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Review Article

Periodontal Disease in Latin America: Regional Approach and Health Strategies

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Abstract

Periodontitis is a chronic, non-communicable disease characterized by being inflammatory, infectious and multifactorial. It is one of the most prevalent diseases in the oral cavity to the point of being considered an epidemic. This condition can be prevented and treated; however, sanitary measures are still insufficient to achieve effective control in clinical practice. The progression of periodontitis is based on the presence of a dysbiotic microbiome that triggers an inflammatory response in the host that translates clinically into the loss of dental support tissue, in turn causing its loss. It is worth highlighting the importance of knowledge about the relationship between the periodontal disease and systemic health, bidirectionality and the need for multidisciplinary management. Periodontitis represents a public health problem in Latin American countries, and it is the responsibility of government states, as well as all health workers, to implement health strategies in order to reduce the impact of this disease on the most vulnerable populations. The aim of this essay is to analyze the factors by which periodontal disease continues to be highly prevalent in Latin America and, furthermore, to promote disease prevention and control measures.

Keywords: periodontitis; oral health; public health; prevention and control (source: Mesh, NLM)

Introduction

Oral health is a fundamental right, which is related to the quality of life and general well-being of the individual. Oral health is multifaceted, and includes the ability to speak, smile, chew and convey a wide range of emotions through facial expressions, in confidence and without alteration of the stomatognathic system [1,2]. However, oral disease is one of the 10 most disabling diseases in the individual. This is how caries and periodontal disease are considered an epidemic because they are one of the most important public health problems globally. In 2015, 3.5 billion people with untreated oral disease, 538 million patients with periodontitis and 276 million edentulous adults were reported worldwide. In this way, the disease becomes a source of social inequality that attacks the most vulnerable populations [1].

Periodontitis is one of the most prevalent oral diseases characterized by being chronic, non-communicable and multifactorial. It is mainly caused by poor oral hygiene habits, driven by the accumulation of gingival biofilm, the colonization of microorganisms and potentiated by risk factors such as smoking and systemic conditions. This disease produces inflammatory and infectious reactions locally (periodontium) and systemically, with a high impact on the general health of the patient [1,3,4].

This disease alters the tissues that surround and support the teeth. Initially, periodontal disease presents as gingivitis (reversible inflammation of periodontal tissues with bleeding); however, this condition can lead to periodontitis (progressive destruction of periodontal supporting tissue), characterized by host-mediated inflammation associated with microorganisms (in susceptible individuals or with compromised immune response); resulting in: loss of periodontal support, loss of clinical attachment, presence of periodontal pockets, gingival hemorrhage and loss of alveolar bone[3,4]. Additionally, it is relevant to analyze the variables related to the progression of periodontal disease such as: gender, age, socioeconomic position, genetics, lifestyle, health behaviors, nutritional and microbiological factors [5].

The importance of timely diagnosis and effective control of periodontitis lies in the association between it and other chronic diseases (since they share a common inflammatory pathway), such as diabetes, cardiovascular diseases, aspiration pneumonia and dementia. Ultimately, periodontitis can lead to tooth loss and negatively affect masticatory function, aesthetics and quality of life.[4]. Faced with this problem, it is intended to analyze the state of periodontal health in Latin America and establish prevention measures.

Regional Analysis: Epidemiology of Periodontal Disease

Currently, there is limited scientific evidence that has documented the prevalence of gingivitis in Latin America, due to the lack of standardized criteria in the definition of the case and the numerous existing indices for its diagnosis. However, the data reveal a high prevalence of gingivitis in young people, calling for attention to treat this disease early to avoid progression to a more severe form such as periodontitis [6]. A review study synthesized research conducted in Latin America showing a high prevalence of periodontitis, associating its extent and severity (loss of insertion and depth to probing) with the age factor [7]. The detection of periodontitis has been a challenge for epidemiological studies. Indeed, cross-sectional studies have used as a clinical diagnostic parameter: the depth at probing of the periodontal pocket; resulting in a higher prevalence of periodontitis in Latin America, compared to Europe and the United States. However, based on the current Classification of Periodontal Diseases and Conditions - Periimplant of the year 2018, it is classified by grades and stages, taking into consideration in addition: loss of clinical attachment, radiographic bone loss and history / history of the patient. Therefore, future epidemiological studies should follow this definition [3,4,6,8].

In Latin America, there is a strong association between low socioeconomic status and the prevalence and severity of oral diseases. This factor is based on the lack of financial means to access timely dental treatment or lack of coverage by the health system; This being a constant problem worldwide. For this, it is necessary to analyze epidemiological data that lead to public health decision-making and establish strategies for the control of oral diseases, leading to greater equity and access to professional treatment [6,7].

Periodontitis: Chronic Non-Communicable Disease

Periodontitis is a chronic, non-communicable disease with a high impact on the general health and quality of life of patients. This is how periodontitis, when not controlled, contributes with pathogenic effects on other diseases, accelerating its progression and severity [9,10]. The term commonly used to describe how periodontal infection or inflammation can affect systemic health is periodontal medicine. Indeed, the number of diseases and conditions related to periodontitis has increased exponentially in the last two decades. A systematic review on periodontal medicine revealed 57 conditions that are potentially linked to periodontal disease [11,12]. Therefore, the fields of medicine and dentistry are interconnected and complementary; making it necessary to identify diseases that influence the disciplines involved, specifically because periodontitis is a treatable, and modifiable risk factor for systemic diseases [13].

The close relationship between periodontitis and systemic diseases leads to an inflammatory response exacerbated by an altered immune response. Some of the systemic conditions and diseases most related to periodontitis are: diabetes, cardiovascular disease, respiratory diseases, adverse effects on pregnancy, dementia, metabolic syndrome, rheumatoid arthritis and cancer (9,10). In this way, if intervention measures help in the prevention and treatment of periodontal disease, this would have a positive impact on public health, since it would in turn reduce the risk of the development or progression of other diseases such as cancer [14].

There is strong evidence supporting the bidirectional relationship between diabetes and periodontitis. It is estimated that 4 in 10 toothed adults suffer from periodontitis and approximately 1 in 10 are diabetic. Therefore, each condition has adverse effects and enhances the risk on the other disease. Thus, glycemic control and regulation of local inflammation of periodontal tissues is important [15,16]. Another epidemiological association is the presence of periodontal disease with adverse effects during pregnancy such as: preterm birth, low birth weight and preeclampsia [17]. In addition, the strong relationship between periodontitis and cardiovascular and atherosclerotic diseases is supported, since both share mechanisms of systemic inflammation. The association is based on bacteremia caused by poor oral hygiene that leads to bacterial growth of atherosclerotic plaques in the coronary arteries. Indeed, the severity of periodontitis predisposes to an increased risk of stroke and myocardial infarction. However, periodontal therapy and the restoration of a healthy periodontium has shown positive changes for cardiovascular health, improving levels of cardiovascular disease biomarkers, and reducing systemic inflammation [9,10,18,19].

Another aspect to consider is the prevalence of chronic diseases related to groups of low socioeconomic status, who live exposed to risk factors such as: tobacco, unhealthy eating practices, low level of education and poor access to health services. Therefore, the importance of controlling these diseases lies in treatment with a long period of surveillance and with adequate health financing in Latin American countries [9,10].

Current Dentistry and Its Role with Periodontal Disease

One of the great challenges assumed by the general dentist in the clinical consultation is not being able to diagnose cases of periodontal disease in a timely manner, due to lack of knowledge and lack of a diagnostic tool that facilitates rapid and accurate detection at the community level. Therefore, it is necessary to develop a universal instrument for future epidemiological studies to address this problem, based on the current Classification of Diseases and Periodontal Conditions [20]. Another aspect is the lack of awareness of the importance of oral health for medical health. This problem is reflected in the health team, in state policies and in the community in general. It is vital to provide patients with an optimal level of care and work together, so that doctors and dentists can develop a multidisciplinary role [13].

An additional fact to this problem is the lack of knowledge on the part of the population about periodontal diseases. It is also a common mistake for patients to normalize the primary sign of gingival bleeding, and to be poorly educated about the consequences and impact on overall health. Emphasis should be placed on instruction on toothbrushing, the use of physical adjuvants and chemical supplements for proper oral hygiene. There are even strategies that include the use of prebiotics to modify the microbiome and reduce inflammation [2].

Proposal For Improvement: Systematic Control of Periodontal Diseases

The high prevalence of periodontal diseases requires a comprehensive health improvement plan for patients in Latin America. Public health policies with financial support must achieve health equity and multidisciplinary care, capable of reversing epidemiological indicators of oral health. The systematic control of these diseases requires the participation of all health personnel for the prevention and promotion of health; aimed at the early diagnosis and timely treatment of periodontal diseases [22,23]. Health professionals have the mission of educating about the importance of oral health and empowering the patient, for this it is necessary to combat the ignorance of the population through communication channels and computer networks. The objective is for the individual to modify behaviors by opting for a healthy lifestyle and even adopting dietary habits low in carbohydrates, saturated fats and rich in micronutrients (vitamins C and B12) because the type of diet also makes the individual susceptible to suffering from the disease [22-24]. Local control is based on the elimination of bacterial plaque (etiological factor) and as a second measure the control of inflammation; therapy that should be performed by maintaining oral hygiene and identifying risk factors [22,23]. Finally, health system strategies for periodontal disease should consider the characteristics of each disease, as well as the types of therapy, scope, low cost, and impact of therapy [25]. At the same time, there is solid scientific evidence that allows the establishment of preventive, diagnostic and therapeutic strategies to effectively promote periodontal health and general well-being; However, each action will depend on each particular national scenario [26].

Discussion

Periodontitis is a disease that can be optimally prevented, treated and controlled in the long term, provided that the dentist and the patient act responsibly. However, strategies for the control of oral diseases have been

insufficient efforts to reduce the high prevalence of these. Additionally, limited access to dental care remains a problem, which is supported by deficiencies in Latin American health systems [20]. For this, it is necessary to implement health policies that encourage greater investment in prevention and detection of periodontal disease at the primary level, in order to control modifiable risk factors and reduce their impact. In addition, medical management of chronic diseases related to periodontitis is important [9,10]. The authors of this essay agree with Pardo F. who highlight the importance of interdisciplinary work to treat periodontal disease; and to extend the knowledge of its real impact as a complex problem for public health, which in addition to involving dental support tissues; has a dramatic impact on the individual, affecting their quality of life; and their intra- and interpersonal relationships [27]. From another approach, Knight E. have considered as a relevant issue for public health; the identification of individuals with a real predisposition and risk to develop oral problems and invest the necessary resources in that population, instead of treating everyone in a general way, as if they had the same risk and experience of disease. In this context, periodontitis is a poorly recognized but important public health problem that would benefit significantly if those at high risk of developing it could be identified and treated [28,29].

In this way, dentists must assume the commitment of the oral and integral health of the patient, being able to generate change through instruction, communication and patient education; in terms of oral hygiene and healthy lifestyle habits; to control risk factors for periodontitis. This is how health literacy takes on a fundamental purpose in the population. Whereas, moreover, preventing periodontal diseases would prevent or reduce the progression of chronic diseases at the systemic level [21]. In addition, as periodontal disease involves inflammatory aspects of the host and dysbiotic events that could have systemic implications. Several factors and associated comorbidities coincide with the progression of COVID-19. And it is possible that the periodontal status indicates the risk of complication of this disease. This approach diversifies the hypothesis and perspective of study for future scenarios before new outbreaks, and to know if periodontal disease would be associated with other diseases. This confirmation could help identify risk groups and establish relevant recommendations [30].

Conclusions

It is the responsibility of the dentist and the entire team of health professionals to take measures to prevent periodontal disease. For this, it is essential to educate health personnel regarding the impact of periodontitis on the general health of the individual and its impact on the development of systemic diseases, since there is a real problem of ignorance. All health professionals should transmit a healthy lifestyle, inform about the effects of harmful habits such as tobacco and alcohol; Promote measures for the prevention/control of diabetes and cardiovascular diseases. This behavior leads to empowering the patient by educating them in hygiene habits to make them responsible for their oral and general health. The scientific community should promote education, to inform the population, the etiology of the disease and thus achieve prevention and early detection strategies, to avoid the onset and progression of periodontitis. Consequently, the governmental health powers must establish policies aimed at developing the concept of "comprehensive oral health", taking into consideration that the preservation of oral health has an impact on the general health and quality of life of all

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