

CHRONIC LOW-GRADE INFLAMMATION, METABOLIC AND PERIODONTAL DISEASES: SYSTEMIC AND ORAL INTERACTIONS

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RESUMO

Introduction: Chronic low-grade inflammation is a persistent systemic process characterized by the continuous production of inflammatory mediators, being one of the main mechanisms involved in the pathophysiology of metabolic diseases such as obesity and type 2 diabetes mellitus (DM2). This inflammatory state compromises the homeostasis of oral tissues, favoring alterations in the oral microbiota, dysbiosis, and exacerbated immune responses, contributing to the development and progression of periodontal diseases. **Objectives:** To relate low-grade chronic inflammation and metabolic diseases to periodontal alterations, emphasizing their impacts on oral health. **Materials and Methods:** This is a narrative literature review based on studies published in the PubMed database. The search was conducted using the descriptors "low-grade chronic inflammation," "type II diabetes mellitus," "obesity," and "periodontitis." Original and review articles published in the last three years were included.

Results: Recent evidence demonstrates that low-grade systemic inflammation promotes an increase in pro-inflammatory cytokines, such as interleukin6 and tumor necrosis factor alpha, in addition to intensifying oxidative stress and insulin resistance. Obesity stands out as a central factor in this process, since excess adipose tissue acts as an active endocrine organ, promoting meta-inflammation through the elevation of pro-inflammatory adipokines, such as leptin, resistin, TNF- α , and IL-6, associated with a reduction in adiponectin. This imbalance intensifies immunological alterations, favors oral dysbiosis, and increases susceptibility to periodontitis. In patients with type 2 diabetes mellitus (DM2), an increase in inflammatory proteins is observed in the gingival crevicular fluid and saliva, reflecting exacerbated immune responses and an altered oral microbiome, with proliferation of opportunistic and periodontopathogenic microorganisms. This scenario favors periodontal tissue destruction, reduces therapeutic response, and consolidates a bidirectional relationship between obesity, type 2 diabetes, and periodontal disease. Furthermore, periodontitis, as a chronic inflammatory condition, can contribute to systemic complications, including cardiovascular diseases such as atherosclerosis, acute myocardial infarction, and stroke. **Conclusion:** Chronic low-grade inflammation plays a central role in the interaction between metabolic and periodontal diseases, increasing systemic and oral risks. Understanding these mechanisms highlights the importance of integrated, multidisciplinary, and preventive therapeutic approaches, focusing on a systemic assessment of the patient.

Palavras-chave: Chronic Inflammation; Metabolic Diseases; Periodontal Disease.