

An Alternative Procedure For Laser Irradiation In Endodontical Therapy

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The aim of this study is to determine a method that achieves effective canal microbial reduction providing an inner canal wall completely free of debris. A control of temperature rise during the treatment is necessary to assure a safe procedure for periodontal tissue. In this study, the entire root canal of thirty-two upper canines human teeth were irradiated with a pulsed Nd:YAG laser, using a 300µm diameter optical fiber probe. Before irradiation teeth instrumentation was performed up to # 45 file and the remaining dentin thickness in the apical region was ≥ 1 mm. The teeth were divided in two groups: one irradiated with 10 Hz and the second group with 15 Hz. The output energy was 100 mJ/pulse for both groups. The root canals were irradiated for 4 periods with 20s breaks in between. Each period was irradiated with the fiber initially stationed from the apical foramen, during the 3 seconds and sequentially with helicoidal irradiation with 1 mm/s to coronal surface. Teeth were maintained in a 37°C water bath and temperature tooth surface changes was recorded during root canal irradiation. The temperature was monitored using a thermocouple type T (copper-constantin) positioned in the apical foramen. For irradiation with 100mJ, 10Hz the maximum rise was $3,2 \pm 0,4^{\circ}\text{C}$ and for 100mJ, 15Hz was $4,3 \pm 0,8^{\circ}\text{C}$. In these groups the temperature rise on the external tooth surface was bellow 10°C , therefore these irradiation conditions prevent damages to periodontal tissue and periapical bone during endodontical treatment.

Laser Nd:YAG in periodontology. A review of the literature

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In the last years lasers have been suggested to dentists for periodontic treatments in order to reduce the working time and patient discomfort.

This study is a review of international literature (carried out through Medline) in order to achieve the necessary scientific serenity for a clinic use of such devices, to identify types of periodontal patients and procedures that might be enhanced by lasers and try to define clinical protocols for Nd:YAG lasers in periodontics.

The results seems to be good on the soft side of periodontal pockets both for the ability to reduce the putative bacteria of the disease, both for the ability to remove the diseased epithelium of the pocket without damaging the underlying connective tissue.

On the other side seems to be always mandatory the use of lasers in conjunction with hand-instrumentation of root cementum.

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