

EFFICACY OF LOW REACTIVE-LEVEL LASER THERAPY FOR PAIN  
ATTENUATION OF POSTHERPETIC NEURALGIA

Osamu Kemmotsu, Kenichi Sato, Hitoshi Furumido, Koji Harada, Chizuko Takigawa, Shigeo Kaseno, Sho Yokota, Yukari Hanaoka and Takeyasu Yamamura

Department of Anaesthesiology, Hokkaido University School of Medicine, N-15, W-7, Kita-ku, Sapporo 060, Japan.

The efficacy of low reactive-level laser therapy (LLLT) for pain attenuation in patients with postherpetic neuralgia (PHN) was evaluated in 63 patients (25 males, 38 females with an average age of 69 years) managed at our pain clinic over the past four years. A double blind assessment of LLLT was also performed in 12 PHN patients. The LLLT system is a gallium aluminum arsenide (GaAlAs) diode laser (830 nm, 60 mW continuous wave). Pain scores (PS) were obtained using a linear analog scale (0 to 10) before and after LLLT. The immediate effect after the initial LLLT was very good (PS:  $\leq 3$ ) in 26, and good (PS: 4-7) in 30 patients. The long-term effect at the end of LLLT (the average number of treatments 36  $\pm$  12) resulted in no pain (PS: 0) in 12 patients and slight pain (PS: 1-4) in 46 patients. No complications attributable to LLLT occurred. Although a placebo effect was observed, decreases in pain scores and increases of the body surface temperature by LLLT were significantly greater than those that occurred with the placebo treatment. Our results indicate that LLLT is a useful modality for pain attenuation in PHN patients and because LLLT is a noninvasive, painless and safe method of therapy, it is well acceptable by patients.

Addressee for correspondence: Osamu Kemmotsu, Department of Anaesthesiology, Hokkaido University School of Medicine, N-15, W-7, Kita-ku, Sapporo 060, Japan.

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

Toshikazu Hashimoto, Osamu Kemmotsu, Hiroshi Otsuka, Rie Numazawa, and Yoshihiro Ohta, Department of Anaesthesia, Hokkaido University Hospital, Sapporo, Japan

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.

## DOUBLE BLIND CROSSOVER TRIAL OF LOW LEVEL LASER THERAPY IN THE TREATMENT OF POST HERPETIC NEURALGIA

Kevin C Moore Naru Hira. Parswanath S. Kramer, Copparam S.  
Jayakumar and Toshio Ohshiro

Post herpetic. neuralgia can be an extremely painful condition which in many cases proves resistant to all the accepted forms of treatment. It is frequently most severe in the elderly and may persist for years with no predictable course.

This trial was designed as a double blind assessment of the efficacy of low level laser therapy in the relief of the pain of post herpetic neuralgia with patients acting as their own controls. Admission to the trial was limited to patients with . established post herpetic neuralgia of at least six months duration and who had shown little or no response to conventional methods of treatment. Measurements of pain intensity and distribution were noted over a period of eight treatments in two groups of patients each of which received four consecutive laser treatments. The results indeed demonstrate a significant reduction in both pain intensity and distribution following a course of low level laser therapy.

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