well as an up-regulation of HER3 in the DRG were demonstrated after application of NP onto the dorsal nerve roots.

Conclusion: Our findings suggest that EREG and signaling through its receptors may be involved in pain hypersensitivity and other sensory abnormalities after disc herniation.

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Pain rehabilitation with language interpreter, a multicenter development project

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Aims: To describe patients with persistent pain participating in multimodal rehabilitation with language interpreter (MMRI) with regard to demographic data, pain, anxiety, depression, fear of movement, health related quality of life before and after rehabilitation.

Methods: The university rehabilitation departments in Lund and Stockholm developed multimodal rehabilitation programmes for patients who cannot participate in ordinary programmes due to insufficient knowledge in Swedish. From 2014 to 2015, 50 patients participated in the MMRI. Data was collected at admission and discharge with instruments from the Swedish quality registry for pain rehabilitation. The assessments included health related quality of life (EQ5D), anxiety and depression (HADS), fear of movements (TSK), disability (PDI).

Preliminary results: Fifty patients participated in MMRI. Seventy-eight percent were women, and 88% were born outside Europe. Compared to patients participating in Swedish regular rehabilitation programmes (MMR), the level of education was low, 44% had finished high school (55% in MMR in Sweden) and 8% university (27% in MMR in Sweden). Also the distribution of pain differed; in MMRI 40% reported pain with varying localization compared to 33% in MMR. Both groups were frequent health care seekers, even though MMRI's patients reported a higher frequency of visits than MMR regular patients; 94% of MMRI's patients compared to 70% MMR patients were seeking physicians more than 4 times due to pain during the previous year. Both groups report very low health related quality of life. In the MMRI group, at admission, the EQ5Dindex was 0.088 (md) (MMR 0.157). This can be compared with 0.83, the value for the Swedish norm population.

Conclusions: Patients participating in MMRI, compared to patients participating in MMR, reported poorer health, higher rate of visit to physicians due to pain and less higher education than other, Swedish speaking pain patients attending to the country pain programmes.

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Trait-anxiety and pain intensity predict symptoms related to dysfunctional breathing (DB) in patients with chronic pain

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Aims: The purpose of this cross-sectional study was to investigate the occurrence of symptoms related to dysfunctional breathing (DB) in chronic pain patients and to examine factors associated with these symptoms.

Methods: A questionnaire was sent to 527 adults referred to outpatient pain clinics at Oslo university hospital. The questionnaire provided demographic data, Brief Pain Inventory, Spielberger state-trait anxiety inventory, and Nijmegen questionnaire (NQ). Multiple regression analyses were performed using SPSS.

Results: A total of 108 patients (20%) responded to the questionnaire and was included. Mean age was 49 years and two third of the participants were female. More than four out of ten had a NQ score $\geq$23 (a conservative cutoff value for DB). The median NQ score in the sample was 19. Trait-anxiety (Beta = .412, $p < 0.001$) and maximal pain intensity during the past week (Beta = .264, $p = 0.004$) predicted symptoms related to DB even when controlling for age and gender.

Conclusions: The study shows that a large portion of patients with chronic pain experiences symptoms that have been associated with hyperventilation and DB and at a higher level than previously reported. Although trait-anxiety is a strong predictor for symptoms related to DB, we find it interesting that maximal pain intensity during the last week also was associated with these symptoms. The cross-sectional design, low response rate, and lack of diagnoses limit our ability to draw conclusions about causal relationship and extrapolate to a larger populations of patients with chronic pain.

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Emla®-cream as pain relief during pneumococcal vaccination

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Background: Pneumococcal vaccination for children was introduced in Sweden in 2009. For more than two decades, previous studies have shown that anesthetic cream Emla® has good effect in reducing vaccine-related pain. Even today health care workers claim "children forget quickly, and it (the pain) goes away", this ignorance causes pain in children not treated or treated in one for the child and his guardians satisfactorily way.

Purpose: The purpose of this intervention study was to compare the effect of Emla® cream for pain relief or no pain relief

in connection with the first pneumococcal vaccination at three months of age in child healthcare.

Method: The study included 72 children who, at three months of age received their first pneumococcal vaccine (Prevenar 13®). The children were randomized, 36 children received pneumococcal vaccination with placebo cream and the other 36 children received the intervention, Emla®-cream.

Result: The result shows that anesthetic cream Emla® significantly reduces pain when FLACC is used as a pain assessment tool and the children begin to cry significantly later than children who received placebo cream. An interesting secondary finding of the study was that the younger the child was the stronger was the reaction to pain.

Conclusion: The infant needs to be treated as an autonomous individual with full integrity. We recommend Emla® to be used and applied in vaccination when the children are three-, five- and twelve months.

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Use of Complimentary/Alternative therapy for chronic pain

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Aims: To investigate the use of Complimentary/Alternative therapy for chronic pain in nationwide sample.

Methods: In this cross-sectional study a postal questionnaire measuring socio-demographic variables (e.g. gender, education, income and residence), pain characteristics (severity and interference with daily life), health related quality of life and use of Complimentary/Alternative therapy for chronic pain, was sent to a sample of 4500 individuals randomly drawn from the national population of Iceland. The relationships between socio-demographic and pain related variables and pain related use Complimentary/Alternative therapy among participants reporting chronic pain (≥3 months) were tested.

Results: The prevalence of chronic pain (≥3 months) among respondents was 47.5%. Among participants reporting chronic pain, 45.5% ($n = 343$) reported having consulted some kind of Complimentary or Alternative therapy for their pain the previous six months and this was more prevalent among women than men. Most usual kind of therapists consulted was Acupuncturists (21.4%) and Chiropractors (18.3%). There were some gender differences in what kind of therapy people had consulted. Women were more likely than men to have consulted Acupuncturist while men consulted a Chiropractor more often than women. Logistic regression analysis showed that predictors for use of Complimentary/Alternative therapy for chronic pain were gender, urban residence and pain severity. The use of Complimentary/Alternative therapy was not related to education, family income or health related quality of life.

Conclusions: Women and urban residents are more likely than men and rural residents to seek Complimentary/Alternative therapy for chronic. People are more likely to seek Complimentary/Alternative care for chronic pain the more severe pain is.

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Effect of conditioned pain modulation on long-term potentiation-like pain amplification in humans

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Aim: The current study aimed to explore the effect of conditioned pain modulation (CPM) on the long-term potentiation (LTP)-like pain amplification induced by peripheral 10 Hz conditioning electrical stimulation (CES).

Methods: Sensory changes and neurogenic inflammatory vascular reactions induced by 10 Hz CES were assessed in twenty subjects in a randomized crossover design involving two experimental days separated by at least one week. The CPM effect was activated by cold pressor test (CPT) (4 °C) which was applied immediately before the 10 Hz CES in the active session and 32 °C water was used in the control session. Perceptual intensity ratings to single electrical stimulation (SES) at the conditioned skin site and to mechanical stimuli (pinprick and light stroking) in the immediate vicinity of the electrode for CES were recorded. Superficial blood flow (SBF), skin temperature (ST), and heat pain threshold (HPT) were also measured. The pain intensities during the CES process were recorded and the short-form McGill Pain Questionnaire (SF-MPQ) was used for assessing the pain experience.

Results: CPT reduced the pain perception increments to pinprick (12.8 g) and light stroking stimuli after 10 Hz CES compared to the control session. Moreover, CPT resulted in lower pain intensity ratings during the CES process but without significant changes in the SF-MPQ scores between the two sessions. The SBF and ST were found to increase after CES and then gradually decline but without differences between the CPT and the control sessions. No CPM effect was found for HPT and pain intensity increments to SES.

Conclusions: The cold pressor test inhibited heterotopic perception amplification to mechanical stimuli after conditioning electrical stimulation. The results indicate that endogenous descending inhibitory systems may affect pain-amplificatory mechanisms.

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