Oral and General Health - Exploring the Connection

Research Review September 2009

Associations between Periodontal Disease and Diabetes Mellitus

CONSULTANT/BROKER VERSION
Introduction

Both diabetes and periodontal diseases are common chronic diseases in many parts of the world. This report will provide a description of the existing evidence supporting a bi-directional relationship between diabetes and periodontal disease. The evidence establishes that diabetes adversely affects periodontal health and that while not yet unequivocal, periodontal disease adversely affects diabetes by contributing to poorer glycemic control, which increases the risk for certain diabetes complications, and possibly increasing the risk for the development of diabetes. There are two main types of diabetes. Type 1 most often begins in childhood, and is treated with daily insulin injections. Type 2 diabetes can often come later in life, and can be treated with insulin, oral medications, exercise and diet. More than 90 percent of diabetics suffer from Type 2 diabetes, and many diabetics are not even aware that they have it.

This report set out to answer the following questions:

1. Does diabetes have adverse effects on periodontal health?
2. Does periodontal disease increase the risk of getting diabetes?
3. Does periodontal disease increase the chance of getting other health problems that often come with diabetes?
4. What associations exist between periodontal disease and gestational diabetes?

Does diabetes have adverse effects on periodontal health?

The vast majority of existing research concludes that the prevalence of periodontal disease is greater in people who have diabetes. Further, diabetics have worse periodontal disease than those without diabetes, and people with poorly controlled diabetes have an even greater likelihood of having periodontal disease. People with poor glycemic control have worse periodontal health than people with good glycemic control. The research supports our existing knowledge that diabetes negatively affects the health of the gums, leading to a greater likelihood that diabetics will have periodontal disease.
Does periodontal disease increase the risk of getting diabetes?
In addition to emerging evidence supporting periodontal disease as a potential risk factor for developing diabetes complications, there is also evidence emerging that periodontal disease may be a risk factor for the development of Type 2 diabetes and possibly gestational diabetes. In fact, one large study showed that people with periodontal disease have a much greater chance – up to two times greater- of getting Type 2 diabetes than people with healthy gums.

The next question that researchers set out to answer is whether periodontal infection adversely affects glycemic control in people with diabetes. There is a growing body of evidence supporting the long-held clinical observation that periodontal infection adversely affects glycemic control. Out of 35 reports (11 randomized clinical trials, the highest form of scientific evidence, and 24 non-randomized clinical treatment studies), 20 of the studies found that the amount of long-term blood sugar was lower after gum treatment. This means that treating gum disease seems to help diabetes become better controlled.

Does periodontal disease increase the chance of getting other health problems that often come with diabetes?
There is emerging evidence that periodontal infection contributes to greater risk for diabetes complications. Diabetes complications are the conditions or diseases that people with diabetes often develop due to their diabetic status, such as increased risk of coronary heart disease, stroke, heart attack and other cardiovascular events; other oral health diseases, such as yeast and thrush; nephropathy (diseases of the kidney, ultimately leading to End-Stage Renal Disease; retinopathy (diseases of the retina in the eye, possibly leading to blindness); decreased wound healing; and amputations of extremities due to one or more of the complications previously mentioned.

Poor glycemic control is a major determinant for the development of the chronic complications of diabetes. Landmark studies demonstrate that attaining and monitoring good glycemic control could reduce the risk for diabetes and slow the progression of its complications.

What associations exist between periodontal disease and gestational diabetes?
Emerging evidence suggests that periodontal disease may be associated with the development of Type 2 diabetes, although it is too early to consider this relationship unequivocally established.
Emerging evidence also suggest that periodontal disease may be associated with the development of gestational diabetes.

Further, evidence suggests that gestational diabetes may adversely affect periodontal health. Pregnant women with gestational diabetes can either develop periodontal disease, or if they already have periodontal disease, their gestational diabetes can make it worse.

**Key Takeaways**

- There is strong scientific support that diabetes can adversely affect periodontal disease. People with diabetes get periodontal disease more easily, and their periodontal disease progresses faster than it does in non-diabetics. Emerging science indicates that periodontal disease may also be one of the reasons people get Type 2 and gestational diabetes.
- It is important to treat periodontal disease to have a healthy mouth. It is also helpful for people with diabetes to lower the amount of sugar in their blood over the long term. Keeping blood sugar lower means they control their diseases better. If the gums are healthy some people might not get diabetes at all, or not get it so soon. A healthy mouth may even help people with diabetes not get the very serious health problems that often come with diabetes.
- Many people with periodontal disease or diabetes are not aware that they have these conditions, meaning that regular dental checkups are extremely important for the identification and treatment of periodontal disease.

Delta Dental recognizes that the emerging science underscores the importance of managing periodontal diseases in diabetic patients, and advocates increased availability of periodontal services for people affected by this chronic disease. In order to provide access to appropriate levels of care, Delta Dental recommends that employers consider covering additional periodontal maintenance for their diabetic employees with history of periodontal disease.