

ABSTRACT

BACKGROUND: Chronic Periodontitis is an infectious disease resulting in inflammation within the supporting tissues of the teeth leading to progressive attachment loss and bone loss. Diabetes Mellitus is a known risk factor for periodontitis. Both Chronic Periodontitis and Diabetes Mellitus are associated with increased oxidative stress, leading to oxidative damage of DNA with formation of 8-OHdG which is excreted in body fluids including GCF and saliva. Therefore it will be informative to evaluate the cumulative effect of Chronic Periodontitis and Diabetes Mellitus on the levels of 8-OHdG in GCF which is site specific.

AIM: The aim of this study was to assess the change in gingival crevicular fluid (GCF) levels of 8-OHdG and glycosylated hemoglobin (HbA1c) three months after scaling and root planing (SRP), in Chronic Periodontitis patients with and without Type II Diabetes Mellitus.

MATERIALS AND METHODS: This study was performed on 48 participants which included, 16 patients with Chronic Periodontitis (CP), 16 patients with Chronic Periodontitis and Type II Diabetes Mellitus (CP-D) and 16 systemically healthy individuals with clinically healthy periodontium who served as controls. The clinical parameters [Plaque Index (PI), Probing Depth (PD), Clinical Attachment Level (CAL), Bleeding on Probing (BOP%)] and biochemical parameters like HbA1c levels and GCF 8-OHdG levels were measured at baseline. All the patients except healthy controls were treated with SRP followed by evaluation of the above mentioned clinical and biochemical parameters after three months.

RESULTS: Results showed that all the clinical parameters improved after SRP in CP-D and CP groups, with CP-D group showing a greater reduction in PI ($P<0.05$), PD ($P<0.05$), BOP% ($P<0.05$) and greater gain in clinical attachment level ($P<0.05$) when compared to CP patients and, this difference was statistically significant. As regards to the levels of 8-OHdG in GCF and HbA1c, CP-D patients showed a greater reduction, three months after SRP when compared to CP patients and this difference was statistically significant ($P<0.05$).

CONCLUSION: From the results obtained, it was concluded that SRP reduces 8-OHdG levels in GCF of CP and CP-D patients with significant reduction achieved in CP-D patients. The levels of HbA1c in serum were also significantly reduced in CP-D patients when compared to patients with CP, three months after SRP. Overall CP-D patients showed better response to SRP than CP patients.

KEY WORDS:

Scaling and root planing, 8-Hydroxy deoxy guanosine (8-OHdG), glycosylated hemoglobin (HbA1c), Chronic Periodontitis, Type II Diabetes Mellitus, Gingival Crevicular Fluid (GCF).