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IN VIVO STUDY ON MAST CELLS BEHAVIOR FOLLOWING LOW-INTENSITY VISIBLE AND NEAR INFRARED LASER RADIATION

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Low-intensity laser therapy (LILT) at adequate wavelength, intensity, and dose can accelerate tissue repair. This acceleration can be due to reduction in the duration of acute inflammation resulting in a rapid entry into the proliferative stage of repair when granulation tissue is produced. Primary mechanisms that stimulate cell activity leading to an enhanced mast cell recruitment and degranulation can occur. This study was undertaken to investigate the influence of low-intensity laser radiation on mast cells behavior from non-mineralized wall of suprabony periodontal pockets. Twenty patients with periodontal disease were selected for this investigation. Ethical approval was granted by the University of São Paulo, Dentistry School's Research Ethics Committee. The required treatment for all of patients was the gingivectomy, a ressective periodontal surgery. Fragments were obtained from the gingival area and were divided in three samples. The first one was removed without irradiation (control). Before surgical procedure the other two samples were submitted to infrared ($\lambda = 785$ nm) or visible ($\lambda = 688$ nm) low-intensity laser radiation, dose 8 J/cm^2. The output power was 50 mW and frequency 36 Hz. After surgery the samples were fixed in formol, cut and stained by toluidine blue. The results indicated that 1) Both wavelengths promote mast cells degranulation in gingival tissue because the degranulation index was statistically significant in the irradiated areas when compared to control areas, and 2) There was not difference statistically significant between the visible and infrared irradiated areas on the mast cells degranulation.

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EXPERIENCES IN THE TREATMENT OF VASCULAR LESIONS: A COMPARISON STUDY EVALUATING THE EFFICACY OF A 940 nm DIODE LASER VS A SHORT-PULSED DYE LASER VS A LONG-PULSED DYE LASER

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Introduction: Several laser systems are efficient in the treatment of vascular disorders. The efficacy is not only due to wavelength and pulse duration but also changing with body site of lesions. We compared the results after treatment of facial telangiectasia, leg vein telangiectasia and port wine stains in two centers (Plataforma Láser Centro Médico Teknon, Barcelona, Spain. and Laser Center Haydnplatz, Innsbruck, Austria) using a 940 nm Diode Laser and Pulsed Dye Lasers (585 nm and 595 nm) with different pulse duration.
Methods: 199 patients were treated with short-pulsed (0.450 ms) Dye laser, 51 patients with long pulsed (1.5 to 40 ms) Dye laser and 21 patients with Diode 940 nm laser (pulse duration between 10 and 100 ms). Most of the patients were treated in the face (62.3%) followed by leg veins (30.2%) and port wine stains (7.5%). Treatment results were documented comparing photographs taken before and after treatment, the result estimated by doctors and patients using a rating scale between 1 and 5 (1 = excellent).
Results: Treatment results were satisfying with all laser systems used. There were no serious side effects. Best results for small facial telangiectasia and port wine stains were obtained with Pulsed Dye lasers using pulse duration between 0.450 and 2.0 ms. Larger facial telangiectasia and leg vein telangiectasia responded best to 940 nm Diode laser using pulse duration between 30 and 100 ms.
Conclusion: 940 nm Diode Laser short- and long-pulsed Dye Lasers (585 nm and 595 nm) are save and efficient in treatment of vascular lesions with different response rates according to vessel diameter and treatment sites.

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ULTRASTRUCTURAL CHANGES AFTER NON-ABLATIVE DERMAL REMODELING WITH A LOW FLUENCE, 350 usec, 585 nm PULSED DYE LASER

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A variety of laser and light source technologies have been shown to promote non-ablative dermal remodeling. All show some degree of both clinical and histologic improvement. The exact mechanisms of improvement have yet to be determined. In attempt to better understand the mechanism behind this improvement, we looked for a correlation between the clinical response and ultrastructural electron microscopic findings. Ten female subjects, Fitzpatrick I-IV skin types with Class I-III rhytides were treated twice with a 585 nm, 350 usecond, pulsed dye laser at 2.5 J/cm^2 and a 5 mm spot size. Biopsies were taken before and after 2 treatments. The study takes an objective look at the correlation between clinical response and ultrastuctural findings.

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1064 nm Nd:YAG LASER IRRADIATION FOR FACIAL TELANGIECTASES: EFFICACY AS MEASURED BY FLUENCE AND VESSEL SIZE

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Laser treatment of facial telangiectases has been successfully accomplished with a variety of visible and near infrared lasers and light sources. Millisecond 1064 nm Nd:YAG laser irradiation has recently been shown to be safe and effective in the treatment of telangiectases and small reticular veins of the lower extremities. In this study, we evaluated a millisecond contact cooled 1064 nm Nd:YAG laser for the treatment of facial telangiectases. Ten female subjects with Fitzpatrick skin types I-IV received up to two laser treatments separated by a 4-week period. Vessels, varying in size between 0.1–1.5 mm, were treated. Pulse durations of 10-50 msec and fluences of 100–150 J/cm^2 were utilized Three months after the initial treatment, patients were evaluated for vessel clearance, changes in pigmentation, erythema, telangiectatic matting, and textural changes. Vessel improvement with respect to color, size and associated complications were evaluated. 1064 nm Nd:YAG laser irradiation with associated contact cooling can effectively treat some facial vessels.