AN EPIDEMIOLOGIC EVALUATION OF ORAL AND DENTAL STATUS AND TREATMENT PROPHYLAXIS NEEDS IN THE 1ST TO 4TH GRADERS PRELIMINARY RESULTS

[1]A. FLEANCU, [2]M. L. NEAMȚU

[1]PhD candidate, „Lucian Blaga" University of Sibiu, [2]„Lucian Blaga" University of Sibiu

Abstract: *The present study is meant to evaluate the oral health status and caries risk in 1st to 4th grade students from the county of Sibiu, in order to obtain data that could be representative at a national level. The study group has been examined according to a chart of the European Pedodontics Society, and data regarding social environment, food and oral hygiene habits has been collected using a questionnaire filled out by one of the parents. The data has been statistically analyzed, thus obtaining preliminary results; the method will be applied on a larger study group of approximately 500 individuals.*
Keywords: *oral health status, tooth decay*
Rezumat: *Prezentul studiu îşi propune să evalueze starea de sănătate orală şi a riscului carios la şcolarii din clasele I – IV din judeţul Sibiu, urmărindu-se obţinerea de rezultate care ar putea fi reprezentative şi la nivel naţional. Lotul de subiecţi a fost examinat conform unei fişe a Societăţii Europene de Pedodonţie, iar pe baza unui chestionar au fost colectate date referitoare la mediul social, preferinţele alimentare şi obiceiuri de igienă orală a subiecţilor. Datele au fost prelucrate statistic obţinându-se rezultate preliminare, metoda urmând a fi apoi aplicată pe un lot mult mai mare de subiecţi (aproximativ 500).*
Cuvinte cheie: *starea de sănătate orală, carie*

OBJECTIVES

This study evaluates the oral hygiene status and tooth decay risk in 1st to 4th grade children, in Sibiu County, presenting data that may be representative at a national level.

There will be some suggestions offered, so that the competent authorities can take the adequate measures to improve dental health care in children, focusing especially on preventing dental problems.

The study will include roughly 500 children from town schools and rural areas in Sibiu County. Every patient has its own European Pedodontics Society approved medical form.

MATERIAL AND METHOD

This is a cross-sectional study and started in 2008.

The study group interviewed so far consists of 32 patients, 16 girls and 16 boys.

The patients were all 1 to 4th graders.

They were clinically examined using the WHO examination methodology, and the data registered in charts processed by SPSS program, version 16.

In addition, one of the parents had to fill out a form regarding eating and oral hygiene habits, showing also the social environment of the patient.

To document the dental history of one individual or of one group of individuals, Klein and Palmer (11) offer the DMF index, now recommended by OMS to ease compare different studies.

The index includes teeth (T) that are decayed (D), missing (M), filled (F): DMF-T, or if it regards the surfaces of the teeth (S) that are decayed (D), missing (M), filled (F): DMF-S.(8)

The individual value of DMF is obtained by adding:

- The number of decayed teeth/surfaces ;
- The number of extracted teeth following decay complications/ the number of surfaces of the teeth;
- The number of filled teeth/ surfaces following decay treatment.

Depending on the carious experience of each individual, DMF-T value can vary from 0 (free from caries) to 28 (wisdom teeth not included). DMF-S can vary from 0 to 128.(11) In the same way the index for temporary teeth is def-t (it can vary from 0 to 20), and def-s (between 0 and 88).

Considering that the group taken in examination has both temporary as well as permanent teeth present, to determine the morbidity by caries both def-t/def-s and DEF-T/DEF-S were calculated.

To evaluate the oral hygiene status the Silness / Löe dental plaque index was used. It is widely used in epidemiological studies due to its easy determination.

RESULTS

The values for the DMF- T and DMF-S are shown in table 1 and table 2.

The average values of the indexes in age groups are shown in table 3.

Table no. 1: DMF-T and DMF-S values

No.	Gender	Age	D	M	F	DMFT	D	M	F	DMFS
1.	M	6	0	0	0	0	0	0	0	0
2.	F	6	0	0	0	0	0	0	0	0
3.	F	6	0	0	0	0	0	0	0	0
4.	M	7	2	0	1	3	2	0	1	3
5.	M	7	0	0	0	0	0	0	0	0
6.	F	7	0	0	0	0	0	0	0	0
7.	F	7	2	0	0	2	2	0	0	2
8.	F	7	2	0	0	2	2	0	0	2
9.	F	7	2	0	0	2	2	0	0	2
10.	M	8	0	0	4	4	0	0	6	6
11.	M	8	0	0	2	2	0	0	2	2
12.	M	8	4	0	2	6	6	0	3	9
13.	F	8	3	0	1	4	3	0	2	5
14.	F	8	2	0	2	4	2	0	2	4
15.	F	8	6	0	0	6	6	0	0	6
16.	M	9	4	0	2	6	4	0	4	8
17.	M	9	2	0	4	6	2	0	4	6
18.	M	9	0	0	2	2	0	0	2	2
19.	M	9	4	0	0	4	6	0	0	6
20.	M	9	3	0	0	3	4	0	0	4
21.	F	9	5	0	2	7	5	0	2	7
22.	F	9	0	0	0	0	0	0	0	0
23.	F	9	1	0	5	6	2	0	6	8
24.	F	9	4	0	2	6	5	0	2	7
25.	M	10	8	0	0	8	9	0	0	9
26.	M	10	4	0	0	4	6	0	0	6
27.	M	10	4	0	3	7	4	0	4	8
28.	M	10	3	0	1	4	4	0	1	5
29.	F	10	2	0	2	4	4	0	0	4
30.	M	11	8	0	0	8	12	0	0	12
31.	F	11	3	0	0	3	4	0	0	4
32.	F	11	6	0	2	8	6	0	4	10

Table no. 2: def-t and def-s values

No.	Gender	Age	d	m	f	dmft	d	m	f	dmfs
1.	M	6	8	0	2	10	24	0	4	28
2.	F	6	6	0	3	9	7	0	4	11
3.	F	6	4	0	6	10	4	0	8	12
4.	M	7	5	0	4	9	21	0	6	27
5.	M	7	8	0	0	8	8	0	0	8
6.	F	7	10	0	6	16	28	0	9	37
7.	F	7	12	0	0	12	21	0	0	21
8.	F	7	8	0	0	8	12	0	2	14
9.	F	7	6	0	2	8	8	0	2	10
10.	M	8	7	0	3	10	17	0	5	22
11.	M	8	0	0	5	5	0	0	7	7
12.	M	8	10	0	2	10	24	0	2	24
13.	F	8	6	0	0	6	11	0	0	11
14.	F	8	7	0	0	7	18	0	0	18
15.	F	8	12	0	0	12	19	0	0	19
16.	M	9	2	0	4	6	5	0	7	12
17.	M	9	4	0	0	4	20	0	0	20
18.	M	9	10	0	1	11	15	0	1	16
19.	M	9	8	0	0	8	20	0	0	20
20.	M	9	9	0	0	9	17	0	5	22
21.	F	9	10	0	2	12	20	0	2	22
22.	F	9	9	0	0	9	17	0	0	17
23.	F	9	9	0	0	9	26	0	0	26
24.	F	9	7	0	2	9	12	0	2	14
25.	M	10	12	0	0	12	46	0	0	46
26.	M	10	0	0	4	4	0	0	4	4
27.	M	10	8	0	0	8	32	0	0	32
28.	M	10	8	0	2	10	28	0	2	30
29.	F	10	8	0	0	8	13	0	0	13
30.	M	11	9	0	0	9	25	0	0	25
31.	F	11	8	0	0	8	38	0	0	38
32.	F	11	4	0	3	7	13	0	3	16

Table no. 3: average values of DMF-T/ DMF-S and def-t/ def-s

Age	DMFT	DMFS	deft	defs
6 years	0.0000	0.0000	9.6667	17.0000
7 years	1.5000	1.5000	10.1667	19.5000
8 years	4.3333	5.3333	8.3333	16.8333
9 years	4.4444	5.3333	8.5556	18.8889
10 years	5.4000	6.6000	8.4000	25.0000
11 years	6.3333	8.6667	8.0000	26.3333
Total	3.7812	4.6250	8.8437	20.0938

DISCUSSION

We note an increase of DMF-S index with the increase of age, due to intensification of carious attack in permanent teeth erupting at age 6 (1st molar) and 6-7 (central and lateral incisors).

In Table 3 we note the presence of caries either in temporary or in permanent teeth, or in both of them at the same time in one patient. The value of the indexes is mostly given by the D/d (decay) component which is far more frequent than the F/f (filling) component, which means a lack of interest for treating active carious lesions.

Also, the increase of def-s index towards the top of the age group taken in study reveals the evolution of the carious lesion in temporary teeth which were neglected as they are about to be changed, remaining only roots (the root of a molar has a d value of 5, and the root of a frontal tooth has a "d" value of 4). In addition to this, the dental pulp pathology that is more frequent in temporary teeth is gangrene, for which the therapeutic response is leaving the tooth open until it will be replaced, thus leading to massive tooth destruction which also increases the d (decay) component.

In regard to the etiology of dental problems, it appears that the food preferences of the children are to blame, as 53% of the parents admit that the child consumes refined sweets at least once per day, chocolate being at the top of the list. The rest of the children (47%) consume these types of sweets three times per week or less. None of the parents checked the 'never' box of this question. 4% of the parents admitted that their child consumes refined sweets more than once a day, sometimes replacing one of the main meals of the day (2.5 %).

At breakfast most of the children (47%) have milk and cereals, 30% bread and jam or crackers and 23% have a rich protein meal (boiled or fried eggs, salami and sausages) and dairy products. 35% of the individuals have a glass of natural fruit juice for breakfast, this being the favourite drink of 76%. 20% of the parents stated that their child's favourite beverage was soda, the age of these children ranging from 10 to 11. At the age of 6 to 8 years, children's favourite beverages are water and natural juices

and two parents stated that their children had approximately 0.75 l of milk per day.

Lunch consists in most cases (81%) of soup, followed by potatoes or rice accompanied by grilled or roasted meat (72% of which was chicken meat). The favourite dish of 5% of individuals was fish, while another 67% ate it at least once a week. 25% of children ate vegetable soup for lunch; the second course was cooked vegetables for 50% of them. These are also accompanied by meat dishes. Only 3% of the individuals ate raw vegetables, and none of them did so of their own will.

The favourite food of 84% of the children was fast food, but 80% of their parents allowed them to have it only once every two weeks.

Most dinner meals consisted of dairy products (43%) or salami and ham (70%) along with bread or cooked vegetables (36%).

All individuals eat fruit at least periodically, 75% of the have them daily, whilst 25% eat fruit at every meal. This is also the percentage of children that eat fruit of their own will; red and yellow melon, apples, citrus fruits, peaches, apricots or grapes are the preferred types of fruit. Poor hygiene seems to be the main cause of increased caries morbidity. Although all parents stated that their child had their own toothbrush and used toothpaste, tooth brushing lasts for more than one minute in only 30% of the children, whilst 15% brush their teeth after every meal. 62% of individuals brushed their teeth twice a day, 20% once a day (in the evening or the morning) and 3% brushed once every other day. None of the children used auxiliary means of tooth cleaning.

These findings are consistent with the registered plaque indexes, 40% of individuals presenting Silness/Loe index values of 2.44% of 1 and in only two children the index was 0.

65% of the children interviewed had regular dentist visits (at least twice a year), where they underwent routine treatment, 75% had been to the dentist for emergency treatment before the visit for the present study, for 20% this was their first visit to the dentist while 15% came for emergency treatment the very session they were interviewed for this study.

Treatment necessities of temporary teeth consist mainly of fillings, followed by extractions, some of which had to be postponed in order to preserve space for permanent teeth.

Permanent dentition required fillings and pit and fissure sealing of first molars.

CONCLUSIONS

As studies show, in most Western European countries there is a decline in tooth decay in children of school age, this being a consequence of diet change, improvement in oral hygiene habits, fluoridation of tooth paste and other methods of local fluoride application, implementing education and prophylaxis programs, as well as change in oral health status evaluation criteria.

In Eastern European countries, due to complex economic and social changes, as well as the emerging of private practices and decentralization of health systems, an increase in tooth decay incidence, especially in patients of very young age can be noticed.

Preliminary results for the analyzed lot show that, due to increased consumption of refined sweets, but especially due to incorrect or insufficiently exerted oral hygiene, tooth decay incidence is at a medium level, but a lot higher than the WHO-recommended level for the year 2010 (DMFT level below 1).(5)

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