Combined Application of Nd:YAG and Er:YAG Lasers in Nonsurgical Therapy of Chronic Periodontitis

K. Karaiskaki, A. Kallis, I. Vouros
Department of Preventive Dentistry, Periodontology and Implant Biology, Dental School, Aristotle University of Thessaloniki

Periodontitis constitutes an oral disease that is characterized by contamination of the root surface with a microbial load, inducing an inflammatory host response and leading to the destruction and loss of hard and soft periodontal tissues. Although conventional mechanical debridement of these surfaces still remains the "gold standard" in periodontal therapy, it has considerable disadvantages. Lasers have gained an increasing interest as an adjunct or alternative treatment option for chronic periodontitis. In particular, Er:YAG and Nd:YAG lasers have shown beneficial effects on clinical and microbiological parameters in periodontal therapy.

Aim: This comparative, split-mouth clinical study is designed to evaluate the short-term effects of a combined Er:YAG laser and Nd:YAG laser irradiation of the periodontal defects compared to mechanical nonsurgical therapy of chronic periodontitis.

Twenty-one patients with moderate and advanced chronic periodontitis, referred for treatment to the Department of Preventive Dentistry, Periodontology and Implant Biology at the Aristotle University of Thessaloniki were enrolled in the study. Following a baseline screening examination, the subjects who satisfied the inclusion criteria received detailed oral hygiene instructions and a full-mouth supragingival debridement with ultrasonic scalers. The right/left side of the dental arch is randomly assigned in two groups:

Control group: root planing with ultrasonic scalers and manual curettes,

Test group: a combined therapy with Er:YAG and Nd:YAG lasers. Firstly, 1064 nm Nd:YAG laser is used (2.5 W, 20H z, 100 μs) for 1 mm/s per tooth. Then, 2490 nm Er:YAG laser is applied (1.6 W, 40 Hz, 100 μs) with continuous water irrigation. Finally, the Nd:YAG laser is re-applied (3.5 W, 20 Hz, 600 μs). The application of Nd:YAG laser (2.5 W, 20 Hz, 100 μs) is repeated three times with 5-7 day intervals.

Clinical, radiographic and microbiological recordings are obtained at baseline, 3 and 6 months.

The preliminary results of this study have shown a promising efficacy of the combined Er:YAG & Nd:YAG laser therapy on clinical and microbiological parameters in the treatment of chronic periodontitis.

Advantage of Laser Treatments of Vascular Malformations Maxillofacial Region - Comparison with Surgery

Ngadhnjim Domi
"Ars Medica", Prishtina (Rep. of Kosovo).

Correct diagnosis for vascular malformations and hemangiomas is very important, because the treatment can differ. We have presented our experience in surgical treatment of vascular malformations of the maxillofacial region, path anatomy, problems and possible scar deformities.

After we acquired a Fotona Plus laser in 2008, we changed our doctrine of treating vascular malformations. In some cases it is impossible to do surgery in the maxillofacial region, but with a laser, the story is completely different. We used the 1060 nm Nd:YAG wavelength with different spot sizes and energies, depending on the situation. No case is unique and the parameters used are based on knowledge, experience and feeling. The rule: it's better to use more sessions than to apply bigger energies, which is very important. The key role is to prevent complications.

In before and after pictures, we show the results after surgery and laser treatments.

Today it is not imaginable for us to treat small and medium vascular anomalies without the laser. Of course, in some complicated cases, cooperation with an interventional radiologist, vascular surgeon etc. is necessary.