

# EFFICACY OF LASER IRRADIATION ON THE AREA NEAR THE STELLATE GANGLION IS DOSE-DEPENDENT: DOUBLE-BLIND CROSSOVER PLACEBO-CONTROLLED STUDY.

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## Abstract

In the present study we evaluate the effects of laser irradiation on the area near the stellate ganglion on regional skin temperature and pain intensity in patients with postherpetic neuralgia. A double blind, crossover and placebo-controlled study was designed to deny the placebo effect of laser irradiation. Eight inpatients (male 6, female 2) receiving laser therapy for pain attenuation were enrolled in the study after institutional approval and informed consent. Each patient received three sessions of treatment on a separate day in a randomised fashion. Three minutes irradiation with a 150 mW laser (session 1), 3 minutes irradiation with a 60 mW laser (session 2), and 3 minutes placebo treatment without laser irradiation. Neither the patient nor the therapist was aware which session type was being applied until the end of the study. Regional skin temperature was evaluated by thermography of the forehead, and pain intensity was recorded using a visual analogue scale (VAS). Measurements were performed before treatment, immediately after (0 minutes) then 5, 10, 15, and 30 min after treatment. Regional skin temperature increased following both 150 mW and 60mW laser irradiation, whereas no changes were obtained by placebo treatment. VAS decreased following both 150 mW and 60 mW laser treatments, but no changes in VAS were obtained by placebo treatment. These changes in the temperature and VAS were further dependent on the energy density, i.e the dose. Results demonstrate that laser irradiation near the stellate ganglion produces effects similar to stellate ganglion block. Our results clearly indicate that they are not placebo effects but true effects of laser irradiation.