IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 8 Ver. I (Aug. 2015), PP 71-75
www.iosrjournals.org

Periodontal Screening and Scoring Of Patients Attended Periodontal Clinic of School Of Dentistry at University Of Sulaimani

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Abstract:
Introduction: *periodontal disease is usually a bacterial inflammatory disease in nature. Starting from gingivitis, if untreated it will progress to the surrounding structure of the teeth and end up with tooth loss. The early diagnosis of periodontal disease is a prerequisite for establishing successful treatment plan. The PSR assessment for every new patient may provide a plenty of information about the severity and extent of the disease within short time and easiest way.*
Aim and Objectives: *To determine the prevalence of PSR score codes among the patients that attended Periodontal Department Clinics at School of Dentistry/ University of Sulaimani during year 2014-2015.*
Materials and Methods: *Five hundred patients were divided into five groups according to their ages, two groups for sex differences and another two groups for smoking habits. WHO periodontal probe was used for evaluating PSR codes in all the six sextants for every patient and the maximum score code was recorded for each sextant. The informed consent was provided to be signed before commencement of treatment.*
Observations: *Among these 500 patients, 278 were males, 222 were females, 422 were nonsmokers, and only 78 were smokers. The age group 2(20-40) constituted the majority of the attendee of about 70% followed by age group 1 (<20 years old) of about 18%. Followed by age group 3 (40-60) 10% and (>60) only one percent respectively. The codes 2 and 1 constituted the majority of the codes among all sextants by (47.97%) and (39.86%) followed by code 3 (7.47%), zero (2.67%) and four (2.03) respectively. Chi square statistical test revealed highly significant relations (P<0.05) between the four age groups at all marked codes, no significant difference (p>0.05) found between male and female among all codes, but recorded highly significant differences (P<0.05) between smokers and nonsmokers at all codes. It also revealed high significant relations between all PSR codes and all six sextants.*
Conclusions: *The study shows high prevalence of calculus deposition and gingival bleeding among all PSR codes including all age groups and both sexes. The smokers showed lesser bleeding and more calculus deposition comparing to nonsmokers.*
Key Words: *Bleeding, Calculus,Gingiva, Periodontal screening and recording, Smoking*

I. Introduction

Periodontal disease is regarded as a bacterial inflammatory disease, initiates as gingivitis, which may remain unchanging as content gingivitis or progress to the surrounding supporting structures of the teeth - periodontitis (1). Maintaining a healthy periodontal tissue is essential for functional integrity and entire dental and oral health. Public prevention measures have shown a noticeable reduction in dental caries prevalence. However, slight effect was shown on reduction of periodontal diseases (2,3). Early detection of periodontal disease is an essential task for early management and controlling progression of the disease process because periodontitis is an irreversible disease that causes permanent damage of the periodontal apparatus (4). Even today despite improvement and progress in diagnostic tools, periodontitis is often diagnosed quite late (3). Diagnosis of periodontal disease often involves a comprehensive periodontal examination including full mouth probing in order toestimate the clinical attachment levels around each individual tooth (5).

Periodontal screening and recording Index provides quick information about periodontal condition of the patients. Many published studies have regarded PSR Index as valuable tool for early diagnosis of periodontal diseases because it is a reproducible index, reliable and a quick method of screening and evaluation. However, some studies have reported some draw back in this Index for under or overestimating periodontal conditions (6). Nevertheless, it can be used for screening the periodontal status solely because the scores are not diagnostic i.e. this Index does not measure the amount of clinical attachment loss (5). One of the advantages of this index is that the earliest symptom of the periodontal disease can be detected clinically and required periodontal treatment can be established. Furthermore, it can be readily incorporated into routine oral examinations without increasing

appointment time (3,7).

Clinically, this index is accomplished by WHO probe and the dentition is divided into six sextants. Each score in this index has its regular sequence of treatments. A score is given for each area and a summary chart will help the examiner to determine whether comprehensive periodontal examination and treatment are required (7).

One of the priorities and duties of our department – Department of Periodontology is to provide data base for periodontal status in Kurdistan region as these types of base line data for Kurdish population is scant. Therefore,the purpose of this study was to determine the prevalence of periodontal screening and scoring among patients attended Periodontal Clinic of School of Dentistry at University of Sulaimani during the study year 2014-2015.

Aims and Objectives: To determine the prevalence of periodontal screening and recording score codes among the patients that attended Periodontal Department Clinics at School of Dentistry/ University of Sulaimaniduring year 2014-2015.

II. Materials and Methods

In this retrospective, cross-sectional study, five hundred patients had visited Periodontics Department at School of Dentistry of University of Sulaimani in 2014-2015 were involved. The patients were divided into 5 groups according to their ages as follow (<20, 20-40, 40-60 and >60) years, in order to determine the level of the score codes of PSR among each age group. Patients were informed about the nature of the research and each participant signed informed consent form. Furthermore, the ethical committee of our school approved the study.

Full medical history was obtained from the patients, intraoral and extraoral examinations were recorded. In order to determine the relation between smoking and PSR codes, smoking history of the patients was recorded too. For periodontal screening and recording examination (PSR) the dentition was divided into six sextants. For evaluation of participants' PSR codes, WHO probe was used, which is composed of 0.5 mm ball at the tip of the working end, from tip of the ball to the beginning of the black band is 3.5 mm and to the end of the band is 5.5 mm. The ball at the end of the probe is intended to enhance patient comfort and assist in detecting overhanging margins and subgingival calculus (8). Examination of each sextant was done according to principles of PSR examination (6). Each sextant was examined for presences of bleeding on gentle probing of gingival sulcus, presence of calculus and other retentive factors from restorations, improper removable and fixed prosthodontics, orthodontic appliances, and crowding, periodontal pockets of more than 3.5 mm and above 5.5 mm.

Examination was done by dental students under supervisions of theperiodontists at the teaching school clinics. Any case report with incomplete medical history, PSR examination or edentulous sextants were excluded in this study.

Statistical analysis: Chi Square was applied to present the results of this study statistically.

III. Results

The study sample included five hundred (500) records for patients attended department of periodontology at the School of Dentistry of University of Sulaimani. In this study, the sample comprised 278 male and 222 female, Four hundred and twenty two (422) patients were nonsmoker, and 78 patients were smoking more 10 cigarettes per day (Table 1).

Table 2 demonstrates the number and percentages of records of the study sample and their distribution within the four periodontal screening codes according to each sextant among the study sample. As the table shows, the highest and the lowest records for each sextant and within each screening code was recorded as follow; the highest and lowest percentages for codes 0, 1, 2, 3 and 4. For the sextant 1 was (%46.6 and %1.8), for the sextant 2 was (%58 and %1.4), for the sextant 3 was (%48 and %2.2), for the sextant 4 was (%46.6 and %2), for the sextant 5 was (%72.6 and %0.8) and the sextant 6 recorded (%45.8 and %1.6) respectively. Code 1 and code 2 constitutes the highest percentages of patients for all sextants than code 0, 3 and code 4.

The age group 2 constitutes 70 percent of all age group followed by age groups 1, 3 and 4. The code 2 constitutes the overall codes in all age groups followed by codes 1, 3, 0 and 4 as shown in Table 3.Chi square statistical test revealed highly significant ($P<0.05$) between the 4 age groupsat all marked codes

From the highest code to the lowest for both males and females is shown in Table 4 as follow: two (49.7%-45.8%), 1 (38%-42.1%), 3 (7.9%-6.9%), 0 (2.4%-3%) and 4 (1.9_2.1%). Statistically no significant difference ($p>0.05$) was shown between male and female among all codes.

According to Table 3 and on distributing the percentages of smokers on each code for every sextant as nonsmokers and smokers, the results showed code zero has lower record and percentage differences between smokers and nonsmokers. However, higher record differences were found among smokers in all other four periodontal screening codes and for all sextants compared to nonsmokers. For example the highest record

differences between smokers and nonsmokers found in code 2 and 3. Statistically Chi square recorded highly significant differences ($P<0.05$) between smokers and nonsmokers at all codes as demonstrated in Table 5.

IV. Discussion

Complete periodontal examination and recording among population usually requires a lot of time in order to be accomplished. Therefore, PSR gives simple, quick and reproducible general evaluation of the periodontal status.

In this study, the attendance of males and females was slightly different 55.6 and 44.4 percent respectively. This is important in order to compare the percentages of PSR codes between these two groups. Percentages of all codes in both male and female showed some differences except for codes 2 and 3. Females demonstrated more bleeding by approximately 4 percent. However, male showed a similar percentage of calculus with less amount of bleeding and statistically no significant differences were recorded between male and female.

The study showed high percentage of code 2 (48%) among all sextants and the lower anterior sextants constitutes the major percentage (72.8) of code 2 compared to the other codes for lower anterior sextant. This finding is consistent with Salkin et al (9)that applying PSR code in Philadelphia population in USA, they reported (41.9%) for code 2 at lower anterior sextant (5). However, the present study is conflicting with Primal et al finding which reported 22% for code 2 at lower anterior on 3426 patients at the Western University of Health Science Dental center (10). Code 2 then is followed 39.8% in all sextants. This indicates higher prevalence of gingival bleeding among patients visiting periodontal clinics. Thus, codes 1 and 2 constituted the majority of the periodontal screening and recording among the study sample. Code 3 was about 7.4% for total PSR codes - 224 sextants among 3000 sextants. A dramatic reduction has been reported for code 4 which was about 2% of the total codes - 61 sextants among the total sextants.

According to age, 70% of the patients in the current study located in the age group 20-40 year, therefore, the obtained data particularly represents adult population. Codes 1 and 2 also dominate the other codes; the similar results have been achieved in a study on oral health status among children and adults in Madagascar that 72 per cent of individuals with age (35-44 years) had CPITN score 1 and 2 (11). In addition, the other age groups in this study hugely occupied by codes one and two. However statistical analysis showed significant differences between the age groups among the 5 screening codes.

According to gender, there were no significant differences in percentages between male and female. Code 0 in both sexes recorded almost similar results. However, some difference between male and female was recorded for the code 1 with slight predilection for female, whereas code 2 recorded a slight increase in male sample. However, these differences did not reach the level of significance statistically. Very low frequency of percentages of code 3 and 4 was reported in both male and female compared to each other. This is contradicting the results of Batra et al, (2014) which recorded higher percentages of code 3 and code 4 -32.5% and 37.8% respectively among 550 subjects, the study had also shown higher prevalence of periodontal disease in males (93.8) than in females (89.5) (12).

Number of smokers in this retrospective study was very low compared to nonsmokers (84.4:15.6). Similar to other variables, most of the patient's PSR codes located in code one and code two. About 30% of the smokers suffered from gingival bleeding whereas 42% of nonsmokers had bleeding. Consequently, smokers showed higher prevalence of calculus deposition than nonsmokers (55.9%:46.5%). Smokers showed higher percentages of code 3 and code 4 (10.3% and 2.3%) than nonsmokers (7% and 1.9 %). Puşcaşu et al (2009) published similar results in a study among adult population from Constant, Romania (13). A similar result for bleeding showed in Riyadh city population with lower percent of calculus deposition. The study also showed higher percent of shallow pockets in nonsmoker while there was higher percentage of deep pockets in smokers (14).

In the current study, the high percentage of code one and code two among the majority of the patients is probably indicates that most of these patients were university students, which by far they had higher dental educational level than other populations in the community.

V. Conclusion

The study showed high prevalence of calculus deposition and gingival bleeding among all periodontal screening and recording codes including all age groups and both sexes. The smokers showed lesser bleeding and more calculus deposition comparing to nonsmokers.

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Table 1: shows the total numbers of patients, numbers of patients according to sex and smoking habit.

Samples	**Gender**		**Smoking**	
Total	Male	Female	Smokers	Nonsmokers
500	278	222	78	422

Table 2: percentages of PSR codes according to the six sextants.

PSR Codes	**Sextant 1 n (%)**	**Sextant 2 n (%)**	**Sextant 3 n (%)**	**Sextant 4 n (%)**	**Sextant 5 n (%)**	**Sextant 6 n (%)**	**All n (%)**	**Chi-square**	**P-value**
Code 0	9 (1.8)	25 (5)	11 (2.2)	12 (2.4)	13 (2.6)	10 (2)	80 (2.6)	X^2= 247.729	P = 0.0000 H.S*
Code 1	191 (38.2)	290 (58)	180 (36)	211 (42.2)	94 (18.8)	229 (45.8)	1195 (39.8)		
Code 2	233 (46.6)	152 (30.4)	240 (48)	233 (46.6)	363 (72.6)	219 (43.8)	1440 (48)		
Code 3	54 (10.8)	26 (5.2)	50 (10)	34 (6.8)	26 (5.2)	34 (6.8)	224 (7.4)		
Code 4	13 (2.6)	7 (1.4)	19 (3.8)	10 (2)	4 (0.8)	8 (1.6)	61 (2.0)		
Total	500 %100	500 %100	500 %100	500 %100	500 %100	500 %100	3000%100		

n: number of the code in a certain sextants, (%) percentage of the code in a certain sextant, * highly significant

Table 3: percentages of PSR codes according to age groups.

Age	**<20 n (%)**	**20-40 n (%)**	**40-60 n (%)**	**>60 n (%)**	**Total**	**Chi- square**	**p-value**
Code 0	17 (3.2)	49 (2.3)	135 (4.4)	0 (0.0)	201 (3.53)	X^2= 288.132	P = 0.00000 H.S*
Code 1	280 (51.2)	823 (39.4)	768 (25.4)	12 (40)	1883 (33.1)		
Code 2	206 (37.5)	1036 (49.6)	1565 (51.8)	17 (56.6)	2824 (49.7)		
Code 3	40 (7.3)	142 (6.8)	361 (11.9)	1 (3.3)	544 (9.57)		
Code 4	3 (0.5)	38 (1.8)	189 (6.2)	0 (0.0)	230 (4.0)		
497*6 (2982)	546 (18.3)	2088 (70)	318 (10.6)	30 (1)	5682 (100)		

n: number of the code in a certain sextant, (%) percentage of the code in a certain sextants, * highly significant

Table4: percentages of PSR codes according to sex predilection.

sex	**Male n (%)**	**Female n (%)**	**Total n (%)**	**Chi- square**	**P-value**
Code 0	40 (1.33)	40 (1.33)	80 (2.67)	X^2= 7.821	P= 0.09835969 N.S p>0.05
Code 1	634 (21.13)	562 (18.7)	1196(39.86)		
Code 2	830 (27.6)	610 (20.33)	1440(48)		
Code 3	132 (4.4)	92 (3.06)	224(7.47)		
Code 4	32 (1.06)	28 (0.93)	60(2)		
Total 500*6	1668(55.6)	1332(44.4)	3000(100)		

n: number of the codes in a certain sextant, (percentages of the code in a certain sextant)

Table5: percentages of PSR codes according to smoking habit.

Smoking	Nonsmokers	Smokers	Total	Chi square	P-value
Code 0	69 (2.3)	11 (0.36)	80 (2.67)	X2= 27.039	P= 0.00001952 H.S*
Code 1	1058 (35.26)	139 (4.63)	1196(39.86)		
Code 2	1178 (39.26)	261 (8.7)	1440(48)		
Code 3	178 (5.93)	46 (1.53)	224(7.47)		
Code 4	49 (1.63)	11 (0.36)	60(2)		
Total 500*6	2532 (84.4)	468(15.6)	3000(100)		

n: number of the code in a certain sextant, (%) percentage of the code in a certain sextants, * highly significan