

Laser Stellate Ganglion Block

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Effects of Stellate Ganglion Irradiation by the Low-level Laser Therapy on Reflex Sympathetic Dystrophy of the Hemiplegic Arm.

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To evaluate the efficacy of low-level laser therapy (LLLT) on reflex sympathetic dystrophy (RSD) of the hemiplegic arm as an addition to a standardized treatment regimen. Twenty patients were assigned equally to a laser treated limb (LL) and a control limb (CL) group. All patients received 20-minutes laser irradiation, 5 times weekly for a period of 6 weeks. Follow-up studies were also performed in all patients from the initial stage to the end stage of LLLT. A significant improvement in the LL compared to the CL group was found on visual analog scale ($p < 0.05$), subjective and objective symptoms ($p < 0.01$), swelling in hands ($p < 0.05$) and elevation of body temperature in digital infrared thermal imaging ($p < 0.01$) after 6 weeks. From these results it is inferred that LLLT is an useful method of treatment which is able to reduce the symptom of RSD.; however, as a sole treatment for syndrome of RSD it is of limited value. Further studies are needed to evaluate the reliability of our findings and to compare LLLT to other established treatment methods.

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Effects of near-infrared irradiation to stellate ganglion in glossodynia

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Objective: This study was designed to assess the effect of stellate ganglion near-infrared irradiation (SGR) on glossodynia and the mechanism of action.

Study design: Thirty-seven patients with glossodynia received SGR once weekly for 4 weeks. The response to treatment was evaluated on the basis of the change in pain intensity, assessed with a visual analogue scale (VAS) before and after 4 weeks of treatment. The temperature and blood flow of the tongue were also measured before and after first SGR. As control, eight healthy subjects were studied.

Results: Tongue pain as assessed by the VAS decreased in 28 of the 37 patients (75.7%). Mean pain intensity decreased significantly from 5.1 ± 2.2 to 1.9 ± 2.1 ($P < 0.05$). Tongue blood flow at rest in the patients with glossodynia [7.2 ± 1.6 ml min⁻¹ (100 g)⁻¹] was significantly lower than that in the healthy subjects [7.8 ± 0.23 ml min⁻¹ (100 g)⁻¹]. Five minutes after SGR, the temperature of the tongue rose $1.5 \pm 0.21^\circ\text{C}$, and blood flow increased to 8.5 ± 1.2 ml min⁻¹ (100 g)⁻¹. Tongue blood flow (at rest) after 4 weeks of SGR had increased to 7.7 ± 1.1 ml min⁻¹ (100 g)⁻¹.

Conclusion: SGR is an effective treatment for glossodynia. The mechanism by which SGR improves symptoms associated with glossodynia is thought to be as follows: SGR inhibits abnormally increased sympathetic activity associated with glossodynia. This is followed by normalization of decreased tongue blood flow, thereby alleviating pain

Masui. 1992 Nov;41(11):1809-13.

[Low reactive-level laser therapy near the stellate ganglion for postherpetic facial neuralgia]

[Article in Japanese]

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Low reactive-level laser therapy near the stellate ganglion was given for a 68-year-old female with postherpetic neuralgia, suffering from burning pain in the right forehead for 11 years. Stellate ganglion block and supraorbital nerve block with oral medication were not effective to relieve this pain. The laser irradiation induced warm sensation in her face followed by an excellent pain relief. Thermograms illustrated a remarkable increase from 30.6 degrees C to 31.5 degrees C in temperature of her right face. The irradiation near the right carotid artery also had the similar effect. The results imply that the irradiation with low reactive-level laser of the stellate ganglion and/or the carotid artery increases a facial blood flow and relieves facial neuralgia.

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

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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 60 mW 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.

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Minerva Med. 1983 Jun 30;74(27):1683-8.

[Antiasthma therapy with laser radiation of the stellate ganglia]

[Article in Italian]

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The authors present a 42-case series of bronchial asthma treated with laser therapy. The technique consists in the use of a diode laser with transcutaneous irradiation projected anteriorly into stellar ganglion. The clinical cases are presented together with the therapeutical results, pointing out how children are more receptive to this therapy and outlining the importance of timing and hour of treatment.

