
 Poster Presentation

fauces. It was suggested that Nd:YAG laser irradiation for oral cavity is a safe laser device.

P42**Laser in the treatment of temporomandibular disorders - clinical case report.**

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Low Intensity laser therapy is becoming a promising treatment of temporomandibular disorders. As occurs in all therapies, it is extremely important that its principles are well known, as well as the disease presented and the patient who is under treatment, so that it can be properly used and achieve satisfactory results. Two clinical case will be reported, focusing on the importance of diagnosis in the establishment of a proper treatment plan. Operative procedures and well-established doses for the control of etiologic factors and symptomatology of each kind of disorders are 25J/cm², [50mW during 20s per point], in 3 points of ATM and 15J/cm², [20mW during 20s per point], in 2 points of secular muscle, 2 points of muscle to masseter and one point in the interface between the medial and lateral pterigoideo muscle, made in four sections.

P43**Effect of varied pulse energies and pulse repetition rates at the identical total power on enamel ablation using Er:YAG laser.**

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Background : Tooth ablation by a Er:YAG laser irradiation can be influenced by irradiation parameters. Purpose : This study was performed to investigate the amount of tooth ablation and the change of intrapulpal temperature by Er:YAG laser as it relates to pulse energy and pulse repetition rate at the identical power. Material and Methods : Fifteen extracted human molar teeth were sectioned into two pieces and categorized into three groups within the combination of pulse energy and pulse repetition rate at the same power of 3W; 300mJ-10Hz, 200mJ-15Hz, and 150mJ-20Hz groups. A laser beam with conjunction of water flow rate of 1.6ml/min was applied over enamel surfaces of the specimens during 3 seconds and the ablation amount was determined by difference in weight. Intrapulpal temperature was also investigated. Results : At the identical power of 3W, ablation

amount increased with pulse energy rather than pulse repetition rate. Although intrapulpal temperature increased with pulse repetition rate, there were no significant differences among the groups. Discussion and Conclusion : It is suggested that ablation efficacy is influenced by pulse energy rather than pulse repetition rate, while temperature shows a tendency to be affected somewhat by pulse repetition rate.

P44**Morphological changes and acid resistance in deciduous enamel irradiated with Er:YAG and diode lasers: in vitro study by scanning electronic microscopy**

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The purpose of this study was to evaluate Er:YAG and diode lasers morphological effects and verify the enamel acid resistance increase. Nine deciduous teeth was used cutted longitudinally, parting buccal and lingual surfaces. The teeth were irradiated with Er:YAG (2Hz, 100mJ/pulse, 50 sec) and diode (1W, 15sec) lasers and half of the samples were submitted to pH cycling. The specimens were divided into six groups: Group I-no treatment (control sample); Group II-irradiation with Er:YAG laser; Group III-irradiation with diode laser; Group IV-enamel submitted to pH cycling; Group V-irradiation with Er:YAG and pH cycling and Group VI-irradiation with diode and pH cycling. The samples were evaluated by scanning electron microscopy. The results showed suggestive images of melted and resolidified enamel with diode laser and ablation zones with Er:YAG. After pH cycling, the samples irradiated with diode laser showed increased acid resistance. It follows that laser irradiation promotes significant morphological changes in dental enamel that can modify its acid resistance, and more studies are essential to use this energy in Preventive Dentistry.

P45**Microhardness of the dental enamel surface after irradiation with 960nm diode laser.**

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Several authors analyzed laser irradiation of dental enamel in an attempt to increase acid resistance and achieve caries prevention. In some cases, the procedure has also been associated to the application of a layer of fluoride. Micro-hardness measurements are reliable tests used to determine the degree of resistance to demineralization. In this work micro-hardness values of superficial dental enamel have been measured before and after irradiation with a 960 nm diode laser, using tested laser parameters that are safe and cause no injuries to the adjacent tissue. Laser parameters were below the dental enamel ablation threshold. 60 enamel samples were used and divided into control group (GC), fluoride application (GF), laser irradiation (GL), fluoride application with subsequent laser irradiation (GFL) and laser with subsequent fluoride application (GLF). A solution containing coal was used on the enamel surface in order to absorb the laser radiation. A statistically significant loss of the micro-hardness value was obtained for all groups except for GL but also this group did not produce significant micro-hardness increase. Conclusion: at the current peak power and beam quality of standard diode laser bars, safe laser parameters do not produce higher micro-hardness values. Financial support: FAPESP and CNPq.

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Effects of 960nm diode laser irradiation and fluoride on calcium solubility of dental enamel in vitro.

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The aim of this study is to determine the effects of diode laser (?=960 nm) irradiation on calcium solubility of dental enamel. Sixty enamel specimens were prepared from human teeth and divided into four groups (control, fluoride, laser and fluoride plus laser). Prior to the irradiation a vegetable coal diluted in physiological solution was applied to the enamel surface and the specimens were irradiated using 6,5 W of peak power, 5 ms of pulse duration, 10 Hz of repetition rate, fluency of 3,7 J/cm² and time exposure of 10 seconds. The acidulated phosphate fluoride was applied for 4 minutes. Next, the specimens were immersed in lactic acid for 24 hours at 37 °C. The calcium content in demineralization solution was evaluated with Inductively Coupled Plasma Atomic Emission Spectrometry. The results indicate an increase

in calcium solubility (12%) after laser irradiation, however, not statistically significant. When associated with fluoride, the decrease in calcium solubility did not differ from the results obtained with fluoride only. It can be concluded that in this experiment diode laser irradiation did not increase acid resistance of dental enamel. Financial support: FAPESP and CNPq.

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Comparative clinical study of the effect of LLLT in the immediate and late treatments of hypoesthesia due to surgical procedures.

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We evaluated the effect of LLLT in 68 patients who presented hypoesthesia due to odontological surgery procedures: dental implant surgeries (N=51); extraction of impacted lower third molars (N=10); endodontics in lower first molars (N=7). Lesions treated within 30 days after the nerve injury had occurred were part of the immediate group, and lesions with more than 30 days from the occurrence of the injury were part of the late group. Treatments were carried out with an infrared diode laser of 40 mW - 830nm, continuous wave emission, spot size 3 mm², and a total dosage of 18 joules per session in a contact mode application, 20 sessions altogether. The efficacy of laser therapy in peripheral nerve regeneration is also related to the degree of the peripheral nerve lesion, and not only to the lesion duration. LLLT resulted in neurosensory functional improvement in both immediate and late treatments of hypoesthesia.

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Comparative clinical evaluation of the immediate and late analgesic effect of GaAIs diode lasers of 830 nm and 660nm in treatment of dentine pain.

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In this comparative clinical study, we aimed at evaluating the immediate and late analgesic effect of GaAIs diode lasers of