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Does acupuncture alter pain-related functional connectivity of the central nervous system? A systematic review

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Background & Aim: One of the proposed mechanisms behind acupuncture analgesia is normalizing the pain-related functional connectivity (FC) of the central nervous system. Several studies have investigated the effect of acupuncture on FC changes. However, to date, there is no conclusive evidence on the ability of acupuncture intervention on pain-related FC. Therefore, the aim of the systematic review was to evaluate the evidence for the effectiveness of acupuncture on influencing the FC of the CNS in patients with musculoskeletal pain.

Methods: To identify relevant studies, a systematic literature search was conducted in the following databases: AMED, CINAHL, EMBASE, MEDLINE, PEDro, PubMed, SCOPUS, and Web of Science using relevant MeSH. Two independent reviewers have conducted article screening process, methodological quality assessment of the included studies (Downs and Black questionnaire) and level of completeness and transparency in reporting acupuncture interventions with STRICTA.

Results & Conclusion: Seven studies met the inclusion criteria, out of which, 3 were RCTs and four were Non-RCTs. Included participants (n=191) were presented with a range of clinical conditions (osteoarthritis, chronic low back pain, carpal tunnel syndrome, and fibromyalgia). Methodological quality of the studies was high in 6 studies and moderate in one study. Information on depth of needle insertion, needle retention time, and needle type were not reported. Due to heterogeneity in FC measures, the meta-analysis was not conducted. Positive alterations on FC of the CNS were consistently observed following long-term acupuncture intervention in patients with musculoskeletal pain. This review provides a preliminary evidence on the effectiveness of acupuncture on FC in patients with musculoskeletal pain.

Biography

María Villarreal Santiago is a Physiotherapist from Mexico. She has worked as a Physiotherapist both in hospital and private practice settings, gaining invaluable clinical experience in managing patients with neurological and orthopedic illnesses. In 2014, she got a Mexican government scholarship to study Master's Degree in Physiotherapy (endorsement in acupuncture) at the University of Otago, New Zealand. During her Master's dissertation she became fascinated by acupuncture and interested to conduct research to elucidate the mechanisms behind acupuncture analgesia. She is currently working in a private clinic in Mexico City and as a Professor in Diploma of Manual Therapy, teaching all around Mexico.

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