Gum disease linked to COVID-19 complications

3 February 2021

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COVID-19 patients are at least three times more likely to experience complications if they also have gum disease, according to research published today in the Journal of Clinical Periodontology,1 the official publication of the European Federation of Periodontology (EFP).

The study of more than 500 patients with COVID-19 found that those with gum disease were 3.5 times more likely to be admitted to intensive care, 4.5 times more likely to need a ventilator, and almost nine times more likely to die compared to those without gum disease.

Blood markers indicating inflammation in the body were significantly higher in COVID-19 patients who had gum disease compared to those who did not, suggesting that inflammation may explain the raised complication rates.

"The results of the study suggest that the inflammation in the oral cavity may open the door to the coronavirus becoming more violent," said Professor Lior Shapira, EFP president-elect. "Oral care should be part of the health recommendations to reduce the risk for severe COVID-19 outcomes."

Periodontitis, a serious form of gum disease, affects up to half of all adults worldwide.2 Periodontitis causes inflammation of the gums and, if left untreated, inflammation can spread throughout the body. COVID-19 is associated with an inflammatory response that may be fatal. This study investigated the relationship between periodontitis and COVID-19 complications.

This was a nationwide case-control study conducted in Qatar, which has electronic health records containing medical and dental data. The study included 568 patients diagnosed with COVID-19 between February and July 2020. Of these, 40 had complications (intensive care unit [ICU] admission, ventilator requirement, or death) and 528 did not. Information was collected on gum disease and other factors that might be associated with COVID-19 complications including body mass index (BMI), smoking, asthma, heart disease, diabetes, and high blood pressure. Data were also obtained on blood levels of chemicals related to inflammation in the body.

Of 568 COVID-19 patients in the study, 258 (45%) had gum disease. After adjusting for age, sex, BMI, smoking status, and other conditions, the odds ratios for COVID-19 complications in patients with gum disease, compared to those without gum disease, were 3.67 (95% confidence interval [CI] 1.46–9.27) for all COVID-19 complications, 3.54 (95% CI 1.39–9.05) for ICU admission, 4.57 (95% CI 1.19–17.4) for ventilator requirement, and 8.81 (95% CI 1.00–77.7) for death.

The authors stated: "If a causal link is established between periodontitis and increased rates of adverse outcomes in COVID-19 patients, then establishing and maintaining periodontal health may become an important part of the care of these patients."

Professor Mariano Sanz of the Complutense University of Madrid, Spain, one of the study's

authors, noted that oral bacteria in patients with periodontitis can be inhaled and infect the lungs, particularly in those using a ventilator. He said: "This may contribute to the deterioration of patients with COVID-19 and raise the risk of death. Hospital staff should identify COVID-19 patients with periodontitis and use oral antiseptics to reduce transmission of bacteria."

Professor Shapira said that the association between periodontitis and lung diseases including asthma, pneumonia, and chronic obstructive pulmonary disease (COPD) is well established.3 He said: "This study adds further evidence to the links between oral health and respiratory conditions. Periodontitis is a common disease but can be prevented and treated."

Professor Nicola West, EFP secretary general, added: "This study highlights another association between gum disease and our systemic health and reiterates the need for ongoing, lifelong dental care for people susceptible to gum disease and a strong preventive approach to periodontitis for populations as a whole."

What you can do to prevent gum disease

- Brush your teeth carefully more than once a day using a manual or powered toothbrush.
- Clean between your teeth daily using an interdental brush (or floss if the gaps are too tight).
- Specific mouth rinses or toothpastes can be used on top of cleaning to reduce inflammation.
- Do not smoke, maintain a healthy weight, eat a balanced diet, exercise, reduce stress.
- If you have diabetes, control your blood sugar.

More information: Association between periodontitis and severity of COVID-19 infection: a case-control study. *J Clin Periodontol*. 2021. DOI: 10.1111/jcpe.13435.

Provided by European Federation of Periodontology (EFP)