ANNALES
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA
VOL. LX, N 2, 163 SECTIO D 2005

Chair and Department of Paedodontics, Medical University of Lublin

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Analysis of the prophylactic procedures and status of hard tissues condition in 6 to 8-year-old children treated in the Chair and Department of Paedodontics, Medical University of Lublin in 2002–2004

Dental caries due to its prevalence is acknowledged to be one of social diseases, and this causes need of intensification of preventive actions and caries monitoring by systematic epidemiologic investigations (1, 4, 7, 9). The main etiological factor of dental caries is a dental plaque, which adheres particularly in anatomical pits and fissures, even if rules of oral hygiene are obeyed, because removal of dental plaque by saliva and moves of lingua and oral muscles in these places is insufficient.

Besides proper oral hygiene and diet, fluoride prophylaxis is the major means of preventing dental caries development. Daily toothpaste usage is a simple method allowing fluoride application. In order to prolong direct contact of fluoride with the enamel surface, fluoride varnishes are applied. On account of the fact that fluoride prophylaxis effectively reduces dental caries on smooth surfaces, and prevents dental caries on occlusal surfaces considerably less effectively - pits and fissures sealing is a common method of dental caries prophylaxis (2, 3, 5, 6, 8).

The aim of the study is to estimate status of hard tissues condition and to analyze results of preventive procedures in children, aged 6, 7 and 8, treated in the Chair and Department of Paedodontics of Medical University of Lublin in 2002–2004.

MATERIAL AND METHODS

The study was conducted on 1,131 children, aged 6, 7 and 8, treated in the Chair and Department of Paedodontics of Medical University of Lublin in 2002–2004. They were divided into two groups, the first one consisted of 653 children, who underwent individual dental caries preventive procedures (sealing and varnishing), and the other one consisted of 478 children, who did not undergo varnishing and sealing procedures. The procedure of contact fluoridation by teeth brushing was conducted on all children at schools.

On clinical examination the following were estimated: frequency of dental caries, intensity of dental caries, DMF index and its components D, M, F and treatment index. Individual dental caries preventive procedures such as pits and fissures sealing of first permanent molars and teeth varnishing with fluoride varnish were also analyzed. The results were recorded on obligatory patient's card, which is used at the Chair and Department of Paedodontics in Lublin. The obtained results were

analyzed with computer program STATISTICA PL with Mann-Whitney's and chi^2 Pearson's statistic tests. Differences in results were accepted to be statistically significant at $p<0.05$ level.

RESULTS AND DISCUSSION

Table 1 presents the number of patients in each group. In the group of 653 patients, where individual dental caries prophylaxis was carried out, there were 221 patients aged 6, 231 aged 7 and 201 aged 8. In the group, where the prophylaxis was not carried out, there were 478 children, including 167 aged 6, 171 aged 7 and 140 children aged 8.

Table 1. Sex and place of living of the examined children

Sex		Age in years	Place of living		
girls	boys		country	small town	city
Children with individual caries prophylaxis					
105	116	6	38	21	162
126	105	7	52	24	155
111	90	8	55	25	121
Children without individual caries prophylaxis					
79	88	6	36	25	106
92	79	7	43	13	115
55	85	8	51	15	74

In Table 2 the status of permanent dentition was collated in both groups. In the group with individual dental caries prophylaxis, it was noticed that frequency of dental caries in 6-year-old children was 10.0%, 28.0% in 7-year-old children and 46.0% in 8-year-old children. However, in the other group, where individual dental caries prophylaxis was not carried out, frequency of dental caries in 6-year-old children was 15.5%, 61.4% in 7-year-old children and 60.7% in 8-year-old children.

Table 2. Status of permanent dentition

	Children with individual caries prophylaxis							Children without individual caries prophylaxis						
Age in years	number of children	number of children with DMF>0	number of children with DMF =0	average DMF index	treatment index	frequency of dental caries	intensity of dental caries	number of children	number of children with DMF>0	number of children with DMF =0	average DMF index	treatment index	frequency of dental caries	intensity of dental caries
6	221	23	198	0.18	0.69	10.41%	1.7	167	26	141	0.22	0.32	15.57%	1.42
7	231	66	165	0.58	0.71	28.57%	2.03	171	105	66	1.58	0.43	61.40%	2.58
8	201	92	109	1.08	0.79	45.77%	2.43	140	85	55	1.89	0.37	60.71%	3.13

The treatment index of permanent teeth in the group of children who underwent individual dental caries prophylaxis was 0.69 in 6-year-old patients, 0.71 in 7-year-olds, 0.79 in 8-year-olds, whereas in the group of children without individual dental caries preventive procedures was 0.32, 0.43, and 0.37 respectively.

Caries free permanent dentition was observed in the group with individual dental caries prophylaxis in 198 6-year-old children, 165 7-year-olds and in 109 8-year-olds, whereas in the group of children without individual dental caries prophylaxis in 141 6-year-olds, 66 7-year-olds, and 55 8-year-olds, respectively.

In children who underwent individual dental caries preventive procedures the average DMF index was 0.18 for 6-year-old children, 0.58 for 7-year-olds and 1.08 for 8-year-olds, whereas in the group of children without individual dental caries prophylaxis the average DMF index was 0.22, 1.58, and 1.89, respectively.

On the grounds of conducted research it was concluded that there is a statistically significant difference between the group of children with individual dental caries prophylaxis and the group without it in DMF index and for D and F components in 7-year-old children, and in 8-year-old children for DMF index and D component.

During clinical examination the following were observed: 1,372 sealed first permanent molars, 441 of them in 6-year-old children (196 in maxilla and 245 in mandible), 492 in 7-year-old children (239 and 253 respectively) 439 in 8-year-old children (227 and 212 respectively). Teeth which were qualified for sealing procedures were sealed with fluoride fissure sealant.

The procedure of preventive teeth varnishing was performed one to four times per year. Frequency of preventive procedures varied depending on the intensity of dental caries and frequency of control visits. During 2 years, in 6-year-old children 237 procedures of varnishing were performed, 297 in 7-year-old children and 320 in 8-year-olds.

Table 3 shows the structure of preventive procedures depending on the place of living. Basing on the data presented in the table it was easy to notice that among all age groups and living environments parents did not obey regular control visits. In both examined groups of 6-year-old children two first permanent molars were erupted, whereas in 7-and 8-year-olds four first permanent molars were erupted.

Table 3. Structure of prophylaxis procedures according to the place of living

Age in years	Place of living	Percentage of sealed first permanent molars in maxilla			Percentage of sealed first permanent molars in mandible			Number of varnish procedures				
		none	1 tooth	2 teeth	none	1tooth	2 teeth	none	1 time	2 times	3 times	4 times
6	Country	50.00 %	18.42 %	31.58 %	26.32 %	21.05 %	52.63 %	57.89 %	34.21 %	5.26%	0.00%	2.63%
	Small town	38.10 %	14.29 %	47.62 %	42.86 %	14.29 %	42.86 %	47.62 %	38.10 %	14.29 %	0.00%	0.00%
	City	48.77 %	14.81 %	36.42 %	35.19 %	20.99 %	43.83 %	50.00 %	33.95 %	11.73 %	4.32%	0.00%
7	Country	46.15 %	13.46 %	40.38 %	40.38 %	21.15	38.46 %	42.31 %	38.46 %	13.46 %	3.85%	1.92%
	Small town	29.17 %	33.33 %	37.50 %	29.17 %	29.17 %4	41.67 %	41.67 %	58.33 %	0.00%	0.00%	0.00%
	City	38.06 %	18.06 %	43.87 %	33.55 %	20.00 %	46.45 %	39.35 %	34.19 %	16.77 %	6.45%	3.24%
8	Country	27.27 %	25.45 %	47.27 %	43.64 %	18.18 %	38.18 %	21.82 %	50.91 %	12.73 %	3.63%	10.91 %
	Small town	36.00 %	32.00 %	32.00 %	44.00	32.00 %	24.00 %	44.00 %	40.00 %	8.00%	8.00%	0.00%
	City	33.06 %	20.66 %	46.28 %	34.71 %	14.88 %	50.41 %	26.45 %	41.32 %	14.88 %	9.92%	7.43%

According to the analysis of the percentage of first permanent molars which developed dental caries in two years, the percentage of teeth firstly sealed then qualified for treatment because of dental caries equaled to 4.28% (1.02% in maxilla and 3.26% in mandible) in 6-year-old patients, 9.42% (5.86% and 3.56% respectively) in 7-year-old patients, 30.64% (13.66% and 16.98% respectively) in 8-year-olds.

In the group of children without individual dental caries prophylaxis the percentage of first permanent molars with dental caries equalled to 11.08% (4.79% in maxilla and 6.29% in mandible) in 6-year-old patients, 39.62% (18.57% and 21.05% respectively) in 7-year-old patients, 47.50% (22.14% and 25.36% respectively) in 8-year-old patients.

The number of first permanent molars, which developed dental caries in the group of children with individual dental caries prophylaxis and in the group without it, was compared basing on Horowitz formula. The dental caries reduction was 72.97% in the group of 6-year-old children, 91.51% in the group of 7-year-olds, and 74.81% in the group of 8-year-olds.

CONCLUSIONS

1. Basing on the conducted studies it was noticed that procedures of individual dental caries prophylaxis allowed decrease in the number of teeth with dental caries in 6 to-8year--old children.

2. It is recommended to intensify actions which lead to increase of parents' awareness of dental caries prophylaxis among their children.

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SUMMARY

The aim of the study is to estimate status of hard tissues condition and to analyze results of preventive procedures in children, aged 6, 7 and 8, treated in the Chair and Department of Paedodontics of Medical University of Lublin in 2002–2004. The study was conducted on 1,131 children, aged 6, 7 and 8, treated in the Chair and Department of Paedodontics of Medical University of Lublin in 2002–2004. They were divided into two groups, the first one consisted of 653 children, who underwent individual dental caries preventive procedures (sealing and varnishing), and the other one consisted of 478 children, who did not undergo varnishing and sealing procedures. The procedure of contact fluoridation by teeth brushing was conducted on all children at schools. On the ground of the conducted research it was concluded that there is a statistically significant difference between the group of children with individual dental caries prophylaxis and the group without it in DMF index and for D and F components in 7-year-old children, and in 8-year-old children for DMF index and D component. The number of first permanent molars, which developed dental caries in the group of children with individual dental caries prophylaxis and in the group without it, was compared basing on Horowitz formula. The dental caries reduction was 72.97% in the group of 6-year-old children, 91.51% in the group of 7-year-olds, and 74.81% in the group of 8-year-olds.

Analiza struktury zabiegów profilaktycznych oraz stanu twardych tkanek zębów u dzieci 6-8-letnich leczonych w Katedrze i Zakładzie Stomatologii Wieku Rozwojowego AM im. F. Skubiszewskiego w Lublinie w latach 2002–2004

Celem pracy jest ocena stanu twardych tkanek zębów i analiza efektów zabiegów profilaktycznych u dzieci w wieku 6, 7 i 8 lat, zgłaszających się w latach 2002–2004 do Katedry i Zakładu Stomatologii Wieku Rozwojowego AM w Lublinie. Badaniem objęto 1131 dzieci. Podzielono je na dwie grupy, pierwszą stanowiło 653 dzieci, u których były przeprowadzane zabiegi indywidualnej profilaktyki próchnicy (lakierowanie i lakowanie), a drugą grupę stanowiło 478 dzieci, u których nie zastosowano zabiegu lakowania i lakierowania. Wszystkie dzieci w szkołach miały przeprowadzane zabiegi fluoryzacji kontaktowej metodą szczotkowania. Na podstawie przeprowadzonych badań stwierdzono, że istotne statystycznie różnice między grupą dzieci, u których prowadzona była indywidualna profilaktyka, a grupą dzieci, u których nie była prowadzona profilaktyka próchnicy, stwierdzono u 7-latków w wartości PUW i składowych P i W, a dla 8-latków w wartości PUW i składowej P. Korzystając ze wzoru Horowitza, porównano liczbę zębów pierwszych trzonowych stałych, która uległa próchnicy w grupie dzieci z realizowaną indywidualną profilaktyką próchnicy i bez takiej profilaktyki. Redukcja próchnicy w grupie dzieci z indywidualną profilaktyką próchnicy w wieku 6 lat wynosiła 72,97%, w grupie dzieci 7-letnich 91,51%, w grupie dzieci 8-letnich 74,81%.