



Low Level Laser Therapy & glossodynia clinical research

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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.

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