PERIODONTAL TISSUE DESTRUCTION

EXTENT OF PERIODONTAL TISSUE DESTRUCTION IN PATIENTS VISITING IIDH

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DR. SARAH ALI
Demonstrator
Department of Periodontology

BRIG® KABIR AHMED
Associate Professor
Department of Prosthodontics

DR. NOMAAN NASIR
Assistant Professor
Department of Periodontology

ABSTRACT: Introduction: Periodontal diseases are the most common inflammatory diseases affecting the oral tissues. **Objectives:** This study was conducted to determine the extent of destruction of periodontal tissues in patients visiting Islamic International Dental Hospital (IIDH) and also to compare different variables e.g. age, brushing, plaque, calculus, recession, BOP, systemic diseases etc with periodontal destruction. **Design:** Cross sectional study. **Setting:** Department of Periodontology Islamic International Dental Hospital, Islamabad. **Period:** November 2011 to December 2011. **Materials:** 80 patients 52 males and 28 females were randomly selected. A questionnaire was designed and two house officers were calibrated and trained in filling the questionnaire and examining the patient in department of Periodontology of Islamic International Dental Hospital. Results: The results show that 25% of the patients were healthy with no loss of supporting structures. 30% of the patients had early periodontal destruction, 28% of patients had moderate periodontitis and 17% were having advanced periodontal destruction. Periodontal destruction was more in males as compared to females and periodontal destruction increased with increasing age. **Conclusions:** It may be concluded from the study that prevalence of periodontitis increases with advancement of age.

Key words: Periodontal disease, Clinical attachment loss (CAL), bleeding on probing (BOP).

INTRODUCTION

Periodontal diseases are the most common inflammatory diseases affecting the oral tissues. The signs and symptoms include pain, swelling, bleeding on brushing and bleeding on probing (BOP), mobility and loss of function. If left untreated they can lead to advanced destruction of supporting structures and ultimately loss of teeth. Periodontal diseases also interfere with other systems of the body. Several research studies have associated relationship of periodontal diseases with other systemic diseases like diabetes, cardiovascular diseases, rheumatoid arthritis and low birth weight babies etc[1,2,3].

There has been no research study in Pakistan to assess the incidence and prevalence of periodontal diseases at National level. According to National oral health survey conducted in 19 districts of Pakistan in 2003 the periodontal health of Pakistan is very poor and only 28% of 12 years old have healthy gums and more than 93% of the 65 year old have some gingival or periodontal disease. These results indicate that periodontal disease is endemic in Pakistan and incidence is higher in rural population of the country[4]. Studies conducted at regional and local level also show high prevalence of periodontal disease[5].

Periodontitis is multifactorial in nature. The various determinants of periodontal disease are age, sex, race, socioeconomic status and risk factors including tobacco usage and oral hygiene status. This study was conducted to determine the extent of destruction of periodontal tissues in patients visiting Islamic International Dental Hospital (IIDH) and also to compare different variables like age, brushing, plaque, calculus, recession, bop, systemic diseases with periodontal destruction.

MATERIALS

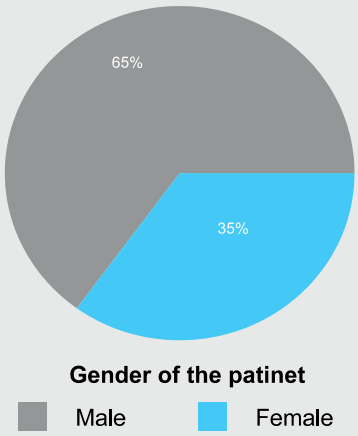
This cross sectional study was carried out from November 2011 to December 2011 in which 80 patients 52 males and 28 females visiting department of Periodontology Islamic International Dental Hospital were randomly selected with inclusion and exclusion criteria mentioned in table I.

The age of patients was from 12 years to 74 years with mean age of 43 years and range was 62. The male patients comprised 65% of sample size while female patients constituted 35% of the sample (Fig 1).

Table-I. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
All permanent teeth should be erupted	Patients with deciduous or mixed dentition
Minimum of 12 years	Less than 12 years of age
Acceptable oral hygiene	Poor oral hygiene
Both genders were included	patients undergoing radiation therapy
Willingness to be a part of study	Mentally handicapped patients
	Severe medical illness leading to advance gingival and periodontal disease

Fig-1. Gender distribution



The study project was presented and approval was taken from the ethical committee Islamic International Dental Hospital regarding the study. A questionnaire was designed and two house officers were calibrated and trained in filling the questionnaire and examining the patient in department of Periodontology of Islamic International Dental Hospital. The questions included information about age, gender, socioeconomic status, marital status, oral hygiene activities, presence of systemic diseases, habits, gingival bleeding on probing. Clinical attachment loss (CAL) was assessed on six indexed teeth i.e. 16, 11, 26, 36,31and 46. CAL is a tool that is used to assess the extent of periodontal destruction. It is defined as distance in millimeters (mm) from cemento enamel junction to the base of pocket and it is measured by using graduated periodontal probe. The patients were divided into three groups based on their age. Group 1 was patients upto 30 years, group 2 was patients with age from 31 to 50 years and group 3 comprised of patients with more than 50 years of age. All the patients were examined by standard dental diagnostic equipment under artificial light on dry teeth on the dental chair. The periodontal health of patients was judged on a four scale parameter which was healthy, early periodontal destruction, moderate periodontal destruction and advanced periodontal destruction. Patients were given a healthy score when there was no clinical attachment loss, early was assigned to patients with CAL of 1-2 mm, moderate was assigned at CAL of 3-4mm and patients with CAL of more than 4mm were scored with advanced periodontal destruction[6].

The data was entered in computer and analysis was done using SPSS version 17. Data analysis included descriptive statistics such as frequency distribution, percentages, cross tabulation and comparisons were performed using chi square test. The level of significance was set at 5%.

RESULTS

The results are shown in Fig 2 and they indicate that 25% of the patients were healthy with no loss of supporting structures. 30% of the patients had early periodontal destruction, 28% of patients had moderate periodontitis and 17% were having advanced periodontal destruction.

DISCUSSION

In this study periodontal destruction in patients visiting IIDH was recorded and extent of periodontal destruction was assessed. 25% of patients were healthy, 30% had early periodontal destruction, 28% had moderate destruction and 17% had advanced periodontal destruction.

The hypothesis of the study was that periodontal tissue destruction increases with advancement of age. The study results supported the hypothesis. It was observed that 48% of patients who were more than 50 years of age had moderate periodontitis and 42% had advanced periodontal destruction. In comparison 67% of patients

Fig-2. Status of periodontal destruction

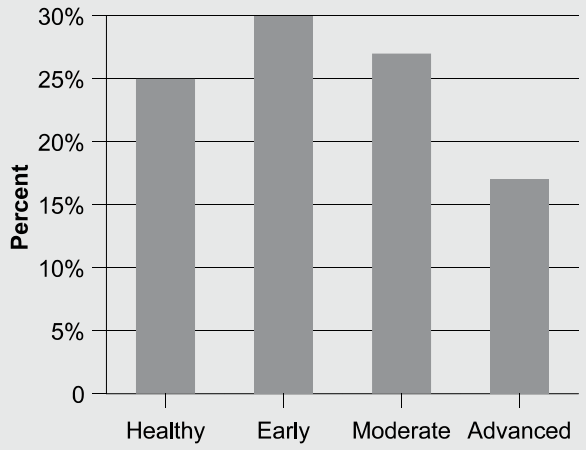


Table-II. Comparison of age with periodontal destruction

	Periodontal destruction			
	Health %	Early %	Moderate %	Advanced %
Age of the patient				
up to 30	67	33	-	-
31 to 50	31	50	19	-
above 50	-	9	48	42

who were 30 years or less were healthy. This was inline with a study which proved that attachment loss increased with increase in age[7].

When genders were compared it was observed that females were more towards the healthy side compared to male patients and only 18% of female patients had advanced periodontal destruction compared to 33% of the male patients. Another study also concluded that periodontitis was significantly more common in females[8].

Lack of oral hygiene is evident by presence of soft and hard deposits like dental plaque and dental calculus. Presence of these is directly related with the presence and advancement of periodontal tissue destruction. Studies proved that room for improvement exists whenever there is lack of oral hygiene[9,10]. Dental plaque is a major etiologic agent responsible for advancement of periodontal destruction and it was observed from study that 50% of patients who did not had dental plaque were healthy. Similarly 77% of patients who did not have dental calculus were healthy. This proves that early intervention and treatment to curb inflammation is important for prevention of advanced destruction of periodontal destruction[11].

Bleeding on probing (BOP) is a tool which is used to assess the progression of periodontal disease and its absence indicates healing of the periodontal tissues. The study results showed that 66% of patients who were healthy did not have bleeding on probing while 42% of patients having bop were suffering from moderate periodontitis. A study findings suggest that there exists a direct relationship between pathologic migration and clinical attachment loss as well as gingival inflammation[12].

Loss of periodontal tissues is also evident by determining the presence and extent of gingival recession. In our study it was noted that 55% of patients that were diagnosed with moderate periodontitis had gingival recession and similarly gingival recession was also observed in 35% of patients with advanced periodontitis. None of the healthy individuals had gingival recession. This shows that with progression of periodontal disease there is an irreversible loss of supporting structures which requires surgical intervention for management[13].

Studies have shown that systemic diseases like diabetes mellitus and periodontal disease have bidirectional link. Diabetes is not only related with destruction of periodontal tissues but periodontal disease also effects glycemic control[14]. The study results showed that 65% of diabetic patients had moderate periodontal destruction and 35% of diabetics had advanced periodontal destruction. Similarly 57% of patients who had more than one disease had advanced periodontal destruction[15].

Smoking not only is related to increase incidence of lung cancer and myocardial infarction but it also has its effects on periodontal tissues. Smokers not only suffer from halitosis but due to local vasoconstriction it also is responsible for deterioration and delayed healing of periodontal tissues. The study results showed that 90% of smokers were suffering from some form of periodontal

Table-III. Comparison of different variables with periodontal destruction

Variable	Healthy %age	Early Periodontitis %age	Moderate Periodontitis %age	Advanced Periodontitis %age
Plaque				
Yes	24	29	29	18
No	50	50	-	-
Calculus				
Yes	05	33	38	24
No	77	23	-	-
Bleeding on probing				
Yes	02	29	41	27
No	66	31	03	-
Gingival Recession				
Yes	-	10	55	35
No	50	50	-	-
Systemic disease				
No systemic disease	59	41	-	-
Diabetes	-	-	65	35
Hepatitis	-	60	40	-
Hypertension	10	60	30	-
Heart disease	-	100	-	-
Others	-	-	43	57
Smoking				
Yes	10	34	39	17
No	41	25	15	18

destruction as compared to 41% non smokers who were healthy. It was inline with a study that concluded that robust epidemiologic evidence exists for adverse oral health effects of tobacco smoking and other types of tobacco use[16,17].

CONCLUSIONS

It may be concluded from the study that prevalence of periodontitis increases with advancement of age. Emphasis on oral hygiene instructions should be given and patients should be educated about awareness of periodontitis.

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Correspondence Address:
Department of Periodontology
Islamic International Dental College
7th Ave G 7/4 Islamabad
Riphah International University
naumaannasir@yahoo.com

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