

Relationship between type 2 diabetes and periodontal disease

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ABSTRACT

Purpose: To assess periodontal status in type 2 diabetes (T2D) to compare the findings between diabetic and non-diabetic individuals using Community Periodontal Index (CPI) and Oral Hygiene Index (OHI). Associations between glycemic control and inflammatory biomarkers were analyzed among T2D patients in comparison with controls.

Materials and methods: A total of 135 patients with T2DM (F64/ M71) and 40 healthy controls (CG) (F21/M19) individuals were assessed. Periodontal status was assessed using CPI, OHI and tooth number. Blood samples were analyzed for glycemic control markers (FPG and HbA1c), inflammatory mediators (CRP, TNF- α , IL-1) and lipids (TG, TC, HDL, LDL). Study participants with T2D were classified into 2 groups according to their level of HbA1c: good metabolic control group (GMC) had HbA1c below 7.0% and poor metabolic control group (PMC) had HbA1c above 7.0%.

Results: The prevalence of periodontitis in all patients with T2D was 83.5%, 82.7% in GMC group, and 86.4% in PMC group as compared to CG 57.7%. The number of sextants with CPI codes of 3 was higher in PMC T2D as compared to controls. We observed significant positive correlation between OHI and: age ($R=0.566$, $p<0.001$), creatinine concentrations ($R=0.377$, $p<0.01$), tooth number ($R=0.841$, $p<0.001$), CPI3 ($R=0.518$, $p<0.01$) and CPI4 ($R=0.498$; $p<0.001$). Negative correlation ($R=-0.388$; $p<0.01$) between OHI and IL-1 concentrations and number of sextants with CPI1 was found.

Conclusion: The study indicated that type 2 diabetic subjects should improve their oral hygiene practices and that the control of blood glucose levels ought to be emphasized.

Key words: Type 2 diabetes, hyperglycemia, periodontitis, Community Periodontal Index, Oral Hygiene Index
