RESEARCH ARTICLE

PERIODONTAL STATUS OF PATIENTS VISITING A DENTAL OUT PATIENTS DEPARTMENT IN DENTALCOLLEGE IN PUNE- A CROSS SECTIONAL EPIDEMIOLOGICAL STUDY

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ABSTRACT

Aim: The present study was conducted with the aim to assess the prevalence of the periodontal status of the patients reporting to the Out Patients Department of a dental college in Pune.
Objectives: Find the prevalence, extent and severity of the periodontal status and to associate it with the age, gender, socioeconomic status, systemic conditions, smoking etc.
Chart out an appropriate periodontal health care program protocol for the patients visiting the college with periodontal problems.
Methodology: Cross sectional study consisting of 700 patients reporting to OPD of dental college were included in study. Self designed structured proforma was used to record demographic details. Community periodontal index along with loss of attachment and gingival recession were recorded accordingly.
Results: A total of 700 patients were included in the study. The gender distribution showed that there were 433 (62.2%) males and 267(37.8%) females.Males exhibited a higher percentage of clinical attachment loss of greaterthan 5mm ascompared to the females. Calculus was seen in 525 (74.4%) subjects and was seen maximum in the age group of 21-30 years and also a total of 3.28 sextants affected in the study population. Loss of attachment was seen in about 20.7% of the study subjects.
Conclusion: Dental calculus was the most frequently reported condition in the population followed by shallow pockets. Periodontal health status of the individuals was significantly associated with age, sex (male), socioeconomic status (upper lower).Loss of attachment was strongly associated with age and socioeconomic status (upper lower) of the individual.

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INTRODUCTION

Periodontal disease is one of the two most important oral diseases contributing to the global burden of chronic disease (Petersen, 2000). Periodontal Disease is a general term which is used to denote any disease peculiar to the periodontium or parts thereof, regardless of the aetiology (WHO 1978). Population studies of the distribution and risk factors of periodontal diseases offer a unique investigational model that provides power and generalization to observations made among more limited populations. By contributing to a better understanding of the causal relationships between risk factors and occurrence of disease, epidemiologic studies form the basis of the disciplines of ''risk assessment'' and ''disease control.''

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Information about the distribution of periodontal diseases in the population, current knowledge about the pathogenesis and methods of control of these diseases, and the population's perception of the disease constitute the foundation for determining periodontal treatment needs and making resource allocation decisions for disease control (Albander, 2005). As the prevalence and severity of periodontal diseases are high among population, prevention and treatment of these diseases are one of the most serious problems of modern dentistry. The WHO Global Oral Data Bank provides profiles of periodontal conditions in adolescents, adults and the older aged cohorts using CPITN (Miyazaki *et al.*, 1992; Pilot *et al.*, 1986; Pilot *et al.*, 1987 Pilot *et al.*, 1992). Results of these studiesrevealed that the most frequently observed periodontal condition in adolescents in the age group 15-19 years was calculus with or without gingival bleeding. (Miyazaki *et al.*, 1991; Miyazaki *et al.*, 1991).

Miyazaki and co-workers found that the most frequently observed periodontal conditions in adults aged 34-44 years were calculus and shallow pockets. Dentists at the educational level can play a pivotal role in helping to reduce the burden of the periodontal diseases at the community level. The present study was conducted with the aim to assess the prevalence of the periodontal status of the patients reporting to the Out Patients Department of a dental college in Pune.

MATERIALS AND METHODS

Before the start of the study prior approval was taken from the Scientific Advisory Committee and Institutional Ethics Committee. After obtaining the approvals the sample size for the present study was calculated based on the previous study (Rao, 2011) which was calculated to be about 683. The sample size was rounded off to 700 patients. Study participants of both genders above the age of 15 years who werewilling to participate and give written informed consent and assent,were included in the study and those who had been under any form of periodontal treatment in past 6 months, not willing to give informed consent were exempted from the study. Subjects who consented to participate in the study were interviewed to gather self-reported data regarding demographic, socioeconomic status, smoking, medical history and other systemic diseases using a structured proforma. Assessment was done in a dichotomous manner as presence or absence of the condition. In addition smoking status was evaluated (current, former, never). Current and former smokers were classified based on criteria established by Centers for Disease Control and Prevention (CDC) (Tomar, 2000).

Socioeconomic status of the subjects were recorded using Kuppuswamy scale. The periodontal health status of the patients was assessed by using Community Periodontal index followed by loss of attachment. Loss of attachment was not recorded for individuals of 15 years of age. The examination was carried out by direct observation and recording by single examiner. The clinical examination required an average of 15 minutes. No radiographic examination was carried out. Clinical Attachment Loss above 15 years of age was measured by Loss of Attachment Componentof Community Periodontal Index (CPI).

Statistical analysis

Data obtained was compiled in Microsoft excel sheet and was coded. Chi-square test, was used to find out the association between sociodemographic variables like age, gender, socioeconomic status, systemic history, smoking with Community Periodontal Index and Loss of attachment. $P < 0.05$ was considered to be statistically significant.

RESULTS

A total of 700 patients were included in the study. The gender distribution showed that there were 433 (62.2%) males and 267(37.8%) females. The age group distribution of the patients consisted of a maximum of 283(40.1%) of the individuals in the age group of 21-30 years. Only 7.2 % of the patients had any history of any systemic diseases. About 11.1 % of the subjects were either present smokers or were former smokers. It was seen that almost 43.9 % of the subjects belonged to upper lower class. (Table-1).

Table 1. Showing the demographic profile of the study subjects

Sr. No	Parameter	Categories	Frequency and percentage (%)
1.	Age Groups	15-20	74 (10.5)
		21-30	283 (40.1)
		31-40	171 (25.1)
		41-50	97 (13.7)
		above 50	75 (10.6)
		Total	700 (100)
2.	Sex	Male	433 (62.2)
		Female	267 (37.8)
		Total	700 (100)
3.	Socioeconomic Status	Upper	30 (4.2)
		Upper middle	130 (19.0)
		Lower middle	208 (29.9)
		Upper lower	310 (43.9)
		Lower	21 (3.0)
		Total	700 (100)
4.	Systemic History	Present	50 (7.2)
		Absent	650 (92.8)
		Total	700 (100)
5.	Smokers	Current Smoker	50 (7.1)
		Former Smoker	26 (4.1)
		Non Smoker	624 (88.8)
		Total	700 (100)

Fig -1 . Mean Number of sextants with Community Periodontal Score
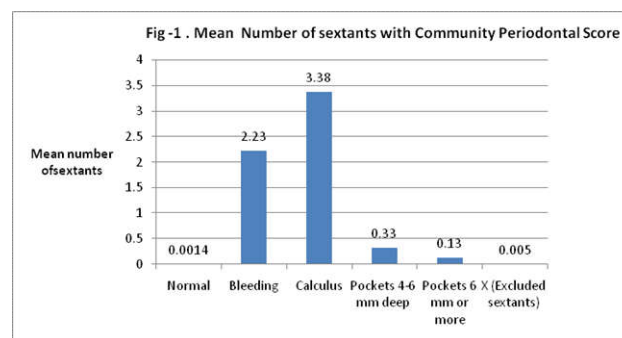
Calculus was seen in maximum individual affecting about 525 (74.4%) subjects.Bleeding on probing was seen in 55 (7.8%) of the subjects, pockets 3-4 mm deep was seen in 79(11.2%) and deep pockets was seen in 47 (6.7%) of the subjects. Mean number of sextant affected by calculus was about 3.28. The calculus was seen maximum in the age group of 21-30 years old where 229 out of a total of 283 individuals in this group exhibited it. Pockets 3-4 mm were seen maximum in age group of 41-50 years which was seen in 26 out of 97 individuals of this age group. Mean number of sextants affected showed that maximum number of sextants was affected by calculus followed by bleeding score i.e. 3.61 and 2.23 respectively. (Fig 1) Both males and females showed high prevalence of having calculus score with almost 336 (76.5%) males out 439 and 189(70.7%) females out of 267 exhibiting calculus score. Statistically significant association was seen between age and gender with CPI scores (p<0.05). Loss of attachment with code 1 was seen in 146 (20.7%) of the individuals. In the age group of 31-40 years maximum loss of attachment of code 1 was seen affecting about 37 out of 177 individuals of this age group (Table 2). Patients with systemic illness showed more loss of attachment.

DISCUSSION

Almost 100% of the individuals showed prevalence of the periodontal disease. The pockets 3-4 mm deep was seen in 79(11.2%) and deep pockets was seen 47 (6.7%) of the subjects. Almost 7.4% of the individuals had some form of systemic disease and almost 11.2 % of the subjects were either present smokers or former smokers.

Table 2. Gender wise distribution of Loss of attachment in the study subjects

Loss of attachment (LOA)	Sex		
	MALE	FEMALE	Total
Code 0 (0-3mm) CEJ not visible and CPI score 0-3 mm)	278	165	443
Code 1 4-5 mm and CEJ within black band	80	60	140
Code 2 6-8 mm and CEJ Between upper limit of black band and 8.5 mm ring	50	21	71
Code 3 9-11m and CEJ between 8.5 mm and 11.5 mm rings	19	13	32
Code 4 12mm or more and CEJ beyond 11.5 mm ring	8	4	12
Code 9 Not recorded	1	1	2
Total	436	264	700

The prevalence of shallow pockets was approximately 2 times the prevalence of deep pockets suggesting that population affected with periodontitis has less severe involvement thereby reducing the need of surgical intervention. The findings of the study are similar to a study by GPI Singh in 2005. He showed that 42.3% of urban subjects aged above 15 year showed presence of shallow periodontal pockets as compared to 31.7% of rural subjects. 22.9% subjects in urban areas had deep periodontal pockets as compared to 11.0% in rural areas (GPI Singh, 2005).

The findings of this research showed that smoking was not significantly associated with clinical parameters like CPITN index, loss of attachment, recession. This is in contrast to the studies on effect of smoking on prevalence of periodontal diseases (Machuca *et al.*, 2000; Hashim *et al.*, 2001). The reason of no significant results could be the less prevalence of smokers visiting in particular time framework to the OPD of SDCH, Pune. Out of 700 subjects, only 50 subjects were current smokers. This can be a contributing factor for the prevalence of periodontitis in the study subjects. The prevalence of calculus was more in the population; this may have contributed to greater accumulation of plaque. Strong association between calculus and periodontal diseases had been shown in different studies (Albandar *et al.*, 1998; Griffiths *et al.*, 2001). Khader*et al.*in 2003 stated that the surface of calculus is always covered by viable microbial plaque with periodontal pathogens, and therefore it is considered to be a secondary etiological factor for periodontal disease (Khader *et al.*, 2003).

The key finding of study was greater loss of attachment in smokers. 18 (58%) current smokers had severe attachment loss indicating advanced periodontal disease.Studies have shown smoking to be a definite risk factor for periodontal diseases, with 2.5 to 6.0 or even higherrisk of periodontitis attributable to tobacco. It has been also stated that 90% of persons with refractory chronic periodontitis are smokers. With respect to gender, greater proportion of males had a higher mean CAL > 5mm (4.4%) as compared to females (2.6%). Also, subjects with hypertension (presence/absence, self-reported) had 1.4 times higher risk of CAL >5mm compared to non-hypertensive subjects. This observation is in accordance with the results obtained by Khader *et al.* (2003)

Conclusion

The prevalence of gingivitis was high in the current population as compared to periodontitis.

The most common treatment need of the population was scaling and root planning along with the oral hygiene instructions. Dental calculus was the most frequently reported condition in the population followed by shallow pockets. Present study was conducted to assess periodontal health status in the hospital population so that dental practitioners and dental hygienist should take more effort to educate the patients regarding oral hygiene practices for the prevention of such conditions in the periodontium and if condition starts occurring should be treated immediately to avoid the further complications.

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