Patients with periodontitis have significantly increased risk of stroke before age 50, study indicates

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Periodontitis, an inflammation of the structures supporting the teeth, significantly increases the risk of stroke in people under 50 years of age who do not have any known predisposing causes. A study in the *Journal of Dental Research* indicates that the more the inflammation had progressed in the mouth, the more serious the stroke.

Periodontitis is an inflammatory disease of the mouth that destroys supporting dental tissues. A study headed by the Department of Oral and Maxillofacial Diseases, University of Helsinki, surveyed inflammatory changes associated with periodontitis as well as recently completed dental procedures in young stroke patients. In the focus were individuals who had a stroke between the ages of 20 and 50 without any of the known causal factors for strokes identified.

"The incidence of such strokes has been on the rise in recent decades," says Docent and Specialist in Neurology Jukka Putaala from HUS Helsinki University Hospital.

"In previous studies, periodontitis has been found to increase the risk of ischemic stroke, but there has been no accurate information on the significance of oral inflammations in the case of young stroke patients without traditional causal factors," says University Researcher Susanna Paju from the University of Helsinki.

The study found that periodontitis was significantly more common among stroke patients than healthy control subjects. Not only did periodontitis increase the risk of stroke, its severity affected that of the stroke too.

Oral bacteria may increase blood clotting

According to the study, dental procedures carried out the previous three months, such as tooth extraction or root canal treatment, as well as acutely symptomatic inflamed teeth yet to be removed, increased the risk of stroke.

"Oral bacteria enter the bloodstream in connection with low-grade inflammations, but also in the short-term in connection with dental procedures, especially with pre-existing inflammations in the mouth," Paju says.

"Usually, the body eliminates these bacteria from the bloodstream," she adds.

Dental procedures and symptomatic bad teeth constituted a risk particularly for people with an aperture known as patent foramen ovale in the interatrial septum of the heart. According to the researchers, this oval opening could promote the formation of blood clots resulting in strokes, similarly to bacteria that enter the bloodstream from the mouth.

The oval opening is common and does not usually require treatment. However, its connection to cerebral infarction has been observed in other studies as well, and closure procedures have been carried out to prevent further infarctions.

Microbiome matters

The mouth contains the body's second-richest microbiome, or a community of microbes, such as bacteria, yeasts and viruses—there are more of them only in the gut. A healthy mouth has a balanced microbiome, while in periodontitis it changes and harmful bacteria gain ground.

"A vicious cycle is born where bacteria are nourished by tissue destroyed by inflammation. Their reproduction, in turn, accelerates the inflammation," says Professor of Translational Dentistry Pirkko Pussinen from the University of Eastern Finland.

This is why it is important to react to symptoms associated with periodontitis in a timely manner.

"Bad teeth should be removed and inflammation treated, in addition to which teeth should be checked on a regular basis," Paju confirms.

More information: J. Leskelä et al, Periodontitis, Dental Procedures, and Young-Onset Cryptogenic Stroke, *Journal of Dental Research* (2024). DOI: 10.1177/00220345241232406

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