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Clinical effectiveness of low-level laser treatment on peripheral somatosensory neuropathy

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Abstract

Peripheral sensory neuropathy treatment is one of the common treatment problems and causes morbidity and mortality in people suffering from that. Although treatment depends on the underlying cause of the condition, nevertheless, in some cases, there is no cure for it, and it requires palliative and symptomatic treatment. In laboratory studies, low-level laser has been effective in the nerves protection and restoration. The aim of this article is to investigate the clinical efficacy of low-level laser on improvement of the peripheral somatosensory neuropathy. Search in the articles published up to 30 October 2015 (full text and abstracts) in databases PubMed (Medline), Cochrane library, Physiotherapy Evidence Database was performed. The studies of low-level laser trials on patients with peripheral neuropathy were carried out and evaluated in terms of the exclusion criteria. There are 35 articles among which 10 articles had the intended and required criteria. 1, 3, and 6 articles study the patients with diabetes, neuropathy caused by trauma, and carpal tunnel syndrome, respectively. In six studies, laser led to a reduction in sensory impairment and improvement of the physiological function of the sensory nerves. In these articles, lasers (Diode, GaAlAs, He-Ne) had wavelength range 660-860 nm, radiation power 20-250 mW, energy density 0.45-70 J/cm². The

intervention sessions range was 6-21 times and patient follow-up was 0-6 months. According to the results of these studies, low-level laser therapy can improve sensory function in patients with peripheral somatosensory neuropathy, although little research have not been done, laser treatment regimens are varied and do not recommend a specific treatment protocol. It seems it requires more research to sum up better, particularly in relation to diabetes.

Keywords: Low-level laser; Neuropathy; Peripheral; Sensory.