

New relationships between periodontitis, Alzheimer's disease, and heart attacks

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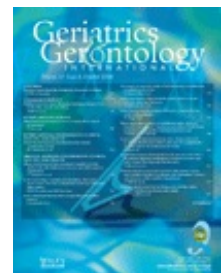
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By Maria Perno Goldie, RDH, MS

According to a paper published in the *Journal of Dental Research*, severe periodontitis is the sixth most prevalent health condition in the world.(1) These conclusions emphasize the massive public health challenge caused by severe periodontitis and are a small-scale version of the epidemiologic transition to non-communicable diseases occurring in many countries.(2) “The results of this first global assessment of periodontal diseases highlight the healthcare burden of this prevalent oral disease on a major percentage of the world's population,” said *JDR* editor-in-chief William Giannobile.(2) This article will highlight some recent studies in the area of periodontology.

The study's abstract states that periodontal disease “prevalence increased gradually with age, showing a steep increase between the third and fourth decades of life that was driven by a peak in incidence at around 38 [years] of age. There were considerable variations in prevalence and incidence between regions and countries. Policy makers need to be aware of a predictable increasing burden of [severe periodontitis] due to the growing world population associated with an increasing life expectancy and a significant decrease in the prevalence of total tooth loss throughout the world from 1990 to 2010.”(1)

Alzheimer's disease, a leading cause of dementia, afflicts aging people worldwide. The cognitive affects are the result of amyloid deposits that aggravate neuroinflammation and eventually cause cell death. Recently, a paper in *Geriatrics & Gerontology International* suggested an association between peripheral inflammation and Alzheimer's disease. The paper suggested that “chronic systemic inflammation worsened the inflammatory processes in the brain. This was mainly attributed to increased levels of pro-inflammatory mediators, such as interleukin-1, interleukin -6 and tumor necrosis factor- α in the plasma. As chronic periodontitis is a widespread peripheral immunoinflammatory condition, it has been proposed to play a significant role in the aggravation of Alzheimer's disease.”(3)



While other risk factors may be present, we know that the major cause of periodontal disease is bacteria. A new paper suggests that a new communication pathway between bacteria has been discovered.(4) Bacteria are known to communicate via chemical signals. Studying such chemical signals may lead to new medical treatments.

From left to right: Francisco Mesa Aguado, Pablo Galindo Moreno, Francisco O'Valle Ravassa, Rafael Marfil Álvarez, Antonio Magán Fernández and José Antonio Ramírez Hernández.

In other news, there is new information from University of Granada on chronic periodontitis and cardiovascular disease. The researchers demonstrate that the extent and severity of chronic periodontitis is directly related to the severity of myocardial infarction: “The relationship between periodontitis and acute myocardial infarction is well documented, but it has not been established whether the extent and severity of periodontitis influence the infarct or lesion size.”(5) This new research illustrates that chronic periodontitis may have some consequence on the severity of a heart attack. The magnitude and severity of chronic periodontitis associates to the size of the myocardial infarction based on levels of troponin and myoglobin, biomarkers of myocardial necrosis, or death of the cells of an area of the heart muscle. The study examined 112 patients who had acute myocardial



infarction. The patients experienced numerous cardiological, biochemical and periodontal health checks. According to the authors, chronic periodontitis should be considered as a possible prognosticator in the development of myocardial infarction, and be therefore included in the risk assessment.(5)

And last, but not least, educators and clinicians have developed an educational and clinical innovation altering the traditional head, ears, eyes, nose, and throat (HEENT) examination to include the teeth, gingiva, mucosa, tongue, and palate examination (HEENOT) for assessment, diagnosis, and treatment of oral health problems that are systemic. A program at New York University is working to form interprofessional oral health workforce capacity that addresses a significant public health issue, increases oral health care access, and improves oral-systemic health across the lifespan. The goal of the Teaching Oral-Systemic Health (TOSH) program is develop innovative simulation and "live" interprofessional clinical experiences that focus on oral-systemic health for nurse practitioner, midwifery, medical and dental students. The HEENOT paradigm shift has been a foundation of these unique collaborative experiences.(6)

As we know, the majority of primary care providers, the traditional head, ears, eyes, nose, and throat exam exclude examination of the oral cavity, as well as omitting oral health and its linkages to overall health in the patients' health history, physical examination, risk assessment and management plan. The HEENOT approach ensures that educators and clinicians cannot neglect oral health from the history and physical examination performed by health professionals.

Maria Perno Goldie, RDH, MS, is the editorial director of RDH eVillage FOCUS.



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