were used by qualified operator in each unit. Clinical data were collected by a single researcher. Outcome measurements were verified and assessed before analyses.

Results: The results showed that 94 extraction sockets, 28 scaling and root planing procedures and 18 minor surgery procedures successfully achieved hemostasis. Sulcular tissue ablation combined with photobiomodulation was frequently used for socket hemostasis, while photobiomodulation alone was used for soft tissue hemostasis ($p < 0.001$). The medians of photobiomodulation sessions per procedures were 4 for bleeding socket (range: 2 to 16), 12 for scaling and root planing (range: 8 to 23) and 4 for minor surgery (range: 0 to 11). The cumulative doses were 8 to 32 J/cm^2 and 11.86 to 136.39 J/cm^2 for 635-nm and 810-nm diode lasers, respectively. The proportion of extraction sockets achieving hemostasis within 5 minutes (61.43%) was significantly larger than using photobiomodulation alone ($p < 0.001$). Duration of soft tissue hemostasis using photobiomodulation was within 15 minutes. There was no statistically significant difference in hemostatic duration among bleeding events ($p = 0.092$). All operators confirming faster hemostasis (97.86%) compared to standard methods ($p = 0.701$). Distinct healing (93.57%) significantly observed following tooth extraction ($p = 0.005$)

Conclusion: The combined tissue ablation and photobiomodulation was effectively enhancement of socket hemostasis, while photobiomodulation alone enabled soft tissue hemostasis.

Taichen Lin, Yoichi Taniguchi, Koji Mizutani, Akira Aoki (Taiwan)
Category: Clinical human studies
Title: FULL MOUTH ESTHETIC REHABILITATION BY Er:YAG LASER-ASSISTED PERIODONTAL AND PERI-IMPLANTITIS THERAPY UNDER MICROSCOPE: FROM PERIODONTAL REGENERATION TO PERI-IMPLANTITIS BONE AUGMENTATION

Aim: The purpose of this case study is to examine the clinical outcomes using Er:YAG laser-assisted periodontal therapy under microscope for periodontal regeneration and peri-implantitis bone augmentation in a full mouth esthetic rehabilitation patient with severe periodontitis and periimplantitis.

Material and methods: A Stage IV, Grade C, Generalized periodontitis, female, forty years-old patient was treated. Measurement of full mouth probing pocket depth (PPD), and clinical attachment level (CAL), and radiographic examination was performed before and after full mouth periodontal regeneration and periimplantitis bone augmentation using Er:YAG laser-assisted therapy under microscope. During flap surgery for periodontitis and peri-implantitis treatment, all the intra-bony defect was carefully and completely debrided by Er:YAG laser under microscope, bone graft augmentation into the bony defect was performed, and subsequently blood clot was coagulated to stabilize the bone graft by Er:YAG laser irradiation without water spray, and no collagen membrane was used on the regeneration sites.

Results: All the early healing was favorable and 100% primary wound closure was obtained following the Er:YAG laser-assisted bone regeneration on the periodontitis teeth and peri-implantitis implants, and the clinical outcomes showed significant improvements in terms of PPD reduction and CAL gain. Also, marked bone regeneration in the intra-bony defect were evident in all the Er:YAG laser-assisted periodontal therapy sites. The treated periimplantitis site showed 8 mm pocket depth reduction without bleeding on probing and clear bone regeneration was evident.

Conclusion: Er:YAG laser is a very useful, safe and effective tool to treat periodontitis as well as periimplantitis, with the excellent ability of complete granulation tissue removal, calculus removal, detoxification and debridement on the teeth and implant fixture surfaces in the deep and narrow bony defects under microscope, and may be the best adjunctive device to assist periodontal regeneration and peri-implantitis bone augmentation, compared with conventional mechanical surgical therapy.

Thayná Vianna da Rocha, Pedro Cardoso Soares, Edgar Michel Crosato, Patricia Moreira de Freitas Costa e Silva, Luciane Hiramatsu Azevedo (Brazil)
Category: Clinical human studies
Title: EVALUATION OF PARAMETERS OF USE OF HIGH POWER LASERS AND POSTOPERATIVE OUTCOMES IN INFLAMMATORY FIBROUS

Oral Presentation

HYPERPLASIA: A RETROSPECTIVE STUDY OF 22 YEARS

Aim: To evaluate the prevalence of Inflammatory Fibrous Hyperplasia (IFH) diagnosis, respective clinical variables, types of high-power lasers, and parameters used. The IFH is a benign traumatic reaction due to chronic, low-intensity local irritation, the treatment is based on conservative surgical removal, local irritant removal, and performing a biopsy. Using high-power lasers in IFH surgical excision has several advantages. This retrospective study evaluated 102 lesions of IFH in a sample of the Brazilian population whose medical records met the inclusion criteria.

Material and methods: The medical records of patients diagnosed with IFH who underwent a high-power laser procedure between 2000 and 2022 at the Special Laboratory of Laser in Dentistry (LELO-FOUSP) were analyzed. The inclusion criteria were histopathological diagnosis and records containing the Informed Consent Form (ICF). The data extracted from records were: age, sex, race, duration size, and location of the lesion, need for prescription of postoperative medication, and the laser used in the procedure. The data were tabulated and analyzed using descriptive analysis.

Results: There was a prevalence of the lesion in white female patients over the age of 40 (84.8%) and a duration of more than one year (64.3%). Most lesions were bigger than 1cm in size (61.3%) and developed in the alveolar ridge and deep sulcus regions (68%). The most used laser was the CO_2 laser (70.6%) - Union Medical Engineering Coo UM-L30 (Seul, South Korea), 10.600nm, CW, 2-6W, beam diameter 0.3 mm. In most cases, medication after the surgical procedure was not necessary (63%).

Conclusion: The IFH lesions had a predominance of white female patients over the age of 40. The most common location was the alveolar ridge and deep sulcus regions with a size bigger than 1cm and a duration of more than 1 year. The CO_2 laser was the most used due to the good hemostasis transoperative and higher biopsy speed.

Valeria Mendes, Denise Maria Zezell, Luciane Hiramatsu Azevedo (Brazil)
Category: Clinical human studies
Title: NEW LASER TREATMENT PROTOCOL FOR SNORING AND OBSTRUCTIVE SLEEP APNEA – A CONTROLLED RANDOMIZED DOUBLE-BLIND CLINICAL TRIAL

Aim: The goal of this study is to clinically evaluate the effect of non-ablative treatment with Nd:YAG (1064 nm) and Er:YAG lasers (2940 nm) in sleep breathing disorders (SBD), in a longitudinal, interventional and prospective study.

Material and methods: After approval from the Research Ethics Committee thirty volunteers, in the city of São Paulo, Brazil, with clinical condition ranging from snoring to moderate OSA, both sexes, 25 to 65 years, BMI < 40 kg/m^2 were blinded and randomized into control and laser groups. Patients received three sessions of treatment, 14 days apart. In the control group (12 volunteers), only a guide light was used without providing laser energy. 18 volunteers from the laser group were treated with high-intensity non-ablative combination of Nd:YAG and Er:YAG lasers irradiation. The entire soft palate, uvula, palatoglossal and palatopharyngeal arches were punctually irradiated with four to five shoots per point and six scans in each line. Parameters were chosen to efficiently and safely deliver energy in a five-step sequence that allows for gradual thermal sensitization of the tissue. Outcome measures including photographic records, type IV polysomnography, and snoring sound analysis were performed at pre-treatment, post-treatment, and 3- and 6-month follow-up visits. The main outcome of the study, the analysis of the upper airway lumen variation based on to Modified Mallampati Index was performed independently and in a blinded manner, as well as the statistical analysis. The oxyhemoglobin desaturation index (IDO), snoring sleep duration and the maximum snoring sound amplitude were also analyzed. Observing the variability in each outcome allowed us to analyse the differences between the experimental periods compared to the baseline for each variable, as well as the behavior of the laser group compared to the control group. Fisher's corrected chi-square test was used with a significance level of $\alpha = 5\%$.

Results: The main clinical outcome is the enlargement of the upper airway lumen after irradiation in all study periods analyzed. Therefore, the improvement in oxyhemoglobin desaturation index (ODI) and snoring. No major adverse events or side effects were observed.