Periodontal health and systemic conditions

A correlation between periodontal disease, heart disease, infertility and diabetes has been established in various studies. Prevention provides an overview of recent evidence and hypotheses.

1 Breast cancer
A 2015 study published in the Cancer Epidemiology, Biomarkers and Prevention journal found that postmenopausal women with periodontal disease are at a significantly increased risk of developing breast cancer. One possibility is that systemic inflammation may arise due to periodontal disease and may then affect the breast tissue. Another possible explanation is that oral bacteria may enter the circulatory system and thereby affect breast tissue.

2 Stroke
Given that tooth loss and other oral health conditions are considered to be risk factors for stroke, Dr George S. Sfyroeras and a team of researchers investigated the relationship between periodontal disease and stroke. Published in the April 2012 issue of the Journal of Vascular Surgery, their statistical analysis of several studies on this topic found that the risk of stroke in periodontal patients was higher than in those without this condition.

3 Pneumonia
A study presented at IDWeek 2016 in New Orleans in the US found that regular (twice a year) visits to the dentist could lower the risk of contracting pneumonia from certain forms of oral bacteria. The study, conducted by researchers at Virginia Commonwealth University in the US, found that there was an 86 per cent increase in the risk of contracting pneumonia for people who never had dental check-ups in comparison with those with regular appointments.

4 Diabetes
A recent Perio-Diabetes Workshop jointly held by the European Federation of Periodontology and the International Diabetes Federation highlighted that periodontal patients are more likely to develop prediabetes and Type 2 diabetes and that research has demonstrated an association between an altered glucose metabolism in diabetics and changes in the periodontal microbiome. However, improving control of a patient’s diabetes might be beneficial to his or her periodontal health and vice versa.

5 Liver disease
In a study presented at the 2017 International Liver Congress in Amsterdam in the Netherlands, Danish researchers found that severe periodontitis is linked to a higher mortality rate in patients with cirrhosis. Previous studies have suggested that periodontitis is involved in the progression of liver disease and that it negatively affects the outcome of liver transplantation.

6 Infertility/premature birth
A 2012 study published in the Human Reproduction journal found that women with periodontal disease took, on average, two months longer to conceive than those without the disease. The researchers added that, even if a periodontal patient does become pregnant, there might be a greater risk of premature birth.
**7 Alzheimer’s disease**
In a 2017 study published in the Neuroepidemiology journal, Leira et al. sought to clarify whether a link between periodontal disease and Alzheimer’s had been established by the previous decade’s research. Their systematic review revealed that a significant association between these two conditions had been observed.

**8 Depression**
Researchers from Australia’s Deakin University analysed this relationship on a large scale, drawing on data from an American health survey of more than 10,000 people. They demonstrated that not only does a link between depression and oral health exist, but also the severity of patients’ depression correlates with the severity of their oral health issues.

**9 Cardiovascular disease**
A recent meta-review conducted by University of Portsmouth researchers in the UK confirmed that there is a strong body of evidence that shows that individuals with chronic periodontitis have a higher risk of developing atherosclerotic vascular disease, regardless of other risk factors.

**10 Pancreatic cancer**
Presented at the 2016 annual meeting of the American Association for Cancer Research, a US study found that men and women whose oral microbiomes included Porphyromonas gingivalis had a 59 per cent greater risk of developing pancreatic cancer than those whose microbiomes did not contain the bacterium.

**11 Rheumatoid arthritis**
In a 2016 study published in the Science Translational Medicine journal, researchers at the Johns Hopkins Arthritis Center studied the rate of periodontal disease in rheumatoid arthritis sufferers and found that they were twice as likely as the population norm to have periodontal disease and six times as likely to suffer from severe periodontal disease.

**12 Osteoporosis**
A 2012 study published in the Journal of Dentistry of Tehran University of Medical Sciences analysed the existing research on the relationship between periodontal disease and osteoporosis. The authors found that there was a higher likelihood of alveolar bone loss in patients suffering from osteoporosis, particularly those with periodontitis.

**13 Mortality**
A study published in the April 2017 issue of the Journal of the American Heart Association suggests that overall mortality in the general population, and older women in particular, could be reduced by improving oral health. Based on analysis of data from over 57,000 postmenopausal women, researchers at the University at Buffalo in the US found that presence of periodontitis and tooth loss was associated with a significantly higher mortality rate.