

Randomized Controlled Trial > Rheumatology (Oxford). 2016 Apr;55(4):755-62.

doi: 10.1093/rheumatology/kev426. Epub 2015 Dec 24.

Pulsed electromagnetic fields in knee osteoarthritis: a double blind, placebo-controlled, randomized clinical trial

Gian Luca Bagnato ¹, Giovanni Miceli ², Natale Marino ², Davide Sciortino ², Gian Filippo Bagnato ²

Affiliations

PMID: 26705327 PMCID: [PMC4795538](#) DOI: [10.1093/rheumatology/kev426](#)

[Free PMC article](#)

Abstract

Objectives: This trial aimed to test the effectiveness of a wearable pulsed electromagnetic fields (PEMF) device in the management of pain in knee OA patients.

Methods: In this randomized [with equal randomization (1:1)], double-blind, placebo-controlled clinical trial, patients with radiographic evidence of knee OA and persistent pain higher than 40 mm on the visual analog scale (VAS) were recruited. The trial consisted of 12 h daily treatment for 1 month in 60 knee OA patients. The primary outcome measure was the reduction in pain intensity, assessed through VAS and WOMAC scores. Secondary outcomes included quality of life assessment through the 36-item Medical Outcomes Study Short-Form version 2 (SF-36 v2), pressure pain threshold (PPT) and changes in intake of NSAIDs/analgesics.

Results: Sixty-six patients were included, and 60 completed the study. After 1 month, PEMF induced a significant reduction in VAS pain and WOMAC scores compared with placebo. Additionally, pain tolerance, as expressed by PPT changes, and physical health improved in PEMF-treated patients. A mean treatment effect of -0.73 (95% CI - 1.24 to - 0.19) was seen in VAS score, while the effect size was -0.34 (95% CI - 0.85 to 0.17) for WOMAC score. Twenty-six per cent of patients in the PEMF group stopped NSAID/analgesic therapy. No adverse events were detected.

Conclusion: These results suggest that PEMF therapy is effective for pain management in knee OA patients and also affects pain threshold and physical functioning. Future larger studies, including head-to-head studies comparing PEMF therapy with standard pharmacological approaches in OA, are warranted.

Trial registration: ClinicalTrials.gov, <http://www.clinicaltrials.gov>, [NCT01877278](#).

Keywords: OA; clinical trial; knee; pain; pain threshold.

© The Author 2015. Published by Oxford University Press on behalf of the British Society for Rheumatology.

Figures

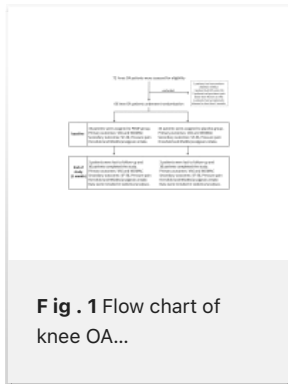


Fig . 1 Flow chart of knee OA...

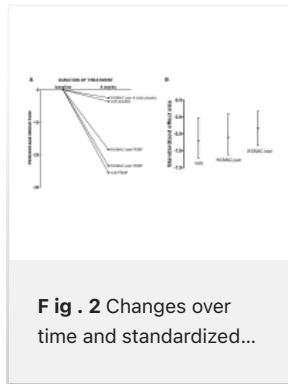


Fig . 2 Changes over time and standardized...

Related information

[Cited in Books](#)

[MedGen](#)

LinkOut - more resources

Full Text Sources

[Europe PubMed Central](#)

[PubMed Central](#)

[Silverchair Information Systems](#)

Other Literature Sources

[scite Smart Citations](#)

Medical

[ClinicalTrials.gov](#)