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DENTAL CARIES PREVALENCE AMONG 6- TO 15-YEAR-OLD CHILDREN WITH GASTROINTESTINAL TRACT DISEASES

ПОШИРЕНІСТЬ КАРІЄСУ СЕРЕД 6-15 РІЧНИХ ДІТЕЙ ІЗ ЗАХВОРЮВАННЯМИ ШЛУНКОВО-КИШКОВОГО ТРАКТУ

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Abstract. *This article present the results of the study the prevalence and intensity indexes of dental caries in children aged 6-15 years on a background of gastrointestinal tract diseases. The chronic diseases of the gastrointestinal tract and frequent exasperation may lead to decreased metabolism and immunologic reactivity that assists to development of tooth decay. We examined 350 children 6–15 years old. As the result there were found high prevalence 84.31±1.93% and intensity 8.96±0.15 tooth of caries in children with the gastrointestinal tract diseases, with the expressed tendency to complications, with predominating of the rampant caries that made progress with the age increase of this group.*

Key words: *tooth decay, rampant caries, children, gastrointestinal tract.*

Introduction. Dental caries has a multifactorial etiology with a complex interplay of multiple risk factors, such as age, gender, socioeconomic status (SES), water fluoride level, dietary factors such as the physical forms of carbohydrate, snacking habits, and frequency of sugar consumption [1-4]. Untreated dental caries not only causes pain and discomfort but also, in addition, places a financial burden on the society [5]. The goal of understanding numerous risk factors contributing to dental caries may possibly lead to insights into the preventive or intervention stratagems for alleviating disparities in disease burden and improving dental health.

Moreover, to implement various types of community-based oral health programs and preventive measures, it is necessary to know its prevalence [3,6]. Therefore, it is very important for the dental health care professionals to investigate the prevalence of dental caries for implementation various health and preventive programs.

There are a sufficient number of studies in the literature data on the condition and functional characteristics of tissues and organs of the oral cavity in children with gastrointestinal tract diseases. Gastrointestinal diseases are an important problem in pediatrics. They occur mainly in children with reduced nonspecific resistance during the most intense morphofunctional changes in the child's body, and the long course of chronic diseases of the digestive system and frequent exacerbations lead to impaired metabolism, reduced immunological reactivity, which contributes to teeth caries.

The course of multiple rampant caries on the background of general somatic diseases is rapid, malignant and most often leads to complications, in particular, to the occurrence of secondary and recurrent caries [7]. Therefore, the relevance of the topic remains today and due to the growth of both gastroduodenal pathology in children and adolescents and the increasing prevalence of dental diseases.

The aim. To study caries prevalence and intensity in children and adolescents on a background of gastrointestinal tract diseases.

Material and methods. It was performed an epidemiological dental examination of 350 children aged 6 to 15 years with concomitant gastrointestinal tract diseases. All examined children we divided into 3 age groups: 6-9, 10-12 and 13-15 years old. The following indicators were used to determinate caries: prevalence and intensity of dental caries – DMF index (according to WHO recommendations).

Results. Monitoring of dental examination data of 350 children with gastrointestinal tract diseases in anamnesis showed that 84.31 ± 1.93% had caries (table 1). The prevalence of caries in boys and girls, on average, was almost the same 82.58 ± 2.85 and 86.03 ± 2.60%, respectively.

Thus, in 6-9-year-old children the prevalence of caries was 77.23 ± 4.19%, which was lower than similar values in 10-12-year-old subjects ($p > 0.05$). In the age group 13-15 years, the prevalence of caries was 89.63 ± 2.63%, which is 1.2 times higher than in children aged 6-9 years ($p < 0.05$). It was noted that according to WHO criteria, in the age range of 6-9 years, the prevalence of caries was considered medium, and in the age groups of 10-12 and 13-15 years - high.

Table 1. Prevalence of caries among children with gastrointestinal diseases depending on age

Age, years	Boys			Girls			Overall		
	total	caries		total	caries		total	caries	
		abs.	%		abs.	%		abs.	%
6–9	51	39	76,47±6,00	50	39	78,00±5,92	101	78	77,23±4,19*
10–12	56	47	79,66±5,29	62	55	88,71±4,05	118	102	84,30±3,32
13–15	66	61	89,71±3,71	65	60	89,55±3,77	131	121	89,63±2,63*
Total	173	147	82,58±2,85	177	154	86,03±2,60	350	301	84,31±1,93
Note. * - the significance of the difference between the indicators of age groups: * – p<0,05, ** – p<0,01, *** – p<0,001.									

As the result of our research, we also found that in 6-9-year-old children of both sexes the prevalence of caries was almost the same: 76.47 ± 6.00% in boys and 78.00 ± 5.92% in girls. In 10-12-year-old children, the prevalence of caries increased and amounted to 79.66 ± 5.29 and 88.71 ± 4.05%, respectively, in boys and girls with diseases of the gastrointestinal tract. The maximum values of the prevalence of caries were studied in boys and girls in the age range of 13-15 years, which was the same and averaged 89.63 ± 3.74%.

The DMF index, on average, was interpreted as high with a value of 8.96 ± 0.15 tooth. On average, the proportion of carious teeth was 6.14 ± 0.60 of the affected tooth with 2.59 ± 0.35 of filled teeth. The average number of removed teeth was 0.23 ± 0.05 teeth (table 2). Also it should be noted that in this group the CSI (caries severity index) was objectified as very high with a value of 0.79 ± 0.12.

It was noted that the caries intensity increased with age, regardless of the sex of the subjects. Thus, at the age of 6-9 years, DMF index in boys and girls was statistically the same (4.05 ± 0.35 and 4.38 ± 0.25 carious tooth, respectively) and corresponded to the medium level of intensity. The components of the DMF index ("decay", "filled", "missed") were slightly higher in girls. The level of caries intensity was considered as high and was equal to 0.54 ± 0.18 in boys and 0.58 ± 0.16 in girls.

Table 2. Caries intensity – DMF index among children with gastrointestinal diseases depending on age

Age, years	Boys, n=173					Girls, n=177				
	D	F	M	DMF	CSI	D	F	M	DMF	CSI
6–9	2,65± 0,64	1,32± 0,38	0,08± 0,04	4,05± 0,35	0,54± 0,18	2,93± 0,58	1,36± 0,13	0,09± 0,04	4,38± 0,25	0,58± 0,16
10–12	5,87± 0,59	3,21± 0,37	0,15± 0,04	9,23± 0,33	0,84± 0,28	6,36± 0,56	2,84± 0,40	0,10± 0,03	9,30± 0,33	0,85± 0,28
13–15	9,35± 0,62	3,34± 0,36	0,36± 0,08	13,06± 0,35	0,93± 0,31	9,64± 0,57	3,52± 0,32	0,56± 0,11	13,72± 0,33	0,98± 0,32
Average	5,96± 0,62	2,62± 0,37	0,20± 0,05	8,78± 0,35	0,77± 0,26	6,31± 0,57	2,57± 0,28	0,25± 0,06	9,13± 0,30	0,80± 0,25

In the group of children aged 10–12, DMF significantly increased and was equal to 9.23 ± 0.33 in boys and 9.30 ± 0.33 in girls. The level of caries intensity was 0.84 ± 0.28 in boys and 0.85 ± 0.28 in girls. It should be noted that in this age group DMF and CSI, according to WHO criteria, were treated as very high.

The maximum values of the studied indexes were registered in group of children aged 13-15. Higher DMF values of 13.72 ± 0.33 carious tooth and CSI 0.98 ± 0.32 were determined in girls versus 13.06 ± 0.35 carious tooth and 0.93 ± 0.31 in boys, respectively. As in the previous age group, the intensity of dental caries and its level were treated as very high.

Our studies showed that out of 301 children with caries on the background of gastrointestinal lesions, 87 patients 28.90 ± 2.6% had complicated forms of caries

(pulpitis, apical periodontitis) and with age increasing of the subjects, the frequency of complicated forms of caries also increased.

Conclusions. A significant prevalence and intensity of caries, a tendency towards its growth with age and an increase within the duration of the gastrointestinal tract diseases were determined. In children and adolescents aged 6-15 years with the gastrointestinal tract diseases the prevalence of caries was 84.31±1.93%, increasing with age from 77.23±4.19% in 6-9-year-old children to 89.63±2.63% in 13-15-year-old adolescents. The DMF index was high and very high among all age groups.

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Анотація. *В статті розглядаються результати вивчення поширеності та інтенсивності карієсу зубів у дітей віком 6-15 рр. із супутніми захворюваннями шлунково-кишкового тракту. Тривалий перебіг хронічних захворювань травної системи та часті загострення призводять до порушення усіх видів обміну, зниження імунологічної реактивності, що сприяє розвитку карієсу зубів. Ми обстежили 350 дітей 6–15-річного віку. В результаті проведених досліджень встановлено, що у дітей із захворюваннями ШКТ визначалась висока поширеність (84,31±1,93)% та інтенсивність (8,96±0,15) каріозного процесу з вираженою тенденцією до ускладнень, із превалюванням множинного карієсу, що прогресував зі збільшенням віку даної групи пацієнтів.*

Ключові слова: *карієс зубів, множинний карієс, діти, шлунково-кишковий тракт.*

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