

Gum disease can inflict damage elsewhere

Insurers and doctors add a stronger emphasis on good oral health as part of an overall wellness plan.

By Shari Roan, Times Staff Writer

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USTAVO RODRIGUEZ had expected numerous physical exams and blood tests before checking into the hospital last July for a long-awaited kidney transplant. But he was bewildered when told to see a dentist.

"My gums were really bad, but I didn't know that mattered," says Rodriguez, 26, of Long Beach. "They said I had to be bacteria-free before my surgery. I learned a lot ... like every little thing in your body counts."

And as doctors and dentists now suspect, gum disease is no little thing. Research compiled over the last five years suggests that gum disease — especially if the condition has persisted for a long time without treatment — can contribute to diabetes, cardiovascular disease and stroke, pregnancy complications, and perhaps even Alzheimer's disease, osteoporosis and some types of cancers. Infections in the mouth also may increase the risk to people undergoing several types of surgery, including transplantation and cardiac valve replacement.

"For years the mouth was never considered a part of the body," says Dr. Salomon Amar, a periodontist at Boston University. "Gum disease was not considered something that could have any impact."

But as recently as last month, a study published in the New England Journal of Medicine found that treating severe gum disease can improve the function of blood vessel walls, improving heart health. And in this month's Journal of Periodontology, two studies found periodontal bacteria (bugs normally found in inflamed gums) in the arteries of people with heart disease and in the placentas of pregnant women with high blood pressure.

It's still too soon in the evolution of this research to say with certainty that gum disease directly causes other illnesses. But the evidence is compelling enough that it's beginning to unite dental and medical professionals — two groups that have had only a nodding acquaintance.

And it's leading to one of the most sweeping changes in the dental insurance industry in more than a decade. Several health insurance companies — particularly those that offer both dental and medical insurance — are beginning to offer free or low-cost "enhanced" dental benefits to certain high-risk patients who might experience broader health benefits by having a cleaner mouth.

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Inflammation's role

Gum problems begin when the bacteria in plaque, the sticky film that forms on teeth, persists long enough to inflame the gums. Usually, inflammation is considered a positive response to bacteria — a sign that the body is fighting back. But if inflammation rages unchecked, it does more harm than good.

The majority of Americans have gingivitis, an inflammation of the superficial structure of the gum that can be a precursor to gum disease. Although good brushing, flossing and favorable genetics can limit the extent of gingivitis and keep gum disease at bay, this condition of persistent inflammation affects 30% to 40% of American adults. Of those, about 10% have advanced cases that damage the structures (ligaments and bone) that support the tooth.

Other than bleeding, gum disease has few symptoms and rarely causes much discomfort. "The gums do not hurt until it is too late," Amar says.

Well before the gums or teeth start to hurt, the dual forces of infection and inflammation in the mouth appear to hitch a ride in the bloodstream and travel to other parts of the body, wreaking havoc once there. One of the most well-established links between gum disease and secondary infection, for example, is among people with mitral valve heart defects. Doctors have long warned valve patients to take antibiotics before teeth cleanings so that the bacterial disruption in the mouth will not travel through the bloodstream to infect the valve.

The other theory of how gum disease inflicts damage elsewhere in the body involves inflammation. Bacteria in plaque release toxins that cause the immune system to produce chemicals called cytokines. In excess, cytokines can increase inflammation and damage tissues throughout the body. Inflammation in general (no matter how it starts) is now considered a prime culprit in the development of many illnesses, including heart disease and some types of cancer.

"The key in gum disease is chronic inflammation," says Preston D. Miller Jr., president of the American Academy of Periodontology. "When it becomes chronic, it begins to release substances that destroy tissue."

There may be other ways that poor gum health causes trouble elsewhere in the body. Doctors at USC have connected a common virus, cytomegalovirus, to gum disease and complications in kidney transplantation. About 20% of all failed kidney transplants are related to cytomegalovirus infection, according to Hessam Nowzari, director of the periodontology program at USC School of Dentistry. Research shows that inflamed gums can be a reservoir for the virus.

"The virus originates and replicates in inflamed gums," says Nowzari, who has studied the connection. "That is going to lead to an attack on other parts of the body, including transplants."

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High-risk groups

Although gum disease could worsen many conditions, experts and dental insurance companies are most interested in heart disease, diabetes and pregnancy — conditions in which successful periodontal treatment could yield ample benefits.

Studies surveying large groups show that people with severe gum disease have significantly higher rates of cardiovascular disease. Besides influencing the function of blood vessel walls, byproducts from the bacterial infection can enter the bloodstream and trigger the liver's release of a substance called C-reactive protein, studies have suggested. C-reactive protein is thought to inflame arteries and promote blood clot formation.

Now researchers are testing whether treating severe gum disease will result in fewer heart attacks, strokes and other cardiovascular problems. Amar, for example, is studying whether treating gum disease aggressively leads to fewer cardiac problems in people with both gum disease and heart disease.

Intriguing links can also be drawn between gum disease and diabetes. Diabetics tend to have more severe gum disease and have it at an earlier age than people without diabetes, research shows. Having gum disease increases the amount of time a diabetic's blood sugar remains high. But diabetics who receive good periodontal treatment have a better response to diabetes therapies.

"We've known for years that diabetic patients who have periodontal disease do not respond to therapy," says Miller.

A study published last month in the *Journal of Periodontology* found that gum disease even predisposes certain people to developing early signs of diabetes.

But it's still too early to say if aggressive treatment of gum disease in high-risk individuals could have a big effect on other illnesses. A study published in November in the *New England Journal of Medicine* serves as a cautionary tale and shows why much more research on this subject is needed.

That study tested whether treating gum disease in pregnant women could reduce the risk of premature birth. Before the study, gum disease was considered a likely cause of premature birth. Several studies suggested that bacteria in infected gums could spread to the womb and initiate early labor. And one study in Chile even showed treating gum disease in pregnancy reduced preterm birth rates.

However, a large, federally funded trial in this country found that treatment of gum disease, while safe during pregnancy, did not cut the rates of premature birth.

Studies are needed to conclusively prove whether treating gum disease affects various conditions, says Bryan Michalowicz, an associate professor at the University of Minnesota School of Dentistry and lead author of the study.

"There are a number of criteria that have to be met before we can conclude that something is a cause," he says.

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Insurer incentives

The recent pregnancy study has given some experts pause, but so far it hasn't derailed a sweeping trend among insurers to offer improved dental care to certain high-risk members, such as pregnant women and people with diabetes and heart disease.

Several major insurance companies, including Aetna, Cigna and Delta Dental, have revised their plans in the last year or so to offer extra cleanings or additional dental services, such as paying for a prescription mouthwash, to high-risk individuals.

The insurers, particularly those who offer both medical and dental insurance, think they'll save money in the long run, says Evelyn Ireland, executive director of the National Assn. of Dental Plans in Dallas.

An analysis by Aetna and Columbia University College of Dental Medicine found that treating gum disease in high-risk individuals improved their health and lowered overall medical costs.

Under some plans, the member has to be referred by a physician to receive the extra cleaning or dental service. And increasingly, physicians are paying attention to their patients' oral health, says Miller. Just recently, he received two referrals from medical clinics. In one case, a patient was referred for treatment of gum disease before a transplant surgery. In another, a patient was referred for assessment of his oral health before he was cleared for valve replacement surgery.

"The leading medical centers are very aware of this and are actually requiring this before they do certain procedures," he says.

The relationship between oral health and overall health could — and some would say should — focus new light on the number of Americans who have no dental insurance and go years without any care whatsoever. Though about 44 million Americans lack medical insurance, at least 100 million are not covered by dental insurance, according to a 2000 Surgeon General report.

Says USC's Nowzari: "Even if we convince the public of the link between gum disease and other conditions, we have to face that challenge."

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