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Pulsed electromagnetic field therapy for management of osteoarthritis-related pain, stiffness and physical function: clinical experience in the elderly

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Abstract

Background: Pulsed electromagnetic field (PEMF) therapy has shown promising therapeutic effectiveness on bone- and cartilage-related pathologies, being also safe for management of knee osteoarthritis.

Aim: The aim of this study was to investigate the clinical efficacy of a PEMF device for management of knee osteoarthritis in elderly patients.

Materials and methods: A total of 33 patients were screened, and 28 patients, aged between 60 and 83 and affected by bilateral knee osteoarthritis, were enrolled in this study. They received PEMF therapy on the right leg for a total of three 30-minute sessions per week for a period of 6 weeks, while the left leg did not receive any treatment and served as control. An intravenous drip containing ketoprofen, sodium clodronate, glucosamine sulfate, calcitonin, and ascorbic acid, for a total volume of 500 mL, was administered during PEMF therapy. At baseline and 3 months post-PEMF therapy, Visual Analog Scale (VAS) was used to assess knee pain and Western Ontario McMaster Universities Osteoarthritis Index (WOMAC) was used to measure knee pain, stiffness and physical function.

Results: Changes in VAS and WOMAC scores were calculated for both knees as baseline minus post-treatment. A two sample Student's t-test, comparing change in knee-related VAS pain for PEMF-treated leg (49.8 ± 2.03) vs control leg (11 ± 1.1), showed a significant difference in favor of PEMF therapy ($P < 0.001$). A two sample Student's t-test comparing change in knee-related WOMAC pain, stiffness, and physical function for PEMF-treated leg (8.5 ± 0.4, 3.5 ± 0.2, 38.5 ± 2.08, respectively) vs control leg (2.6 ± 0.2; 1.6 ± 0.1; 4.5 ± 0.5 respectively), also showed a significant difference in favor of PEMF therapy ($P < 0.001$). No adverse reactions to therapy were observed.

Conclusion: The present study shows that PEMF therapy improves pain, stiffness and physical function in elderly patients affected by knee osteoarthritis.

Keywords: elderly; knee; magnet therapy; osteoarthritis; pulsed electromagnetic field.

Figures

Figure 1 Patient undergoing PEMF therapy (right...

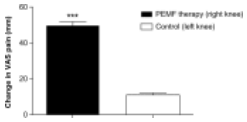

Figure 2 Change in knee-related VAS pain...

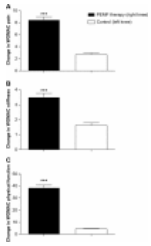

Figure 3 Change in knee-related WOMAC pain...

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