

PBM Laser Therapy- Headache, Neurology

Low-level laser for the treatment of tension-type headache

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A new technique for the treatment of patients with chronic headaches and pericranial musculoskeletal dysfunction has been developed (methodological recommendations of the Ministry of Health of RF 961/255, 1997). This technique includes low-level laser therapy, manual therapy, and muscle relaxation training. Good and excellent results were noted in 61.7% of patients after treatment. The frequency of the headache attack was reduced by 73%, the duration - by 66%, the intensity - by 40%. Low-level laser therapy promotes the inactivation of muscle and joint trigger points and is a perspective for the treatment of chronic tension-type headaches.

Non-pharmacological approaches to chronic headache: transcutaneous electrical nerve stimulation, laser therapy and acupuncture in the treatment of transformed migraines

Allais G, De Lorenzo C, Quirico PE, Lupi-G et al.
Neurological Sciences. 2003; 24, enclosure 2.

In an open, randomized study, we evaluated transcutaneous electrical nerve stimulation (TENS), infrared laser therapy and acupuncture in the treatment of transformed migraines over a period of 4 months free of prophylactic drugs. Sixty women suffering from transformed migraines were assigned three different treatments after a one-month run-in period: TENS (group T; n = 20), infrared laser therapy (group L; n = 20), or acupuncture (group A; n = 20). In each group, patients underwent ten treatment sessions and monthly follow-up visits. In group T, the patients were treated simultaneously for two weeks (5 days / week) with three TENS devices with different stimulation parameters (I: pulse frequency = 80 Hz, pulse width = 120 micros; II: 120 Hz, 90 micros; III: 4 Hz, 200 micros). In group L, an infrared diode laser (27 mW, 904 nm) was used on sensitive scalp spots every other day. In group A, acupuncture was performed twice a week for the first two weeks and weekly for the following 6 weeks.

A basic formula (LR3, SP6, LI4, GB20, GV20 and Ex-HN5) was always used; additional points were selected according to the symptomatology of each patient. The number of headache days per month decreased significantly in all groups during treatment. The response in the groups differed over time, which is likely due to the different timing of the application of the three methods. TENS, laser therapy, and acupuncture have all been shown to be effective in reducing the frequency of headache attacks. Acupuncture showed the best effectiveness over time.

Changes in neurotransmitter release induced by low power diode laser irradiation at 830 nm at the neuromuscular junctions of the mouse.

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Background and objectives: Treating patients with a gallium aluminum arsenide (GaAlAs) infrared (IR) diode laser reduces muscle spasms and increases the mobility of the muscles. The effect of low intensity laser irradiation on nerve function, growth and repair mechanisms is a controversial research area. We took up one aspect of this controversy by systematically examining the effect of 830 nm laser radiation on neurotransmitter release in the neuromuscular junctions (NMJ) of the mouse diaphragm.

The Methods: Thirty adult mice were examined. A GaAlAs 830 nm (4 and 12 J / cm²) diode laser was used. Neurotransmitter release was assessed by conventional intracellular uptake techniques on curarized muscles or media high in magnesium. The quantum content, amplitude and latency of the end plate potentials (EPPs) were analyzed. Frequency and amplitude were evaluated for the miniature end plate potentials (MEPPs). The facilitation of neurotransmitter release was also evaluated by paired pulse stimulation.

Results: The irradiated (12 J / cm²) muscles (12 J / cm²) showed a significant reduction in the quantum content (P = 0.01) and the EPP amplitude (P = 0.04), but the latency, the spontaneous transmitter release (MEPPs) and the facilitation of paired pulse stimulation did not change. No changes were observed in NMJ irradiated with 4 J / cm².

Conclusion: We conclude that 830 nm diode laser irradiation (at a dose of 12 J / cm²) can influence the evoked neurotransmitter release in the motor endplates of the mouse. - CNOTE: Copyright 2004 Wiley-Liss, Inc.
