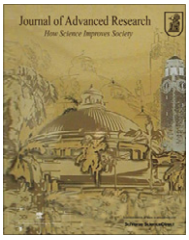
Journal of Advanced Research (2012) 3, 21–28

Cairo University

Journal of Advanced Research



ORIGINAL ARTICLE

Effect of low level laser therapy on neurovascular function of diabetic peripheral neuropathy

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Received 27 July 2010; revised 5 November 2010; accepted 28 February 2011
Available online 1 April 2011

KEYWORDS

Diabetic peripheral neuropathy;
Low level laser therapy;
Pain;
Nerve conduction study;
Skin microcirculation

Abstract Diabetic neuropathy is the most common complication and greatest source of morbidity and mortality in diabetic patients. Thirty male and female patients with painful diabetic neuropathy and abnormal results from nerve conduction studies participated in this study. Their ages ranged from 45 to 60 years with a mean of 52.1 ± SD 4.7 years. Patients were randomly assigned into two equal groups of 15, an active laser group (laser group) and a placebo laser group (control group). The laser group received scanning helium neon (He–Ne) infrared laser with wavelength 850 nm and density of 5.7 J/cm^2, applied to the lumbosacral area and the plantar surface of the foot for 15 min each site/session three times per week for four weeks (i.e. 12 sessions). Pain intensity via visual analogue scale, bilateral peroneal motor nerves, sural sensory nerves conduction velocity and amplitude and foot skin microcirculation, were measured pre- and post-treatment for both groups. Pain was significantly decreased ($p \leqslant 0.05$) and electrophysiological parameters and foot skin microcirculation were significantly improved ($p \leqslant 0.05$) in the laser group, while no significant change was obtained in the control group. Low level laser therapy within the applied parameters and technique could be an effective therapeutic modality in reducing pain and improving neurovascular function in patients with diabetic polyneuropathy.

Introduction

Diabetic peripheral neuropathy (DPN) is frequently the most common microvascular complication of both type I and II diabetes; it is thought to be progressive and irreversible [1]. Diabetic neuropathy is a consequence of peripheral nerve injury derived from microangiopathy of the vasa nervorum, loss of axons and axonal atrophy as a result of the combination of different mechanisms of tissue damage [2]. All nerve fibres may be injured but small myelinated and unmyelinated fibres that conduct pain and temperature are most affected [3]. Not only does the nerve die, but the repairing mechanisms of nerve regeneration are also

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Peer review under responsibility of Cairo University.
doi:10.1016/j.jare.2011.02.009

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