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Effects of Pulsed Electromagnetic Field Therapy on Pain, Stiffness, Physical Function, and Quality of Life in Patients With Osteoarthritis: A Systematic Review and Meta-Analysis of Randomized Placebo-Controlled Trials

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Abstract

Objective: Pulsed electromagnetic field (PEMF) therapy is a potentially useful treatment for osteoarthritis (OA), but its effectiveness is still controversial. This study aimed to examine the effects of PEMF therapy and PEMF parameters on symptoms and quality of life (QOL) in patients with OA.

Methods: Cochrane Central Register of Controlled Trials, PubMed, CINAHL, EMBASE, PEDro, clinical trial registers, and reference lists were searched until April 2019. This study examined randomized,

placebo-controlled trials, patients with OA, symptom and/or QOL related outcomes, and articles published in English. Two authors extracted data and completed quality assessment.

Results: Sixteen studies were included in our systematic review, while 15 studies with complete data were included in the meta-analysis. Our primary outcome was the standardized mean difference, which was equal to the treatment effect in the PEMF group minus the treatment effect in the placebo group divided by the pooled standard deviation. For pain, the standardized mean difference was 1.06 (95% CI = 0.61 to 1.51), for stiffness 0.37 (95% CI = 0.07 to 0.67), for function 0.46 (95% CI = 0.14 to 0.78), and for QOL 1.49 (95% CI = -0.06 to 3.04). PEMF parameters did not influence symptoms.

Conclusions: Compared with placebo, there was a beneficial effect of PEMF therapy on pain, stiffness, and physical function in patients with OA. Duration of treatment may not be a critical factor in pain management. Further studies are required to confirm the effects of PEMF therapy on QOL.

Impact: Our study suggests that PEMF therapy has clinically significant effects on pain in patients with OA. The current evidence was limited to the short-term effects of PEMF therapy.

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