



(540) The Rho-associated protein kinase activation in the skin tissue mediates acupuncture analgesia

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Though the effectiveness of acupuncture analgesia has been proven in clinical and experimental studies, its mechanism remains still unclear. Tissue deformation evoked by acupuncture needle rotation has been suggested as an important factor to mediate therapeutic effect of acupuncture. In this study, we hypothesized that Rho-associated protein kinase (ROCK), one of the main protein activated during the tissue deformation, should be activated after acupuncture needling, and the ROCK activation could be critical factor in mediating acupuncture analgesia. After acupuncture needling, performed on GB34 acupuncture point of mice, ROCK2 was activated significantly 30 and 60 minutes later. Phospho-ERM was significantly activated 5 and 10 minutes after acupuncture needling, whereas ROCK1 activation was not significant. Acupuncture-induced ROCK1, ROCK2 and p-ERM expression were significantly attenuated by MEK/MAPK inhibitor U0126 (.8 μ g/ul), whereas, p-ERK and p-ERM expression was not attenuated by ROCK inhibitor Y-27632 (.3 μ g/ul). ROCK2 was activated in fibroblast of skin layer. Next, in the formalin and complete Freund adjuvant induced mouse pain model, acupuncture attenuated the nociceptive behaviors and the mechanical threshold. And these acupuncture analgesia was blocked by Y-27632 administration. This study indicates that acupuncture-induced ROCK2 expression in the skin layer plays a trigger role in mediating acupuncture analgesia.

(542) Implementing nurse-delivered massage to promote comfort among hospitalized inpatients

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Non-pharmacologic comfort measures are known to provide benefit, however, they remain inaccessible for many hospitalized patients due to cost, feasibility, and reliance on a biomedical model. We therefore implemented a massage program to engage direct care nurses (n = 29) in promoting a biopsychosocial model of pain care. We describe here the secondary analysis of pilot study data on the types and frequencies of brief bedside massages nurses provided in critical and non-critical inpatient units after attending a 2-hour training course. We examined relationships between nurse characteristics and number of massages completed during the 8-week study period. Nurses reported on 347 massage encounters that lasted on average 9.7 minutes (SD 7.6). Massages were offered most commonly for stress/relaxation (n = 126) and pain (n = 100). Body parts massaged most frequently were: arms (n = 70), back (n = 55), hands (n = 35), legs (n = 35) and feet (n = 13). Total number of massages was positively associated with nurses' compassion satisfaction measurements on post-test surveys (r = .32, p = .02), and negatively associated with nurse education level (n = -.39, p = .04). Length of massage in minutes was negatively associated with number of patients in care assignment (r = -.23, p < .001). No relationship was observed between massage frequency and nurses' age, unit type, or years of nursing experience. Findings suggest that nurses working in critical and non-critical patient care settings may have the capability to implement massage after receiving education and encouragement. Increasing non-pharmacologic options is an important goal for patient comfort and satisfaction. Nurse-delivered massage should be further investigated for its ability to reduce dependency on medicines and limit associated side effects while promoting therapeutic nurse-patient relationships. Supported by grants from Texas Health Resources Foundation and Texas Health Nursing Education Fund.

H03 Complementary/Alternative Medicine

(541) Factors and mechanisms of dance/movement therapy for resilience-building in people living with chronic pain

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Psychological resilience is a highly applicable concept for chronic pain management. Researchers have identified resilience-promotive-factors, such as positive emotions, self-esteem, self-efficacy, social support, hope, finding meaning, reflective skills, creativity, humor and spirituality etc. Dance/Movement Therapy (DMT) is the psychotherapeutic use of creative and expressive movement through which individuals connect to their body and mind, and process feelings and thoughts that are often inaccessible with verbal therapy alone. A grounded theory study was conducted as the first phase of a three-phase mixed methods grounded theory study; the purpose of this study was to identify factors and mechanisms of DMT that foster resilience-promotive-factors in individuals living with chronic pain. Two sets of qualitative data collection and analysis process were done to generate a substantive DMT model of resilience-building in people living with chronic pain i.e., 1) meta-modeling (formative model-building based on the literature), and 2) development of a reflexive grounded theory through qualitative interviews. For the reflexive grounded theory part, sixteen participants were interviewed about their experiences and beliefs regarding effective chronic pain management strategies and the possible therapeutic factors and mechanisms of an embodiment-based psychotherapeutic intervention such as DMT in chronic pain management. The findings from each process were combined and integrated to engender a factor model and a process model. There are four factors of DMT identified to be contributing in promoting resilience namely, *kinesthetic awareness* (articulation, noticing, widening), *enactment* (mobilization & motivation, kinesthetic imagining, reinforcement & reframing), *expressivity* (externalizing & symbolization, emotional restoration and management, creativity & ability to play), and *making connections* (mind-body integration, meaning-making & identity reconstruction, interpersonal connection). The process model explicates DMT's mechanisms of resilience-building through processes of enhancing self-efficacy, sense of hope, motivation, emotional management, meaning-making, creativity, and reducing kinesiophobia.

(543) Effects of the use of Alpinia's zerumbet essential oil in patients with fibromyalgia

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Fibromyalgia is a rheumatic syndrome characterized by musculoskeletal pain without demonstrable organic changes. The syndrome is also often associated with other symptoms, such as fatigue, sleep disturbances, morning stiffness, dyspnea, depression and anxiety, resulting in a low quality of life, that determines the patients interest in alternative medicine as adjunctive therapy. Studies demonstrated that Alpinia zerumbet had action anti-inflammatory, muscle relaxant, antinociceptive and anxiolytic. The goal was to evaluate the effects of a novel bioproduct based on essential oil of Alpinia zerumbet on sleep quality, pain and depression, as well on biochemical markers of such disturbances, in patients with fibromyalgia (FM). This study included 39 female patients with primary FM assigned into three groups: untreated control group (CTR), treated with topical administration of the essential oil of Alpinia zerumbet group (EOAZ) and treated with oral administration of amitriptyline group (AMT). Clinical parameters were evaluated using the Pittsburgh Sleep Quality Index (PSQI), Evaluation Scale of Hamilton Anxiety (EHA), Fibromyalgia Impact Questionnaire (FIQ), McGill questionnaire and the Beck Depression Inventory (BDI). Serum levels of immunological response-related cytokines (IL-1 β , IL-6, IL-8, IL-2R and TNF- α), nociception-related biochemical markers (serotonin and 5-hydroxyindoleacetic acid) and hypothalamic-pituitary-adrenal axis hormones (catecholamines, cortisol, ACTH, GH, IGF-1, T3, T4 and TSH) were also assessed. EOAZ presented significantly reduced average scores of depression symptoms, anxiety symptoms and sleep quality, in comparison with CTR. Furthermore, EOAZ presented increased levels of IL-8 and serotonin, and decreased levels of cortisol. We demonstrated that EOAZ promoted significant improvement in the sleep, depressive symptoms, and enhances the quality of life of patients with FM, and that these results may be related to a possible modulatory activity on the serotonin serum levels of the patients.