

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.

P46

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

Kohara, E.K.; Kato, I.T. ; Wetter. N.U..

Mestrando do Centro de Lasers e Aplicações do IPEN/USP.

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.

P47

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

Ladalardo, T.C.C.G.P.; Brugnera Júnior, A.; Pinheiro. A.L.B.; Garrini, A.E.C.; Bolonga, E.D.; Campos, R.A.C..
Doutoranda em Ciências pela UNIFESP - Escola Paulista de Medicina.

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.

P48

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

Ladalardo, T.C.C.G.P. ; Pinheiro, A.L.B. ; Brugnera Júnior, A.; Albernaz, P.L.M. ; Zanin, F.; Campos, R.A.C..
Doutoranda em Ciências pela UNIFESP - Escola Paulista de Medicina.

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