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Index of Bacterial Plaque in First Year Students of the Bachelor of Dental Surgeon at the Centro Universitario Metropolitano Hidalgo, Mexico

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A B S T R A C T

Determine the index of bacterial plaque in first year students of the degree of dental surgeon at the Centro Universitario Metropolitano Hidalgo. An observational descriptive study was conducted of a transversal nature in 16 students of both genders of between 17 and 24 years of age, the determination of the bacterial plaque was conducted by means of the method of pills revealing, of first entry to the degree of dental surgeon belonging to the University Center Metropolitan Hidalgo. Of the 16 students surveyed and analyzed that represent in the 100% presented bacterial plaque, the average age was 19.18 years, 5 (31.25%) male, 11 (68.75%) women, the prevalence of bacterial plaque was mild in 6.25% of them, moderate in 50% and severe in 43.75%, it was detected that the poor oral hygiene and eating habits, apparently there is a relation of these with the prevalence of bacterial plaque. The prevalence of bacterial plaque in the students was 100%, all students presented bacterial plaque, not with the same index apparently there is a relationship between other factors with the not visit to the dentist, poor dental hygiene, poor brushing technique and the inappropriate use of dental-floss.

Introduction

The present investigation seeks to measure the presence of bacterial plaque and its relationship with the poor oral hygiene of the young people of degree between 17 to 24 years, belonging to the University Center

Metropolitan Hidalgo (CEUMH) in the city of Pachuca Hidalgo, Mexico. This interest arose from which the bacterial plaque is a problem of public health. The bacterial plaque is a mass that is formed by the growth and colonization of microorganisms

on the surface of the teeth, restorations and dental prostheses. As these microorganisms adhere and grow produce destructive substances for the dental tissues, in addition that the plate is a complex microbial community; as a consequence of the interactions between species, occurs a ecological niche that favors the growth and survival of species proteolytic anaerobic strict, as well as appropriate conditions for the development of periodontitis. This being the result of a series of processes that involve a variety of bacteria and components of the oral cavity. (Bascones Martínez *et al*., 2005; BasconesMartinez; Fernando Baños Francisco, 2013)

These processes includes the formation of the film acquired over the surface of organs, dental. The colonization of microorganisms comprises several phases involving the deposition, accession, congregation, growth and reproduction of the microorganisms adhere on the film acquired. (BasconesMartinez; CasalsPeidró Pacho Saavedra)

The presence of bacterial plaque is thus the inefficiency of the oral hygiene, not properly use dental floss, the mouthwash or even the non-use of these, as the poor brushing techniques, mean that the quantity of plate is even greater. (Víctor Lahoud *et al*., 2000)

This table was obtained from the epidemiological profile of the Oral Health in Mexico 2010, in this distribution is observed the presence of bacterial plaque and oral hygiene in children and adolescents; study conducted by the Epidemiological Surveillance System of pathologies buccal SIVEPAB 2009.

These components are evaluated in order to determine oral hygiene in the individual and his or her registration in the sentinel units, used the Simplified Oral Hygiene Index (IHOS) developed by Greene and Vermillion, because it has proved to be a reliable instrument for epidemiological studies of great size. (Perfil Epidemiológico De La Salud, 2011)

This table was obtained in the epidemiological profile of Oral Health in Mexico 2010, this table shows the distribution of IHOS, on periodontal diseases and the age of the participants in the survey conducted by the Epidemiological Surveillance System of pathologies buccal SIVEPAB 2009.

General Objective

Determine the index of bacterial plaque in first year students of the degree of dental surgeon at the Centro Universitario Metropolitano Hidalgo.

Specific Objectives

1. Intervene in each one of the students with the implementation of the pads revealing.
2. Determine the frequency and distribution of risk factors associated with the presence of bacterial plaque in the sample of students.
3. Establish a plan of intervention that stimulate a response for the preventive care of oral health.

Material and Methods

Participants

The present study is descriptive, observational character cross. Where it counted with the participation of 16 students of both sexes, between 17 and 24 years, belonging to the University Center Metropolitan Hidalgo, during the first four months of the cycle september 2015 - January 2016; which voluntarily participated and under an informed consent for filling the

questionnaire was as results were obtained. The determination of the size of the sample was calculated using the formula that uses maximum variance of proportions, with a confidence level of 95% and a maximum allowable error of 5%.

With these parameters are determined a minimum of 16 participants. It was considered as inclusion criteria to be enrolled in the University Center Metropolitan Hidalgo, as a criterion of exclusion not having assisted or not be present at the time of the survey.

Instruments and Categories of Evaluation

For the fulfillment of the proposed objectives, a questionnaire was designed. Which contained 2 categories, the first one was the identification of students, which complied with the rules of confidentiality and the second category on the oral hygiene and eating habits.

Results and Discussion

The present study surveyed 16 students (100%). The average age was 19.18, being 5 (31.25%) male, 11 (68.75) of the female sex.

Within the questionnaire was asked how many times a day you brush your teeth the students, which courage as a result 6.25 per

cent answered that brushing 1 time per day, 75 percent responded that 2 to 3 times brushing the teeth while 18.75 per cent responded that brushing 3 or more times a day. Taking into account that use brushing techniques different, the survey revealed that 37.5% use the technique Stillman1 and 62.5% use the technique circular or Fones2. (See Figure 4).

In an important way the surveys showed that 50 per cent of pupils replied that if they use dental floss and 50% do not use dental floss. On the other hand, the results obtained through the encuetan reveal that the 56.25% if using mouthwash 43.75% do not use mouthwash (See Figure 6).

Within the questionnaire they ask the students if they were subject to orthodontic treatment 25% of students responded that if they have orthodontic treatment, 75% of the students surveyed responded that they do not have orthodontic treatment.

In the questionnaire applied to the students, was of great relevance to ask when was the last time you visited the dentist in where 68.75% of the students answered that less than 6 months, 12.5% responded that more than 6 months and 18.75% that his last visit to the dentist had been over 1 year ago.

Table.1 Distribution of the Simplified Oral Hygiene Index (IHOS) in children and adolescents by group

Agegroup	N	IHOS			
		0	0.1 a 0.2	1.3 a 3	3.1 a 6
2 a 5	3109	82.1	14.3	3.4	0.2
6 a 9	17807	58.2	33.8	7.7	0.3
10 a 14	19560	48.7	38	12.3	1
15 a 19	18963	41.3	38.2	18.4	2.1
Total	59439	50.9	50.9	12.4	1.1

Source: SSA, DGE, SIVEPAB 2009 [15]

Table.2 Distribution of the Simplified Oral Hygiene Index by age group in users of health services Mexico SIVEPAB 2009.

Agegroup	N	IHOS			
		0	0.1 a 1.2	1.3 a 3.0	3.1 a 6
20-24	19749	36.3	37.1	23.6	3
25-29	19548	32.6	37	26.5	3.8
30-34	18302	29.7	36.2	29	5.2
35-39	16708	27.4	35.8	30.9	5.9
40-44	13424	23.8	34.5	34.4	7.2
45-49	11456	21.5	33.4	35.9	9.2
50-54	88665	19.3	31.7	38.2	10.8
55-59	6885	19.3	30.8	38	12
60-64	4956	18.2	29.3	39.1	13.5
65-69	3525	18.5	27.5	39.1	14.8
70-74	2219	17.7	25.4	40.6	16.4
75-79	1378	18.8	25.2	39.8	16.2
80 y mas	828	23.6	22.1	39.1	15.3
Total	127643	27.1	34.5	31.4	7

Source: SSA, DGE, SIVEPAB 2009 [15]
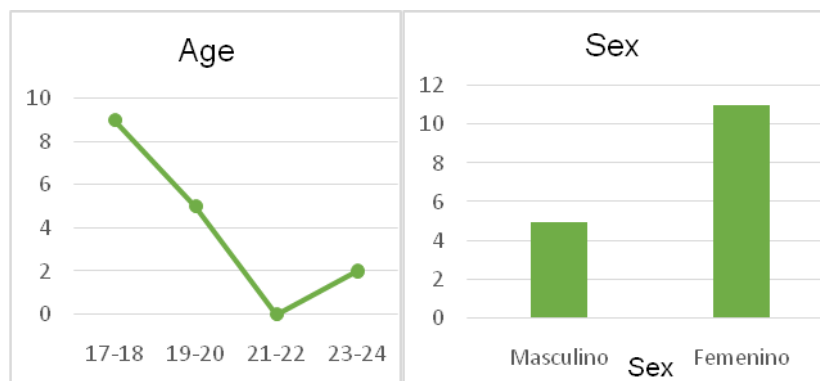
Figure 1 polygon of frequency of the ages of the students of first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.
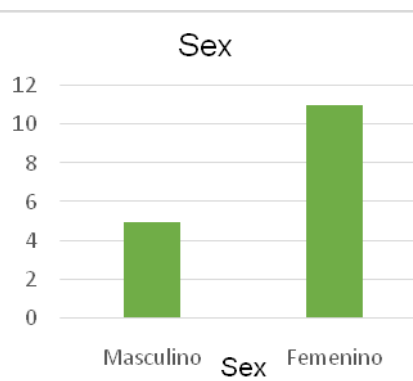
Figure 2 graphs of bars on the sex of the students of first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.
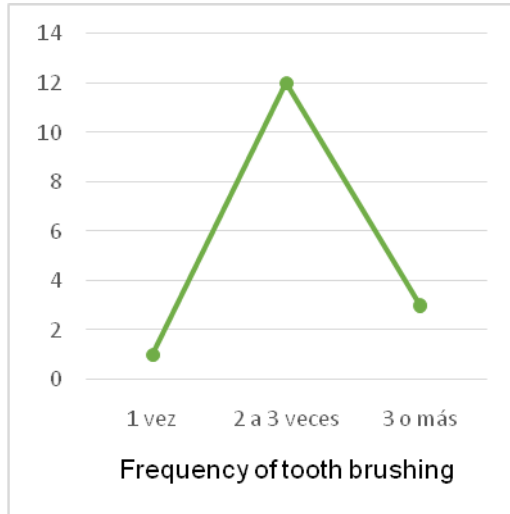
Figure 3 polygon of frequency of tooth brushing of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo,
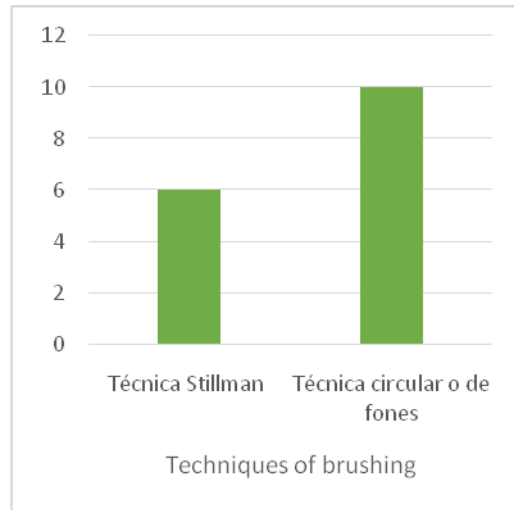

Figure 4 bar graph brushing technique of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.
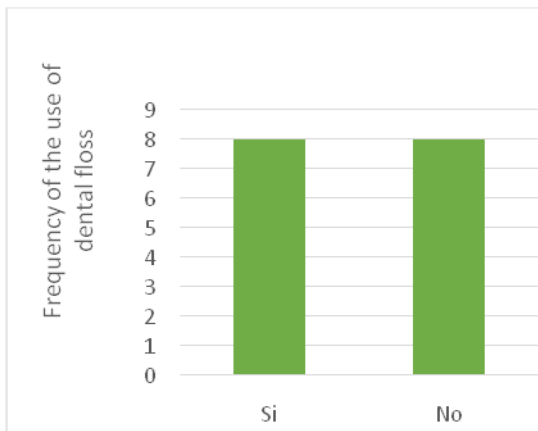

Figure 5 Graph flossing of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.
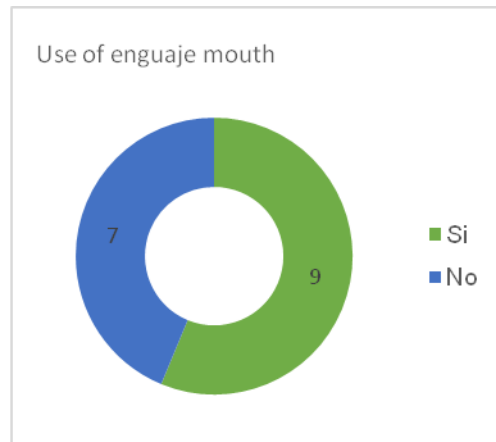

Figure 6 Chart use of mouthwash of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.
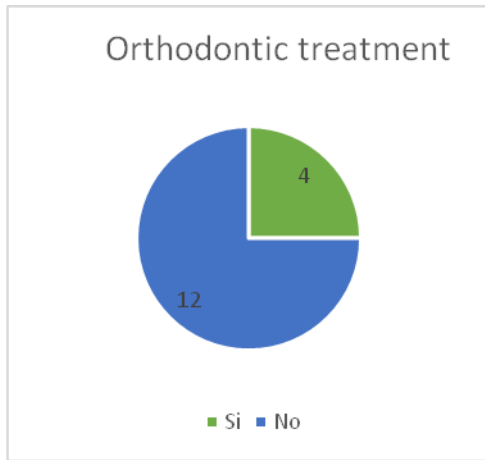
Figure 7 graphic orthodontic treatment of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015

Figure 8 graphic last visit to the dentist of the pupils enrolled in the first semester group to the degree of dental surgeon. University Center Metropolitan

Figure 9 last dental cleaning of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.
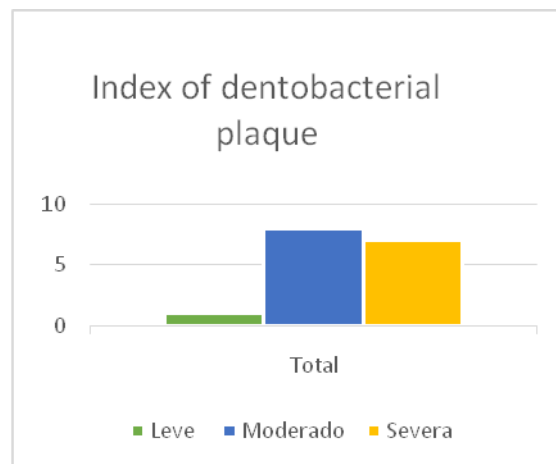

Figure 10 Graph Index of bacterial plaque of pupils in first semester group to the degree of dental surgeon. University Center Metropolitan Hidalgo, November 2015.

PHOTOGRAPHY

Patient No. 1 presents a level of bacterial plaque Moderate.

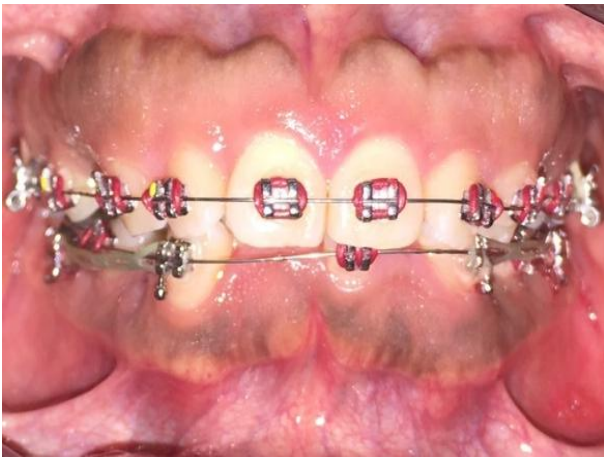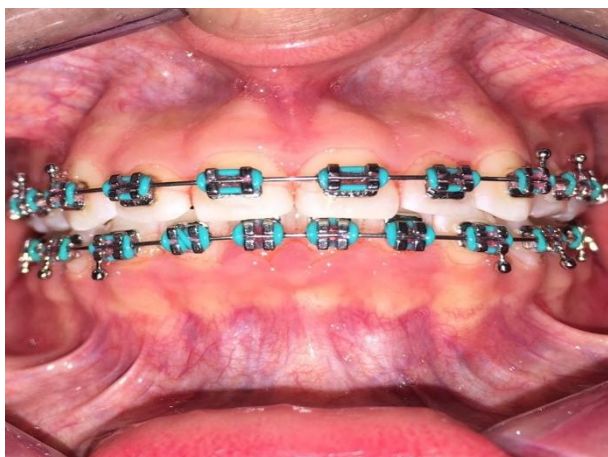Patient No. 2 presents a level of bacterial plaque Severe.

Patient No. 3 presents a level of bacterial plaque Moderate

Patient No. 4 presents a level of bacterial plaque Slight

Patient No.13 presents a level of bacterial plaque Severe

Patient No.14 presents a level of bacterial plaque Moderate

Patient No.15 presents a level of bacterial plaque Moderate

Patient No.16 presents a level of bacterial plaque Moderate

To perform the test with the pads revealing of plate, we were able to obtain the index of bacterial plaque of pupils, giving as a result 6.25 per cent of the pupils have a board level mild, 50% presented a moderate level of bacterial plaque and 43.75% present a severe level of bacterial plaque.

The index of bacterial plaque has a higher prevalence in the pupils with orthodontics, but above all with the students that do not use mouthwash, dental floss and not brush your teeth at least 3 times a day, do not have a good brushing technique and not visiting the dentist frequently. As the level of bacterial plaque severe (43.75%) is very close to the moderate (50%), because there is only a difference of 6.75% throwing a high figure and worrying; since the bacterial plaque is a problem of public health.

It is of great importance for oral health, have

a good hygiene is for this reason that you must know the correct techniques of brushing:

Technical Stillman amended: consists of placing the bristles to 45° with respect to the root delos teeth on the zone of the gingiva, in a position similar to the method rotary, resting partially in the gum. The brush is located horizontally running a movement toward the area occlusal (i.e. the edge of the anterior teeth or the area of chewing later). It is a sweep from the gums to the tooth. This will clean the area interproximal (interdental) and is massaged the gingival tissue.

Technical Fones: the brush bristles are placed at 90° with respect to the major axis of the tooth and the brush moves backwards as in wiping.

In conclusion, the prevalence of bacterial plaque in the students was 100%, all students who were made the test showed bacterial plaque; although not with the same plate index.

Students with more bacterial plaque are those who do not frequently use the dentist and have never made a dental cleaning.

Students with a plate index severe, have poor dental hygiene, not to use a good brushing technique and the misuse that give the flushing and not the not knowing properly use dental floss.

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