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(120) A prospective open label pilot study to investigate whether quantitative sensory testing correlates with the effectiveness of diagnostic dorsal root ganglion block in patients with unilateral lumbar radiculopathy

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Lumbar radicular pain is defined as neuropathic pain in the area supplied by the affected nerve root, which may be treated by targeting the dorsal root ganglion (DRG). Central sensitization can occur following peripheral nerve injury, via autosenitization of nociceptive receptors and ectopic firing of DRG cells.¹ We hypothesize that central nociceptive processing may be modulated by DRG blockade with local anaesthetic and steroid. This study used quantitative sensory testing (QST) to investigate changes in peripheral and central sensitization in patients undergoing therapeutic DRG block for radicular low back pain. Fifteen patients were recruited for the study, after approval of the local research ethics committee, to undergo DRG blockade with local anaesthetic and steroid (inclusion criteria: unilateral lumbar radicular pain with concordant disc herniation confined to the spinal canal on magnetic resonance imaging). This was performed by a single operator with fluoroscopic guidance, using 1ml 0.25% bupivacaine and 20mg methylprednisolone per level. QST measurements were taken one week before and after their procedure; mechanical pressure pain threshold (PPT) was measured using manual pressure algometry, and diffuse noxious inhibitory control (DNIC) was measured by recording changes in PPT in response to experimental arm pain. A visual analogue scale (VAS) was used to measure pain intensity. There was a significant increase in PPT after DRG blockade (painful side $p < 0.0005$ versus non-painful side $p < 0.004$). A diminished DNIC response was seen prior to DRG blockade, increasing after the procedure ($p < 0.0001$); this suggests 'normalisation' of pressure pain modulation. Pain intensity scores improved after DRG blockade (7.45 +/- 1.9 versus 2.28 +/- 0.26). This pilot data indicates that DRG blockade with local anaesthetic and steroid may have effects on peripheral and central sensitization. Potential mechanisms include modulation of afferent fibre nociceptive input on central nociceptive processing. (1. Schwartzman RJ, Arch Neurol, 2001.)

(121) Use of the 2010 ACR fibromyalgia diagnostic criteria to identify long-term outcomes in patients with juvenile-onset fibromyalgia

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Juvenile-onset Fibromyalgia (JFM) is a chronic widespread musculoskeletal pain condition with multiple associated symptoms including sleep difficulty and fatigue. Little is known about the course of JFM and whether symptoms persist into adulthood. In an ongoing longitudinal study of adolescents with JFM, we found that the majority (>70%) of patients reported ongoing pain and associated symptoms in late adolescence (Mage = 19 years). The current study aimed to determine how many JFM patients continued to meet criteria for active fibromyalgia (FM) in their young adult years, and how many experienced sub-clinical symptoms, or were pain-free. The most recent 2010 American College of Rheumatology (ACR) criteria for classification of adult FM was used to define active FM. At initial assessment, JFM patients (n=85; Mage = 15.29, SD = .47) were assessed for fibromyalgia per Yunus and Masi (1985) criteria. At an approximately 7-year follow-up, patients (Mage = 21.73, SD = 2.04) completed the Widespread Pain Index and Symptom Severity questionnaire online and a standard 18-count tender point examination was conducted by an examiner at an in-person visit. Results indicated that 39 patients (45.9%) met the 2010 ACR fibromyalgia diagnostic criteria and had at least 11 out of 18 tender points, 32 patients (37.6%) had sub-clinical symptoms but no longer met diagnostic criteria, and approximately 16% (n = 14) of patients reported they were pain free. Comparing those who met criteria for active FM and those that were improved, patients with ongoing FM had significantly higher anxiety, depression, and functional disability. Overall, the majority of patients initially diagnosed with JFM in adolescence continue to experience fibromyalgia or associated symptoms (83.5%) into young adulthood. Early and effective interventions are needed to improve long-term outcomes for patients with JFM. Funded by NIAMS Grant R01 AR054842-01A2.

(122) Pain decisions based on pain behavior of virtual humans

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Laypeople, healthcare trainees, and healthcare professionals use sex and race as cues when making pain management decisions. The use of these demographic cues in making pain management decisions may negatively affect patient outcomes. This study extended our work on the facial expression of pain to decisions about pain behavior and whether those decisions are influenced, at least in part, by demographic characteristics. The study was an online study that used novel virtual human (VH) technology to research whether VH-patients' pain-related body posture affects pain decisions and whether VH-sex and VH-race influence those decisions. Ninety seven laypersons examined VH-patients whose demographic cues varied by VH-sex and VH-race. Results indicated that laypeople assessed male VH-patients to be experiencing more pain than female VH-patients. This study suggests that participants use sex as a cue when rating pain intensity. Male VH-patients were rated as having higher pain than female VH-patients. Higher pain ratings for male VH-patients, seem to indicate that the male VH must be in considerable pain if they are "overcoming" the well-established stereotypical male unwillingness to report pain. Unlike facial expression, postural pain behavior may be perceived as a more unbiased indicator of pain to observers. Interestingly, participants were not willing to prescribe opioid analgesics at different rates despite higher ratings of pain based on sex or race.

(123) Advancing the screening and diagnosis of fibromyalgia in late-life

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We evaluated subjects with 4 sets of criteria for fibromyalgia (FM) screening and classification. The first two sets of criteria are intended for FM classification in clinical trials: 1) ACR 1990 Criteria for the Classification of Fibromyalgia (gold standard), 2) Pope and Hudson supplemental interview for FM. The next two are designed as screening tests: 1) "do you often feel like you hurt all over?" simple screening question, and 2) pain map score. Using a 115 community-dwelling adults at least 60 years old with comorbid depression and chronic low back pain, we assessed the kappa coefficient measuring agreement between criteria and the gold standard diagnostic method. Sensitivity and specificity were used to determine appropriate cut-off points for pain map scores and Pope and Hudson symptom requirements. 31 of 115 subjects (27%) met ACR 1990 criteria for FM. Compared to subjects without FM, the FM group had higher pain map scores, greater "yes" answers to the "hurt all over" screening question, and more positive results with respect to the PH criteria. The PH criteria showed moderate to substantial agreement with the ACR 1990 criteria, kappa = 0.59 [95% CI: 0.44-0.73]. The PH criteria showed high sensitivity of 0.94 and specificity of 0.76. There was moderate agreement between the "hurt all over?" question and the ACR 1990 criteria (Kappa = 0.51 [95% CI, 0.35-0.66]) with sensitivity of 0.84 and specificity of 0.75. For the pain map score, 14 or higher painful regions was determined to be the best cut-off weighting sensitivity and specificity equally. Using this cut-off, the pain map showed sensitivity = 0.71 and specificity = 0.74 with kappa demonstrating fair to moderate agreement (0.41 [95% CI: 0.23-0.59]). Our findings suggest the utility of alternative screening and classification methods for fibromyalgia in psychiatric settings, and potentially for broader diagnostic use.