Gingival recession, gingival bleeding and dental calculus in Iraqi adults and the gingival recession correlation with periodontal disease break down.

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ABSTRACT

Background: This cross sectional study describes the prevalence of gingival recession, gingival bleeding and dental calculus in Iraqi adults covering the age range from 20-70yrs, and to evaluate the relation between gingival recession and periodontal break down use furcation involvement and tooth mobility as explanatory variables for periodontal diseases.

Materials and Methods: The study groups consist of 132 subjects (72 males and 60 females) who attended the college of Dentistry for routine dental treatment, gingival recession , gingival bleeding and dental calculus were assessed at all teeth excluding the third molar.

Results: There was an abundant amount of calculus in the lower arch in males especially because of smoking and this long standing calculus has a highly significant correlation coefficient with gingival recession and gingival bleeding. Gingival inflammation also is a common finding especially in males which is may be due to heavy amount of calculus and smoking where there was a highly significant correlation coefficient between gingival bleeding and smoking. It was also clear that females showed less gingival recession than males and that gingival recession tends to increase with age and it is more often on the lower anterior teeth due to calculus also there was a highly significant correlation coefficient between gingival recession and gingival bleeding, on the other hand a highly significant correlation was found between gingival recession and periodontal breakdown.

Conclusion: Gingival recession, gingival bleeding and dental calculus are common in Iraqi adults. Gingival recession also is associated with destructive periodontal diseases.

Keywords: Gingival recession, and bleeding and dental calculus. **(J Coll Dentistry 2005; 17(1): 76-80)**

INTRODUCTION

Recession is a common occurrence which increase with age, it tends to be first evident in early adult life, and even in dentally well motivated adults can be seen in up to 60% of patients.[(1)]

However, the prevalence of gingival recession has been reported to be high in developing countries [(2,3)]. The latter study compared the extent of gingival recession in highly educated Norwegian subjects and in Srilanken tea laborers and reported more recession in the latter, the different level of gingival recession between populations which seems to occur have yet to be explained.

Another periodontal characteristic in developing countries population is high prevalence of abundant amount of long standing calculus [(2,4,5)]. These studies attempted to speculate a causative relationship between gingival recession and long standing dental calculus which seem both to be highly prevalent. Another study[1] done in USA by Al-Bandar et al., 1996[(6)] reported that gingival inflammation and dental calculus were also associated with early periodontal break down, 3 years later in 1999 Al-Bandar et al.,[(7)] showed that dental calculus, gingival bleeding and gingival recession are common in American adults population with obvious differences between race / ethnic group.

Although some previous studies reported that smoking may not increase risk of receding gingiva [(8)]. Others showed that smoking may be related to periodontal diseases independently of oral hygiene status [(9)]. The aim of this study is to assess the prevalence of gingival recession, gingival bleeding and dental calculus in Iraqi adults and to estimate their relationships.

A secondary but parallel aim was to reveal the relationship between gingival recession and periodontal diseases demonstrated by FI (furcation involvement) and MO (tooth mobility).

MATERIALS AND METHODS

The clinical examinations were conducted using graduated Williams periodontal probes and dental explorers. A semi structured questionnaire was constructed to estimate the presence /absence of gingival recession, gingival bleeding, dental calculus, tooth mobility and furcation involvement. The oral examinations excluded the third molar. 132 subjects, (72 males + 60 females) selected randomly in this study, subjects were excluded

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if they used antibiotics 4 weeks prior to the study [10].

Clinical Assessments:

1. GR: The recession was scored if the free gingival margin located apical to CEJ without retraction of the gingival margin in the facial surface.
2. GB: Absence or presence of bleeding on probing [11].
3. DC: Absence or presence of supragingival dental calculus [12].
4. FI: Absence or presence of furcation involvement with exposure of 1/3 or more of the width of the furcation[13].
5. Mo: No mobility or mobility present of greater than 0.5mm movement in the bucco-lingual direction [13].

For smoking history subjects were defined as non smoker if No (0) pack used per year [9]

RESULTS

The distribution of subjects according to sex and age groups, shown in table (1), where the highest percentages were in (60-69) age group in both males and females, the results were (29.167%) and (26.67%) respectively. It is clear that high No. of smokers in males especially in (50 -59) age group (16 subjects), no smokers were examined in (30-39) age group in both males and females, as shown in table (2).

The distribution of calculus which appears to be abundant in the lower arch in both sexes and it is greater in males than females, as shown in table (3). It is obvious that gingival inflammation manifested by gingival bleeding is higher in males than in females and it is relatively higher in the lower arch, as shown in table (4). It is clear that females showed less gingival recession than males within the same age group and that gingival recession tends to increase with age .also it is shown that gingival recession is higher in lower than upper arch and occurred most often on the lower anterior more than lower posterior teeth, as shown in table (5).

The highest correlation coefficient between gingival recession and gingival bleeding was found in (50-59) male age group and the lowest was in (20-29) female age group all the relations were highly statistically significant, as shown in table (6).

Correlation was detected between gingival recession and dental calculus , where the results were also statistically significant for both sexes and the highest correlation coefficient was observed in (50-59) male age group and the lowest was in (30 -39) female age group .Results also revealed that there was highly significant correlation between gingival bleeding and dental calculus in both sexes and the highest were in female (50 -59) age group and in male (20-29) age group and the lowest was in (30-39) female age group (Table 7). As it was expected there were correlation coefficients between gingival recession and periodontal breakdown measured by the estimation of furcation involvement and tooth mobility, which was highly significant (Table 8).

Finally the correlation coefficient between gingival bleeding and smoking was higher in male (20-29) and (50-59) age groups and lower in older male age group (60-69), while correlation between gingival recession and smoking by age group, demonstrated the highest relation in male (50 -59) age group and the lowest in (60-69) older male age group (Table 9).

DISCUSSION

Data collected in this cross – sectional study showed that:

Gingival recession is a common condition among young adults which is similar to those reported from other previous studies [1, 14,15].

Females showed less gingival recession than males within the same age group which is in a agreement with [16] and a significant association between age and recession [17,18].

Results also revealed that lower anterior teeth are most often and most severely affected, the finding of this intraoral distribution of gingival recession tend to confirm the result of previous studies on comparable population of developing countries without regular dental care[2,3,19].

And it is not in accordance with [7,20,21]. Because in western population exposed to regular dental care, gingival recession has been reported to be most frequent on maxillary and mandibular molars under the influence of tooth brushing [17] which means that the level of people education is an important contributor to gingival recession.

Iraqi population exhibit a much higher tooth surface with calculus than in other developed countries such as in USA[22] and in Norway[5] and this is not surprising since most

of these calculus was never removed, high correlation coefficient between dental calculus and gingival recession may indicate a causative relationship between them[23]. These findings tend to support the hypothesis that calculus is an important determinant in the onset of gingival recession.

Highly significant correlation between gingival recession and gingival bleeding which is in agreement with [7,24]. Not surprisingly there is a positive association between calculus and gingival inflammation manifested by bleeding on probing due to the well known mechanical and chemical irritation of calculus to the gingiva this is in agreement with[6].

This study showed a positive association between smoking, gingival bleeding and gingival recession, where previous study reported abundant calculus formation in smokers subjects [25] which will lead to increase gingival bleeding and gingival recession. On the other hand results revealed a highly significant correlation between gingival recession and periodontal breakdown which is in agreement with [6,7].

Table (1): Distribution of the subjects according to age by sex groups

Age group (Years)	Male		Female		Total
	No.	%	No.	%	
20-29	10	13.889	11	18.33	21
30-39	17	23.611	10	16.67	27
40-49	10	13.889	12	20	22
50-59	14	19.444	11	18.33	25
60-69	21	29.167	16	26.67	37
Total	72	100	60	100	132

Table (2): Distribution of smokers according to age by sex groups

Age group (Years)	Male		Female		Total	
	Yes	No	Yes	No	Yes	No
20-29	8	14	0	11	8	25
30-39	0	5	0	15	0	20
40-49	5	5	1	6	6	11
50-59	16	8	3	14	19	22
60-69	4	7	4	6	8	13
Total	33	39	8	52	41	91

Table (3): Distribution of Calculus according to age groups (male& female)

Site of teeth		20-29				30-39				40-49				50-59				60-69				Total			
		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Upper	6,7	2	8	0	5	14	30	4	15	10	10	7	9	9	13	10	12	30	18	28	20	65	79	49	61
	4,5	5	9	0	5	6	38	3	13	11	9	4	10	11	11	12	14	17	31	17	30	51	98	36	72
	1,2,3	8	7	0	5	15	29	3	13	9	11	3	10	13	9	10	10	30	18	30	20	75	74	46	58
Lower	6,7	8	2	6	4	31	13	12	7	19	1	10	5	17	5	15	11	37	11	30	10	112	32	73	37
	4,5	6	4	0	4	21	23	5	12	12	8	10	7	15	7	16	10	39	9	30	10	93	51	61	43
	1,2,3	8	2	0	3	25	19	10	10	17	3	10	5	13	9	14	12	36	12	30	12	99	45	64	42
Total		38	32	6	26	112	152	37	70	78	42	44	46	78	54	77	69	189	99	165	102	495	379	329	313

Table (4): Distribution of GB according to age groups (male& female)

Site of teeth		20-29				30-39				40-49				50-59				60-69				Total			
		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Upper	6,7	27	17	5	11	11	5	10	7	12	8	3	3	32	16	12	14	13	9	7	7	95	55	37	42
	4,5	28	16	5	11	8	5	5	12	13	7	2	3	21	27	19	9	13	9	9	9	83	64	40	44
	1,2,3	27	17	9	7	10	3	7	11	15	5	2	3	30	18	17	11	13	9	7	7	95	52	42	39
Lower	6,7	27	17	5	11	10	4	10	7	16	4	3	3	27	21	17	11	15	7	7	7	95	53	42	39
	4,5	24	20	9	9	7	6	3	19	11	9	2	3	33	15	19	9	14	8	9	9	89	58	42	49
	1,2,3	32	12	11	7	10	3	4	12	12	8	3	3	31	15	23	5	12	10	5	5	99	48	46	32
Total		165	99	44	56	56	26	39	68	79	41	15	18	176	112	107	59	80	52	44	44	556	330	249	245

Table (5): Distribution of GR according to age groups (male& female)

Site of teeth		20-29				30-39				40-49				50-59				60-69				Total			
		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Upper	6,7	10	31	8	6	13	0	8	8	18	2	10	4	24	14	11	14	27	9	12	4	92	56	49	36
	4,5	7	35	2	12	9	4	6	6	17	3	7	4	26	22	10	11	28	6	16	6	87	70	41	39
	1,2,3	7	27	6	8	18	2	8	12	19	1	8	4	25	10	9	9	30	6	10	4	99	46	41	37
Lower	6,7	14	21	8	4	20	0	9	10	23	2	11	4	36	12	12	0	37	8	13	4	130	43	53	22
	4,5	10	27	8	6	15	2	9	10	18	2	10	4	33	5	12	4	34	8	18	8	110	44	57	32
	1,2,3	18	18	9	6	20	0	10	8	21	3	11	0	38	13	12	13	42	8	13	8	139	42	55	35
Total		66	159	41	42	95	8	50	54	116	13	57	20	182	76	66	51	198	45	82	34	657	301	296	201

Table (6): Correlation between GR & GB by age groups

Age group	Male		Female	
	(r)	p-value	(r)	p-value
20-29	0.988	0.0001	0.931	0.0001
30-39	0.994	0.0001	0.956	0.0001
40-49	0.998	0.0001	-	-
50-59	0.999	0.0001	0.990	0.0001
60-69	0.998	0.0001	0.983	0.0001
Total	0.995	0.0001	0.910	0.0001

***P<0.0001 high significant**

Table (7): Correlation between Calculus with GR & GB by age groups

Age group	GR				GB			
	Male		Female		Male		Female	
	(r)	p-value	(r)	p-value	(r)	p-value	(r)	p-value
20-29	0.995	0.0001	0.987	0.0001	0.990	0.0001	0.908	0.0001
30-39	0.966	0.0001	0.880	0.009**	0.936	0.0001	0.902	0.0001
40-49	0.987	0.0001	-	-	0.977	0.0001	-	-
50-59	0.997	0.0001	0.991	0.0001	0.987	0.0001	0.990	0.0001
60-69	0.994	0.0001	0.968	0.0001	0.912	0.0001	0.972	0.0001
Total	0.993	0.0001	0.892	0.0001	0.923	0.0001	0.922	0.0001

***P<0.0001 high significant, **P<0.05 Significant**

Table (8): Correlation between GR & Tooth Mobility & Furcation Involvement (male & female)

	Male		Female	
	(r)	p-value	(r)	p-value
Mo.	0.993	0.0001	0.910	0.0001
FI.	0.982	0.0001	0.982	0.0001

***P<0.0001 high significant**

Table (9): Correlation between Smoking with GR & GB by age groups

Age group	GR				GB			
	Male		Female		Male		Female	
	(r)	p-value	(r)	p-value	(r)	p-value	(r)	p-value
20-29	0.925	0.0001	-	-	0.992	0.0001	-	-
30-39	-	-	-	-	-	-	-	-
40-49	0.912	0.0001	-	-	0.989	0.0001	-	-
50-59	0.987	0.0001	0.844	0.0001	0.992	0.0001	0.887	0.0001
60-69	0.711	0.0001	0.844	0.0001	0.778	0.0001	0.887	0.0001
Total	0.945	0.0001	0.871	0.0001	0.992	0.0001	0.889	0.0001

***P<0.0001 high significant**

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