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ORIGINAL ARTICLE

Frequency of Gingivitis among 12 to 70 Years Old Patients Visiting Lady Reading Hospital, Peshawar, Pakistan: A Cross Sectional Study

Gulrukh Hamid¹, Asim Shahzad^{2*} and Abrar Hussain Mian²

¹Institute of Paramedical Sciences, Khyber Medical University Peshawar, Pakistan

²Department of Microbiology, Hazara University, Mansehra 21300, Pakistan

ABSTRACT

The present cross sectional study aimed to determine the frequency of gingivitis among 21 to 70 old patients at Periodontal Department of Lady Reading Hospital (LRH), Peshawar, Pakistan. A total of 133 patients were observed by using Word Health Organization (WHO) sample size calculator with the following assumption, confidence level = 95%, Anticipated absolute precision = 8% and Population proportion = 33.4%. Standard proforma (questionnaire) and non-probability consecutive sampling technique was used for the sample collection with inclusion and exclusion base criteria for the study fulfillment. Results showed that mean age was 60 years with standard deviation + 8.34. 63 (47.36%) of patients were male and 70 (52.63%) were female. Male patients had gingival inflammation affected more 50 (79.36%) as compared to female 17 (24.28%). Total sample prevalence of mild, moderate and severe gingivitis was 43 (64.17%), 20 (29.85%) and 4 (5.97%). Percentage of mild gingivitis in females was less than males (58.82% vs. 66%), moderate gingivitis percentage was also slightly less in females than males (29.41% vs. 30%). However percentage of females having severe gingivitis was found higher than males (11.76% vs. 4%). Out of 133 patients 67 (50.37%) were analyzed as gingivitis while 66 (49.62%) patients were without gingivitis. It was revealed that the incidence rate of gingivitis was estimated 67 (50.37%) among 133 patients. Patients should need awareness of gingivitis through proper education channel as a result to adopt appropriate oral hygiene practices and other preventive measures to reduce the incidence of this disease and other oral health complications in future.

*Corresponding author

Asim Shahzad, Department of Microbiology, Hazara University, Mansehra 21300, Pakistan

E-mail: asimshahzad260@gmail.com

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INTRODUCTION

Gingivitis is a common inflammatory oral disease effecting gingival tissue characterized by the presence of gingival inflammation without detectable bone loss cause the gums to bleed easily. Dental diseases have been known to be the most high-priced disease to treat [1]. According to the oral health facts (WHO), almost 5-20% middle aged adults have severe periodontal disease worldwide progress to loss of tooth which estimates that this is the most common oral disease among others [2,3]. Worldwide children and adolescents are mostly affected by gingivitis disease. In general, gingivitis begins in early childhood, and becomes more prevalent and severe with age [4,5]. The people of Pakistan are exceedingly burdened by it. Hence low priority has been given to oral health thus large population of Pakistan has been remained untreated oral diseases [6-10]. The main etiological factor for periodontal disease are plaque deposit consist of microorganisms, as gingivitis develops plaque matures with increasing proportions of gram-positive and gram-negative bacteria such as rods, cocci, fusiform, filaments and spirochetes [11-14]. Plaque-induced gingivitis is the most common form of periodontal disease, which is considered to be the second most common oral disease after dental caries,

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affecting more than 75% of the population worldwide. Inflammatory response initiate when plaque accumulation between teeth and gingival grooves occurs result in gingival tissues destruction along bleeding with probe or brush, untreated gingivitis progress to periodontal destruction [15-17]. Several other factors responsible for periodontal diseases are food consistency and its remains, orthodontic means, carries, pigment pad, smoking, diabetes, heredity, underlying immuno-deficiencies, hormonal changes in female with pregnancy, teeth concretion, poor oral hygiene and inefficient help of dentist or hygienist [18]. The severity and signs of gingival inflammation are clinically manifest through Loe and silness gingival index. Loe and silness classified gingival inflammation into mild, moderate and severe gingivitis. As large population has a mild, reversible gingivitis. Severe gingivitis is relatively rare in children [19,20]. Gingivitis is a reversible condition clinical signs such as swollen gums, bright red or purple gums, gums that are tender or painful to the touch, bleeding gums or bleeding after brushing and/or flossing and Bad breath (halitosis) appear after 12-21 days of dental plaque accumulation clinically resolve within one week after proceeds oral hygiene procedures and other intensive preventive measures [21-25]. The present study was designed to determine the frequency of gingivitis in infected patients (21 to 70 years) at the Periodontal Department of Lady Reading Hospital (LRH), Peshawar, Pakistan.

MATERIALS METHODS

Study design and duration

This cross sectional study was conducted at Periodontal Department of Lady Reading Hospital, Peshawar, Pakistan in duration of 4 months from September to December 2016.

Study population and size

During the course of this cross sectional study, different patients including male and female were observed for gingivitis. A total of 133 patients who were from 21-71 years of age were selected by using 33.4% prevalence with margin of error is 8% on WHO sample size calculator.

Sample technique and selection

In the present study, non-probability/convenient sampling technique was used. The data was collected from all patients with the help of proforma (questionnaire) to meet all the variables. Both inclusive and exclusive criteria were considered for sample selection. Every patient of gingivitis who fulfilling inclusion criteria was selected for the present study and hence there were no randomization of patients taken place in sample selection. This sample selecting criteria is adopted as to obtain the desired patients easily during the observation time which meets the characteristics of the research subjects.

Inclusion criteria

- All patients with age range 21-71 years old were included in the present study.
- Both male and female.
- All permanent teeth should be erupted in oral cavity.
- Desire of patients to be a part of study.

Exclusion criteria

- Young children with deciduous dentition/ during mixed dentition plaque.
- Patients below 20 years and above 70 years.
- Pregnant females and patients who were diagnosed case of periodontal diseases.
- Mentally handicapped patients.
- Edentulous patients.

Data analysis

Data was analyzed by SPSS version 22. Frequencies and percentages were calculated for categorical variables like gender, gingivitis, Mean and standard deviations were calculated from continuous numerical variables like age. Gingivitis was stratified with age and gender to see the effect modifiers. Post stratification chi square test was applied in which $p \leq 0.08$ was considered as significant value. All results were presented in the form of tables.

RESULTS AND DISCUSSION

In the present study, a total of 133 patients were observed to determine the frequency of gingivitis. Results of gender wise distribution among 133 patients was analyzed as most of the patients were female 70 (52.63%) and 63 (47.36%) were male (Table 1).

This study revealed that 63 (79.36%) of males and 70 (24.28%) of females patients had gingival inflammation. Hence, the total percentage of the patients had gingival inflammation was 67 (50.37%) (Table 2). In our study males 63 (79.36%) were affected more as compared to females 70 (24.28%). Similar results had shown on American population in which more males were affected than females [26]. In comparison with our results similar observation was also found in Saudi Arabian population which shows

Table 1: Gender wise distribution of the selected patients.

Gender	Frequency	Total %
Male	63	47.36%
Female	70	52.63%
Total	133	100%

Table 2: Gender wise distribution of gingivitis inflammation (n = 133).

Sex	Absent	Present	Total Patients	Total %
Male	13	50	63	79.36%
Female	53	17	70	24.28%
Total	66	67	133	50.37%

strong resemblance to our study [27]. Dissimilar study was reported, which showed no difference between genders based distribution of gingivitis conducted on Chinese population [28].

Regarding age wise distribution, the mean age was 60 years with S.D +/- 8.34. Among 133 Patients the lowest percentage of gingivitis was reported in 21-30 years old patients 5 (4.375%). While the highest percentage was reported in 61-70 year's old patients 48 (36%) (Table 3).

In the present study, the total sample prevalence of mild, moderate and severe gingivitis was 43 (64.17%), 20 (29.85%) and 4 (5.97%). Percentage of mild gingivitis in females was less than males (58.82% vs. 66%), Moderate gingivitis percentage was also slightly less in females than males (29.41% vs. 30%). However, percentage of females having severe gingivitis was found higher than males (11.76% vs. 4%), although the numbers of patients were equal (Table 4). The differences in the percentage of severe gingivitis found in females than males may be attributed to the total number of infected patients (subject source) and demographic details as shown in the present study that could have an influence on the indicated outcomes of the frequency and severity of gingivitis. Therefore, the total prevalence of severe gingivitis was found very less as compared to the American population [26]. In addition, the present study revealed that most of the patients particularly females had

low Hb level (8-10 gm/dl) were more prone to gingivitis disease. They were most functional reproductively in the age of 13 to 30 years and their personal health was compromised enough. This could also be one of the obvious reasons behind the higher prevalence of severe gingivitis.

Gingivitis among 133 patients was analyzed as 67 (50.37%) patients had gingivitis while 66 (49.62%) patients had no gingivitis (Table 5).

Worldwide people have periodontal disease usually elderly people suffered more while some other forms of diseases appear at quite a young age [29-31]. Evaluation of the general incidence among the adults population showed that 50.0 to 100.0% of people suffered from gingivitis [32]. Several other studies suggested that gingivitis begins in early childhood and its degree of severity increases in adolescences [33]. In Pakistan, a national oral health survey was conducted in 2003 with the collaboration of WHO in 21 districts of Lahore, survey showed that the periodontal health of Pakistan is very poor and only (28%) of the 12 years old have healthy gums and more than (93%) of the 65 years old have some gingival or periodontal disease. These results indicate that periodontal disease incidence is higher in rural population of the country [34].

CONCLUSION

The present study concluded that the incidence of gingivitis was estimated as 67 (50.37%) after examining 21-70 years old patients. It was revealed that all patients should need proper awareness to adopt appropriate oral hygiene practices and other preventive measures as a result to reduce the risk of exposure to gingivitis and other oral health complications in future.

Table 3: Age wise distribution of the selected patients.

Age/ years	Frequency	Total %
21-30 years	5	3.75%
31-40 years	16	12%
41-50 years	29	21.80%
51-60 years	35	26.31%
61-70 years	48	36%
Total	133	100%

Table 4: Severity of gingivitis according to gender (Male; n = 50) and (Female; n = 17).

Sex	Mild	%	Moderate	%	Severe	%	Total
Male	33	66%	15	30%	2	4%	50
Female	10	58.82%	5	29.41%	2	11.76%	17
Total	43	64.17%	20	29.85%	4	5.97%	67

Table 5: Frequency of gingivitis among 133 patients.

Gingivitis	Frequency	Total %
Present	67	50.37%
Absent	66	49.62%
Total	133	100%

LIMITATIONS

It was hospital base study and therefore does not represent the entire population. The duration for this research was short to conduct the study in time. On the other hand, the numbers of patients were less to evaluate, while no budget has been provided for the present study.

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