

## **Gum disease, inflammation, hardened arteries may be linked to stroke risk**

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Credit: American Heart Association

Gum disease was associated with a higher rate of strokes caused by hardening of large arteries in the brain and also with severe artery blockages that haven't yet caused symptoms, according to preliminary

research to be presented at the American Stroke Association's International Stroke Conference 2020—Feb. 19-21 in Los Angeles, a world premier meeting for researchers and clinicians dedicated to the science of stroke and brain health.

Two studies raise the possibility that treating gum [disease](#) alongside other [stroke risk factors](#) might reduce the severity of artery plaque buildup and narrowing of brain [blood vessels](#) that can lead to a new or a recurrent stroke. However, these two studies could not conclusively confirm a cause-and-effect relationship between gum disease and artery blockage or stroke risk.

"Gum disease is a chronic bacterial infection that affects the soft and hard structures supporting the teeth and is associated with inflammation. Because inflammation appears to play a major role in the development and worsening of atherosclerosis, or 'hardening' of blood vessels, we investigated if gum disease is associated with blockages in brain vessels and strokes caused by atherosclerosis of the brain vessels," said Souvik Sen, M.D., M.S., M.P.H., author of both studies and professor and chair of the Department of Neurology at the University of South Carolina School of Medicine in Columbia.

## **Periodontal disease association with large artery atherothrombotic stroke (Oral Presentation 85)**

Researchers examined 265 patients (average age of 64; 49% white; 56% male) who experienced a stroke between 2015 and 2017, analyzing whether gum disease was associated with specific types of stroke.

They found:

- Large artery strokes due to intracranial atherosclerosis were

twice as common in patients with gum disease as in those without gum disease;

- Patients with gum disease were three times as likely to have a stroke involving blood vessels in the back of the brain, which controls vision, coordination and other vital bodily functions; and
- Gum disease was more common in patients who had a stroke involving large blood vessels within the brain, yet not more common among those who had a stroke due to blockage in blood vessels outside the skull.

## **Role of periodontal disease on intracranial atherosclerosis (Oral Presentation 136)**

In 1,145 people who had not experienced a stroke, selected from the Dental Atherosclerosis Risk in Communities (DARIC) Study, researchers used two magnetic resonance images to measure blockages in arteries inside the brain. Participants were an average age of 76; 78% were white, and 55% were female. Periodontal examinations were used to classify the presence and severity of gum disease.

Researchers found:

- Arteries in the brain were severely blocked (50% or more) in 10% of participants;
- People with gingivitis, inflammation of the gums, were twice as likely to have moderately severe narrowed brain arteries from plaque buildup compared to those with no gum disease; and
- After adjusting for risk factors such as age, [high blood pressure](#) and high cholesterol, people with gingivitis were 2.4 times as likely to have severely blocked [brain arteries](#).

"It's important for clinicians to recognize that gum disease is an

important source of inflammation for their patients and to work with patients to address gum disease," Sen said

The study excluded people who had gum disease serious enough to have resulted in tooth loss.

"We are working on a current study to evaluate if treatment of [gum disease](#) can reduce its association with [stroke](#)," Sen said.

Provided by American Heart Association

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