

Prevalence Of Periodontitis In Patients With Cardiac Disorders Reporting To A University Hospital Setup

Research Article

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Abstract

Periodontitis is a chronic inflammatory disease affecting periodontal tissues. During periodontal disease, several chronic inflammation markers rise. Since it was believed that Cardiovascular disorder has an etiological origin, the presence of an etiological relationship between periodontal disease and CVD has been considered for years. It was reported recently that chronic inflammation plays an important role in cardiovascular disease (CVD) etiology. Periodontitis is a chronic inflammatory disease affecting periodontal tissues. During periodontal disease, several chronic inflammation markers rise. The main aim of this study was to find out the prevalence of periodontitis in patients with cardiac disorder visiting Saveetha dental college and hospitals. The present retrospective study was conducted among 100 outpatients with cardiac disorders who reported to Saveetha Dental College and Hospitals, Chennai from June 2019 to March 2020. Data regarding the periodontal status was collected and analysed. The present study showed among 100 cardiac disorder patients, 41% of them had gingivitis and 59% had periodontitis. There was no significant association between gender and periodontal disease. (p value = 0.06 (>0.05); statistically not significant). Within the limitations of the present study, periodontitis was more prevalent in patients with cardiac disorders and there was no significant association between gender and periodontal disease.

Keywords: Atherosclerosis; Cardiac Disorders; Periodontium; Periodontitis.

Introduction

The relationship between oral and systemic diseases has been discussed frequently in recent years. In many studies, this relationship was focused mainly on periodontal diseases [39, 14, 38, 27, 28]. Cardiovascular diseases rank first among the causes of death in developed countries. About 7 million people die from conditions caused by cardiovascular diseases worldwide [15]. Several factors are defined among the causes of cardiovascular diseases; however, a significant portion of these can not be described with traditional risk factors [19, 38, 18, 1].

It was reported recently that chronic inflammation plays an important role in cardiovascular disease (CVD) etiology. Periodontitis is a chronic inflammatory disease affecting periodontal tissues. During periodontal disease, several chronic inflammation markers

rise. Since it was believed that CVD has an etiological origin, the presence of an etiological relationship between periodontal disease and CVD has been considered for years [32]. Thus, a number of studies on the possibility of periodontal disease causing CVD were carried out and a relationship between periodontal disease and CVD was established [16, 3, 4, 25]. Periodontal pathogens were associated with atherosclerosis [23, 2] and coronary heart disease in seroepidemiological studies [24, 10, 11, 22].

Periodontal diseases are chronic diseases that occur as a consequence of interaction between bacteria and host, leading to inflammation and damage in the hard and soft supporting tissues of the tooth [8, 16, 37, 9]. Chronic periodontitis is the most common periodontal disease associated with systemic diseases [26]. Although approximately 50% of the adult population over the age of 50 have periodontitis, the damaging effect of this inflam-

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matory process displays individual variations [13, 21, 27, 30, 29].

Complex genetic and environmental factors cause cardiovascular diseases such as atherosclerosis and myocardial infarction [7]. Genetic factors include age, obesity, diabetes and hypertension. Environmental factors include smoking, diet, socio-economic status and exercise. Smoking, hypercholesterolemia and hypertension, classic risk factors, exist in one-third to two-thirds of cases. [34]. It is believed that genetic factors play a role in approximately half of the cases with periodontitis [17]. Research suggests that inflammation plays an important role in the pathogenesis of both diseases. Elevation of systemic markers is considered among the risk factors for CVD [20].

In this context, the present study was undertaken to find the prevalence of periodontitis in patients with cardiac disorders among the Chennai population.

Materials And Methods

This retrospective study was undertaken using a convenience sample of patients with cardiac disorder reported to Saveetha Dental College and Hospitals, Chennai from June 2019 to March 2020. The study consisted of a total of 100 patients including 73 males and 27 females. Data regarding their periodontal status was collected and was assessed. Ethical approval for the study was obtained from Saveetha University Ethical Review Board(SDC/SIHEC/2020/DIASDATA/0619-0320).

Results And Discussion

Data collected were entered in SPSS version 20 and was subjected to statistical analysis. Results were tabulated and represented graphically.

Figure 1. Bar chart depicts the gender distribution of the present study. X-axis represents the gender and Y-axis represents the percentage of the study population. Brown colour denotes males which was about 73% and pink colour denotes females which was about 27%.

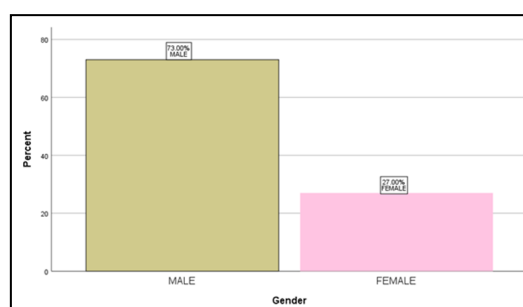
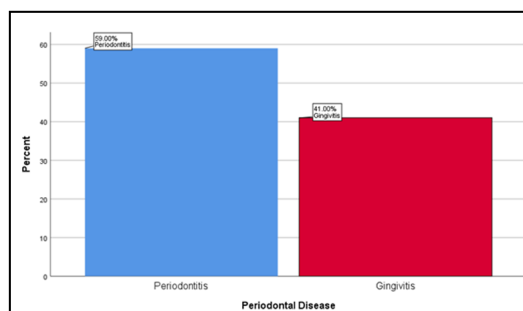


Figure 2. Bar chart depicts the distribution of periodontal disease in the present study where blue colour denotes periodontitis (59%) and red colour denotes gingivitis (41%). X axis represents the periodontal disease status and Y axis represents the percentage of the study population.



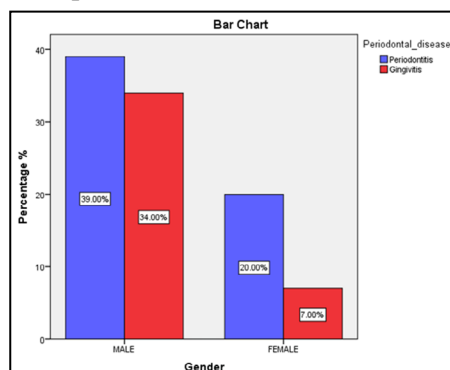
Out of 100 patients, 73% were males and 27% were females. (Figure 1) Regarding the periodontal status of the cardiac disorder patients, 59% had periodontitis and 41% had gingivitis. (Figure 2). There was no significant association between gender and periodontal disease. (Pearson-3.474, DF:1, Chi-Square test $p = 0.06$ (>0.05); statistically not significant) (Figure 3).

In the present study, 59% had periodontitis and 41% had gingivitis. Similar results were observed in previous studies. Stewart R et al suggested that there is an increasing evidence for an association between periodontitis and cardiovascular disorders (36). Sanz M et al assessed the relationship between periodontitis and cardiovascular disorders and claimed in his consensus report that there is a strong association between periodontitis and cardiovascular disorders [33].

Kizildag A et al studied the relationship between periodontitis and cardiovascular disorders and reported inflammatory markers were increased in both periodontitis and cardiovascular disorders suggesting statistically significant association [12]. Our findings are in agreement with the previous studies as the prevalence of periodontitis was higher in the studied population.

In our present study there was no significant association between gender and periodontal disease whereas Eke PI et al documented that there was significant relationship between gender and periodontitis and it was more prevalent in males than females which contradicts our study [5]. Harlan J Shiao et al suggested that men appear at greater risk for destructive periodontal disease than women; however, men do not appear at higher risk for more rapid periodontal destruction than women [35]. Ekr PI et al suggested that analysis is limited to the severe periodontitis category, men are at higher risk compared to women [6].

Figure 3. Bar chart depicts the association between gender and periodontal disease. X-axis represents the gender and Y-axis represents the percentage distribution of study population. More numbers of males had periodontitis compared to females. Chi-Square test was done and association was found to be statistically not significant. Pearson - 3.474, DF:1, Chi-Square test $p = 0.06 (>0.05)$; statistically not significant showing that there was no association between gender and periodontal disease in patients with cardiac disorders.



The limitation of this study is its smaller sample size. A similar study should be conducted on a larger scale involving a large number of samples for more reliable results. Therefore, extensive studies need to be conducted to assess the association between cardiac disorders and periodontal diseases.

Conclusion

Within the limitations of the present study, periodontitis was more prevalent in patients with cardiac disorders and there was no significant association between gender and periodontal disease in patients with cardiac disorders.

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Author Contributions

Jitesh.S performed the analysis, interpretation and wrote the manuscript. Second author Arvina Rajasekar contributed to conception, data design, analysis, interpretation and critically revised the manuscript. Madhulaxmi M participated in the study and revised the manuscript. All the three authors have discussed the results and contributed to the final manuscript.

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