

Symposium

JULY 22nd, 2004

SIM-001 - Lasertherapy, LEDS, Conventional Bleaching: What is best for the patients ?

Fátima Antônia Aparecida Zanin

Scientific knowledge associated to the practice of the conventional Dentistry is essential for the safe usage of lasers. From the literature is possible to verify that photo-assisted dental bleaching has progressed throughout the time mainly on the photo-activator light/heat sources . Initially the activation of the gel was carried out by means of the use of heat sources such as instruments and lamps (photoflood, Halogen lamps) However, the high penetration of the 35% Hydrogen peroxide associated to the increased local temperature caused by the heating source, results on the increase of the tooth sensitivity. Because of this, the techniques used nowadays seek less time for application, less heating and decrease on the post-operative tooth hypersensitivity .On bleaching, several types of lasers may be used for the activation of the gel (Argon and Diodes) or can also be used on the treatment of the hypersensitivity, which usually follows the bleaching performed by both infra red laser (low level laser) and blue LEDs. The use of the Argon laser and blue LEDs allowed the use of more concentrated bleaching gel which has no need for heating as it is photochemically activated. Their use also improved the results of the bleaching; reduced the temperature during the procedure and consequently reduced the tooth sensitivity.

SIM-001 - Lasertherapy, LEDS, Conventional Bleaching: What is best for the patients ?

Tatjana Dostálová

SIM-001- Lasertherapy, LEDS, Conventional Bleaching: What is best for the patients ?

Dirceu Vieira

SIM-002 - Laser in Dentistry: Reality and Myths

Luciana Almeida Lopes

Várias são as aplicações de diferentes tipos de luz na clínica

odontológica. Podemos fazer desde um simples diagnóstico de cárie utilizando um laser que identifica diferenças de comportamento óptico entre tecido sadio e tecido cariado; podemos utilizar o laser com potências mais altas com finalidade terapêutica, e cujos efeitos são: aliviar a dor, estimular a reparação tecidual, reduzir edema e hiperemia nos processos inflamatórios; podemos ainda utilizar os lasers com potências bastante maiores, buscando uma ação cirúrgica clínica, seja removendo tecido cariado ou fazendo excisões ou incisões em tecido mole. Apresentaremos essas aplicações, discutiremos suas indicações e limitações.

SIM-002 - Laser in Dentistry: Reality and Myths

Walter João Genovese

Neste simpósio serão discutidos os principais temas relacionados com a laserterapia: suas propriedades e principais aplicações clínicas, tanto o Laser de Baixa Intensidade (terapêutico), como Laser de Alta Intensidade (cirúrgico).

SIM-002 - Laser in Dentistry: Reality and Myths

Luciane Hiramatsu Azevedo

Utilização dos lasers de baixa e alta potência na pesquisa e na clínica odontológica.

SIM-002 Laser in Dentistry: Reality and Myths

Marlene Elizabeth M. M. Gerbi

Several reports have evidenced positive effects of the lasertherapy on the healing process of both soft and hard tissues. The aim of this presentation is to present clear indications for dentists working with dental implants on the use of the lasertherapy based upon the clinical and research experience of our team and on the previous literature. Lasertherapy is indicated: As an auxiliary to the anesthesia on the preoperative period promoting analgesy; On both trans and postoperative period speeding up the healing process favouring osteointegration and reducing loading time; 3. Pain relief due to increased release of endorphins; Less inflammatory reaction to decrease on the level of prostaglandins. All this limiting or avoiding the

use of drugs on the post operative period. The most recommended laser to be used are those with IR wavelengths, with potencies ranging from 40 and 100mW and doses of 6 - 16 J/cm² on CW, and on punctual or scanning manner.

SIM-03 - Photodynamic therapy in Dentistry: Indications and possibilities

Giselle R. Sant'Anna

Utilização da Terapia fotodinâmica com fotossensibilização letal de bactérias orais em biofilmes dentais e tecidos dentários mineralizados: indicações, possibilidades e tendências.

SIM-003 - Photodynamic therapy in Dentistry: Indications and possibilities

João Batista de Macedo Sobrinho

1. Breve Histórico da Terapia Fotodinâmica
2. Princípio da Terapia Fotodinâmica
3. Aplicação da Terapia Fotodinâmica sobre microrganismos
4. Estudos sobre cicatrização em feridas infectadas.

SIM-003 - Photodynamic Therapy in Dentistry: Indications and Possibilities

Newton Soares da Silva

Photodynamic therapy (PDT) is a novel treatment for cancer and certain non-cancerous diseases that are generally characterized by overgrowth of unwanted or abnormal cells. The procedure requires exposure of cells or tissues to a photosensitizing drug followed by irradiation with light of the appropriate wavelength, usually in the red or near-infrared region compatible with the absorption spectrum of the drug. In PDT, photosensitizers are used to absorb energy from a light source after its administration to tumours cells, producing reactive oxygen species that will cause cell death. The oxygen free radicals partially reduced are highly toxic molecules that cause lesion to cell membranes and other cell constituents. Mitochondria and lisosomes have been identified as key components in the induction of apoptosis. PDT with most of the sensitizers tested, acts via singlet oxygen production. Because of the short half live of this excited species in cells (<0.1 s) and

short radius of action (<0.02 m) damage will occur mainly next to the region the sensitizer is concentrated. Apoptosis, also known as "programmed cell death", is a physiological process of cellular deletion. The morphological characteristics of apoptosis are: - chromatin condensation; - nuclear membrane blebbing and the formation of apoptotic bodies. The apoptotic process limits leakage of intracellular material to the immediate environment, and thereby prevents tissue inflammation. In contrast, necrosis results from high levels of cell damage, in which plasma membrane integrity is lost, causing cell lyses and thus tissue inflammation. Although PDT can produce apoptosis or necrosis, or a combination of the two mechanism, in many cases it is highly efficient in inducing apoptosis.

JULY 23rd, 2004

SIM-004 - Diagnosis, Caries Prevention and Laser In Dentistry: Truths and Myths

Sissi Leite de Barros Zanin

The conventional methods for caries diagnosis have some difficulties in detecting the presence of lesion, mainly in its initial development phase. The DIAGNOdent laser (KaVo) appeared in dental clinic practice in 1998 as a device for diagnosis of caries lesions on smooth and occlusal surfaces. Many studies have reported the good sensitivity and specificity of such device in the diagnosis of lesion in its initial stages. The purpose of this work was the in vitro monitoring of enamel demineralization of deciduous teeth promoted by acid treatment with a saturated hydroxyapatite demineralizing solution for 24, 48 and 96 hours. The monitoring based on photographic visual examination and DIAGNOdent readings has been performed by three calibrated examiners and the correlation between the two methods has been determined. The validation of the mineral loss has been obtained from the determination of the difference in phosphorus concentration of the caries promoter solutions before and after the treatments. According the obtained results, the photographic visual examination and the DIAGNOdent laser device were capable of monitoring the caries lesion production by acid treatment and a positive correlation between the methods has been found.

SIM-004 -Diagnosis, caries prevention and laser in dentistry: Truths and myths

Lidiany Karla Azevedo Rodrigues

Descrever as características do laser de CO₂ e demonstrar, através de uma revisão de literatura seus efeitos sobre o esmalte e dentina, bem como os efeitos de sua associação ao flúor, quando usado para prevenção de cárie dental

SIM-004 - Diagnosis, caries prevention and laser in Dentistry: Truths and Myths

Sandra Kallil Bussadori

1. Características histológicas e clínicas do padrão esmalte e dentina;
2. Avaliação da dentina afetada e infectada;
3. Inserção de carisolv e das técnicas atraumáticas;
4. Mecanismo de ação do gel papacárie;
5. Padrão dentinário pós utilização do gel;
6. Utilização clínica do produto;
7. Indicações e contra indicações;
8. Aplicação do produto como agente quimioterápico;
9. Utilização clínica e/ou laboratorial do produto;
10. Discussão de casos clínicos.

SIM-005 - New laser applications in Operative Dentistry, Periodontics and Endodontics

Carlos de Paula Eduardo

The interaction between lasers and dental hard tissues will be demonstrated and the indications for its correct use. The interest in the Er:YAG laser and the Er,Cr:YSGG laser for dental applications exists because of their peculiar wavelength and absorption by enamel and dentin. Research and clinics will be considered and also the correct protocols for these lasers in Restorative and Esthetic Dentistry for cavity preparation, canine guidance reconstruction, dentin hypersensitivity treatment and carious tissue removal; in Pediatrics for conservative cavity preparation, microbial reduction. The correct protocol for the high intensity diode laser will be also discussed. In fact, a lot will be discussed regarding the combination of research and clinical application in order to establish safe parameters for the Lasers

in all dental specialties. Recently, some studies have been developed with the Er,Cr:YSGG laser (Project CEPID/FAPESP). Based on this, the use of these lasers have become more popular in daily clinical work. To conclude, it will be mentioned the "upgrade" that the laser can represent in dental practice.

SIM-005 - New laser applications in Operative Dentistry, Periodontics and Endodontics

Isao Ishikawa

Since lasers were introduced for the treatment of oral diseases, there has been considerable advancement in technology. As a result, numerous laser systems are currently available for oral use. The Er:YAG laser possesses suitable characteristics for oral soft and hard tissue ablation. Recently, it has been applied for effective elimination of granulation tissue, gingival melanin pigmentation and gingival discoloration. Contouring and cutting of bone with minimal damage and even or faster healing can also be performed with this laser. In addition, irradiation with the Er:YAG laser has a bactericidal effect with reduction of lipopolysaccharide, high ability of plaque and calculus removal, with the effect limited to a very thin layer of the surface and is effective for implant maintenance. In this lecture, I will talk about the positive characteristics of the Er:YAG laser that indicate its potential as a new treatment modality in periodontics.

SIM-005 - New laser applications in Operative Dentistry, Periodontics and Endodontics

José Luiz Lage-Marques

SIM-005 - New laser applications in Operative Dentistry, Periodontics and Endodontics

Regina Guenka Palma Dibb

Com o surgimento de lasers com características mais apropriadas para o uso em Odontologia, vem aumentando o seu emprego na Dentística tanto para a execução de preparos cavitários, tratamento de superfície, fotopolimerização de materiais restauradores, hipersensibilidade, clareamento entre outras aplicabilidades, os quais serão descritos neste simpósio.