

Periodontal disease and its impact on general health in Latin America.

Section I: Introduction part I

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Abstract: A high level of general and oral health are invaluable assets, a factor not always considered a basic human right for their better life quality. The mouth is a critical point of contact with the external environment, which is established when we talk, chew, swallow and when food digestion begins. From a perspective of the human condition, the mouth is crucial for the integration of sound, social appearance of the individual, and is one of the fundamental components of overall health. Therefore, not having an adequate level of oral health affects self-esteem, quality of life and people's general well-being.

Keywords: Global Burden of Disease; Periodontal Diseases; Public Health.

Introduction

Periodontal disease is a public health problem, socially determined and major cause of tooth decay, leading to greater impact on the quality of life of people, exacerbated by their association with chronic non-communicable diseases (NCD). Periodontal treatment and traditional actions of promotion and prevention carried out in the dental unit not enough to control of periodontal diseases and access to health care systems is unfair, which reinforces health inequities and maintains the current situation of oral diseases around the world.

In oral epidemiology, understanding the causal association between lifestyle practices such as oral hygiene, smoking or diet, and caries, erosion and periodontal disease, does not explain why individuals and communities choose to engage in such practices and the historical dimension of such behavior and its change over time.¹

The WHO Commission on Social Determinants in Health established by the Organization in 2006 complements this work for equity in health through support to countries and global health partners to address the social factors leading to ill health and inequities and lack of access to health services. The commission initiative also incorporates analysis of the social determinants in oral health.²

Oral diseases as a public health problem and the global burden.

A high level of general and oral health is an invaluable asset, a factor not always considered a fundamental human right for a better life quality

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for the individuals.³ From a perspective of the human condition, the mouth is crucial for the integration of sound, social appearance of the individual, and is one of the fundamental components of overall health.⁴ Therefore, not having an adequate level of oral health affects self-esteem, quality of life and people's general well-being.³

Oral diseases (caries and periodontal diseases, such as gingivitis and periodontitis) are now recognized as being both an epidemic and one of the most important public health problems in the world.¹ In 2015, 3,500 million people were suffering from untreated dental conditions; 2,500 million people with untreated decay in permanent teeth; 573 million children with untreated decay in temporary teeth; 538 million people with severe periodontitis; and 276 million people with total loss of teeth.^{6,7} We also know that as populations continue to age, the number of people affected by periodontal diseases will increase even further,⁷ and their prevalence will be concentrated on the most vulnerable groups (and segments of society), thus becoming a significant source of social inequality.⁸

A significant contribution made by the Global Burden of Disease (GBD) study was to develop the Disability-Adjusted Life Year (DALY) for use as an indicator in cost-effectiveness studies.⁹ The DALYs represent the years of life lost due to death or disability. Interestingly, in the 2015 GBD report, it was stated that during the 25-year period 1990-2015, there was minimal change among the 10 most critical diseases causing impairment or death, except for one significant point: the rise in oral disease caused it to be ranked among the 10 most important diseases causing disability in the world.¹⁰

Periodontitis as a chronic non-communicable disease and impact on health

Periodontitis is now considered a chronic non-communicable disease (NCD), among others such as cardiovascular disease, diabetes, cancer and chronic respiratory diseases, since all of them share the same social determinants and risk factors of NCD, which in turn are responsible for about

two-thirds of world's deaths.^{4,11} Smoking, obesity and malnutrition (both in terms of caloric intake and quality of nutritional components) hyperglycemia (with or without diabetes) and physical inactivity have been associated with an increased risk of periodontitis, among others.¹² Clinical studies have shown the effects of periodontal treatment on the reduction of systemic inflammation, improvement in biomarker levels of cardiovascular disease and endothelial function, and decrease in blood glucose levels in patients with type 2 diabetes mellitus.¹³ The close relationship between periodontitis and systemic diseases results in exacerbation of the inflammatory response with an altered immune response.¹⁴ There are close to 57 systemic conditions with presumed possibility of being associated with periodontal diseases, confirming that the associations are established via a common pathogenic mechanism.¹⁵

In 2010, worldwide treatment costs were estimated at US \$298 billion, an average of 4.6% of the global health expenditure.¹⁶ In the European Union, annual expenditure on oral disease treatments was approximately €79 billion (annual average expenditure 2008-2012) and if this trend continues, this figure could rise to 93 billion by 2020. These costs (€ 79.0 B) outweigh the costs incurred in the treatment of neuromuscular diseases (€ 7.7 B), multiple sclerosis (€ 14.6 B), cancer (€ 51.0 B), respiratory diseases (€ 55.0 B) and Alzheimer's disease (71.1 million euros).¹⁷ In addition to significant financial implications both for the Government and individuals, there are other costs affecting the population and incumbent on the government, considering the time lost at school and at work.^{12,18,19}

Proposal for comprehensive intervention in periodontal diseases

This type of intervention requires a conceptual change towards the type in which social determinants underlying oral health have greater explanatory value.²⁰ These determinants, defined as the conditions in which people are born, grow, live, work and grow old, are currently understood as "causes of the causes" of health events and include various structural factors, such as income and education. This proposal sets

forth that people's lives are affected not only by their personal characteristics but also by characteristics of the social groups to which they belong, which would determine the effects of attributes at the individual level. These could be the result of norms, values and beliefs that prevail in the social context of people or certain characteristics of the physical environments in which they live.²¹ Therefore, to be able to study the characteristics "of a population" or "of a grouping area", a geographical or territorial approach is made, based on the individuals' place of residence, such as the neighborhood, commune, region or country, or based on the location of the dwelling (i.e., in an urban or a rural area). This approach assumes that individuals who live in the same geographic area share a series of socioeconomic, environmental, and cultural variables and a socio-political context.^{22,23}

Current global trends: The European Federation of Periodontology call to action

Periodontitis is a disease that can be often prevented and usually easily diagnosed; it can be successfully treated and controlled in the long term, provided that appropriate care is taken by the patient and dentist. In the contemporary scenario, there are diverse cultural and socio-economic obstacles hindering professional dental care for the population and the development of preventive approaches.⁸ Our proposal is aligned with the call for action from the European Federation of Periodontology, with a comprehensive intervention plan that aims to improve periodontal and general health. This includes the participation of dental surgeons, dental specialists, physicians, educators, teachers, technical health teams, institutions that hire professionals as well as the same target population, with strategies for the health promotion, diagnosis and treatment of periodontal diseases.²⁴

Opportunities in prevention, diagnosis and treatment of periodontal diseases.

The European Federation of Periodontology proposes to identify preventive programs to be developed on

a large scale, with specific actions for the purpose of reducing the prevalence of periodontal diseases.²⁵ We must work on the effective management of gingivitis by promoting healthy lifestyles at both population and individual levels.²⁶ This can be achieved through: (i) professional instruction for effective oral hygiene, such as tooth brushing and interdental cleaning, and (ii) an integrated and population-based approach to health education, supported by a common approach to risk factors.²⁷ A critical element is that through the diagnosis and development of risk profiles, prevention must be tailored to the needs of each individual. We emphasize that all individuals should play a proactive role in raising awareness of their oral health, self-care measures, health promotion and disease prevention, for optimal oral and general health during the course of their lives and develop strategies for oral hygiene that would be considered a healthy lifestyle by WHO and other organizations.

Only oral health public policies, based on evidence, with adequate financial support, with specific laws and rules, will be able to reverse the current epidemiological indicators of oral health, always considering aspects like comprehensive care, quality of life, health promotions and preventions of diseases.^{28,29} Organizations such as World Health Organization (WHO) and Pan-American Health Organization (PAHO) can be important agents of change in practice and can inspire policymakers and stakeholders to take decisions to build public policies that address oral health in the context of the general health of individuals and populations.

Conclusions

Periodontitis is a chronic non-communicable disease with impact on health and quality of life. Periodontitis and gingivitis are diseases socially determined. Therefore, only public policies, focused on health equity and comprehensive care will be able to modify the epidemiological indicators.

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