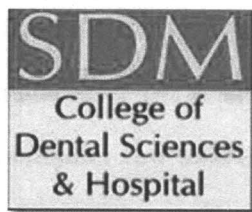


**ASSESSMENT OF 8 - HYDROXY - DEOXYGUANOSINE LEVELS IN
GINGIVAL CREVICULAR FLUID IN HEALTHY, CHRONIC
PERIODONTITIS PATIENTS WITH AND WITHOUT DIABETES
MELLITUS. A CLINICO BIOCHEMICAL STUDY**



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ABSTRACT

Background and Objectives: 8-Hydroxydeoxyguanosine (8-OHdG), an ROS-induced modification of a guanine residue in DNA has been proven to be associated with both local and systemic inflammatory conditions. A direct correlation of 8-OHdG levels with type 2 diabetes mellitus has been established with a suspected role in insulin resistance. The aim of this clinico-biochemical study was to estimate and compare the levels of 8-OHdG in the gingival crevicular fluid (GCF) in health, chronic periodontitis and controlled type 2 diabetes mellitus.

Materials & Methods: Eighty subjects (25-60 years) participated in this cross sectional study and were divided into four groups of 20 each. Parameters recorded were plaque index (PI), gingival index (GI) scores, probing pocket depths (PPD), random blood sugar levels (RBS) and glycated hemoglobin levels (HbA1c). They were divided into group 1: healthy subjects, group 2: subjects with chronic periodontitis, group 3: subjects with controlled type 2 diabetes mellitus and chronic periodontitis and, group 4: subjects with controlled type 2 diabetes mellitus. Three μ l of gingival crevicular fluid was collected and analyzed for 8-OHdG levels using an enzyme linked immunosorbent assay (ELISA).

Results: 8-OHdG was detected in the GCF of all subjects. The mean 8-OHdG levels (pg/ml) for group 1, group 2, group 3 and group 4 was 316.85 ± 89.91 , 718.60 ± 95.04 , 831.45 ± 80.86 and 680.40 ± 61.89 respectively. A statistically significant difference was

observed when GCF levels of 8-OHdG from group 1 was compared to group 2 ($p=0.0001$), group 3 ($p=0.0001$) and group 4 ($p=0.0001$); when group 2 was compared to group 3 ($p=0.0006$) and when group 3 was compared to group 4 ($p=0.0001$). Correlation analysis showed a positive correlation between GCF 8-OHdG levels and GI, PPD, RBS and HbA1C when all the samples were grouped and analyzed together.

Conclusion: 8-OHdG levels vary in health and disease. This level variation is also observed in chronic periodontitis and with systemic disease like type 2 diabetes mellitus. There is also correlation between clinical parameters and 8-OHdG levels. Hence it can be used as a biochemical marker in health and disease.

Key words: 8-hydroxy deoxyguanosine; periodontitis; controlled type 2 diabetes mellitus; gingival crevicular fluid.

