



Periodontal Health and Diabetes

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Editorial

Periodontal health basically defined as the absence of any pathological signs and symptoms of periodontal disease; it is an essential part of general health and life quality. Many studies showed that there is a two-way relationship between periodontal diseases and many systemic conditions, for example Diabetes Mellitus (DM).

DM is a chronic and long-lasting condition characterized by high level of blood sugar (hyperglycemia). There are two main types of DM; type 1 diabetes and type 2 diabetes. Type 1 diabetes usually begins during childhood and young adulthood. It is caused by inability of insulin production from beta cells of the Islets of Langerhans in the pancreas. The most common type of DM is type 2 diabetes that occur in adulthood and highly associated with obesity. Insulin resistance at the cellular level, decreased production of insulin commonly leads it from pancreas and increased insulin necessity for normal biologic reactions. During pregnancy, secondary hyperglycemic condition can be seen, which is called gestational diabetes and these women are also tended to have type 2 diabetes after pregnancy.

Hyperglycemia is associated with narrowed blood vessels, decreased tissue oxygenation, impaired functions of immune cells, poorly affected wound healing, and increased susceptibility to infections and many systemic health problems including micro and macroangiopathies. Also, healthy periodontium is negatively affected by hyperglycemia and increased risk for periodontitis can be seen in patients with DM. In 1993, periodontitis was described as “sixth complication” of DM. Many oral manifestations, for example xerostomia, alteration of taste, yeast infections, dental caries, and periodontal abscess can be diagnosed with poorly controlled DM. These symptoms are more frequent in the uncontrolled DM patients when compared to controlled ones; they are not specifically characteristic conditions of uncontrolled diabetes.

The data demonstrated that many systemic inflammatory diseases is associated with periodontal inflammation and also, periodontal diseases may aggravate the existing systemic infections by changing the inflammatory parameters in the body. Periodontal diseases have negative effects on both oral environment and many systemic conditions. The literature is showed that hyperglycemia and periodontitis negatively affect on each other. Over the years, many researchers aimed to clarify this interaction with in vivo and in vitro studies. It is theorized that increasing Advanced Glycation End Products (AGEs), harmful products accumulated in tissues as a result of hyperglycemia, and their receptor in DM may be caused by abnormal secretion of proinflammatory cytokines and lipopolysaccharides of periodontopathogens. AGEs found to be responsible for destruction of collagen metabolism, vessel wall thickening, and impaired perfusion and susceptibility to infection. Gingiva of diabetic patients involved in highly amount of AGEs than healthy individuals.

Obesity, periodontal disease and insulin resistance are found to be strongly associated with each other via proinflammatory cytokine production. It is reported that there is an interaction between hyperinsulinemia and TNF- α in obese people. Suppression of TNF- α has reduced insulin resistance and supported to increase glucose uptake capacity of the cells. It is thought that TNF- α secreted by adipose tissue may play a key role in obesity-related insulin resistance. Furthermore, significantly decreased insulin requirements and proinflammatory cytokines, TNF- α and IL-6, in serum reported after periodontal therapy in obese patients.

Health professionals should consider that inflammatory affect of periodontal inflammation is not limited with periodontium. Oral infections can exacerbate the inflammatory parameters of the immune system. For this reason, the healthy periodontium is an essential part of systemic well-being. Dentists should be aware of the inflammatory conditions of patients with poorly controlled DM and

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remember that systemic changes can affect the outcomes of treatment and the results may be not as good as healthy individuals'. When dentists suspect with diabetic oral symptoms during examination,

a professional physician should be consulted in order to dismiss systemic conditions.