



B. Disease Entities (Human)

B01 Amputation Pain

(200) Provocative infrared testing in amputees

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Previous studies suggest autonomic dysfunction in amputees, yet the methodology for testing this is problematic. The common techniques of sympathetic skin response and skin conduction response require soles, palms and digits, so we further investigated the use of quantitative InfraRed Telethermography (qIRT) to assess vasomotor (sympathetic) tone. In prior work, IRT demonstrates residual limbs of amputees are significantly cooler than contralateral intact limbs. This study investigates provocative IRT (pIRT) to assess sympathetic (vasomotor) responsiveness in residual vs. intact limbs of amputees. Eight volunteer subjects with unilateral lower limb amputations were enrolled in the study. IRT images of subjects were taken before and for 50 seconds after electrical stimulation (15 mA for 0.1ms) at glabella. The qIRT Indigo® software was used to show average temperature of specified areas (last intact joint distal, compared to a similar polyhedron on the contralateral side). Consistent with previous findings, the results showed that residual limbs and intact contralateral limbs of amputees are significantly different in temperature. However, no significant change in temperature (Celsius) could be detected at any time interval after provocation. This indicates pIRT is not suitable for the assessment of sympathetic nervous system (vasomotor) function in this model. (Harden, Gagnon, Gallizzi, Khan, Newman; Pain Practice, 2008.) This study was supported in part by Endo Pharmaceuticals.

(201) Withdrawn

B02 Arthritis

(202) An evaluation of pain, pain-related interference, and fatigue among older adults with symptomatic osteoarthritis (OA) of the knee

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Fatigue is a common, non-specific symptom often associated with chronic pain and defined as generalized tiredness, weakness, and exhaustion. However, fatigue in osteoarthritis (OA) is not routinely evaluated and has only been considered in few studies to date. Our aim was to evaluate the inter-relationships among pain, pain-related interference, and fatigue as well as whether these factors differed as a function of high versus low OA pain severity. Participants were recruited at the Universities of Alabama-Birmingham and Florida as part of an ongoing study and included 168 individuals (74% female) with symptomatic knee OA. Participants completed the Graded Chronic Pain Scale (GCPS) and were categorized into two pain groups: high (GCPS grades III and IV; N= 101) and low severity (GCPS grades I and II; N= 67). Using telephone-based diaries, participants reported their current pain, pain-related interference, and fatigue across four consecutive weeks. After adjusting for race, gender, BMI and depressive symptoms, multivariate analyses of covariance (MANCOVA) showed that the high pain severity group reported significantly greater current pain (prange = .05 to <.001), pain-related interference (all p's < .001), and fatigue (prange = .006 to <.001) across all four weekly assessments compared to the low pain severity group. Results also revealed significant correlations among ratings of current pain, pain-related interference, and fatigue across all four weeks within both the high and low pain severity groups. The strength of these correlations was generally greater for the high pain severity group. This study suggests that both OA pain severity and fatigue may be important determinants of pain-related interference. Future research should further address the roles of both pain and fatigue in pain-related interference in OA and address fatigue as a target of comprehensive pain management.

(203) Psychosocial profiles and pain characteristics of older adults with knee osteoarthritis

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Psychological factors have been consistently associated with osteoarthritis (OA)-related pain and disability. However, the relationship between psychologically-derived profiles and measures of sensory function in OA has not been previously reported. Individuals with knee OA (n=197) completed a battery of psychological, health and sensory assessments. The psychological variables were subjected to hierarchical cluster analysis hypothesizing that specific psychological profiles would emerge and that clusters would significantly differ in self-reported pain and disability. We also hypothesized that clusters would differ in their responses to laboratory tests of pain sensitivity and pain inhibition. The best solution yielded four clusters based on their profiles across multiple psychological measures. Cluster 1 was characterized by high positive affect/optimism with low pain vigilance and depression. This group had the lowest self-reported pain/disability and the least sensitivity to tactile, pressure and thermal pain (p's<0.01). Cluster 2 had high optimism with low active/passive coping. They had also low self-reported pain/disability and demonstrated significant pain inhibition (p's<0.05). Cluster 3 showed high active/passive coping with low optimism. These participants had high self-reported pain/disability and signs of central sensitization to tactile stimuli. Cluster 4 exhibited the lowest positive affect/optimism with the highest pain vigilance and negative affect. These individuals experienced the highest self-reported pain/disability including widespread pain (p's<0.001). Cluster 4 was the most sensitive to tactile, pressure and thermal stimuli and showed significant central sensitization to tactile and thermal stimuli (p's<0.001). Our findings suggest that knee OA represents a heterogeneous pain condition characterized by considerable variability in psychological profiles, which are associated with both clinical pain and somatosensory function. Multidisciplinary pain treatment approaches consistent with the biopsychosocial model of pain should provide significant advantages if these are targeted to profiles such as those present in our OA sample.