

ORIGINAL ARTICLE

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EFFECTS OF PULSED ELECTROMAGNETIC FIELD THERAPY VERSUS EXTRA CORPOREAL SHOCK WAVE THERAPY ON PERIPHERAL CIRCULATION AND FUNCTIONAL BALANCE IN PATIENTS WITH DIABETIC PERIPHERAL NEUROPATHY: RCT

¹Ashraf Abdelaal Mohamed Abdelaal²Amir Abdel-Raouf El-Fiky³Mohamed Salah Eldien Mohamed Alayat

ABSTRACT

Background: Diabetic peripheral polyneuropathy (DPN) is an arousing problem that negatively affects body systems. Pulsed low frequency electromagnetic field (PLFEM) and Extracorporeal shock waves (ESW) are therapeutic modalities frequently used to treat varieties of pathological conditions. Objective of the study was to evaluate and compare effects of PLFEM and ESW on feet blood flow (maximum skin blood perfusion (SBP-max), minimum skin blood perfusion (SBP-min), and basal mean perfusion changes (BMCP)) (by Laser Doppler) and functional balance (by Berg balance scale "BBS") in patients with DPN.

Methods: Seventy patients with DPN were randomly assigned into PLFEM, ESW and control groups. PLFEM group received treatment twice weekly while ESW received treatment once weekly, for 12 weeks. Variables were evaluated pre-study (evaluation-1), post-study (evaluation-2) and 4-weeks post-treatment cessation (evaluation-3).

Results: At evaluation-2 and 3; SBP-max, SBP-min, BMCP and BBS showed significant increase in both PLFEM and ESW groups ($P < 0.05$) compared with non-significant changes in the control group ($P > 0.5$). At evaluation-2; SBP-max, SBP-min, BMCP and BBS mean values and percentages of change were [27.21±4.27(23.27 %), 10.51±2.32(50.004 %), 16.15±2.22(24.45 %), 43.18±2.95(33.01 %)], [24.74±3.33(10.62 %), 8.69±2.58(21.15 %), 14.48±2.35(11.66 %), 40.13±3.52(23.12 %)] and [22.12(-0.05 %), 7.196(-0.1 %), 13.06±2.38(-0.09), 32.76(-0.1 %)] for LFPEM, ESW and control groups respectively ($P < 0.05$).

Conclusion: While both PLFEM and ESW have significant long-term effects in improving lower extremity blood flow and functional balance in patients with DPN, but still PLFEM is more effective than ESW.

Keywords: Diabetic Neuropathy, Circulation, Balance, Electromagnetic, Shockwave.

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CORRESPONDING AUTHOR

¹Ashraf Abdelaal Mohamed Abdelaal

Lecturer, Department of Physical Therapy for Cardiovascular/ Respiratory Disorder and Geriatrics, Faculty of Physical Therapy, Cairo University, Egypt.

²Lecturer, Department of Physical Therapy for Neuromuscular Disorders and its surgery, Faculty of Physical Therapy, Cairo University, Egypt.

³Assistant Professor, Department of Basic Science, Faculty of Physical Therapy, Cairo University, Egypt.