proposed like teriparatide, bone morphogenetic proteins, platelet concentrates, hyperbaric oxygen, ozone therapy and lasers but still are all considered as adjunctive therapies. Regarding lasers, the high-power Erbium family has been effectively used either for bone debridement or evaporation of necrotic sites, due to the increased (wavelength-depended) absorption from water and hydroxyapatite. LLLT has also been introduced into the clinical practice as it possesses anti-inflammatory, analgesic and biostimulatory properties with favorable action on bacterial control, wound healing and bone formation. The combined approach including piezosurgery +PRF +LLLT that has been successfully used in our dental department will be presented. The utilization of different high-technology devices with minimally invasive surgical techniques can result in reduced postsurgical morbidity, pain elimination, tissue healing promotion and bone regeneration, representing a promising therapeutic modality for the management of different MRONJ cases.

DENTAL TRAUMA IN PEDIATRIC DENTISTRY: A NEW APPROACH BY LASER THERAPY

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In Paediatric Dentistry, dental traumas are very common and they represent a real emergency. Maxillary central incisors (50%) and maxillary lateral incisors (30%) are the teeth most frequently affected, in primary and in permanent dentition.

Dental traumas require a precise therapeutic choice in order to promote the correct evolution of dento-alveolar structures. Nowadays, the evolutions of technologies and restorative materials have improved the prognosis in dental trauma and could realize better aesthetic results, if compared to the past.

Laser technology represents a new therapeutic strategy to obtain a better patient's compliance and a micro-invasive restoration of the traumatized teeth. In fact, laser could simplify and reduce the treatment time, perform, in the same time, decontamination of the treated dental and/or gingival surface, a more conservative preparation in respect of dental anatomy

Photo-biostimulation induced by laser irradiation has anti-inflammatory and anti-oedemigenous effect, reduces post-traumatic pain, avoiding the necessity to take medications and promote tissue repair. Unfortunately, there are no well-coded guidelines for laser applications in these clinical events.

Aim of this lecture is to give some guidelines and protocols with specific doses and application sites.

Er,Cr:YSGG LASER IRRADIATION ASSOCIATED TO FLUORIDE FOR IN SITU MODEL USING GAMMA STERILIZED DENTIN AND ENAMEL

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The in situ intraoral model uses human dental enamel samples (HDE) in order to analyse the de-remineralization processes using the buccal environment without interfering into the patients' natural dentition. The main ethical concern from this model is the biosafety. Gamma radiation is a very efficient sterilization method that is not expected to alter the mineral content of the hard tissues, avoiding biases in the results. Thus 40 HDE samples were irradiated through a source of ^{60}Co multipurpose irradiator aiming complete sterilization (25 KGy/h) with the purpose of accumulating the native plaque on them at an in situ study. An Er,Cr:YSGG laser was used alone and in combination with the topical applications of: 1-dentifrice (1,100 μg F^-/g) or 2-APF (12,300 μg F^-/g). Morphological analyses were performed by scanning electron microscopy (SEM), determination of alkali-soluble fluoride concentration by specific ion electrode and microhardness determination. Then, the 15 volunteers used palatal devices containing previously treated HDE samples and remained using F dentifrice. The FTIR findings established that gamma radiation could be used aiming HDE sterilization. The Knoop hardness number was within the range of that of natural dentin of human origin. X-ray fluorescence shows that irradiated dentin has great similarity with natural dentin from the point of view of chemical composition. SEM analyses showed that there was no thermal damage or interprismatic morphological changes in the hydroxyapatite structure of human dental dentin outside the buccal environment when using doses of gamma irradiation up to 25 kGy.

CURRENT SURGICAL AND THERAPEUTIC USES WITH FUTURE PROSPECTS FOR CO_2 LASERS IN ORAL SURGERY AND PERIODONTOLOGY

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There is a growing acceptance of laser applications for their effectiveness in the management of dental conditions, with predictable and reproducible results. The experience to use lasers to cut, vaporize and coagulate with favorable biological responses is consistent from established energy parameters and techniques.

Co_2 laser called light scalpel is one of precise tool for removal of various soft tissues lesions (Leukoplakia, Epulis, Hemangioma, fibroma, warts,…) Pre-prosthetic laser surgery provides better outcomes in broad-based mucosa lesions.

Overall cure rate for pre-malignant conditions is good and laser ablation for difficult oral cancers provide better functional and aesthetic results

Advantages include significant reduction of pathogens, better homeostasis, less healing time and postoperative sequelae and improved patient comfort.

For periodontal procedures, lasers excised diseased gingival and bone reduce bacteria, prepare a better environment for re-attachment of connective tissue to root surfaces and shape and sculpt both hard and soft tissues for predictable healing.