

CHARLOTTEPERIO

Periodontics ♦ Implantology

Perio News

... this newsletter represents our opinion about current periodontal technologies / procedures...

Diabetes and Periodontal Health

Diabetes is a major public health concern in the United States. Over 24 million Americans have diabetes, many of whom remain undiagnosed. The prevalence of the disease increases annually in both adults and children. Diabetes is characterized by high blood glucose levels caused by the body's inability to produce or use insulin. This inability to manage insulin properly brings a host of health concerns, not the least of which is periodontal disease.

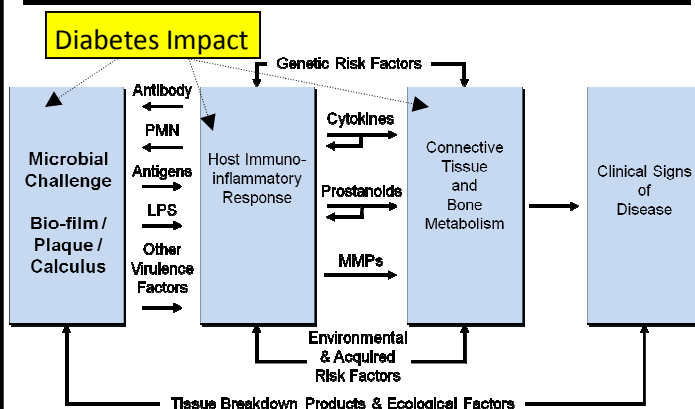
Diabetic patients are 3X more susceptible to periodontal disease

High blood glucose levels found in diabetics negatively affects the immune system. This results in increased levels of inflammation, both systemically and locally. Elevated levels of inflammation negatively influence normal connective tissue and bone metabolism, which can result in breakdown of periodontal attachment. In diabetes, neutrophil, monocyte, and macrophage function are impaired, decreasing the body's ability to appropriately respond to microbial challenge. Bacteria in the sulcus/pocket provoke a constant inflammatory reaction that causes tissue damage and attachment loss.

Bacterial biofilms that develop in the sulcus (in health) and/or pocket (in disease) elicit an inflammatory response. This bacterial challenge stimulates production of inflammatory cytokines that can reach the systemic circulation in significant quantities. These cytokines can contribute to insulin resistance and, consequently, unhealthy blood and gingival crevicular sugar levels. These cytokines can have a destructive effect on the pancreas and insulin producing cells, decreasing both insulin production and sensitivity.

Diabetes alters the body's ability to fight infection, including periodontal infections. This contributes to increased inflammation and can worsen gingivitis/periodontitis. In turn, periodontitis can negatively affect control of diabetes by increasing inflammatory cytokines and insulin resistance. Thus, each condition is detrimental to the other. Consequently, the goal of treatment should be to control both the diabetes and the periodontal disease.

Host Pathway to Periodontal Disease



Diabetes: increased blood sugar increases susceptibility to periodontal disease



Diabetes Periodontal Disease



Periodontal Disease: inflammation contributes to insulin resistance

As dental practitioners, what can we do to recognize and to treat patients with diabetes?

Review and discuss the medical history.

Ask diabetic patients about their **HbA1C** test results. HbA1C% is a blood test and represents the mean plasma glucose levels over 3 months. Daily plasma glucose levels can be checked via a fingerstick reading. When the HbA1C % increases by 1, the mean plasma glucose level goes up by 35. Patients should have a HbA1C% of 6.0—7.0 or a mean glucose level of 135-170. For patients with an HbA1C % > 8, physician referral is recommended to improve glycemic control.

Controlled diabetics should be managed and evaluated the same as healthy patients. Blood sugar levels are well regulated and the oral tissues are healthy. **Uncontrolled diabetics** can have significant systemic and oral health issues:

Systemic issues include 1) neuropathy, 2) delayed wound healing, 3) ocular degeneration, 4) kidney disease, and 5) vascular and blood circulation problems.

Oral health issues include 1) generalized bleeding on probing, 2) multiple periodontal abscesses, 3) red and swollen tissues, 4) bone loss, and 5) a sweet breath odor.

Common signs of undiagnosed diabetes include significant recent weight changes, polydipsia (excessive thirst), polyphagia (excessive eating), and polyuria (frequent urination). Patients with undiagnosed diabetes may present with many of the oral health issues associated with uncontrolled diabetes.

If a patient has oral or systemic manifestations of diabetes but did not mark “diabetes” on the medical history, a medical consult/referral is warranted.

How should a diabetic patient with gingivitis/periodontal disease be managed?

Consistent assessment of gingival health is necessary. Monitoring plaque control and oral hygiene reinforcement are critical to helping the patient with personal oral health care.

In diabetic patients with gingivitis, cleanings every 6 months may be adequate; however, increasing the interval to every 4 months may be necessary to establish/maintain gingival health. As mentioned previously, even gingivitis can influence glycemic blood sugar levels.

In diabetic patients with periodontal disease, scaling and root planing (SRP) with systemic adjunctive antibiotics is generally the initial therapeutic modality. Controlling inflammation by plaque and calculus removal is critical. Systemic antibiotics attack any residual biofilm and assist in wound healing by negating certain inflammatory cytokines and collagenases. Referral to our office would be recommended in patients with progressive attachment loss, unresolved inflammation (bleeding on probing, erythema, pus), periodontal abscesses, progressive bone loss or vertical bony defects.

Summary

The impact of diabetes can be seen in both elderly and young patients, and there are several signs that may help you identify a patient with undiagnosed or poorly controlled diabetes. Diabetes can increase the severity of gingivitis and periodontitis as well as have a significant impact on overall health. Thus, blood sugar management as well as appropriate periodontal treatment are necessary to establish both oral and systemic health.

Please call or email if you have questions or comments. We appreciate your feedback and will be happy to discuss in further detail any thoughts or questions you may have.

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