

Cardiovascular Disease And Periodontitis

Dr. Sai Vyshnavi Palakolanu, Dr. Madona Ekladous, Shreeya Munagala, Dr.
Sriharsha Vadapalli,
Dr. Jyothisna Kurapati, Dr. Merlin Mariyam Sabu

Abstract:

There has been a strong influence of cardiovascular disease on oral health. There are different types of cardiovascular diseases which includes myocardial infarction, atherosclerosis, stroke, heart failure etc. Observational studies shown a positive association between cardiovascular diseases and oral health. Some of the studies also shown that there is a positive association between cardiovascular diseases and periodontitis. Trigger factors for cardiovascular diseases includes high blood pressure, smoking, alcohol, obesity etc. which plays an important role in oral health. Preventive measures and oral health maintenance are necessary to prevent further complications. Preventive measures include maintaining good oral hygiene, scaling, root planning and surgical debridement if needed, cessation of smoking and alcoholism, long term observation of inflammatory responses, systemic markers etc.

Keywords:oral health, cardiovascular diseases, periodontitis, preventive measures, oral hygiene

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I. Introduction:

In the past, several studies proved that there is an association between systemic diseases and oral health. One of the important systemic disease we are going to discuss is the cardiovascular disease. Cardiovascular diseases are the leading cause of death worldwide^[1]. Cardiovascular diseases include myocardial infarction, heart stroke, atherosclerosis, coronary artery disease, arrhythmias etc. As per the previous studies, cardiovascular diseases plays an important role in periodontitis. Several parameters like bleeding on probing, periodontal pockets shows a positive association with different types of cardiovascular diseases^[2]. However, there is a limited evidence regarding the association between cardiovascular diseases and oral health. Cardiovascular diseases and oral health share some of the common risk factors including smoking, diabetes, advanced age etc^[3]. Coming to the pathogenesis of periodontitis, it includes local inflammatory response and immune responses with potential systemic influence. Untreated periodontitis may lead to loss of tooth supporting structures and even tooth loss^[4]. Oral hygiene maintenance and preventive measures serve as important factors to prevent periodontitis and tooth loss.

II. Review Literature:

According to various epidemiological studies, however, there is limited evidence that proves the association between cardiovascular diseases and oral health. However, some studies and researchers proved that oral health especially periodontitis is influenced by cardiovascular diseases. But evidence suggests that, there is association between tooth loss and Cardiovascular-disease could possibly be due to antecedent caries or periodontal disease in the extracted teeth, or due to diet.

III. Discussion:

According to scientific studies, cardiovascular disease is one of the major cause for death and associated with highest mortality rate. Cardiovascular disease and oral health are inter related to each other. Let us now discuss about the pathogenesis of cardiovascular disease and its relation to oral health. When there is any oral infection, it leads to bacteraemia which inturn leads to immunological, inflammatory mechanisms, hypercoagulation state and release of inflammatory and bacterial metabolites, which leads to systemic inflammation and further to systemic diseases like CVD^[5]. Poor oral health is not only associated with systemic diseases but also a risk factor for many systemic diseases. Bacteria such as *Chlamydia pneumoniae*, *Helicobacter pylori*, cytomegalovirus are mainly associated with cardiovascular disease. Also as per the previous studies, periodontopathic bacteria are most commonly associated with cardiovascular disease which displays an interaction between both of them^[6]. The primary management goal for the patient with cardiovascular disease during dental treatment is to ensure that any hemodynamic change produced by dental treatment does not

exceed the cardiovascular reserve of the patient. This can be achieved by reducing the hemodynamic alterations during any dental treatment.

Poor oral hygiene may lead to plaque accumulation, which leads to gingivitis and finally periodontitis and tooth loss. Periodontitis leads to bacteraemia which triggers systemic inflammatory response. This systemic inflammatory response in turn leads to dysfunction of endothelium, which in turn increase the blood pressure triggering atherosclerosis, one of the cardiovascular disease^[7]. People who maintain good oral hygiene are found to be at lower risk to develop cardiovascular diseases^[8]. So as we can see that, periodontal diseases are considered risk factors for stroke and other cardiovascular diseases^[9]. Recent studies provide strong support for the roles of systemic inflammation and immune cross-reactivity in atherogenesis. But further studies are needed to evaluate co-relation between cardiovascular disease and periodontitis^[10].

IV. Conclusion:

Maintaining oral hygiene plays an important role in good health and healthy well- being of individuals. Interventional studies proved that, maintaining good oral health, periodontal therapy can reduce systemic markers of inflammation. Although more studies are needed to establish a direct causal relationship, current evidence supports the importance of oral health in maintaining cardiovascular health. Therefore, integrating periodontal care into preventive health strategies could potentially reduce the risk of cardiovascular complications, underscoring the need for collaboration between dental and medical professionals in patient care. Long term observations of oral health, inflammatory responses, systemic markers are also needed to prevent further complications.

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