

InGaAlP diode laser and were then collected before, immediately later and 90 days post photodynamic therapy; the control group samples (n=19) were treated exclusively with 0.005% TBO dye. With time both groups presented significant mortality rates ($p < 0.01$). However, if differences between times were evaluated, the experimental group presented differences among the 3 times, before, immediately after and 90 days post ($p < 0.01$), whilst, the control group did not demonstrate evidence of significant differences among the times before and immediately after. The median differences between the before and immediately after moment were significant among the groups ($p < 0.01$). The differences between IA and 90 days post were not significant, neither were the differences B and 90 days post. Using SEM, after 90 days dentin tissue reorganization suggestive of tubular sclerosis was observed in the experimental group, while the control group demonstrated evidence of dentin collagen disorganization. Photodynamic therapy can, therefore, be considered as a possible alternative approach for dental decay lesions in deciduous teeth.

OP58

The use of low level laser therapy in the Odontopediatric clinic

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Laser represents a new therapeutic modality in Dentistry; it doesn't just consist of a new equipment uses or even a new technology for the dentist in the clinic. It represents a modern therapeutic philosophy, minimally invasive originating from the knowledge of the light biophysical interaction, that possesses special characteristics, with the biological tissue, aiming to improve the quality of the conventional treatments. Pediatric Dentistry aims the child's total care; in this context laser therapy can be used in the several approaches in order to health promotion.

This paper intends to present the pediatric dentistry clinic low level laser uses for caries lesion diagnosis and control; for development anomalies; for soft tissues lesions treatment; for the microbial control in dental caries lesions and as a reparative dentine biostimulator.

OP59

Surgical Applications of Erbium Laser.

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The purpose of this presentation is to share some surgical applications of Erbium laser, placing dental implants and in Endodontic surgery. We know today that bone response to Erbium is much better than burs and that the highest absorption is mainly in water and hidroxyapatite, so it works safely on bone. The laser energy couples into the hidroxy radical in the apatite crystal and into the water that is bound to the bone structures; the mineral substrate of water vaporization causes a massive volumen expansion and this expansion causes the surrounding material to explode away, and temperature decreases during treatment. The minimization of this thermal effect makes the erbium lasers ideal for bone removal, caries removal and tooth preparation when used with water spray.

Five clinical cases will be presented.

OP60

Effects of low-intensity red laser radiation on the dentine-pulp interface after class I cavity preparation disfunction.

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The aim of this study was to investigate the effects of low-intensity red laser radiation on the ultrastructure of dentine-pulp interface after conventionally prepared class I cavity preparation. Eight premolars indicated for extraction for orthodontic reasons from 2 patients were used. Class I cavities were prepared and the teeth were divided into two groups. The first group received a treatment with a GaAlAs laser, $\lambda = 660 \text{ nm}$, $P = 30 \text{ mW}$ and $D = 2 \text{ J/cm}^2$. The laser tip was applied directly and perpendicularly into the cavity in only one sense. The teeth from the second group had their class I cavities prepared but they did not receive the laser therapy. All cavities were filled with composite resin. Twenty-eight days after the preparation, the teeth were extracted and processed for transmission electron microscopy analysis. Two sound teeth (healthy group) without any preparation were also examined. The first group presented odontoblastic processes

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in intimate contact with the extracellular matrix, while the collagen fibers appeared more aggregated and organized than those of the second group. These results were also observed in the healthy teeth. The results suggest that laser irradiation accelerates the recovery of the structures at the dentine-pulp interface involved during cavity preparation layer.

OP61

Low level laser therapy in treatment of TMJ and masticator muscles disease: biometrical and pain evaluation.

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A sample of 11 patients showing temporomandibular joint disease, in one or both sides, was selected. Clinical examinations were performed on patients to define which side was the most compromised by the disease. Only the worst side was chosen to be treated by the laser therapy. The Laser Unit used was a diode laser (AlGaAs) in which the wavelength was 810 nm (infra-red spectrum). Irradiations were done in three points of TMJ, with 22,5 J/cm²; two points in the masseter muscle, with 15 J/cm²; and three points in the temporal muscle, with 7,5 J/cm². All points were irradiated for 30 seconds. The other side, of lesser complaint received a sham therapy. Treatment was done during two weeks, three irradiation with 48 hours interval in the first week, and two irradiations with the same interval in the second week. Patients reported improvement in relation to the level of pain, mainly after the fourth irradiation, and the level of pain decreased until the last day of treatment. In relation to the degree of mouth opening, the majority of patients showed a significant increase, mainly after the fifth day of irradiation.

OP62

Effect of low level laser therapy on the viability and proliferation of human primary bone cells.

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Technologies for improving bone formation and regeneration are a constant research in tissue engineering. Biostimulatory effects of low level laser therapy (LLLT) on hard tissue have been previ-

ously described, but the parameters (total energy doses, irradiation mode, power density) for Laser irradiation on bone remain uncertain. Moreover, no data was found concerning LLLT on human primary bone cells (HPBC). Our objective was to investigate the effect of different laser irradiation parameters on the viability and proliferation of HPBC. A HPBC culture was established. Cells were plated in DMEM, 5% FCS, simulating nutritional deficit. They were irradiated 3 times with 72 hours interval. An 830 nm-GaAlAs-Laser, 100 mW power output was used in continuous or pulsed mode, each with total energy doses of 2, 4, 6, 8 and 10 Joules. Cellular proliferation was analyzed with BrdU colorimetric immunoassay; viable cells were counted with a hemocytometer. Phenotype changes were investigated with ALP staining. We found out, in the present nutritional deficit conditions, that LLLT improved the viability and proliferation of HPBC in vitro without changing their phenotype. Different doses and irradiation modes resulted in different cellular responses. Further investigations about LLLT effects on ALP, collagen and protein expression are being performed.

OP63

Histologic aspect of maxillary bone repairing after autogenous graft influenced by the use of AsGaAl laser and BMP.

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Objectives: To analyze the potential of regeneration of autogenous graft interface, treated or not with BMP and AsGaAl laser. Material and Methods: We selected patients with necessities of bone grafts for installation of implantations in the region of previous maxilla. The autogenous donor area was the mentum symphysis and the patients had been divided in 4 randomly groups: G1-only graft (control), G2-graft and BMP, G3-graft and laser, G4-graft and BMP + laser. In the groups G3 and G4 we used the AsGaAl laser, 50mW, 3J/cm² and wave length of 670nm. After 150 days, the region of the interface graft-bed was removed with aid of a trephine drill of 3mm of diameter. These bone fragments had been descalcificated and processed for histomorfometric analysis. Results: We observed the formation of a compact bone tissue with great marrow sockets. However, bigger number of osteocytes in the treated groups was observed. The marrow tissue