

Prevalence Of Chronic Periodontitis Among The Adults Aged 20 To 30 Years - An Institutional Based Retrospective Study

Research Article

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Abstract

Periodontitis is a group of inflammatory diseases affecting the supporting tissues of the tooth. Children and adolescents are subjected to several periodontal diseases. Although there is much lower prevalence of periodontitis in young adults than in older adults. The prevalence of periodontal disease varies in different regions of the world. The aim of this study is to assess the prevalence of periodontitis among young adults. A retrospective study was conducted among a sample of 11,600 adolescents under the age group of 20 to 30 years in the Chennai population who visited Saveetha Dental College for dental check up, among them a total of thousand four hundred and twenty five young patients had periodontitis who were selected for the study. Chronic periodontitis was more common under the age group of 26 to 30 years (58.6%) than among the age group of 20 to 25 years (41.4%). Males (64.4%) were more affected by chronic periodontitis than females (35.5%). Localised chronic periodontitis was higher as compared to generalised chronic periodontitis among the age group of 26 to 30 years than patients among the age group of 20 to 25 years. Both localised and generalised chronic periodontitis was seen higher among male patients. The association between age and gender distribution with periodontal diseases was found to be statistically significant.

Keywords: Age; Chronic Periodontitis; Gender; Periodontal Diseases.

Introduction

Periodontal disease is a chronic inflammatory destruction of tissue surrounding the teeth caused by specific anaerobic pathogens contained in dental plaque organized on the tooth surface. It was believed that accumulation of plaque, poor oral hygiene, occlusal trauma and specific bacterial infections causes periodontal diseases. It has been stated in a study that children and adolescents can have any form of periodontitis [1]. Periodontitis initiates with the inflammation of gingiva and bleeding of gums. Gingiva usually becomes red and swollen, this progression of disease is known as gingivitis which when left untreated may cause and evolve into periodontitis [2]. Periodontitis is a multifactorial disease, with primary aetiological agent being plaque microflora. The etiology is multifactorial with periodontopathogens forming a major crux in the initiation and progression of the disease [3]. As the inflamma-

tion progresses deeper, the gingival attachment gets disrupted and a periodontal pocket is formed [4].

Periodontal pocket is an ideal place for harmful bacteria to get colonized and therefore, drives the disease progression more forward. The severity of progression of periodontitis depends upon the balance of number of factors which includes, number and type of bacterial pathogen. Inflammatory mediators and tissue breakdown products have been frequently detected in gingival tissues, gingival crevicular fluid, serum and saliva among the patients with periodontitis [5]. Defense mechanism of an individual depends upon the presence or absence of certain risk factors such as smoking or systemic history such as cardiac disease, diabetes, chronic obstructive pulmonary disorders [6, 7].

Environmental, acquired, and genetic risk factors may affect the

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onset or progression of periodontitis by modifying the expression of periodontal disease. There are several reports that among the environmental risk factors, tobacco smoking has been found to be associated with an increased prevalence and severity of periodontal disease. Cigarette smoke contains nicotine, cotinine, acrolein, and acetaldehyde, which have detrimental effects on the periodontium. Whereas, smokeless tobacco forms contain areca nut, catechu and lime, which are harmful to the oral structures. Smokeless tobacco use has been associated with several oral manifestations localized at the site of smokeless tobacco placement [8, 9].

Bone and tooth loss is commonly seen in an individual with periodontitis and progressive destruction of other supporting structures of the teeth are also identified [10]. Chronic periodontitis based on the extent are classified into two types which includes localised chronic periodontitis in which only (<30%) of the sites are affected by periodontitis, whereas in generalised chronic periodontitis (>30%) of the sites are affected [11]. Previously our team has a rich experience in working on various research projects across multiple disciplines [12-26]. Therefore, the aim of this study is to evaluate the prevalence of chronic periodontitis among younger adults aged 20 to 30 years.

Materials And Methods

Study design

A retrospective study to assess the prevalence rate of chronic periodontitis among the patients aged from 20 to 30 years was conducted in Saveetha Dental College, Chennai. Inclusion criteria involved both male and female patients with chronic periodontitis under the age group of 20 to 30 years, smokers, pan chewers. Whereas, exclusion criteria includes patients who had previously undergone periodontal treatment, pregnancy, presence of chronic systemic diseases such as diabetes mellitus, cardiovascular diseases, epileptic patients, hematological disorders.

Ethicals

Before scheduling of the retrospective study, the official permission was obtained from the Institutional ethical committee (ethical approval number- SDC/ SIHEC/ 2020/ DIASDATA/ 0619-0320).

Data collection

Among a sample of 11,600 adolescents under the age group of 20 to 30 years in the Chennai population who visited Saveetha Dental

College for dental check up, a total of thousand four hundred and twenty five young patients who had periodontitis were selected for the study. Case reports of each patient were retrieved from the archives of saveetha dental college. Data collection includes various parameters such as age, gender (male or female), habit history (history of adverse oral habits such as tobacco smoking and pan chewing), and presence or absence of chronic periodontitis and type of periodontal disease. Based on the severity of periodontal disease the patients were categorised into localised chronic periodontitis and generalised chronic periodontitis. These data were retrieved from dental records from June 2019 to March 2020.

Data analysis

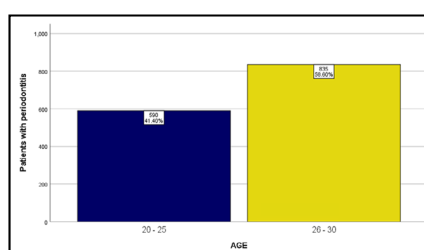
The Data collected was tabulated in excel sheets and were imported to SPSS (version 26.0). Data was analysed using chi-square test and frequency of distribution of the disease which was used to determine the prevalence rates of periodontitis among the selected population. P value less than 0.05 was considered to be statistically significant. Association between between the age groups of the study population and the type of periodontal disease was analysed. Association between the gender of the study population and the type of periodontal disease was also analysed. The results were demonstrated in the form of bar graphs.

Results And Discussion

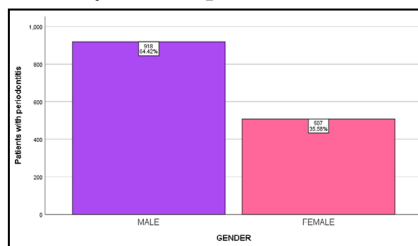
Oral diseases have a significant impact on the social and psychological aspects of one individual's life. Exposure to various risk factors like age, poor oral hygiene status, smoking, stress, systemic diseases and genetic factors are associated with an increased risk of periodontitis among adolescents. There are several studies in which researchers have attempted various clinical trials for regenerative methods using PRF, Growth factors and stem cells [27-32], and numerous in-vitro studies for the treatment of periodontitis were evaluated over the past 5 years [33-37]. In this present study, the prevalence of chronic periodontitis among the age group under 20-30 years in the Chennai population was evaluated. Parameters that were assessed in this study include age group (20 -25 and 26 to 30 years). Habit history (pan chewing and smoking status), systemic history, periodontal disease (localised and generalised chronic periodontitis).

Among thousand four hundred and twenty five patients with periodontitis, frequency distribution of age among the patients with chronic periodontitis were assessed in this study (Graph-1) which infers that, patients with chronic periodontitis under the age group of 26 to 30 years (58.6%) were more prevalent than among the age group of 20 to 25 years. Similarly Peeran et al had assessed

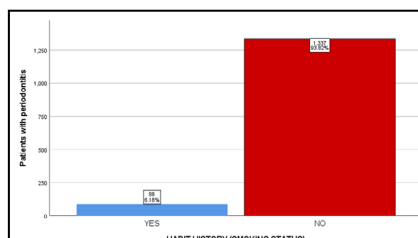
Graph 1. Bar graph represents frequency distribution of age among the patients with chronic periodontitis. X axis represents age distribution. Y axis represents the number of patients who have periodontitis. Chronic periodontitis was more common under the age group of 26 to 30 years (yellow) 58.6% than among the age group of 20 to 25 years (dark blue) 41.40% .



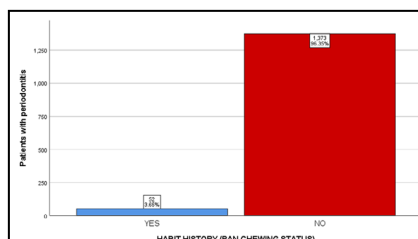
Graph 2. Bar graph represents frequency of distribution of gender among the patients with chronic periodontitis. X axis represents gender distribution. Y axis represents the number of patients who have periodontitis. Males (light purple) 64.42% were more affected by chronic periodontitis than females (pink)35.58%.



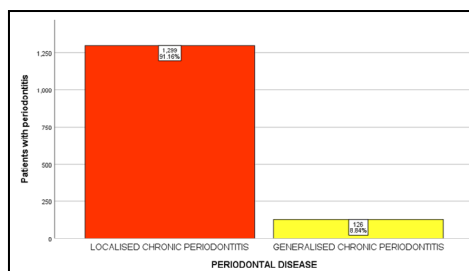
Graph 3. Bar graph represents frequency distribution of smoking history [yes (blue),no(red)] among the patients with chronic periodontitis. X axis represents smoking history. Y axis represents the number of patients who have periodontitis. Lesser prevalence of smoking habits (6.18%) was seen among the selected population.



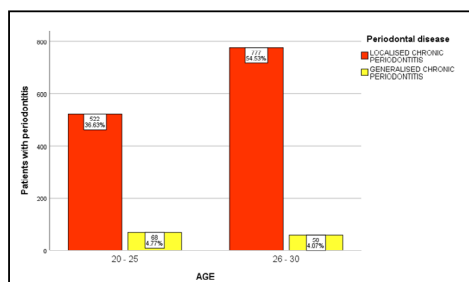
Graph 4. Bar graph represents frequency of distribution of pan chewing history [yes (blue),no (red)] among the patients with chronic periodontitis. X axis represents pan chewing history. Y axis represents the number of patients who have periodontitis. Lesser prevalence of pan chewing habit (3.65%) was seen among the selected population.



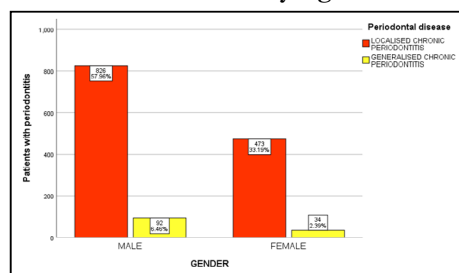
Graph 5. Bar graph represents frequency of distribution of periodontal disease among the selected population. X axis represents patients with periodontal disease. Y axis represents the number of patients who had localised and generalised chronic periodontitis. Localised chronic periodontitis (orange) 91.16% was more prevalent than generalised chronic periodontitis (yellow) 8.84% among the selected participants.



Graph 6. Bar graph represents association between age and patients with chronic periodontitis. X axis represents age. Y axis represents patients with localised and generalised chronic periodontitis. Localised chronic periodontitis (orange) was seen higher as compared to generalised chronic periodontitis (yellow) among the age group of 26 to 30 years. Chi square test was done for association and P value = 0.003 was statistically significant.



Graph 7. Bar graph showing the association between gender distribution and periodontal disease among the selected participants. X axis represents the gender distribution of the patients with chronic periodontitis. Y axis represents the number of patients who had localised and generalised chronic periodontitis. Both localised (orange) and generalised chronic periodontitis (yellow) was higher among males as compared to females. Chi square test was done for association and P value = 0.035 was statistically significant.



the periodontal status and its risk factors among young adults and stated that among the prevalence of periodontitis among the age group of 24 to 30 years was higher than patients under the age group of 18 to 23 years [38]. In our study, frequency distribution of gender among the patients with chronic periodontitis was assessed (Graph-2) which infers that males (64.42%) were more prevalently affected by periodontitis than females (35.58%). Similar to our results, Ioannidou et al stated that periodontitis has a documented higher prevalence in men as compared to women [39].

This study evaluated the frequency distribution of smoking history among the patients with chronic periodontitis (Graph-3) which infers lesser prevalence of smoking history (6.18%) was seen among the selected population. Similarly Josef et al had assessed the frequency distribution of smoking habits among periodontitis patients and stated that the effect of smoking had a deleterious effect on periodontal status. Smoking affects both gingival epithelium and connective tissue. Smoking is an independent risk factor for the initiation, extent and severity of periodontal diseases [40-42].

In our study, frequency distribution of pan chewing history among the patients with chronic periodontitis was assessed (Graph-4) which infers lesser prevalence of pan chewing status (3.65%) was seen among the selected population. Similarly Giri et al assessed the frequency distribution of pan chewing habit among periodontitis patients and stated that the pan chewing habit adversely affects the periodontal health of the consumers [43]. Graph - 5 represents the frequency distribution of localised and generalised chronic periodontitis among the selected population which infers that localised chronic periodontitis (91.16%) was more prevalent than generalised chronic periodontitis (8.84%). Similarly, Nabeeh A Qahtani et al had stated that localised chronic periodontitis was more prevalent than generalised chronic periodontitis among young adults [44]. A study conducted in Brazil also found that localised chronic periodontitis prevalence was high and its presence was associated with age, socioeconomic status and dental calculus [45].

Association between age group and chronic periodontitis was done in our study, (Graph-6) which infers that 522 patients (36.63%) had localised chronic periodontitis and 68 patients (4.77%) of them had generalised chronic periodontitis among the age group of 20 to 25 years. Whereas, at the age group of 26 to 30 years, 777 patients (54.53%) had localised chronic periodonti-

tis and 58 patients (4.07%) had generalised chronic periodontitis. Chi square test was done for association and P value = 0.003 was statistically significant. Similar to our results demmer et al stated that the prevalence of localised chronic periodontitis among the age group of 18 to 30 years than generalised chronic periodontitis [46].

In this study, association of gender and chronic periodontitis was done (Graph -7) in which among males, 826 patients (57.96%) had localised and 92 patients (6.46%) had generalised chronic periodontitis. Among females, 473 patients (33.19%) had localised and 34 patients (2.39%) of them had generalised chronic periodontitis. Chi square test was done for association and P value = 0.035 was statistically significant. Similarly Rao et al stated that males are more prevalently affected by both the diseases than females [47]. Whereas contradictory to our results Albander et al reported higher prevalence of periodontitis in females than in males [48]. Limitation of our study in which the sample size is restricted only to an institution among the Chennai population. Therefore larger study samples to be evaluated and the study could have been assessed among different geographic locations for more accuracy. Our institution is passionate about high quality evidence based research and has excelled in various fields [49-59].

Conclusion

Localised chronic periodontitis was higher as compared to generalised chronic periodontitis among the age group of 26 to 30 years than patients among the age group of 20 to 25 years. Both localised and generalised chronic periodontitis was seen higher among male patients. Oral diseases have been associated with mankind from time immemorial, but as they are rarely life-threatening, their prevention or treatment is often accorded a low priority by health policy makers. However, these oral diseases have a significant impact on both the social and psychological aspects of an individual's life. Oral health problems are highly prevalent in the adolescents. Hence attention should be focused on improving the oral health status of adolescents. Thus, it is important to create more awareness and provide quality dental care for the general welfare of the community.

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