

From Our Office to Yours...

In July, a consensus paper on the link between periodontal disease and atherosclerotic cardiovascular disease was published in the *American Journal of Cardiology (AJC)*, a peer-reviewed journal circulated to 30,000 cardiologists, and the *Journal of Periodontology (JOP)*.

This paper was the result of collaboration between the *AJC* and the *American Academy of Periodontology (AAP)*. Five key leaders in cardiology and periodontology were selected by their respective organizations to review the pertinent evidence and develop clinical recommendations on the management of patients with periodontitis and atherosclerotic cardiovascular disease.

We encourage you to read the consensus paper and consider implementing the clinical recommendations in your practices. The paper includes a number of references that you can consult to enhance your understanding of cardiovascular disease and risk.

Some of this information may be new to you. We hope it will expand your understanding of your patients' health status.

You can download the free article from the JOP Website.

<http://www.joponline.org/doi/pdf/10.1902/jop.2009.097001>

As always, we invite your comments and suggestions.

Cardiologists Join Periodontists in Acknowledging the Perio-Cardio Connection

The evidence for a link between periodontal disease and systemic diseases has been mounting for many years. Now it appears more likely than ever there is, indeed, a connection.

This year, in a groundbreaking collaboration, cardiologists and periodontists agreed:

- There appears to be a scientific relationship between

cardiovascular disease (CVD) and periodontal disease.

- Treatment of one disease will probably have a salutary effect on the other.
- Inflammation is the probable connection.
- There are certain lab tests which may be helpful in determining this connection, such as C-reactive protein (CRP) testing.

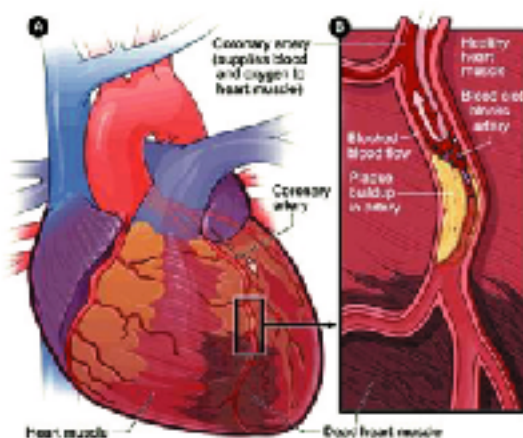


Figure 1. This diagram shows a blood clot that forms on an unstable plaque in a major coronary artery causing severe heart muscle damage and possible death. The inflammation and the bacteria from periodontal disease help decrease plaque stability which increases the risk of myocardial infarction.



Figure 2. Gingival inflammation can occasionally be extremely obvious to clinician and patient alike.



Figure 3. It is easy to be deceived by the clinical appearance of gingival tissues which may appear healthy on the surface, but which may have deep pockets which always have subgingival inflammation.

- Patients with CVD should be warned about the connection and evaluated for periodontal disease and vice versa.
- The future is bright for containing two of the most prevalent disease afflictions known to mankind.

This information provides the basis for a new paradigm and a bridge to collaboration with our medical colleagues. Although more studies need to be done, the current and emerging evidence provides the basis for a few simple recommendations that both specialties can provide their patients.

These recommendations include:

- Patients with periodontitis who have one known major atherosclerotic CVD risk factor such as smoking, immediate family history for CVD, or history of dyslipidemia, should be informed of the increased risk for atherosclerotic CVD and advised to undergo a medical evaluation if they have not done so within the past 12 months.
- A periodontal evaluation should be considered in patients with atherosclerotic CVD who have: signs or symptoms of gingival

disease; significant tooth loss, and unexplained elevation of CRP or other inflammatory biomarkers.

- When periodontitis is newly diagnosed in patients with atherosclerotic CVD, physicians and dentists managing patients' CVD should closely collaborate in order to optimize CVD risk reduction and periodontal care.

Cardiologists managing patients with cardiovascular disease are encouraged to evaluate their patients' mouths for basic signs of periodontal disease and refer these patients for appropriate treatment.

Dentists are encouraged to inform their patients of the increased risk of cardiovascular disease associated with periodontal disease.

Patients with atherosclerotic CVD should undergo a comprehensive examination of periodontal tissues for inflammation and bleeding on probing, loss of connective tissue attachment determined by periodontal probing, and radiographic bone loss.

Patients with periodontitis need to be treated to reduce and control bacterial accumulations and eliminate inflammation.

Specific Recommendations for Patients with Periodontitis

Enlightened treatment methods, medications and lifestyle changes will probably help patients with either or both CVD and periodontitis.

- Patients with periodontitis and abnormal serum lipid, and/or elevated plasma hsCRP, should be advised to make lifestyle changes to reduce atherosclerotic CVD risk. These changes would include weight reduction; increased physical activity; reduced intake of saturated fats and low levels of trans fats and dietary cholesterol; dietary strategies to lower LDL, such as ingesting plant stanols or sterols and increasing soluble fiber, and limited alcohol consumption, although alcohol does not add to atherosclerotic CVD risk, and may even convey some protective effect against future CVD events.
- Drug therapy for elevated LDL cholesterol should be prescribed for patients with periodontitis

who cannot achieve target LDL cholesterol levels with lifestyle changes.

- Because smoking is a major risk factor for atherosclerotic CVD and periodontitis, all patients with periodontitis who smoke should be advised to stop smoking.
- Patients with periodontitis and elevated blood pressure should be treated to target levels as defined by the seventh report of the Joint National committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure, and undertake lifestyle changes to lower blood pressure. Lifestyle changes which do not control elevated blood pressure should be treated pharmacologically.
- No studies present evidence that patients with periodontitis and atherosclerotic CVD should be treated differently from other patients with CVD, with the possible exception of the use of calcium channel blockers.
- Patients with periodontitis taking calcium channel blockers for hypertension or any other indication should be monitored for worsening of periodontitis in association with gingival hyperplasia.
- Many patients with periodontal disease exhibit metabolic syndrome (insulin resistance). These patients should be advised of the relationship to CVD and be evaluated by a cardiologist.
- Recent studies suggest that standard treatments of periodontitis in patients with CVD are effective in reducing the consequences of CVD. Additional studies are needed regarding the effect of drugs used in cardiovascular medicine on periodontitis.

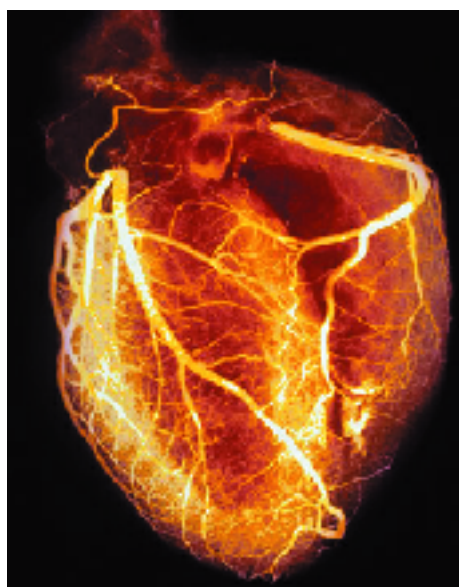


Figure 4. This angiogram of a healthy heart shows the coronary arteries form a very complicated vascular tree.



Figure 5. The artery in this angiogram shows a nearly 100 percent blockage. If treated by a stent in the first 90 minutes, heart muscle damage can usually be prevented.

The Role of Inflammation

Cardiovascular disease (CVD) is the leading killer in the United States and contributes to 2,400 deaths each day. Periodontal disease affects nearly 75 percent of Americans and is the major cause of adult tooth loss.

Although these statistics seem grim, research suggests that managing one disease may reduce the risk for the other.

While additional research will help identify the precise relationship between periodontal disease and cardiovascular disease, recent emphasis has been placed on the role of inflammation -- the body's reaction to fight off infection, guard against injury or shield against irritation.

Both periodontal disease and cardiovascular disease are inflammatory in

nature and one may have an effect on the other.

The role of inflammation as a common factor in the chronic diseases of aging has caused considerable excitement in medical research over the past few years. Once believed to be only a vital defense against infection and a promoter of healing -- except in the instances of a few uncommon connective tissue disorders -- inflammation is now recognized as a significant active participant in many chronic diseases, including hypertension, diabetes mellitus, arthritis, inflammatory bowel disease, psoriasis and the two diseases addressed in the consensus report, cardiovascular disease and periodontitis.

Inflammation is a major risk factor for heart disease, and periodontal disease may increase the inflammation level throughout the body. Several studies have shown that patients with periodontal disease have an increased



Figures 6 and 7. Gingival hyperplasia associated with calcium channel blockers can be a chronic problem for patients being treated for hypertension.

risk for not only cardiovascular disease, but all forms of cerebrovascular disease, especially non-hemorrhagic stroke.

While a direct causal relationship between periodontitis and atherosclerotic CVD was not established, the paper cited multiple studies which support two biologically plausible mechanisms:

1. Moderate to severe periodontitis increases the level of systemic inflammation, a characteristic of all chronic inflammatory diseases, and periodontitis has been associated with increased systemic inflammation as measured by hsCRP and other biomarkers. Treatment of moderate to severe periodontitis sufficient to reduce clinical signs of the disease also

decreases the level of systemic inflammatory mediators.

2. In untreated periodontitis, bacterial species found predominantly in periodontal pockets also have been found in atheroma -- a fatty deposit in the inner lining of an artery resulting from atherosclerosis, also called an atherosclerotic plaque.

Dentists are experts in managing inflammation. The AAP has focused on inflammation as the basis for a new paradigm of periodontal disease and treatment as well as a bridge to other health professionals.

The clinical recommendations put forth by the panel will help dentists and cardiologists control the inflammatory burden in the body as a result of gum disease or heart disease, thereby helping to reduce fur-

ther disease progression, and ultimately improving patients' overall health.

Getting the Word Out

The cooperation between the cardiology and dental communities is an important first step in helping patients reduce their risk of these associated diseases.

The consensus report provides a unique opportunity to heighten consumer and professional awareness of the relationship between periodontal and cardiovascular diseases, as well as enhance the importance of periodontal health.

We are excited about the consensus paper and the opportunities it will provide you to offer a more comprehensive health service to your patients and to reach out to the physicians with whom you work.

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