Introduction

Atrial brillation (AF) is a common cardiac arrhythmia characterized by irregular, o en rapid heartbeats. It has been a subject of extensive research due to its association with an increased risk of stroke, heart failure, and other cardiovascular complications. While traditional risk factors for AF, such as hypertension, diabetes, and obesity, have been well-established, emerging evidence suggests that oral in ammatory diseases may also play a signi cant role in its development and progression. is comprehensive review aims to explore the connection between oral in ammatory diseases and AF, shedding light on the potential mechanisms and clinical implications of this association [1].

In addition, C-reactive protein, interleukin-6, tumor necrosis factor-α, and other in ammatory factors can cause an abnormal

cardiovascular system [5].

Inflammation and atrial fibrillation

Inflammation has long been recognized as a crucial player in the development and exacerbation of cardiovascular diseases. In the context of AF, it is believed that the systemic inflammation triggered by oral diseases can affect the myocardium and conduction system, leading to electrical and structural remodeling. This, in turn, can promote the initiation and maintenance of AF [6].

Mechanisms of influence

Several potential mechanisms underlie the relationship between oral inflammatory diseases and AF. These mechanisms include:

Inflammatory mediators: The release of inflammatory mediators like interleukin-6 (IL-6), C-reactive protein (CRP), and tumor necrosis factor-alpha (TNF-α) from oral inflammation may promote atrial inflammation and fibrosis, contributing to the development of AF [7].

Endothelial dysfunction: Oral inflammatory diseases can impair endothelial function, leading to increased oxidative stress and reduced nitric oxide bioavailability [8]. This endothelial dysfunction may contribute to AF by affecting the endothelium of the atria.

Microbiota dysbiosis: An altered oral microbiota composition may lead to the translocation of oral pathogens into the bloodstream, potentially causing systemic inflammation and impacting cardiac health [9].

Autonomic nervous system activation: Local inflammation in the oral cavity can activate the sympathetic nervous system, which is known to influence atrial electrophysiology and increase the likelihood of AF.

Clinical Implications

Understanding the link between oral inflammatory diseases and AF has clinical implications. Dentists and cardiologists should collaborate more closely to identify patients at risk and develop integrated care plans. For patients with AF, maintaining good oral health may be an adjunctive strategy to reduce the risk of AF recurrence and complications [10].

Conclusion

The connection between oral inflammatory diseases and atrial fibrillation is an emerging field of research that holds promise for improving our understanding of the multifactorial nature of AF. While