

Clinical effectiveness of multi-wavelength photobiomodulation therapy as an adjunct to extracorporeal shock wave therapy in the management of plantar fasciitis: a randomized controlled trial

Abstract

The goal of our study was to investigate the cumulative effect of combining medium-energy extracorporeal shock wave therapy (ESWT) and photobiomodulation therapy (PBMT), as well as to compare between their relative effectiveness in the management of plantar fasciitis (PF). One hundred twenty participants with chronic PF, more than 6 months with failure to respond to conservative treatment, were randomly assigned into four equal groups. Participants received either ESWT with PBMT, ESWT (once a week), PBMT (three times a week), or sham-PBMT (three times a week) for three consecutive weeks.

A home exercise program was also included for all four groups. Outcome measures included pressure pain threshold (PPT), visual analogue scale (VAS), and functional foot index disability subscale (FFI-d) that were collected prior to the first treatment session and at the end of the 3-week treatment period, as well as at a follow-up session, 12 weeks after the final treatment session. There were statistically significant improvements in post-intervention and follow-up PPT, VAS, and FFI-d values in all treatment groups ($P < 0.0001$). As for the sham-PBMT, no significant difference was found between the pre-, post-intervention and follow-up values ($P > 0.05$). Bonferroni correction test revealed that there was a significant difference between all the four groups in PPT, VAS, and FFI-d values ($P < 0.0001$).

All active treatment groups maintained the treatment effect at the 12-week follow-up. Both ESWT and PBMT were effective in increasing PPT values, decreasing pain and increasing functional ability. Additionally, application of PBMT after ESWT was shown to be superior over ESWT and PBMT alone, and ESWT was superior over PBMT in terms of reducing pain sensitivity and increasing function.

Level of Evidence II.

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