

The effects of low level laser in clinical outcome and neurophysiological results of carpal tunnel syndrome

Authors: Shooshtari SM, Badiee V, Taghizadeh SH, Nematollahi AH, Amanollahi AH, Grami MT.

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Abstract

Carpal tunnel syndrome (CTS) is the most common neuropathy that can be diagnosed with confidence by the nerve conduction study (NCS). One of the recent treatments of CTS is the application of low power laser (LPL) therapy. The present study evaluates the effects of LPL irradiation through NCS and clinical signs and symptoms.

A total of 80 patients were included in this study. Diagnosis of CTS was based on both clinical examination and electromyographic (EMG) findings. Patients were randomly assigned into two groups. Test group (group A) underwent laser therapy (9-11 joules/cm²) over the carpal tunnel area. Control group (group B) received sham laser therapy. Pain, hand grip strength, median proximal sensory and motor latencies, transcarpal median sensory nerve conduction (SNCV) were recorded. After fifteen sessions of irradiation (five times per week), parameters were recorded again and clinical symptoms were measured in both groups. Pain was evaluated by Visual Analog Scale (VAS; day-night). Hand grip was measured by Jamar dynamometer. Paired t-test and independent sample t-test were used for statistical analysis.

There was a significant improvement in clinical symptoms and hand grip in group A ($p < 0.001$). Proximal median sensory latency, distal median motor latency and median sensory latencies were significantly decreased ($p < 0.001$). Transcarpal median SNCV increased significantly after laser irradiation ($p < 0.001$). There were no significant changes in group B except changes in clinical symptoms ($p < 0.001$).

Conclusion

Laser therapy as a new conservative treatment is effective in treating CTS paresthesia and numbness and improves the subjects' power of hand grip and electrophysiological parameters.

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