

Photodynamic therapy as adjunct to non-surgical periodontal treatment in patients on periodontal maintenance: a randomized controlled clinical trial

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Received: 6 September 2007 / Accepted: 30 November 2007
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Abstract Recent preclinical and clinical data have suggested the potential benefit of photodynamic therapy (PDT) in the treatment of periodontitis. However, currently, there are very limited data from controlled clinical trials evaluating the effect of PDT in the treatment of periodontitis. The aim of the present study was to evaluate the clinical and microbiological effects of the adjunctive use of PDT in non-surgical periodontal treatment in patients receiving supportive periodontal therapy. Twenty-four patients receiving regularly supportive periodontal therapy were randomly treated with either subgingival scaling and root planing followed by a single episode of PDT (test) or subgingival scaling and root planing alone (control). The following parameters were evaluated at baseline and at 3 months and 6 months after therapy: full mouth plaque score (FMPS), full mouth bleeding score (FMBS), bleeding on probing (BOP) at experimental sites, probing pocket depth (PPD), gingival recession (REC), and clinical attachment level (CAL). Primary outcome variables were changes in PPD and CAL. Microbiological

evaluation of *Aggregatibacter actinomycetemcomitans* (*A.a.*), *Porphyromonas gingivalis* (*P.g.*), *Prevotella intermedia* (*P.i.*), *Tannerella forsythensis* (*T.f.*), *Treponema denticola* (*T.d.*), *Peptostreptococcus micros* (*P.m.*), *Fusobacterium nucleatum* (*F.n.*), *Campylobacter rectus* (*C.r.*), *Eubacterium nodatum* (*E.n.*), *Eikenella corrodens* (*E.c.*), and *Capnocytophaga* species (*C.s.*) was also performed at baseline and at 3 months and 6 months after therapy, using a commercially available polymerase chain reaction test. No differences in any of the investigated parameters were observed at baseline between the two groups. At 3 months and 6 months after treatment, there were no statistically significant differences between the groups in terms of PPD, CAL and FMPS. At 3 months and 6 months, a statistically significantly higher improvement of BOP was found in the test group. At 3 months after therapy, the microbiological analysis showed a statistically significant reduction of *F.n.* and *E.n.* in the test group. At 6 months, statistically significantly higher numbers of *E.c.* and *C.s.* were detected in the test group. The additional application of a single episode of PDT to scaling and root planing failed to result in an additional improvement in terms of PPD reduction and CAL gain, but it resulted in significantly higher reduction of bleeding scores than following scaling and root planing alone.

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Keywords Photodynamic therapy ·
Non-surgical periodontal therapy · Patients on periodontal
maintenance · Randomized controlled clinical study