

Immediate efficacy of diode laser application in the treatment of dentine hypersensitivity in periodontal maintenance patients: a randomized clinical trial

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Abstract

Background: To evaluate the immediate efficacy in the reduction of dentine hypersensitivity (DH) when applying an 810 nm diode laser (DL), and a 10% potassium nitrate bioadhesive gel (NK10%).

Material and Methods: Forty-five consecutive periodontal maintenance patients of both sexes, with a DH ≥ 2 on the verbal rating scale (VRS) in one or more teeth, were randomly allocated into three equal groups: 15 patients received DL and placebo gel; 15 patients were tested with a placebo laser and NK10%; and the remaining 15 received a placebo laser and placebo gel. The DH was evaluated at the start of the study, 15 and 30 min. after the laser application, and on days 2, 4, 7, 14, 30 and 60 by a blind examiner.

Results: After 15 min., observations showed a reduction in DH after an evaporative stimulus (ES) of 36.9% (0.86), three times greater than that of the control group (0.23) ($p = 0.008$). After 14 days, this effect was even greater [DL 71.7% (1.67)/NK10% 36.3% (1.73)/control 28.1% (0.73); $p = 0.004$], and lasted until day 60 [65.7% (1.53)/30.4% (0.73)/25.8% (0.67); $p = 0.01$].

Conclusions: The DL and NK10% gel were proven effective in the treatment of DH. A significantly greater immediate response was observed with DL.

Key words: bioadhesive gel; dentine hypersensitivity; diode laser; periodontal patients; potassium nitrate

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Conflicts of interest and sources of funding statement

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Disclosure of any conflicts of interest:

There are no conflicts of interest to disclose in the present study.

Dentine hypersensitivity (DH) is a painful response of the tooth to different stimuli such as brushing, acid diets, occlusal overload and thermal changes (Addy & Urquhart 1992). It is characterized by an acute, non-spontaneous, short- or long-lasting pain that appears suddenly in a specific location, which cannot be attributed to any other dental pathology (Holland et al. 1997). It is a highly common occurrence (Addy 2002) that is easy to diagnose with a routine examination.