"A COMPARATIVE EVALUATION OF SALIVARY ANTIOXIDANT LEVELS IN CHRONIC PERIODONTITIS PATIENTS WITH AND WITHOUT DIABETES MELLITUS TYPE II."

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ABSTRACT

Background and objectives: Periodontal disease is an immune-inflammatory disease characterized by connective tissue breakdown, loss of attachment and alveolar bone resorption. Oxidative stress results when that equilibrium shifts in favour of reactive oxygen species, either by a reduction in antioxidant defenses or an increase in ROS production or activity and is thought to play a causative role in the pathogenesis of periodontal diseases. There is a bidirectional relationship between Diabetes Mellitus and Periodontitis. Periodontitis has been recognized as the sixth major complication of diabetes. The elevated oxidative stress in association with periodontal inflammation can exacerbate the disease process of Type 2 diabetes when these conditions co-exist.

The present study was designed to estimate and compare the superoxide dismutase, Glutathione, Catalase and total antioxidant levels in saliva of healthy subjects with chronic periodontitis and diabetes mellitus type 2 patients with chronic periodontitis before and after scaling and root planing.

Method: The study was designed as a single blinded longitudinal study comprising of 60 subjects, inclusive of both sexes and divided into four groups of 15 patients each. Patients were categorized into subjects with diabetes (DM), chronic periodontitis (CP), chronic periodontitis with diabetes mellitus (CPDM) and Healthy. The severity of inflammation was assessed by using Gingival index, Clinical attachment level and pocket probing depth. Saliva samples were collected and sent for biochemical analysis to estimate the total antioxidant capacity, Glutathione, Catalase and SOD levels. Patients were recalled 21 days after scaling and root planning and serum samples were analysed. Results

obtained were then statistically analyzed using ANOVA test, post hoc tukey test and paired t test.

Results:

- Salivary TAC, SOD, glutathione and catalase are decreased in individuals with diabetes(DM) as well as individuals with chronic periodontitis(CP) when compared to the healthy controls.
- Salivary TAC, SOD, glutathione and catalase are reduced in chronic periodontitis with diabetes individuals(CPDM) when compared to diabetic individuals (DM) and chronic periodontitis individuals (CP).
- Pre treatment values of salivary TAC, SOD, glutathione and catalase were not significant in chronic periodontitis (CP) and in diabetic individuals(DM), but significantly less in chronic periodontitis with diabetes individuals (CPDM).
- Post treatment values of salivary SOD, glutathione and catalase is statistically not significant in chronic periodontitis(CP) and diabetic individuals(DM)
- Post treatment values of salivary TAC almost reached healthy control levels in chronic periodontitis individuals(CP), as well as the salivary catalase reached healthy control levels in chronic periodontitis(CP) and diabetic individuals (DM).

Conclusion: In the present study it can be concluded that the increase in ROS has led to a decline in the salivary levels of superoxide dismutase, glutathione, catalase and total antioxidants in diabetes patients and healthy patients with periodontitis and hence periodontal breakdown. The study demonstrated the