**The Oral and Systemic Health Connection**

**Significance of Treating Periodontal Disease to Improve Glycemic Control**

The Diabetes Control and Complications Trial (DCCT) and UK Prospective Diabetes Study

(UKPDS) demonstrated the importance of improving glycemic control. Intensive blood glucose management in type 1 diabetes (DCCT) and type 2 diabetes (UKPDS) resulted in reduced diabetes complications (retinopathy, nephropathy, and neuropathy).[Gidding, 2018 #828] Reducing A1C by 1% lowers microvascular complications by 35%, while a 0.2% reduction lowers mortality by 10%. Several meta-analyses have shown that treating periodontal disease can reduce A1C by at least 0.4%.[Goncalves, 2018 #831]

Studies of the Pima Indians and Gila River Indians found that periodontal disease is related to 3.2 times greater risk of cardio-renal mortality, and moderate to severe periodontal disease or edentulism is associated with a 2.0 to 2.6 times greater risk for microalbuminuria and a 2 to 5 times greater risk for end-stage retinal disease.

Therefore, preventing and treating periodontal disease is important because periodontal disease negatively affects glycemic control and increases the risk of diabetes complications. Research suggests that periodontal disease may be a risk factor for the development of type 2 diabetes, but this evidence is mixed, necessitating further epidemiologic study.

**Common Modifiable Risk Factors**

Oral health and diabetes management have many notable similarities. The World Health Organization notes that noncommunicable diseases (NCDs) such as diabetes and oral disease share preventable risk factors related to lifestyle, including diet and tobacco use.[Dexter, 2015 #497]

Improving health outcomes by modifying these common behavior-related risk factors would assist in the prevention, primary care, and ongoing management of NCDs.

**Tobacco Use**

Diabetes and tobacco use are common risk factors for the development of cardiovascular disease, the complication that accounts for the highest morbidity, mortality, and health care costs in diabetes.

In addition, tobacco use promotes periodontal degeneration, suppresses the immune system, and delays healing. Therefore, tobacco use must be mitigated through prevention and cessation programs.

**Nutrition**

Poor nutrition is a risk factor that drives the NCD epidemic. Diets rich in carbohydrates and with a high sugar content compromise oral health and are leading contributors to the rise of type 2 diabetes.

Globalization of this western dietary trend is a component of the growing incidence of dental

Caries and type 2 diabetes in the developing world.[Napora, 2016 #801] To battle oral disease and diabetes, PPOD providers need to promote their patients’ health and encourage public education focusing on the importance of making dietary choices that support a healthy lifestyle. The Academy of Nutrition and Dietetics supports the collaboration between dietetics and dentistry in research, curriculum, and practice roles.[Ganguli, 2015 #503]

**GDM, Periodontal Disease, and Pregnancy Outcomes**

Substantial evidence shows that patients with type 2 diabetes face increased severity of periodontal disease. Data also show that the presence of periodontal disease is higher in women with gestational diabetes mellitus (GDM) than in pregnant women without GDM.

Recently, data on the relationship among diabetes, periodontal disease, and pregnancy outcomes (combined effect) revealed that women with the combination of GDM plus periodontal disease had a 2.3-fold greater risk for developing adverse maternal outcomes than women with either GDM or periodontal disease alone.[Brener, 2016 #586] In addition, probing pocket depth, independent of GDM status, was a significant predictor of adverse pregnancy outcomes. However, women with the combination of GDM plus periodontal disease had no greater risk for adverse fetal outcomes than women with either GDM or periodontal disease alone.

Currently, studies are under way to determine the effect of periodontal therapy on adverse maternal outcomes in women with GDM and periodontal disease. Women with GDM should be referred to their dentist to evaluate their oral health status and maintain their periodontal health during pregnancy. Women with GDM should be encouraged to have their blood glucose levels evaluated soon after delivery and on a regular basis thereafter to determine their status relative to type 2 diabetes mellitus, since women who have had GDM have a 35% to 60% chance of developing diabetes in the next 10–20 years.

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**References**