



▶ Diabetic Patient Care Top of Mind for Many Different Health Care Organizations

Dentistry for Diabetics™

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▶ What's Clicking? The American Heart Association

Informed

The truth about the diabetic & oral care

New Perspectives Patient Treatment

This month, *Informed* highlights forward thinking individuals and organizations and their perspectives on diabetic health and oral health.

Interestingly, these forward looking individuals and their perspectives are not hard to find. They come from many corners of the diabetic care community.

What may surprise you (even more than what they will say) is who they are and what they are

doing to enhance the health of the diabetic patient.

Informed invites you to consider the new information in the following pages and to question old ways of viewing oral health and systemic health.



Did You Know?

“So far, we’ve found that when diabetic patients are good dental patients, there’s a substantial savings on the medical side.”

— Carl Stoel, DDS, Senior dental consultant Blue Cross Blue Shield of Michigan

Diabetic Patient Care Top of Mind for Many Different Health Care Organizations

Perhaps the most misunderstood area of treatment for the diabetic patient is oral care. Not because oral diseases are more complex than vascular or retinal complications, but simply because history has worked against its early diagnosis and integration with overall diabetic care programs.

Numerous studies performed in the last sixty years have identified clear connections between the oral health and systemic health of the diabetic patient.

However, as most diabetic care physicians and dentists can attest, medical and oral care have virtually always been viewed as completely separate systems.

This separation began long before doctors became doctors and dentists became dentists. Beginning in medical school and dental school, the oral cavity was disconnected from rest of the organism. And diagnosis and treatment were divided between medical and dental disciplines.

Changing Perceptions

That may be about to change, however. While researchers continue to uncover connections between oral health and systemic health – physicians, dentists and even health insurance carriers are beginning to change the way they think and act.

At a time when healthcare costs continue to rise, the Journal of the American Medical Association recently reported that Blue Cross Blue Shield of Michigan is incorporating some dental services into some of its medical plans [T Hampton. *Studies Prove Oral Health – Diabetes Link*, Jama. Dec 3, 2008. Vol. 300, (21): 2471-2473.].

Why? Because they see a connection between

preventive oral care and improved overall health of diabetic patients.

Blue Cross Blue Shield is also working with George Taylor, DrPH, DMD (associate professor for the University of Michigan School of Dentistry and Public Health) on a study to quantify to what degree good oral health and preventive care may save overall medical costs for patients with NIDDM.

CV Risk Factors of C-Reactive Protein

hs-CRP level <1.0 mg/L, indicates low risk of developing cardiovascular disease

hs-CRP between 1.0—3.0 mg/L indicates average risk

hs-CRP > 3.0 mg/L indicates a high risk

Dr. Bernardine King, a cardiologist with the Gainesville Heart Group, recently said in an interview with the Gainesville Times, "When we treat the heart, we look at the whole patient (including the teeth)."

King may have been referring to three key points of which cardiologists are keenly aware.

1. The risk factors associated with periodontitis. Periodontitis may cause bacteria to enter the bloodstream. These bacterium may settle in defective vascular pathways. Hence, cardiologists advise those patients with cardiovascular defects to take antimicrobials before receiving dental

Check it out:

Scientific studies have found that the higher the hs-CRP levels, the higher the risk of having a heart attack. In fact, the risk for heart attack in people in the upper third of hs-CRP levels has been determined to be twice that of those whose hs-CRP level is in the lower third. These prospective studies include men, women and the elderly.

treatment of any kind.

2. Research shows that patients who have severe gum disease, or periodontitis, are much more likely to accumulate plaque in their arteries.
3. A growing body of research into the role inflammation and periodontal disease in diabetes, heart disease and insulin sensitivity. Beck et al, 1996 and Loos 2005 found that periodontal disease induces production of pro-inflammatory cytokines such as TNF- α , IL-1, and IL-6.¹ Saito et al., 2001; Nishimura et al., 2003 determined that secretion of tumor necrosis factor-alpha (TNF- α) by adipose (fatty) tissue triggered by lipopolysaccharide from periodontal gram-negative bacteria may promote hepatic dyslipidemia and decrease insulin sensitivity.² Grossi and Genco, 1998; Genco et al, 2005 cited evidence that type 2 diabetes and decreased insulin sensitivity have been associated with the production of advanced glycation end-products (AGE), which trigger inflammatory cytokine production, thus predisposing for inflammatory diseases such as periodontitis and atherosclerosis.³

In 2003, the **American Heart Association** also stated that “Laboratory evidence and findings from clinical and population studies suggest that inflammation is important in atherosclerosis.”

The AHA went on to say:

The major injurious factors that promote atherogenesis — cigarette smoking, hypertension, atherogenic lipoproteins, and hyperglycemia — are well established. These risk factors give rise to a variety of noxious stimuli that cause the release of chemicals and the activation of cells involved in the inflammatory process. These events are thought to contribute not only to the formation of plaque

Periodontal disease worsens diabetes when bacteria released into the bloodstream contribute to inflammation.

but may also contribute to its disruption resulting in the formation of a blood clot. Thus, virtually every step in atherogenesis is believed to involve substances involved in the inflammatory response and cells that are characteristic of inflammation.

All of which points to the interrelated nature of inflammation and its many triggers throughout the body system.

In Sum

A growing number of constituents throughout the diabetic healthcare community are discovering the two-way relationship between oral health and systemic health. Members of the medical, clinical care, dental communities, as well as the insurance community are leaving behind old ways of thinking and caring for diabetic patients. They are moving toward a fully integrated approach to the care of the patient that includes consistent, early dental care.

1. T. Saito, Y. Shimazaki, T. Koga, M. Tsuzuki, and A. Ohshima. Relationship between upper body obesity and periodontitis. *J. Dent. Res.* 2001 80: 1631-1636.
2. RJ Genco, SG Grossi, A Ho, F Nishimura, Y Murayama. A Proposed Model Linking Inflammation to Obesity, Diabetes, and Periodontal Infections. *Journal of Periodontology*, 2005 - Am Acad Periodontology. 2005 Nov;76(11 Suppl): 2075-84.
3. Grossi SG, Genco RJ. Periodontal disease and diabetes mellitus: a two-way relationship. *Ann Periodontol* 1998;3(1): 51-61.

Did you know?

Studies have shown that periodontal treatment reduces inflammation-causing proteins (known as circulating TNF- α) and serum levels of glycosylated hemoglobin, which helps regulate metabolism in type 2 diabetics.

Grossi SG, Genco RJ. Periodontal disease and diabetes mellitus: a two-way relationship. *Ann Periodontol* 1998;3(1): 51-61.

What's Clicking? American Heart Association Inflammation, Heart Disease and Stroke: The role of C-Reactive Protein

The below question and answer section is a large excerpt taken directly from the American Heart Association web site <http://www.americanheart.org/presenter.jhtml?identifier=4648> to ensure accurate representation of the role of C-Reactive Protein on Heart Disease and systemic diseases.

How does inflammation relate to heart disease and stroke risk?

“Inflammation” is the process by which the body responds to injury or an infection. Laboratory evidence and findings from clinical and population studies suggest that inflammation is important in atherosclerosis. This is the process in which fatty deposits build up in the inner lining of arteries.

C-reactive protein (CRP) is one of the acute phase proteins that increase during systemic inflammation. It's been suggested that testing CRP levels in the blood may be an additional way to assess cardiovascular disease risk. A more sensitive CRP test, called a highly sensitive C-reactive protein (hs-CRP) assay, is available to determine heart disease risk.

The American Heart Association and the Centers for Disease Control and Prevention published a joint scientific statement in 2003 on the use of inflammatory markers in clinical and public health practice. This statement was developed after systematically reviewing the evidence of association between inflammatory markers (mainly CRP) and coronary heart disease and stroke.

What's the role of CRP in predicting recurrent cardiovascular and stroke events?

A growing number of studies have examined whether

hs-CRP can predict recurrent cardiovascular disease, stroke and death in different settings. High levels of hs-CRP consistently predict recurrent coronary events in patients with unstable angina and acute myocardial infarction (heart attack). Higher hs-CRP levels also are associated with lower survival rates in these patients. Many studies have suggested that after adjusting for other prognostic factors, hs-CRP is useful as a risk predictor.

Studies also suggest that higher levels of hs-CRP may increase the risk that an artery will reclose after it's been opened by balloon angioplasty. High levels of hs-CRP in the blood also seem to predict prognosis and recurrent events in patients with stroke or peripheral arterial disease.

What's the role of hs-CRP in predicting new cardiovascular events?

Scientific studies have found that the higher the hs-CRP levels, the higher the risk of having a heart attack. In fact, the risk for heart attack in people in the upper third of hs-CRP levels has been determined to be twice that of those whose hs-CRP level is in the lower third. These prospective studies include men, women and the elderly. Studies have also found an association between sudden cardiac death, peripheral arterial disease and hs-CRP.

However not all of the established cardiovascular risk factors were controlled for when the association was examined. The true independent association between hs-CRP and new cardiovascular events hasn't yet been established.

From:

To: