

Post-operative Quality of Life Following Conventional Endodontic Intra-canal Irrigation Compared to Laser-activated Irrigation: A Randomized Clinical Study

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The aim of this randomized clinical study was to evaluate the effect of laser-activated irrigation using a Photon-Induced Photoacoustic Streaming technique on postoperative pain following completion of root canal obturation.

Fifty-six patients were enrolled in this randomized clinical trial. Fifty-six healthy premolars or molars with asymptomatic irreversible pulpitis, symptomatic irreversible pulpitis or symptomatic pulpal necrosis with or without apical periodontitis, were mechanically prepared for endodontic treatment and divided into 2 groups. Patients were randomly allocated to treatment groups.

In the positive control group G1, the final irrigation with 2 cc of 5.25% sodium hypochlorite (NaOCl) was achieved using a 27G syringe, introduced into the canal to a distance of 5 mm from the pre-determined working length. In the experimental group G2, the root canals were irrigated with 17% EDTA and 5.25% NaOCl following the Photon-Induced Photoacoustic Streaming (PIPS) protocol, using a 2940 nm Er:YAG laser (LightWalker ATS®, Fotona, Slovenia) with a 600 µm diameter tip and operating parameters of 20 mJ per pulse, 15 Hz frequency, 0.3 W average power and a 50-microsecond pulse duration.

Postoperatively, the patients were advised to take a minor analgesic (Ibuprofen 400mg) in the event of pain perception. Post-operative pain levels were assessed after 24, 48, 72 hours and 7 days through the use of a Visual Analogue Scale (VAS) questionnaire completed by each patient. Data were analyzed using the Kolmogorov-Smirnov, Fisher Exact, Chi square,

Mann-Whitney and Friedman's tests. The level of significance was set at $\alpha = 0.05$.

There was no significant difference between the laser-irradiated group and the control group ($p < 0.5$). Laser activation of irrigating solutions did not increase post-operative pain.

The outcome of this investigation indicated that PIPS was as effective as conventional irrigation in relation to postoperative pain, making this activation technique interesting to use for supplementary root canal disinfection.

Minimally Invasive Conservative Dentistry (MID) with Laser

Marcela Bisheimer Chemez

Minimally Invasive Dentistry (MDI) is the application of techniques that respect, as a priority, the natural tissues of the tooth. This is based on different aspects that include, among others: the early diagnosis of caries, remineralization and / or sealing of the dental tissue and restoration of injuries with minimal intervention, as conservatively as possible.

With this presentation we want to ratify the reasons why "laser can be used in conservative dentistry as an alternative to conventional rotary instruments".

With this in mind, we will evaluate the basic concepts of three components involved: laser ablation, the dental substrate and the adhesion system used to perform additive, non-subtractive dentistry.

Laser can be used in conservative dentistry as an alternative to conventional rotary instruments with minimal intervention under the premises of Minimally Invasive Dentistry.

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