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Oral Infections and Cardiovascular Disease: An Evolving Perspective

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Abstract

Oral infections are the most common diseases of mankind. Numerous reports have implicated oral infections, particularly periodontitis, as a risk factor for atherosclerotic cardiovascular disease. In this review we explore

Introduction

Periodontal disease (PD) is an in ammatory disease primarily

Cardiovascular disease (CVD) remains a leading cause of mortality

e oral-systemic connection

Oral health is not limited to the mouth alone; it has been increasingly

e infection hypothesis

e infection hypothesis was introduced in 1823 by Rayer, who

hypothesis were abandoned for a long period in the nineteenth century. Osler, o en cited as the rst to postulate the causal role of the infection hypothesis in arteriosclerosis, wrote in 1908 about the existence of four great factors in the causation of arteriosclerosis - normal wear and tear of life, the acute infections, the intoxications, and those combinations of circumstances that keep blood tension high [4]. Osler described fatty streaks in atheroma as well as their high prevalence in children. It was evident that the authors distinguished between other types of aortitis, as seen in conditions such as syphilis.

Periodontal disease and in ammation

Periodontal disease is characterized by the destruction of the gums, periodontal ligament, and alveolar bone. It results from the long-term accumulation of dental plaque and the subsequent in ammatory response triggered by bacteria present in the bio lm [5]. is chronic in ammation releases various pro-in ammatory mediators, such as cytokines and acute-phase reactants, which can enter the bloodstream and exert systemic e ects.

In ammation and atherosclerosis

Atherosclerosis, the buildup of fatty plaques within the arteries, is a key underlying cause of cardiovascular disease. Chronic in ammation plays a pivotal role in the initiation and progression of atherosclerosis. In ammatory mediators released from periodontal infections can contribute to endothelial dysfunction, leading to the disruption of the arterial wall and the in ltration of immune cells [6]. is sets the stage

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for the formation of atherosclerotic plaques.

Bacterial translocation and endothelial dysfunction

One proposed mechanism linking oral infection to cardiovascular disease is the translocation of oral bacteria into the bloodstream. Several studies have detected oral pathogens, such as Porphyromonas gingivalis and Streptococcus mutans, within atherosclerotic plaques.