

OP51**Effect of low power laser over cells infected by herpes simplex virus.**

Tardivo, J.P. ; Granato, C.; Sakuma, M.E. ; Soares, J.H.; Huemer, C.; Figueiredo, C.A.

Serviço de Virologia do Instituto Adolfo Lutz - SP.

The purpose of this study was check the behavior of Vero cells infected by HSV, under low power laser action.

Doses of 4 joules and 12 joules were were applied from a 904 nm GaAs laser with 30mW out put power. Vero cells (4X10⁴ / Wells) were infected with HSV (100 TCID₅₀) and observed everyday. The irradiations were daily, for 3 successive days.

We observed a lower cytophatic effect in the irradiated cells concerning the controls, been this action more evident with 4 J.

These cells were incubated for 7 days. After this period the cells were frozen and the released viruses were inoculated in new cultures of Vero.

We observed na absence of cytophatic effect in that cells infected by viruses derived of cultures that received 12 J initially.

Low power laser over Herpes Simplex can be useful in clinical practice.

OP52**Effects of low-intensity laser therapy on the Orthodontic movement velocity of human teeth: A clinical study.**

Kohara, E.K. ; Cruz, D.R.; Wetter, N.U.; Ribeiro, M.S. Mestrando do Centro de Lasers e Aplicações do IPEN/USP.

Low-intensity laser therapy (LILT) has been studied in many fields of Dentistry, but, to our knowledge, it is the first time that its effects on orthodontic movement velocity in humans are investigated. In our study, eleven patients were recruited for a two-month study. One half of the upper arcade was considered control group and received mechanical activation of the canine teeth every thirty days. The opposite half received the same mechanical activation and was also irradiated with a diode laser (?=780nm) on ten points around the root, during 10s with 20 mW, 5 J/cm², on four days of each month. Data of the biometrical progress of both groups were statistically compared. All patients showed significant higher retraction velocity of the canines on the laser treated side when compared to the control. Conclusion: Our findings suggest that LILT does accelerate

human teeth movement and could therefore considerably shorten the whole treatment duration.

OP53**Bacterial reduction by photodynamic therapy in peri-implantitis. An in vivo study.**

Yamada Júnior, A.M.; Hayek, R.R.A.; Gioso, M.A.; Ferreira, J.; Batista Sobrinho, C.A. ; Ribeiro, M.S.

Doutorando em Ciências, IPEN/USP.

Progressive peri-implantar bone losses, which are accompanied by inflammatory process in the soft tissues is referred to as peri-implantitis. The aim of this study was to compare the effects of lethal photosensitization with the conventional technique on bacterial reduction in ligature induced peri-implantitis in dogs. Seventeen third premolars of eight Labrador dogs were extracted and, immediately after, the implants were submerged. After osseointegration, peri-implantitis was induced. After 4 months, ligature were removed and the same period was waited for natural induction of bacterial plaque. The dogs were randomly divided into two groups. In the conventional group, they were treated with the conventional techniques of mucoperiosteal flaps for scaling the implant surface and irrigation with chlorexidine. In the laser group, only mucoperiosteal scaling was carried out before photodynamic therapy. On the peri-implantar pocket an azulene paste was introduced and a GaAlAs low-power laser (l= 660 nm, P= 30 mW, E= 5,4 J and Dt= 3 min.) was applied. Microbiological samples were obtained before and immediately after treatment. The results of this study showed that *Prevotella* sp., *Fusobacterium* e *S. Beta-haemolyticus* were significantly reduced for the conventional and laser groups (100%,99.8%; 100%,100%; 85.7%,97.6%, respectively).

OP54**Photodynamic action of toluidine blue in streptococcus mutans by fluorescence spectroscopy.**

Núñez, S.C.; Gomes, L.; Garcez, A.S.; Müller, K.P.; Jorge, A.O.C.; Ribeiro, M.S..

Doutoranda em Ciências, IPEN/USP.

The antimicrobial activity of toluidine blue associated with red light has been demonstrated for a wide range of microorganisms including those commonly found in infected root canals, carious

Oral Presentation

lesions and periodontal pockets. Recent reports have drawn attention to the problems of antimicrobial resistance and resistance of oral bacteria to antibiotics and local antiseptics is of increasing concern, thus photodynamic therapy could be an alternative antimicrobial approach to treat localized infections in oral cavity. In this study the fluorescence spectra of TB were obtained before and after laser exposure in the presence or absence of *Streptococcus mutans*. The dye concentration was 0.01%, the irradiation was performed with a diode laser, $\lambda = 660 \text{ nm}$, $P = 40 \text{ mW}$, exposure time of 3 minutes in a volume of 0.5 ml, with a pre-irradiation time (PIT) of one or five minutes. The results showed shifts in fluorescence spectra observed for different pre-irradiation times in the presence of *S. mutans*. In the absence of bacteria, a shift in the spectra was observed in the dye before and after irradiation. These findings may indicate a photobleaching of the dye denoting structural alterations after irradiation and confirm the importance of the PIT for the success of this therapy.

OP55

Comparative study between photodynamic therapy and chemical solution on bacterial reduction in root canals.

Núñez, S. C.; Gomes, L.; Garcez, A.S.; Lage-Marques, J.L.,

Doutoranda em Ciências, IPEN/USP.

One of the major medical problems facing mankind in the next century will be the resistance of many pathogenic microbes to existing antibiotics. Oral bacteria can easily reach other body sites and also spread to other individuals. Therefore, antibiotic-resistant oral bacteria have the opportunity for rapid dissemination through the community and to transfer their resistance genes to other bacterial species. Photodynamic therapy involves the use of light-activated drugs which may offer an alternative approach to the use of traditional antimicrobial agents. The purpose of this study was to evaluate bacterial reduction in infected root canal. Thirty teeth with their root canals prepared were contaminated with *Enterococcus faecalis*. Control group was untreated. Chemical group was treated with sodium hypochlorite for 30 minutes and in the laser group, a photosensitizer paste was placed and maintained in the root canals for 5 minutes and irradiated with a diode laser, output power 10 mW and $\lambda = 685 \text{ nm}$ for 3 minutes. The bacterial reduction was significantly higher for laser group when compared

to chemical and control groups. These results indicate photodynamic therapy as an effective method to kill *E. faecalis*.

OP56

Effects of the lasertherapy on cutaneous wounds infected by *Staphylococcus aureus*.

Macedo Sobrinho, J.B.; Almeida, P.F.; Santos, J.N.; Macedo, C.R.S.; Santos, N.R.S.; Pinheiro, A.L.B.

Doutorando em Laser em Odontologia pelo Programa Integrado de Doutorado da Universidade Federal da Bahia - UFBA.

The literature shows several studies showing positive effect of the use of lasertherapy on wound healing, but no study was found on infected wounds. The aim of the present study was to assess the effects of the lasertherapy on cutaneous wounds infected by *Staphylococcus aureus*. Twelve rats had a standard wound created on the dorsum. Four hours after wounding the wound was contaminated with a solution containing *Staphylococcus aureus*. Forty-eight hours after contamination and assessment of infection, the animals were divided: Control-removal of the crust and no further treatment; Laser-removal of the crust and a single application of lasertherapy (660 nm , 50 mW , 30 J/cm^2 , CW, 15min). Immediately after a swab was used to collect material from the wound surface. The swab was placed in a tube containing PBS, diluted and placed in Baird-Parker medium. Colony counts were then performed. Eight days after contamination, the same procedure was carried out and the animals were humanely sacrificed. The specimens were stained with HE and Picrosírius stains. The result of the colony count showed no significant differences between the groups. Histological analysis showed increases collagen deposition and epithelial migration and mild inflammatory reaction was seen on laser-treated subjects. The Lasertherapy improved healing on infected wounds.

OP57

In vivo study of photodynamic therapy effect on deciduous dentin: microbiologic and SEM analysis.

Sant'Anna, G.R.; Simionato, M.R.L.; Duarte, D.A..
Mestre em Odontopediatria /USP .

In vivo decayed dentine of deciduous teeth ($n=29$) were treated with 0.005% toluidine blue O and sensitized with a low-power