The effect of infrared laser on sensory radial nerve electrophysiological parameters.

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Abstract

OBJECTS:

It has been claimed that laser may have bio-stimulation effect on the nerve tissues. This study has been designed to investigate the effect of different doses of infra-red (IR) laser exposure on the electrophysiological parameters of sensory nerves.

METHODS AND SUBJECTS:

Forty healthy subjects (20-35 years old) with no history of neurological conditions participated in this study. IR laser (780 nm, 20 mw) was applied over five blocks (1 cm2 each and 0.5 J/cm2) of 5 cm length of the left and right superficial radial nerve. The IR laser radiation was started from proximal to distal in the right hand and vise versa in the left hand. Antidromic sensory nerve conduction velocity was evaluated before and after first (0.5 J), third (1.5 J) and fifth (2.5 J) exposures. During the test, we measured the onset and peak latency, amplitude and duration of sensory action potentials.

RESULTS:

Paired t-test was used to assess the difference between pre- test and post- test data. After IR laser exposure with all doses, significant increased in latencies was observed (P < 0.001), while significant decreased in amplitude and duration was found only in the group who received the doses of 1.5 and 2.5 J of exposure (P < 0.001). There was no difference between right and left hands.

CONCLUSION:

Our results showed that the minimal dose of IR laser may not produce enough effects on the sensory nerves, while the higher doses such as 1.5 and 2.5 J may activate the mechanism of nerve blockage.

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