

Clinical Effectiveness of Photodynamic Therapy in The Treatment of Chronic Periodontitis

Tuğçe Sümer, Leyla Kuru

Marmara University, Faculty of Dentistry, Department of Periodontology, İstanbul

Objective: Chronic periodontitis (CP) is a type of periodontal disease characterized by progressive loss of attachment and alveolar bone occurring generally in adults. Photodynamic therapy (PDT) was introduced in periodontology as an adjunctive approach to initial periodontal treatment (IPT) in periodontitis patients. However enough data is not available of the effectiveness of PDT in the treatment of CP.

Methods: In this controlled and parallel design study, twenty patients with untreated chronic periodontitis were included. All teeth received periodontal treatment comprising scaling and root planning. Using a split-mouth design, 3 quadrants (test group) were additionally treated with PDT. Plaque index (PI), gingival index (GI), probing pocket depths (PPD), relative attachment levels (RAL), bleeding on probing (BOP) were assessed at baseline and 3 months after treatment. Gingival crevicular fluid (GCF) samples were collected and the levels of matrix metalloproteinase 8 (MMP-8) were determined by enzyme-linked immunosorbent assays (ELISA) at baseline, month-1 and months-3 after treatment.

Results: There were no differences in any of the clinical parameters at baseline in the control and test groups. Values for PI, GI, PPD, RAL and BOP showed greater reduction 3 months after treatment in all groups ($p < 0.001$). The intergroup difference was not significant in any clinical parameters ($p > 0.05$). GCF volume decrease statistically significant in all groups ($p < 0.001$). Concentration of MMP-8 also showed significant reduction 3 months later. Whereas reductions in 0. day -3. month and 1. month-3. month were significant, reduction in 0. day-1. month was not. The intergroup difference was not significant in GCF volume or MMP-8 concentration 3 months after treatment ($p > 0.05$).

Conclusion: Application of PDT was not effective as an adjunct to ultrasonic periodontal treatment in patients with chronic periodontitis.

Key words: Chronic periodontitis, Initial periodontal treatment, Photodynamic therapy