Editorial

Poor Oral Health May Affect the Heart Health

Prof. Dr. Azhar Masud Bhatti
Editor-in-Chief

Introduction

People who have poor oral health (such as gum disease or tooth loss) have higher rates of cardiovascular problems such as heart attack or stroke than people with good oral health.

According to the World Health Organization (WHO), an estimated one billion people around the globe are living with a severe periodontal disease.

Periodontal disease is an umbrella term for a group of inflammatory conditions that affect your teeth, gums, and surrounding tissues. One type of periodontal disease is the gum disease periodontitis, which can cause damage to the tissues and bone supporting your teeth.

When a person has periodontitis, bacteria that enter the gums can spread into the bloodstream, allowing them to reach all parts of the body. Past studies show that periodontitis can increase a person's risk for several health conditions, including rheumatoid arthritis, pneumonia, diabetes, Alzheimer's disease, and cardiovascular disease.

A new study presented at the American Heart Association's Basic Cardiovascular Sciences Scientific Sessions 2026 has found a link between periodontitis and a cardiovascular condition called calcific aortic valve stenosis (CAVS), which can ultimately restrict blood flow from the heart and throughout the body.

Periodontal disease is one of the most common inflammatory diseases in humans that destroys hard and soft tissues around the tooth, resulting in tooth loosening and loss[1]. Severe periodontal disease affects 10.8% of the world's population and is the sixth most common disease worldwide, with more than 700 million people suffering from severe periodontal disease[2]. Periodontal disease can cause inflammation of periodontal tissue but also produce inflammatory mediators and can products that can cardiovascular health through blood circulation[3]. In recent decades, longitudinal studies have revealed a firm link between periodontal tissue and an increased risk of CVD. However, no study has systematically studied the prevalence of CVD in patients with periodontal disease. Moreover, female sex is considered to have a protective effect on the incidence and development of CVD[4,5]. However, whether there is a sex difference in the relationship between periodontal disease and the risk of CVD remains unexplored. Hence, the present study aimed to (i) systematically evaluate the prevalence of CVD in patients with periodontal disease, and (ii) examine the sex-specific association of periodontal disease with CVD.

The bacteria that infect the gums and cause gingivitis and periodontitis also travel to blood vessels elsewhere in the body where they cause blood vessel inflammation and damage; tiny blood clots, heart attack and stroke may follow. Supporting this idea is the finding of remnants of oral bacteria within atherosclerotic blood vessels far from the mouth.

Rather than bacteria causing the problem, it's the body's immune response — inflammation — that sets off a cascade of vascular damage throughout the body, including the heart and brain.

There may be no direct connection between gum disease and cardiovascular disease; the reason they may occur together is that there is a third factor (such as smoking) that's a risk factor for both conditions. Other potential "confounders" include genetic contributions to both disorders, poor access to healthcare and lack of exercise — perhaps people without health insurance or who don't take good care of their overall health are more likely to have poor oral health and heart disease.

In a study, researchers used several methods, including human heart tissue and a mouse model, to search for a potential link between periodontitis and Calcific Aortic Valve Stenosis (CAVS).

Chenyang Li, MD, Department of Cardiology in Fuwai Hospital at the National Center for Cardiovascular Diseases at the Chinese Academy of Medical Sciences and Peking Union Medical College in China said "CAVS is the most common valvular heart disease in older adults, affecting approximately 2%–7% of people over the age of 65."

"Currently, no medications have been proven to prevent or slow its progression, and once severe stenosis develops, valve replacement is often the only effective treatment. Therefore, identifying modifiable risk factors and understanding the mechanisms driving valve calcification could open new opportunities for prevention and early intervention, potentially reducing the need for invasive procedures." — Chenyang Li, MD

Li said he and his team decided to look for a potential link between periodontitis and CAVS, as chronic inflammation is recognized as a key driver of CAVS.

"Porphyromonas gingivalis (P. gingivalis), one of the major bacteria responsible for periodontal disease, can enter the bloodstream during routine activities such as brushing or chewing in people with poor oral health, and has been associated with several cardiovascular diseases," he explained.

Periodontal (gum) disease has long been associated with a higher risk of atherosclerosis, the buildup of plaque in the arteries, largely due to chronic inflammation. Over time, this inflammation can accelerate the deposition of fatty material in artery walls, increasing the risk of serious events like heart attack and stroke." (Yu-Ming Ni, MD)

"What makes this study especially compelling is the potential link between gum disease and CAVS. While this connection may sound surprising, it aligns with the broader understanding that inflammation plays a central role in many forms of cardiovascular disease." Ni continued.

Gum disease (periodontitis) is independently associated with an increased risk of cardiovascular disease (CVD) and major heart events, primarily driven by systemic inflammation and the movement of oral bacteria into the bloodstream.

A statement published in Circulation by the American Heart Association indicates that periodontal disease is linked to plaque buildup in arteries (atherosclerosis), heart attacks, stroke, atrial fibrillation, and heart failure.

A large-scale meta-analysis published in PubMed Central found that individuals with periodontal disease have a pooled cardiovascular disease prevalence of 7.2%, including specific rates for hypertension (25.3%), coronary heart disease (6.6%), and heart failure (1.1%).

A Research highlighted by the British Heart Foundation points to Porphyromonas gingivalis, an oral bacterium that can enter the bloodstream during gum infections, promote arterial plaque, and correlate with greater heart muscle damage and subclinical Arterial Changes also show that periodontal disease is associated with a 42% increased odds of thickened carotid intima-media thickness (cIMT) and up to 70% higher odds in severe cases, indicating early structural changes in blood vessels.

According to the American Heart Association Journals, Chronic inflammation in the gums raises whole-body inflammatory markers—such as C-reactive protein (CRP), IL-6, and TNF-alpha—which damage endothelial cells and accelerate atherosclerosis.

According to European Federation of Periodontology Oral bacteria can slip through permeable, inflamed gum tissue into the circulatory system, attaching directly to heart valves or arterial walls.

Cardiovascular disease (CVD) remains the leading cause of death, accounting for approximately one third of all deaths worldwide. The global incidence of CVDs is 10~30%, showing a gradually increasing trend[6-8]. China has the highest cardiovascular mortality rate, followed by India, the Russian Federation and the United States of America[9]. However, periodontal disease is increasingly becoming one of the major obstacles to optimal outcomes for patients with cardiovascular disease (CVD)[10].

Americans had the highest prevalence of CVD (ES: 13.3%), followed by Europeans (ES: 12%), Asians (ES: 8.2%), and Oceania (ES: 2%) (P for subgroup difference < 0.001). The pooled prevalence was 25.3% for HP, 6.6% for coronary heart disease (CHD), 1% for stroke, and 1.1% for HF.

Age is a vital risk factor for both CVD and periodontal disease. In subgroup analyses, younger patients with periodontal disease were shown to have an increased risk of CVD, with a prevalence of 23.8% in the younger group (age <45 years) versus 7.5% in older one (age ≥45 years). This was consistent with Joshipura et al. (34) who reported a stronger effect for younger men than for older men (≤55 years: RR = 2.17; 95% CI: 1.22–3.84 vs. >55 years: RR = 1.21; 95% CI: 0.92–1.59). Similarly, in a case-control study, four cases of clinical attachment loss of 4.5 to ≤6 mm were associated with a significantly increased risk of stroke (OR = 3.43; 95% CI: 1.39–8.50) in men ≤60 years, while there was no statistical significance in younger men (age >60 years) (OR = 1.71; 95% CI: 0.65–4.5). Men who were susceptible to periodontitis were shown to develop periodontal destruction earlier than those who were not. Thus, there is a stronger association between periodontitis and cerebrovascular disease in young men than in older men, which may further support the hypothesis of proinflammatory susceptibility.

Diagnosis and Tests

A dentist can tell you if you have gum disease during a routine examination. They'll look for plaque buildup on your teeth and ask you about your symptoms. They may refer you to a periodontist (gum specialist) for further evaluation and treatment.

A dentist or periodontist will measure the pockets around your teeth using an instrument called a periodontal probe. This tells them how much bone you've lost around your teeth. The deeper the pockets, the more severe the gum disease you have. Your periodontist will check your bite, how loose your teeth are and how much your gums are pulling away from your teeth (receding).

Additionally, they'll take dental X-rays. These images show the areas of bone loss in detail. They can also look at older X-rays to see how your bone has changed over time.

Management and Treatment

Gum disease isn't curable, but it's manageable with appropriate treatment. You can't cure it because once you lose structural support around your teeth, you don't usually get all of it back. However, periodontal treatment can reduce infection and rebuild your bone and tissue to some degree.

Another factor is genetics. There are many different types of oral bacteria. Some people are simply more prone to having the kind that causes gum disease.

One stage of gum disease is totally reversible — gingivitis (very early periodontal disease). If you detect gingivitis early enough, you can reverse it with regular dental cleaning and diligent oral hygiene.

There are several periodontal treatments available.

Dental cleaning and improved oral hygiene

Proper oral hygiene includes brushing two to three times a day, flossing daily and visiting your dentist for regular exams and cleanings.

Scaling and root planning

Scaling and root planning is similar to routine dental cleaning. But it cleans deeper beneath your gums, removing plaque and bacteria where your toothbrush and floss can't reach. Periodontists recommend this treatment for people with mild gum disease.

Pocket reduction surgery

People with moderate to advanced gum disease may need pocket reduction surgery (also called osseous surgery). The goal is to remove plaque and tartar that are so deep under the gums that your hygienist can't reach it. During this procedure, a periodontist makes an incision (cut) in your gums and creates a flap. This allows them to temporarily move your gums back from your teeth roots.

Oftentimes, periodontists combine pocket reduction surgery with other regenerative procedures, such as bone grafting, gum grafting or guided tissue regeneration.

LANAP (Laser-assisted new attachment procedure)

Some periodontists also offer pocket reduction with LANAP. This procedure treats periodontitis using a handheld laser. The laser targets diseased gum tissue while leaving healthy tissue intact.

LANAP is a less-invasive alternative to traditional pocket reduction surgery. But results are mixed.

Bone grafting

Your periodontist may use a dental bone graft to replace bone that you've lost to gum disease. Once they clean the infection out, they'll place bone grafting material into the areas where the bone has eroded. This material acts as scaffolding or a space-holder, giving your body time to regenerate its own bone over time.

Gum grafting

If you've lost gum tissue to periodontal disease, your dentist may recommend gum graft surgery, also called tissue grafting. This procedure covers exposed teeth roots and adds thickness to your gum line.

Guided tissue regeneration (GTR)

Usually, periodontists use guided tissue regeneration in combination with a bone graft. GTR helps repair periodontal defects (areas of broken-down bone) and prevents soft tissue from growing into these areas.

Platelet-rich fibrin (PRF) and platelet-rich plasma (PRP)

Platelet-rich fibrin (PRF) and platelet-rich plasma (PRP) contain growth factors that speed up healing and tissue regeneration. A periodontist can get PRF and PRP from a small sample of your blood. They'll spin the sample in a centrifuge (a lab machine that spins rapidly, using centrifugal force) to separate plasma from your red blood cells. Then they'll place the platelet-rich plasma or fibrin at the surgical site.

In addition to boosting healing, this type of therapy can also shorten recovery times and reduce post-surgical pain. And because it comes from your own blood, it's completely safe.

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