Treatment of Periodontal Disease by Photodisinfection Compared to Scaling and Root Planing

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Abstract

- **Objective:** The aim of the present study was to compare the effectiveness of a photodisinfection process to that of scaling and root planing (SRP) for non-surgical periodontal treatment.
- **Methodology:** Thirty-three subjects with moderate to advanced periodontal disease were randomly treated in one of three study arms with either photodisinfection (PD) alone (Group 1) using a diode laser and photosensitizer combination, with SRP alone (Group 2), or with SRP and PD combined (Group 3). Clinical assessments of bleeding on probing (BOP), probing pocket depth (PPD), and clinical attachment level (CAL) were made at baseline, three weeks, six weeks, and 12 weeks following therapy.
- **Results:** No difference in any of the investigated parameters was observed at baseline between the three groups. The mean value of BOP decreased in the PD group (Group 1) from baseline by 71% at six weeks and 73% at 12 weeks, and in the SRP alone group (Group 2) from baseline by 43% at six weeks and 56% at 12 weeks. The BOP in the combined SRP + PD group (Group 3) decreased from baseline by 65% at six and 59% at 12 weeks. The sites treated with PD alone demonstrated mean CAL gains of 0.09 ± 0.38 mm and 0.14 ± 0.65 mm at six and 12 weeks, respectively. Those sites treated with SRP alone demonstrated mean CAL gains of 0.37 ± 0.34 mm and of 0.36 ± 0.35 mm at six and 12 weeks, respectively. The final group of SRP + PD demonstrated mean CAL gains of 0.92 ± 0.62 mm and 0.86 ± 0.61 mm at six and 12 weeks, respectively ($p < 0.01$ for six weeks and $p < 0.02$ for 12 weeks when compared to SRP alone). The sites treated with PD alone demonstrated mean PPD reductions of 0.69 ± 0.33 mm and of 0.67 ± 0.44 mm at six and 12 weeks, respectively. Those sites treated with SRP alone demonstrated mean PPD reductions of 0.78 ± 0.47 mm and 0.74 ± 0.43 mm at six and 12 weeks, respectively. The final group of SRP + PD demonstrated mean PPD reductions of 1.16 ± 0.39 mm and 1.11 ± 0.53 at six and 12 weeks, respectively ($p < 0.06$ for six weeks and $p < 0.05$ for 12 weeks when compared to SRP alone).
- **Conclusion:** Within the limits of the present study, it can be concluded that SRP combined with photodisinfection leads to significant improvements of the investigated parameters over the use of SRP alone.

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