

vascularization and other lncRNAs as predictive indicators for the development of chronic postoperative pain.

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### Painful diabetic polyneuropathy and quality of life in Danish type 2 diabetic patients

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**Background and aims:** Painful polyneuropathy (PPN) is a disabling complication of diabetes. This study aims to determine its prevalence and relationship with Quality of Life (QoL) in a nationwide prospective cohort of incident recently diagnosed Danish type 2 diabetic patients.

**Methods:** We sent a detailed questionnaire on neuropathy, pain and QoL to 6726 patients prospectively enrolled from general practitioners and hospital specialist outpatient clinics into the Danish Centre for Strategic Research in Type 2 Diabetes (DD2) cohort. Patients who reported pain in both feet and a score  $\geq 3$  on the Douleur Neuropathique (DN4) questionnaire were considered to have possible PPN. QoL and pain intensity were measured on a numeric rating scale (NRS, 0–10). The Michigan Neuropathy Screening Instrument (MNSI) was used to assess neuropathy.

**Results:** A total of 5371 (79.8%) returned a complete questionnaire. 848 (15.8%) recently diagnosed type 2 diabetic patients reported pain in both feet. Of the 619 patients with pain who completed the DN4 questionnaire, 404 (65.2%) had a DN4 score  $\geq 3$ , corresponding to a prevalence in the total population of possible PPN of 10.3%. Mean pain intensity was 5.2 (SD 2.2) and 89% had a MNSI score  $\geq 3$ . Patients with possible PPN had a substantially lower QoL score than those without PPN (median QoL score 6 versus 8 ( $p < 0.001$ )), also when correcting for MNSI score.

**Conclusions:** Ten percent of newly diagnosed type 2 diabetic patients in Denmark had possible PPN. Patients with PPN had lower QoL than patients without PPN.

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### “What about me?”: A qualitative explorative study on perspectives of spouses living with complex chronic pain patients

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**Aims:** Being a close relative of a chronic pain patient affects family life. No study has been carried out in Denmark to explore relatives' life experiences and challenges while living with complex



chronic pain patients. Hence, the aim of the study was to investigate the experiences of living with chronic pain patients from their spouses' perspectives. In particular, this study focused on how spouses describe: (i) their everyday tasks and roles as a spouse; (ii) the types of changes and challenges that the pain condition brings into their partnership lives; (iii) a gender difference in these experiences; and (iv) the type of help they wish to receive from the healthcare system.

**Methods:** Two focus group interviews were conducted in Multidisciplinary Pain Center, Køge, including a total of 11 spouses (6 men). The spouses were contacted via their partners who were referred to public pain clinics. Focus group interview was chosen because is a suitable method for exploratory studies. The approach was phenomenological and transcriptions of interview records were used for analysis.

**Results:** Eight categories emerged from the data analysis: psychological burden, physical burden, the pain invisibility, roles, loss, worries concerning medicine, self-care, and needs concerning help and support. The differences between gender were vague. Spouses for whom the patient pain condition was a new situation (<1 year) appeared to worry more.

**Conclusions:** The study demonstrated that the spouses' lives were dramatically affected. They had to support the family financially, do most of the household chores, be optimistic, a parent, and a pain care giver. The spouses experienced daily worries about several points including pain medicine by the patients. This study also highlighted an essential need for psychological support for coping with the changing life situation, the point that is currently neglected to a great extent.

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### Increased postural stiffness in patients with knee osteoarthritis who are highly sensitized

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**Aims:** To evaluate the effect of widespread pain sensitization on postural stability during quiet standing tasks in patients with knee osteoarthritis.

**Methods:** Patients (56) stood quietly on a force platform for 1 min in 4 conditions (each repeated 3 times): (i) firm surface (FS) with open eyes (OE), (ii) FS with closed eyes (CE), (iii) soft foam surface (SS) with OE, and (iv) SS with CE. Postural stability was quantified by Center of Pressure (CoP) variables extracted from the force platform. Pressure pain thresholds (PPTs), were assessed bilaterally with a handheld pressure algometer (1 cm<sup>2</sup> probe) at: (i) four sites in the knee region (3 cm medial to the midpoint of the medial edge of the patella; 2 cm proximal to the superior edge

of the patella; 3 cm lateral to the mid-point of the lateral edge of the patella; and centre of the patella), (ii) tibialis anterior muscle, and (iii) extensor carpi radialis longus muscle. The PPT values from tibialis anterior and extensor carpi radialis longus muscles were used to divide the patients in high and low sensitization groups (two-steps clustering).

**Results:** PPT values at bilateral knees sites were lower in the high sensitivity [median (range) of all sites: 423 (153, 1129) kPa] compared with low sensitivity group [822 (305, 2051) kPa] ( $P < 0.05$ ). COP range in the anterior–posterior direction was reduced in high sensitivity group ( $41 \pm 16$  mm) compared with the low sensitivity group ( $51 \pm 16$  mm) during the SS with CE ( $P < 0.05$ ) condition.

**Conclusions:** The lower CoP Range suggests stiffer postural strategy in patients with higher widespread pain sensitivity compared with low sensitivity patients during sensory restrictions. The lack of mobility found in high sensitivity patients under such restrictions might be related to the impaired integration of sensory information due to the parallel processing of the nociceptive information.

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### Efficacy of dry needling on latent myofascial trigger points in male subjects with neck/shoulders musculoskeletal pain. A case series

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**Aims:** To assess the impact of dry needling on neural mechanosensitivity and grip strength in male subjects with a history of persistent pain in the neck/shoulder area.

**Methods:** Case series study. Eight male subjects (mean age  $25 \pm 6.24$  years) with a recurrent history of bilateral neck/shoulder pain for at least 6 months, and with symptoms provoked by neck/shoulder postures or movement were recruited from a University-based clinical research center. Measurements were taken at baseline, immediately after intervention, and fifteen days later, of the pressure pain threshold (PPT) over the median, ulnar, and radial nerves, and the tibialis anterior (TA) muscle. Secondary measures included free-pain grip strength with a hydraulic dynamometer. A therapist assessed the presence of latent (not spontaneously painful, but painful upon palpation) myofascial trigger points (MTrP) over the scalene, subclavius, pectoralis minor, infraspinatus and serratus posterior superior muscles, on the most painful side. Deep dry needling was then performed on the latent MTrP by quickly inserting and partially removing the needle from the MTrP until 2 local twitch responses were provoked.

**Results:** PPT over the nerve trunks significantly increased after intervention ( $p < 0.05$  for all locations). These changes remained constant in the second assessment, both in the treated ( $p < 0.001$  for median and ulnar nerves, and  $p = 0.004$  for radial nerve), and the non-treated upper limb (median nerve  $p < 0.001$ , ulnar nerve  $p = 0.003$ , and radial nerve  $p = 0.006$ ). No statistical significance was found for PPT over the TA muscle ( $p > 0.05$ ) or for grip strength ( $p = 0.153$  on the treated side, and  $p = 0.564$  on the non-treated upper limb).

**Conclusions:** Dry needling on the cervicothoracic and shoulder areas may help to improve peripheral neural features over the brachial plexus nerve trunks in subjects with recurrent neck/shoulder pain. No effect was observed for grip strength.

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### Identification of pre-operative risk factors associated with persistent post-operative pain by self-reporting tools in lower limb amputee patients – A feasibility study

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**Aims:** The incidence of persistent post-operative pain (PPP) is 30–85% in lower limb amputee (LLA) patients and identification of preoperative risk factors are warranted. Preoperative levels of anxiety, depression, pain catastrophizing, neuropathic pain and severe preoperative pain have previously been linked with PPP but such screening tools are not used in the clinical hospital setting. The aim of this study was to assess feasibility of using questionnaires for anxiety, depression, pain catastrophizing, neuropathic pain and preoperative pain levels in a clinical preoperative setting.

**Methods:** Patients scheduled for non-traumatic amputation of the lower leg or femur were recruited from three Danish hospitals. Exclusion criteria were surgery 4-weeks prior to LLA, same leg re-amputation, or inability to participate. Pre-operative values of anxiety, depression and catastrophizing were assessed using the Hospital Anxiety (A) and Depression(D) Scale (HADS) (cutoff: 8) and Pain Catastrophizing Scale (PCS) (cutoff = 32). Neuropathic pain was assessed preoperatively using Pain-Detect-Questionnaire (PD-Q) (cutoff: 19). The maximum preoperative pain intensity was assessed using the Numeric Rating Scale (NRS; 0: no pain and 10: worst imaginable pain). Scores are presented as median values with interquartile range (Q1–Q3).

**Results:** Eight of 18 patients (5 females) completed this pilot study: median age 71 (range 56–83), 6 femur and two lower leg amputees. Nine of ten excluded patients were unable to complete the questionnaires and one patient was operated acutely. Median pre-operative HADS-D and -A scores were 7 (3–9, 50%  $\geq$  cutoff) and 4 (1–8, 25%  $\geq$  cutoff), pre-operative PCS score was 24 (18–28, 13%  $\geq$  cutoff), pre-operative PD-Q score was 16 (8–22, 50%  $\geq$  cutoff) and NRS score was 9.5 (8–10).

**Conclusions:** This study indicates that it is possible to implement preoperative questionnaires in a clinical setting. However, more than 50% of the patients are unable to complete the questionnaires.

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