ABSTRACT

PHOTODYNAMIC THERAPY AS AN ADJUNCT TO SCALING AND ROOT PLANING IN CHRONIC PERIODONTITIS PATIENTS WITH TYPE 2 DIABETES MELLITUS: A RANDOMIZED CONTROLLED CLINICAL TRIAL.

Background: Uncontrolled diabetes mellitus adversely affects the severity of the periodontal disease and wound healing capacity of the patient and in most instances a nonsurgical approach to periodontal therapy is preferred, with or without the use of appropriate antibiotic therapy. Antimicrobial photodynamic therapy (aPDT) has been used as an adjunct to conventional mechanical therapy and showed promising results, however there are fewer studies in the literature to evaluate the adjunctive effect of aPDT in patients with diabetes mellitus. The aim of the present study is to compare the clinical outcomes of SRP with or without adjunctive aPDT in patients with chronic periodontitis and type 2 diabetes mellitus.

Materials and Methods: 18 type 2 diabetic patients with chronic periodontitis were selected for this study. In each patient, using a split mouth design, one quadrant of the maxillary arch was selected as test and the other quadrant was selected as the control randomly. The treatment protocol included scaling and root planing (SRP) for the control group and SRP with an adjunct aPDT with 1% methylene blue as photosensitizer and 980nm diode laser for the test group.

Results:

Both SRP and SRP + aPDT were found to be effective in the treatment of chronic periodontitis patients with type 2 diabetes mellitus with regard to plaque index, % of
bleeding sites, probing pocket depth (PPD) and clinical attachment level (CAL). Intergroup comparison provided a significantly greater reduction in the % of bleeding sites ($p = 0.0$) in SRP + aPDT group than SRP alone but failed to show any significant differences with regard to PPD ($p = 0.150$) and CAL ($p = 0.369$).

**Conclusion**

Though application of a single episode of aPDT to SRP failed to show an improvement in terms of PPD reduction and CAL, it resulted in a significantly greater reduction in the % of bleeding sites compared to SRP alone which signifies a halt in the disease progression.

**Keywords**: Antimicrobial photodynamic therapy, adjunctive periodontal treatment, chronic periodontitis, diabetes mellitus.