Does obesity directly correlate to periodontal disease, or could it be only one of the risk factors?

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A commentary on:

Charupinijkul A, Arunyanak S, Rattanasiri S, Vathesatogkit P, Thienpramuk L, Lertpimonchai A.

The effect of obesity on periodontitis progression: the 10-year retrospective cohort study. *Clin Oral Investig* 2021; DOI: 10.1007/s00784-021-xsseee3r53.

Practice point

- Obesity is a relevant issue for public health, not only in adults but also in children. The importance of prevention is to help people live a better life and avoid chronic diseases. As a healthcare worker, the dentist should refer the patient to another specialist to help with obesity, as it is a risk factor for other diseases, including, possibly, periodontal disease.

Abstract

Design The study was a cohort study that conformed with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for reporting observational studies.

Cohort election Obesity is identified as a risk factor for several non-communicable diseases (NCDs) and the study aimed to evaluate the risks for NCDs (for example, diabetes or high blood pressure). The study included participants from the Electric Generation Authority of Thailand. The workers were randomly selected from urban and rural areas. They were asked to answer a health survey every five years.

Data analysis The authors evaluated 2,216 workers and the evaluation consisted of a sociodemographic, medical and oral health examination.

Results The ten-year incidence of periodontal disease progression was 59.6 cases per 100 persons. In addition, the univariate analysis revealed that being obese was linked to a 15% higher risk of progression of periodontal disease than in non-obese subjects.

Conclusions Despite the higher prevalence of periodontal disease among obese individuals, it is not considered an independent risk factor for the development of periodontitis.

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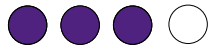
Commentary

Obesity is a public health problem and has been on the rise in recent decades. To consider an individual obese, they must have a body mass index (BMI) of (BMI = kg/m^2) ≥30 kg/m^2 and to be considered overweight the BMI must be ≥25 kg/m^2.[1] These values do not, however, apply to some athletes because some of them can have a BMI ≥25 kg/m^2 (for example, bodybuilders).

When an individual is obese, the risk of chronic diseases such as diabetes and cardiovascular problems are increased.[2] Furthermore, there has been a growing number of studies over the last ten years which suggest a relationship between obesity and periodontal disease. Also, over the past 20 years, studies have shown that being overweight or obese is associated with higher risks of developing severe periodontal disease or worsening of periodontitis.[3] A number of inconclusive studies have presented hypotheses attempting to explain what leads obese patients to have periodontal disease. Although the precise role of these factors in the promotion of periodontal disease is not clear, it seems likely that obesity plays some sort of part in the pathogenesis.

Other studies, evaluated in a systematic review, revealed that being obese and having periodontitis were linked to an increase in insulin resistance and also found that the link between the two conditions could be explained by the effects of chronic inflammation.[4] However, insulin resistance may precede diabetes, which is already a recognised risk factor associated with periodontal disease.

Furthermore, there is an interesting systematic review written by Akram *et al*.[5] where the profile of biomarkers found in the gingival crevicular fluid (GCF), of patients with and without obesity, was evaluated. The study suggested that the presence of localised periodontal inflammation, which is associated with chronic periodontitis, may influence the levels of GCF proinflammatory biomarkers, primarily by increasing levels of IL-8, IL-1β, TNF-α, progranulin, MCP-4 and lipocalin. The relevance of some of these mediators, such as IL-1β, in osteoclast differentiation and activation and extracellular matrix degradation, is well-known. Thus, this entire process caused in the GFC of an obese patient could lead to the destruction of the collagen matrix and the remodelling process.

GRADE rating 

This work by Charupinijkul *et al*.[6] is relevant to the evaluation of the relationship between periodontal disease, socio-demographic factors and medical assessment over a period of time. In this study, the authors observed a population with a relevant number of participants over a considerable period of time (which is unusual). They concluded that obesity is associated with periodontal disease. Another useful piece of information from this article is the suggestion that obese individuals should be monitored/evaluated to prevent or reduce the progression of periodontal disease because of the increase of risk of chronic illnesses (for example, diabetes).

Further studies are needed to investigate the link between periodontitis and obesity.

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