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Gingival health status among students in AL-Mustansiria University – College of Dentistry

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Abstract

Gingival health status survey was conducted concerning 19-23 years old students in Al- Mustansiria University / college of dentistry.

The total sample composed of 150 students (75 males and 75 females).

The clinical examination was conducted by using blunt mouth probe, following the (GI) described by Silness and Loe (1963).

Results of this study have shown that mean of gingivitis decreases with advancing class level with a high significant difference between all classes due to higher awareness regarding prevention of dental diseases among finished dental students. Results also show that gingivitis among males is higher than that among females for all classes because of having better oral hygiene practices than males.

Key words: GI gingival index; LPS lipopolysaccharide; LTA lipoteichoic acid.

Introduction

Gingivitis (inflammation of the gum tissue) is a term used to describe a non-destructive periodontal disease. The most common form of gingivitis is in response to bacterial biofilms (plaque) adherent to tooth surfaces, termed plaque-induced gingivitis, which is the most common form of periodontal disease [(1)]. The plaque acts to initiate the body's host response which, in turn, can lead to destruction of the gingival tissues, which may progress to destruction of the periodontal attachment apparatus [(2)].The plaque accumulates in the small gaps between teeth, in the gingival grooves and in areas known as plaque traps (locations that serve to accumulate and maintain plaque), including bulky and overhanging restorative margins, claps of removable partial dentures and calculus (tartar) that forms on teeth. Although these accumulations may be tiny, the bacteria in them produce chemicals, such as degenerative enzymes, and toxins, such as lipopolysaccharide (LPS) (endotoxin) or lipoteichoic (LTA) that promote an inflammatory response in the gingival tissue. This inflammation can cause an enlargement of the gingiva and subsequent pseudopocket formation [(3)].

There are many Iraqi studies conducted on dental students like Kadhim [(4)] found that the relation between knowledge and behavior and the use of interdental cleaning measure on dental students their information may need to be reviewed, anther study done by Kadhim et al [(5)] found appositive effect of the level of education on the oral hygiene of dental students and most of the dental

students were not in need of complicated periodontal treatment.

The symptoms of gingivitis are; swollen gingiva, bright red or purple gingiva, gingiva that are tender or painful to the touch, bleeding gingiva or bleeding after brushing. Additionally, the stippling that normally exists on the gingival tissue of some individuals will often disappear and the gingiva may appear shiny when the gingival tissue becomes swollen and stretched over the inflamed underlying connective tissue. The accumulation may also emit an unpleasant odor. So the most common cause of gingivitis is the poor oral hygiene therefore good oral health habits, such as regular professional checkups and daily brushing and flossing can help in preventing gingivitis [6,7]. Plaque induced gingivitis is the most common form of gingivitis, it refer to anon destructive form of periodontal disease , its affect different ages, ethinal groups and educational levels including medical and dental students[1].

Materials and Methods

A permission was taken from the collage authority to perform this study on dental students. The sample was composed of 150 dental students(75 male and 75 female), they were randomly chosen and then grouped according to their classes into five equal groups(15 males and 15 females) in each group.

Clinical examinations were conducted using plan mouth mirror and a blunt mouth probe (No.00).; the gingival index described by Silness and Loe (1963) was used [8].

0: Normal gingiva

1: Mild inflammation: slight change in color, slight edema, no bleeding on probing.

2: Moderate inflammation: redness, edema and glazing, bleeding on probing.

3: Sever inflammation: marked redness, edema, ulceration, and tendency to spontaneous bleeding.

Ramfjord index teeth (1959) [9], were examined to represent the whole dentition. Only fully erupted tooth was involved, if the index tooth was missing or partially erupted; the area was excluded and not substituted by an adjacent tooth. The six index teeth for permanent dentition were: the upper right first molar, upper left central incisor, upper left first premolar, lower left first molar, lower right central incisor and lower right first premolar.

All clinical examination were carried by the researchers themselves after been passed the inter and intra examiner calibration successfully. The examination and index recording were carried out in the dental clinic of preventive department.

The data analysis was carried using statistical package for social science (spss version 12.0). The analysis of data included:

- Classification of data and calculation of frequencies.
- Calculation of statistical parameter (mean and standard deviation of the mean).
- Statistical tests that were used in this study:
  1) One way ANOVA.
  2) LSD (least significant difference).

The significant level was accepted at 5%.

Results

This survey was conducted among dental students from all levels in Al-Mustansiria University / college of dentistry. Examination started at the 5th of October 2009 till the 10th of

December 2009. The distribution of the sample according to class level and gender is shown in (Table 1).

The examined number was 150 students from 390 students which is the total number of students in the college. Equal number of males and females were examined from all levels. Results of the present study showed that none of the examined students were of gingival inflammation; in another word, gingivitis percentage was found to be 100%.

Values of the mean and standard deviation of mean of gingivitis for all classes and for both males and females were shown in (Table 2 and 3) respectively.

Results showed that mean of gingivitis decreases with advancing class level (1^{st} class=1.517, 5^{th} class=1.137) with a high significant difference between all classes (f= 5.827, df= 4, P< 0.01)(Table 4), by using ANOVA test. Further investigations using least significant difference (LSD) show a non-significant difference between 1^{st} class and 2^{nd} class, 2^{nd} class and 3^{rd} class, 3^{rd} class and 4^{th} class, and between 4^{th} class and 5^{th} class (P> 0.05), while a significant difference were found between 1^{st} class and 3^{rd} class, 2^{nd} class and 4^{th} class and between 2^{nd} class and 5^{th} class (t=0.29, t=0.20, t=0.21, P<0.05) respectively.

A high significant difference between 1^{st} class and 4^{th} class and between 1^{st} class and 5^{th} class (t=0.36, t=0.38, P< 0.01) respectively.

Concerning gender difference, results show that gingival index mean of males is higher in the same class level than females and also it decreases with advancing class level (1^{st} class=1.567, 5^{th} class=1.207). Statistical analysis (by ANOVA) of gingival index mean of males from all classes shows a significant difference between all classes (f= 2.812, df= 4, P< 0.05) (Table 5). Further investigations using least significant difference (LSD) show a non-significant difference between 1^{st} class and 2^{nd} class, 2^{nd} class and 3^{rd} class, 2^{nd} class and 4^{th} class, 2^{nd} class and 5^{th} class, 3^{rd} class and 4^{th} class, 3^{rd} class and 5^{th} class and between 4^{th} class and 5^{th} class (P> 0.05) while a significant difference between 1^{st} class and 3^{rd} class (t=0.29, P> 0.05) and a high significant difference between 1^{st} class and 4^{th} class and between 1^{st} class and 5^{th} class (t=0.38, t=0.36, P< 0.01) respectively.

The gingival index mean of females is lower in the same class level than males and decreases with advancing class level (1^{st} class=1.467, 5^{th} class=1.067). Statistical analysis (by ANOVA) shows a significant difference between females from all classes (f= 2.985, df= 4, P< 0.05)(Table 6), Further investigations using least significant difference (LSD) show a non- significant difference between 1^{st} class and 2^{nd} class, 2^{nd} class and 3^{rd} class, 2^{nd} class and 4^{th} class, 2^{nd} class and 5^{th} class, 3^{rd} class and 4^{th} class, 3^{rd} class and 5^{th} class and between 4^{th} class and 5^{th} class (P> 0.05) while a significant difference between 1^{st} class and 3^{rd} class and between 1^{st} class and 4^{th} class (t=0.290, t=0.346, P< 0.05) respectively and a high significant difference between 1^{st} class and 5^{th} class (t=0.400, P< 0.01).

Discussion

Results of this study have shown that mean of gingivitis values decrease with advancing class level, this is due to the fact that dental school students possess a higher standard of awareness about their dental health and reflect the wide availability of dental services among them [10, 11]. It is also due to the motivation regarding the importance of prevention oral diseases among finish

dental students; this is in agreement with many authors [12, 13, 14].

Further investigations show a high significant difference between the 1st class and the 5th class which is attributed to the higher awareness regarding prevention of dental diseases among finish dental students and increase frequencies of daily tooth brushing which reduces gingival inflammation as many studies that studied dental health practice among finish university students correlating it with dental health status and found that students with low gingival index mean reported the most frequent tooth brushing [15, 16].

In addition to that; dental students who get to use inter dental cleaning aids (dental floss and tooth picks) at the beginning of their dental study jumped at the end of their dental studies [4,17].

According to gender, the study shows that gingival index mean for males is higher than that for females in all classes; this is due to the fact that the females brush their teeth more often than males and have better oral hygiene [16, 18], as females are more interested in their appearance and dental anxiety is the most important factor for them and they are more willing to follow preventive health rules and practices than males [10].

Conclusion

This study shows that mean of gingivitis decreases with advancing class level with a high significant difference between all classes due to higher awareness regarding prevention of dental diseases among finished dental students. Results also show that gingivitis among males is higher than that among females for all classes because of having better oral hygiene practices than males.

References

1- The American Academy of Periodontology. Proceedings of the World Workshop in Clinical Periodontics. Chicago:The American Academy of Periodontology; 2009:I/23-I/24.

2- Academy Report: Treatment of Plaque-Induced Gingivitis, Chronic Periodontitis, and Other Clinical Conditions J Perio 2001; 72:1790-1800.

3- Page, RC; Schroeder, HE. Pathogenesis of Inflammatory Periodontal Disease: A Summary of Current Work. Lab Invest 2007;34(3):235-249.

4- Kadhim J :using of interdental cleaning aids among Iraqi dental students . M Dent J ; 2005, Vol 2 :87-91

5- Kadhim J, Raed A.B, Adel H.S. periodontal treatment need among dental and non dental Iraqi students . M Dent J ;2007,Vol 4:125-30.

6- AAP Parameters of Care: Plaque-Induced Gingivitis J Perio 2000; 71:851-852.

7- Ammons, WF; Schectma, LR; Page, RC. Host tissue response in chronic periodontal disease I: The normal periodontium and clinical and anatomic manifestations of periodontal disease in the marmoset. J Perio Res 2008; 7:131.

8- Silness J. Loe H. Periodontal disease in pregnancy. Correlation between oral hygiene and periodontal condition. Acta Odont Scand. 1964, 22: 121-35.

9- Ramfjord S.P. Indices for prevalence and incidence of periodontal disease. J Perio. 1959, 30: 51-9.

10- Raghad F. Ghali. Oral health status and treatment needs among students of Baghdad University. M.Sc. Thesis. College of Dentistry, University of Baghdad, 1989.

11- Barnard, P.D. and Boyles, J.R.: Dental survey of students at the Australian National University 1999. Aust Dent J 21: 352-354, 2001.

12- Gjermo, P. Beldi, M.I., Bellini, H.T. and Martins, C.R.: Study of tooth loss in adolescent Brazilian Population. Community Dent Oral Epidemiol 11: 371-374, 1998.

13- Al-Makadsi, F.B. and Al-Sahar,W.F.: A study of posterior tooth loss in 15 year old Iraqi students. Iraqi Dent J 12: 155-164, 1985.

14- Murtomaa, H., Turtola, L. and Rytomaa, I: Differentiating positively and negatively health oriented finish university students by discriminate analysis. Community Dent Oral Epidemiol 12: 243-248, 2004.

15- Brandtzaeg, P. and Jamison, H.: A study of periodontal health and oral hygiene in Norwegian army recruits. J Periodontal 35: 302-307, 1999.
16- Ainamon, J. and Parviainen, K.: Occurrence of plaque, gingivitis and caries as related to self- reported frequency of tooth brushing in fluoride areas in Finland. Community Dent Oral Epidemiol 7: 142-146, 2005.
17- Cavallion, J. P., Conge, M., Mirisch, D., Nemmeth, T. and Sitbon, J.M.: Longitudinal study on oral health of dental student at Paris University. Community Dent Oral Epidemiol 10: 137-143, 2006.
18- Heloe, L.A, Aaro, L.E. and Sogaard, A.J.: Dental health practices in Norwegian adults. Community Dent Oral Epidemiol 10: 308-312, 2010.

Table 1: Distribution of examined Students according to Classes level and gender

Classes level	Male		Female		Total	
	No.	%	No.	%	No.	%
Class I	15	10.0	15	10.0	30	20.0
Class II	15	10.0	15	10.0	30	20.0
Class III	15	10.0	15	10.0	30	20.0
Class IV	15	10.0	15	10.0	30	20.0
Class V	15	10.0	15	10.0	30	20.0
Total	75	50.0	75	50.0	150	100.0

Table 2: Mean and S.D. of gingival index of students according to Classes level

Classes level	No	X	S.D
Class I	30	1.517	0.425
Class II	30	1.350	0.367
Class III	30	1.223	0.429
Class IV	30	1.150	0.247
Class V	30	1.137	0.302

Table 3: Mean and standard divisions of gingival index according to Classes level and Gender

Classes level	Gender	No	X	S.D
Class I	**Males**	15	1.567	0.470
	Females	15	1.467	0.384
Class II	**Males**	15	1.400	0.333
	Females	15	1.300	0.403
Class III	**Males**	15	1.273	0.388
	Females	15	1.173	0.475
Class IV	**Males**	15	1.180	0.275
	Females	15	1.120	0.221
Class V	**Males**	15	1.207	0.345
	Females	15	1.067	0.244

Table (4):Gingival mean differences according to classes level

ANOVA test	Sum of squares	df	Mean square	F	sig.
Between group	3.044	4	0.761	5.827	0.000

Table (5):Gingival mean differences according to classes level and gender(Male)

ANOVA test	Sum of squares	df	Mean square	F	sig.
Between group	1.526	4	0.381	2.812	0.032

Table (6):Gingival mean differences according to classes level and gender(Female)

ANOVA test	Sum of squares	df	Mean square	F	sig.
Between group	1.542	4	0.385	2.985	0.025