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Editorial

Impact of Elevated Glycated Hemoglobin (HBA1C) on Plaque Index, Gingival Index and DMFT Index in Type 2 Diabetes Mellitus Patients

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Diabetes Mellitus (DM) is most widespread disease worldwide, which is a syndrome characterized by chronic hyperglycemia and disturbance of carbohydrate, fat and protein metabolism associated with absolute or relative deficiencies in insulin secretion or action. Prevalence of DM in adults is estimated to be 5.4% in 2025 across the world. Several Gram negative anaerobes putative pathogens include.

Aggregatibactor actinomycetecomintans, Porphyromonas gingivalis, Prevotella intermedia, Bacteroides forsythus and Spirochetes which predominates in the oral microbial flora of patients with uncontrolled type 2 DM. These microorganisms are notorious for causing periodontal diseases. Several studies have been conducted till date into relationship between diabetes and periodontal disease and a definite scientific evidence is established that patients with inadequately controlled type 2 DM are at greater risk to develop progressive periodontal diseases than individuals free of systemic disorder. Glycosylated Hemoglobin (HbA1c) is gold standard parameter to measure the average plasma glucose concentration over prolonged period of time. According to American Diabetic Association (ADA) 2017 HbA1c should be above or equal 6.5% in diabetic patient. Patients with poorly controlled diabetes (HbA1c >7%) exhibits significant rise in plaque and debris score with improper periodontal care which leads clinical attachment loss and increase in pocket depth indicates a surge in Gingival index. Also elevated blood sugar levels weaken the immune response which alters the normal oral microbiome and pathogenic bacteria, triggering a host immune response which heads to progressive periodontitis, radiographic alveolar bone loss (RBL) and exfoliation of tooth in patients with high HbA1c. Another studies suggest that diabetic subjects with severe periodontitis at baseline has a six fold increased risk of worsening of glycemic control over time compared to diabetic subjects without periodontitis. Multiple studies indicate that altered intraoral micro flora, hyposalivation, complex interactions over time between high numbers of acid producing cariogenic microorganisms like Streptococcus mutans, lactobacilli, Actinomyces etc, inadequate clearance of biofilm, sugar driven several host factors, fermentable carbohydrates and periodontal diasese in diabetic patients affects the DT (decayed tooth), MT (missing tooth), FT (filling tooth) and DMFT index values. Patients with poor hypoglycemic control show threefold risk of developing caries and tooth loss and subsequent increase in DMFT score than fairly glycemic controlled patients. So, maintenance of oral hygiene, regular check ups with professional prophylaxis and low carbohydrate caries free diet along with satisfactory glycemic control is the prime need of type 2 diabetic patients to avoid stomatological complications.