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Bacterial reduction in periodontal pockets through irradiation with a diode laser: a pilot study.

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Abstract

This study examines the application of a diode laser with a wavelength of 805 nm for periodontal treatment. While the use of the diode laser in this field has not been investigated so far, several authors have reported on the use of neodymium:yttrium-aluminum-garnet (Nd:YAG) laser for such applications. The aim of this study was to examine the immediate effect of the diode laser in reducing the bacterial concentration in periodontal pockets. Important periodontal indices (PBI, CPITN) were assessed in 50 patients to obtain initial values for a planned long-term study and to select appropriate periodontal pockets for this study. The periodontal pockets were required to have a minimum depth of 4 mm. Only proximal pockets were included in this study. The patients were subdivided into two groups. After microbiological samples had been collected with sterile paper tips, the group selected for laser treatment was subjected to scaling. One week after scaling, the patients underwent laser treatment. One week later, a second series of microbiological samples were obtained and the patients were subjected again to scaling; this time, however, they did not undergo laser treatment after 1 week. Two weeks after scaling, another series of microbiological samples was collected. The microbiological samples were evaluated to verify bacterial elimination from the periodontal pockets. A comparison between the initial and the final bacterial counts revealed that irradiation with the diode laser facilitates considerable bacterial elimination, especially of *Actinobacillus actinomycetemcomitans*, from periodontal pockets.

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