for BPI and IEQ sub-scales.

Conclusions:

To our knowledge, these are the first preliminary findings to indicate that clinically significant levels of perceived injustice exist in almost half of this military chronic pain population. We identified a strong statistically significant correlation between mean pain scores (intensity and interference) and perceived injustice. Future analysis will examine the associations between IEQ and other factors including demographic and pain related variables, mood, and quality of life scores.
A PILOT STUDY INVESTIGATING WHETHER QUANTITATIVE SENSORY TESTING ALTERS AFTER PREGABALIN IN PATIENTS WITH FIBROMYALGIA

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Background and Aims

Fibromyalgia (FM) is chronic musculoskeletal pain condition that is often associated with sleep disturbances and fatigue. Current techniques have failed to predict response to treatments used in FM and global outcome measures such as visual analogue scores (VAS) provide only a crude measure of pain experience. The aim of this study was to evaluate whether quantitative sensory testing (QST) detects a change in pain in FM receiving pregabalin treatment.

Methods

Ten female FM patients received routine pregabalin and QST was measured at baseline and monthly for 12 weeks. Measurement of pressure pain thresholds (PPT) used a pressure algometer. DNIC response was measured using PPT with an inflated cuff in-situ on one arm. Fibromyalgia impact questionnaire (FIQ) was also completed.

Results

Patients with FM demonstrated loss of DNIC, (PPTs 141 vs. 122 (kPa). A “normal” DNIC response was observed at one month and this was maintained until the final visit 187.3 vs. 330. PPT showed a significant improvement increasing from baseline 141.4 to 213.2 (p=0.03). Patients also reported a similar magnitude of improvements and its impact on daily life on FIQ (P<0.01).

Conclusion

This pilot study reports an increase in PPTs and in the DNIC response with pregabalin, which was maintained at 12 weeks. Pregabalin is a licensed treatment for fibromyalgia in Europe, its response to central sensitisation particularly ‘dynamic responses’ has not been reported. This is the first study demonstrating reduction in peripheral and central sensitization as measured by QST in patients with fibromyalgia following pregabalin.
AMERIOLATION OF CHRONIC PAIN WITH MOOD DISORDER BY PHARMACOLOGICAL AND PHYSICAL TREATMENTS VIA ACTIVATION OF DESCENDING INHIBITORY SYSTEM AND INDUCTION OF BRAIN-DERIVED NEUROTROPHIC FACTOR

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Background: Depression-like behavior is complicated by chronic pain. However, little is known about “pain-emotion” in chronic pain and its molecular mechanisms. Affective state related to low BDNF may lead to dysfunctions of descending inhibitory systems. Thus, we characterized trkB-related signaling in depression related to chronic pain to investigate the effects of drugs and magnetic stimulation (MS) which evoke descending inhibitory system. In addition, these effects were compared with pregabalin (PG), an anticonvulsant used to treat neuropathic pain.

Methods: Sprague-Dawley rats were subjected to chronic constriction injury (CCI). We employed plantar test (PWL) and a forced swimming test (depression) associated with signaling (pERK1/2) and the BDNF mRNA (RT-PCR). Imipramine (IMI), neurotropin (NTP)®, or MS was treated after CCI. To ensure the analgesic and anti-depressant effects, either K252a, or 5,7-DHT was administered. pERK1/2 (immunohistochemistry) and BDNF mRNA (RT-PCR) were measured in the anterior cingulate cortex (ACC) and rostral ventromedial medulla (RVM).

Results: During chronic pain, the rats showed a sustained decrease in PWL associated with extended immobility time and an increase of pERK1/2 and a decrease of BDNF mRNA in ACC and RVM. Anti-depressant effect of IMI and NTP, but not PG, were reversed by K252a, and 5,7-DHT. Moreover, MS ameliorates depression and was antagonized by anti-BDNF. MS activated ENKergic system.

Conclusion: These data clearly demonstrated that IMI, NTP, and MS reduce depression in chronic pain via prevention of abnormal trkB related signals (ERK1/2) and BDNF synthesis in ACC and descending system, suggesting these treatments modulate pain by interacting with BDNF in pain-emotion state.
Background and aims: Pain is the main indication for surgical treatment of knee osteoarthritis (OA). Although most patients report improvements in pain and function after total knee replacement (TKR), about 30% report persistent pain 12 months after surgery. Recent research has shown that serum cytokine biomarkers of inflammation are implicated in OA pain. However, no study has related these biomarkers as predictors of pain after TKR. This study aimed at finding a potential association between preoperative levels of inflammatory cytokines and the development of persistent pain after TKR.

Methods: Knee pain intensity was measured on the visual analog scale (VAS: 0-10 cm). Patients were divided into two groups of low-pain (non-chronic: VAS < 3) and high-pain (chronic: VAS ≥ 3) based on their VAS 12 months after TKR. Serum samples were collected from patients before surgery and analyzed for cytokines levels by multiplex Luminex immunoassay.

Results: The chronic group (N = 47) had a mean VAS of 5.7 compared with the non-chronic group VAS of 0.5 (N = 125) 12 months after surgery (t test, P < 0.0001). The chronic group had significant higher levels (P < 0.01) of IL-1β, TNF-α, IL-2, IL-6, IL-8, IL-15 and IL-17, and significant lower levels (P < 0.05) of IL-4 and IL-10 compared with the non-chronic group. No significant difference was found in IL-12p70 and IL-13 levels between the groups.

Conclusions: These data suggest that inflammatory cytokines could be potential predictive biomarkers for development of persistent pain after TKR in patients with OA.
ANALGESIC EFFECT OF VARENICLINE IN RAT PARKINSON’S DISEASE MODEL INDUCED BY UNILATERAL 6-HYDROXYDOPAMINE-LESION OF SUBSTANTIA NIGRA
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Background: Changed pain perception and reduced threshold take place in Parkinson’s disease (PD), in addition to the motor dysfunction that results from nigrostriatal pathway lesion. The nicotinic receptors (nAChR) are important in PD and pain pathogenesis. Varenicline, a partial α4β2 nAChR agonist and full α7 nAChR agonist could be effective in treatment of PD.

Aim: To determine the possible analgesic effect of chronic-low dose varenicline in rat PD model.

Method: The PD model was induced by unilateral injection of 6-hydroxydopamine (8mg/4mL) into substantia nigra. The lesion was verified by apomorphine-circling after 3 weeks. Varenicline (1 mg/kg i.p.) was injected 14 days after lesion induction. The analgesic effect was evaluated using hot plate, tail flick, acetic acid visceral writhing and formalin test.

Results: Varenicline, after 7 days, significantly (P<0.05) elevated pain threshold in hot-plate test.

Conclusion: Varenicline displayed a supraspinal analgesic activity. As a nAChR agonist varenicline could be beneficial in treatment of PD.
Background and aims

Endothelin type A receptor (ETAR) plays a critical role in Endothelin-1 (ET-1)-mediated neuropathic pain, a disease in which the mitogen activated protein kinases (MAPK) family and nuclear factor NF-κB p65 signaling take important parts. Results of our past study showed that inhibition of spinal ETAR alleviates neuropathic pain, but the underlying mechanism remains unknown. Therefore, we hypothesized that inhibition of central ETAR ameliorates neuropathic pain through modulation of the MAPK family and NF-κB p65.

Methods

Rats were subjected to sciatic nerve ligation (SNL) or sham operation with or without ETAR antagonist, BQ-123, administered intrathecally via implanted catheter at dosages 30μg, 60μg, or 90μg daily for 3 days respectively. Mechanical allodynia was assessed daily 30 minutes before/-after-injection, 1 hour after-injection of BQ-123 from post-SNL day 4 to 6, and once on day 7 (without BQ-123 administration) before rats were sacrificed.

Results

SNL sensitized animal’s pain response to von frey filaments applied to the ipsilateral hind paw. This observed mechanical allodynia was reduced by inhibition of spinal ETAR at all dosages significantly (P

Conclusions

Spinal ETAR inhibition alleviated neuropathic pain in part through inactivation of MAPK family and NF-κB p65.
Background and aims

Physicians reported the need for a new treatment in pediatric painful care. The French drugs regulatory agency said that « when nitrous oxide is not efficient, intravenous ketamine at low dose appears as the only drug usable ». Our aim was to imagine and design a new treatment involving ketamine: non-invasive, non-anxiogenic, painless, easy to use with a dose reproducibility and free preservative in order to be children friendly. We focused our research on the sublingual route: twice higher bioavailable than orally, adapted to emergency use and efficient even if the child is crying.

Methods/Results

Sol/gel formulation: rheology and thermogelification

First we tested different mix of poloxamers to obtain a gelation at 37°C. Viscosity of these gels compels us to add rheofluidifiant excipient and to choose a high shear stress device. Our viscosity at 25°C was 7461.4 Pa before adding the rheofluidifiant and is now 5295.7 Pa. We choose a component which was both rheofluidifiant and bio-adhesive in order to provide bucco adhesion.

Dose reproducibility assay

We selected the best device out of 10 different ones. We obtained a sprayability with a scope of 20° at 20 centimeters with reproductibility of the dose: 140 µL weight 154 mg ±0.5. We repeated the pulverisation 125 times.

Conclusions

We developed a new pediatric sublingual bio-adhesive formulation suitable for emergency use. We have the possibility to adapt the dose to the child’s weight with more pulverizations at 25°C.
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LATE-BREAKING POSTER SESSION III

A PROSPECTIVE LONGITUDINAL STUDY OF PATIENTS REFERRED TO A SPECIALIST CANCER PAIN CLINIC: PREDICTORS AND CORRELATES OF TIME TO ACHIEVE STABLE CONTROL OF CANCER PAIN

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Background and Aims

Inadequate control of cancer pain (CP) is commonly attributed to poor assessment. This study aimed to determine the predictors and correlates of achieving stability in CP control.

Methods

Patients referred consecutively to the CP clinic of the Portuguese Cancer Institute in Lisbon and agreeing to participate had standardized initial assessment, subsequent monitoring through pain diaries and weekly pain physician follow up by telephone or in clinic until the study end point of stable pain control. The primary study outcome was the time required to reach stable pain control (defined as having a pain intensity score of ≤ 3 for 3 consecutive days and using < 3 breakthrough opioid analgesia doses daily for the same 3 consecutive days). Cox Proportional Hazards analyses were conducted to test the association of potential predictor variables for time to stable pain control (TTSPC), thus generating Hazard Ratios with respective 95% confidence intervals.

Results

Of 371 participants, 285 (77%) had moderate (4-6) or severe (7-10) initial pain intensity. The initial median morphine equivalent daily dose, MEDD = 30 (20-60) mg was low. Stable pain control was achieved in 349/371 (94%) of patients within the 70-day study period; the median time to stable pain was 18 (16, 19) days. Predictors of longer TTSPC included neuropathic pain, moderate or severe initial pain, an alcohol abuse history, higher MEDD and exposure to chemotherapy within 30 days (p<0.01).

Conclusions

Our study highlights the need to comprehensively assess and target the complex multidimensional predictors of stable pain control.
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LATE-BREAKING POSTER SESSION III

THE PREVALENCE AND MANAGEMENT OF NEUROPATHIC PAIN FOLLOWING SPINAL CORD INJURY IN IRELAND

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Background: Pain is one of the most common secondary complications post SCI. This study aimed to establish the national prevalence, severity of symptoms and health service and medication utilisation for people with NP post SCI in Ireland.

Methods: A cross-sectional postal survey was undertaken of all members of Spinal Injuries Ireland (national SCI support group). The questionnaire pack contained a demographic form that included questions regarding health service utilisation and pain management strategies, and validated measures for pain (numeric rating scale, the Douleur Neuropathique 4) and quality of life (WHO Quality of Life BREF).

Results: From 1,574 members the response rate was 43.8% (n=690), a mean (sd) age of 52.5 (14.43) years, and a mean (sd) time since injury of 16 years (12.42) years. Two-thirds (68.3%, n=447) were male. Pain in the previous seven days was reported by 70.5% (n=461), 38.5% (n=252) described their worst pain as burning, and 33.9% (n=222) as electric shocks. A total 42.8% (n=280) reported feeling frequently depressed or anxious, and 14.7% (n=96) reported that pain significantly impacted on their sleep quality. Pain treatments were used by 38.8% (n=254), the most frequently utilised included; massage, heat and relaxation. Pain medication was used by 58% (n=379), with paracetamol, non-steroidal anti-inflammatory and pregabalin the most popular and 44.5% (n=291) had consulted at least one healthcare professional for their pain.

Conclusions: There is a high prevalence of pain following SCI which has negative effects on quality of life, mood and healthcare utilisation.
Antiretroviral therapies (ART) represented a huge break-through in the treatment of HIV. However, due to their characteristic pharmacokinetic properties, they have been implicated in significant interactions with a variety of drugs used to treat comorbidities in these patients. Most opioids undergo hepatic glucuronidation making them not suitable to administer concomitantly with ART. Hydromorphone is a μ-agonist opioid drug and there are few reports about the safety and efficacy of its association with ART.

The authors intend to describe the case of an HIV patient successfully treated with hydromorphone.

46 years old male, HIV since 2005, under ART (emtricitabine 200mg + tenofovir 300mg id, atazanavir 300mg id, ritonavir 100mg id) diagnosed with end-stage pancreatic cancer. Treated for pain with paracetamol 1g tid, metamizol 575mg bid and tramadol 100mg tid. Numerical Pain Rating Scale (NPRS) = 8. Tramadol was stopped and started hydromorphone 8 mg id with a reduction in the pain to NPRS = 0. No adverse effects were reported.

Studies suggest that there are no clinically significant interactions between either emtricitabine or tenofovir with hydromorphone.

The safety of co-administration of atazanavir and ritonavir with hydromorphone has not been studied. They induce glucuronidation and their association with hydromorphone could potentially decrease the opioid analgesic effect.

The pain management in a HIV patient may be a challenge. Understanding the pharmacokinetics of opioids and ART can help guide-prescribing decisions and optimize pain management. More studies need to be performed to infer the safety of new opioids in HIV patients under ART.