

# **ANALYSIS OF MODERN WAYS OF DEVELOPMENT OF SCIENCE AND SCIENTIFIC DISCUSSIONS**

Proceedings of the X International Scientific and Practical Conference

Bilbao, Spain  
November 29 – December 02, 2022

**UDC 01.1**

The 10th International scientific and practical conference “Analysis of modern ways of development of science and scientific discussions” (November 29 - December 02, 2022) Bilbao, Spain. International Science Group. 2022. 606 p.

**ISBN – 979-8-88831-928-4**

**DOI – 10.46299/ISG.2022.2.10**

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# **RESULTS OF EPIDEMIOLOGICAL SURVEY AND STRUCTURAL ANALYSIS OF DENTAL MORBIDITY IN CHILDREN WITH VARIOUS TYPES OF CHRONIC PATHOLOGY OF THE GASTROINTESTINAL TRACT**

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**Introductions.** The anatomical and functional relationship between the gastrointestinal tract and its initial department - the organs of the oral cavity, causes the manifestation of severe dental pathology, especially in a chronic process, accompanied by impaired microbiocenosis and absorption and transport of nutrients in the small intestine. This affects the formation of teeth as highly mineralized organs, disrupts their structure, chemical composition and the formation of periodontal tissues, which leads, in turn, to the development of dental caries and chronic catarrhal gingivitis [1, 2].

In the complex of disorders it can be difficult to identify the proportion of each link of this system. Involvement in the pathological process of the organs functionally related to the intestine is accompanied by a violation of the activity of the latter and the possible development of severe changes in the entire digestive system. Therefore, along with the study of clinical manifestations that develop as a result of intestinal damage, it is important to identify the relationship between the oral cavity and diseases of the digestive organs, which allows us to clarify not only the pathogenesis of a number of pathological processes, but also to improve diagnostics, the choice of treatment and prevention methods [3].

In recent years, new information has been obtained that changes in the oral cavity are often a reflection of the patterns of pathogenesis of a number of pathological conditions and, first of all, from the digestive tract [4, 5]. Especially increased interest in the study of early symptoms of comorbidities, because pathological changes in the oral cavity often complicate the course of the underlying disease [4, 5].

**Keywords:** children, gastrointestinal tract, teeth, dental caries, chronic catarrhal gingivitis

**Aim.** To conduct an epidemiological survey and structural analysis of dental morbidity in children with various types of chronic pathology of the gastrointestinal tract.

**Materials and methods.** In order to assess the pathological state of dental hard tissues and periodontal tissues, 345 children aged 7-15 years, who lived from birth in Dnipropetrovsk region, were examined. Of the total number of examined 345 people – 73,4% of children suffered from chronic diseases of the gastrointestinal tract. According to the conclusion of gastroenterologists, chronic gastritis was found in 196 children (56,8%), chronic duodenitis - in 115 children (33,4%), malabsorption syndrome - in 6 children (1,7%), duodenal ulcer - in 19 children (5,5%) and chronic colitis - in 9 children (2,6%).

Also 37 healthy children without gastrointestinal pathology were examined. The condition of dental hard tissues and periodontal tissues was also examined in children.

**Results and discussion.** According to the epidemiological study of chronic diseases of the gastrointestinal tract, the structure of detected dental diseases in the examined contingent of children, presented in Table 1, is characterized by a wide range of changes in organs and tissues of the oral cavity.

*Table 1*

Structure of dental diseases in the examined children aged 7 - 15 years, (%)

Diseases	Gastritis (n=196)	Chronic duodenitis (n=115)	Duodenal ulcer (n=19)	Malabsorp tion syndrome and chronic colitis (n=28)	Healthy children (without gastrointes tinal pathology) (n=37)
Dental caries	46,3±2,4 p<0,05	50,2±2,6 p<0,05	51,9±2,69 p<0,05	65,1±3,37 p<0,05	44,2±2,29
Non-cariou lesions of hard tissues of teeth	20,4±1,06 p<0,05	21,6±1,12 p<0,05	19,2±0,99 p<0,05	77,8±4,03 p<0,05	9,7±0,5
Inflammatory diseases of periodontal tissues	33,2±1,72 p<0,05	35,6±1,85 p<0,05	35,7±1,85 p<0,05	34,7±1,8 p<0,05	13,1±0,68

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Chronic recurrent aphthous stomatitis	27,4±1,42 p<0,05	30,7±1,59 p<0,05	31,3±1,62 p<0,05	38,7±2,0 p<0,05	12,3±0,64
Acute herpetic stomatitis	19,3±1,01 p<0,05	20,4±1,06 p<0,05	20,7±1,07 p<0,05	18,2±0,94 p<0,05	11,8±0,61
Chronic catarrhal glossitis	24,7±1,28 p<0,05	25,6±1,33 p<0,05	27,8±1,44 p<0,05	30,9 ±1,6 p<0,05	17,3±0,9
Angular cheilitis	38,9±2,02 p<0,05	40,6±2,1 p<0,05	42,9±2,22 p<0,05	45,6±2,36 p<0,05	9,5±0,49
Teething disorders	8,2±0,42 p>0,05	8,6±0,45 p<0,05	8,3±0,43 p>0,05	41,3±2,14 p<0,05	8,1±0,42

The data of comparison of dental morbidity of children with chronic gastrointestinal pathology and somatically healthy children showed that the most common pathology is caries and non-carious lesions of hard tissues of teeth (from 46,3% to 65,1% and from 20,4% to 77,8%).

At the same time, the largest lesions of dental hard tissues were found in children with malabsorption syndrome, which may be associated, in our opinion, with impaired absorption of trace elements, namely calcium and vitamin D in the intestine. Another reason for the prevalence and high intensity of caries and non-carious lesions of tooth enamel in these children may also be a constant diet - the use of small amounts of food with the exception of dairy products and products with vegetable fiber. At the same time, non-carious lesions accounted for the vast majority of dental hard tissue diseases in this group of children – 77,8%.

Evaluation of the timing and evenness of eruption of temporary and permanent teeth in children with maladaptation syndrome revealed a delay in their eruption in 41,3%, which is five times higher than in healthy children, as well as in children with other chronic gastrointestinal pathology.

Caries and non-carious lesions of teeth were found in half of the examined children with chronic gastritis, duodenitis and duodenal ulcer. Analyzing the data obtained in this table, it can be stated that the intensity of dental hard tissue lesions in these children was slightly different from that in healthy children, but was significantly less than in patients with malabsorption syndrome.

At the same time, all the examined children were found to have a tendency to various inflammatory diseases of the oral mucosa and lips, both in children with chronic gastritis and duodenitis (27,4%-30,7%) and with peptic ulcer of the 12th intestine and malabsorption syndrome (31,3%-38,7%) with an unreliable difference between them. Thus, in the group of children with malabsorption syndrome manifestations of angular cheilitis occurred in 45,6% of cases. The incidence of angular cheilitis in the group of children with chronic gastritis and duodenitis was lower (38,9% - 40,6%) than in the group of children with duodenal ulcer (42,9% of cases).

In the pathogenesis of changes in the oral mucosa (edema, paresthesia, desquamation of the epithelium, etc.), along with reflex, humoral mechanisms,

hypovitaminosis, especially groups B, C and A and increased vascular permeability are important. It is important to note that the treatment of the underlying disease often leads to the disappearance or sharp decrease in the severity of dental manifestations.

Changes in the oral mucosa in chronic pathology of the gastrointestinal tract are usually nonspecific and are manifested by discoloration, swelling during exacerbations of the underlying disease, characteristic plaque on the tongue, focal and diffuse desquamation of the epithelium on its dorsal surface, thinning of individual areas of the oral mucosa, various inflammatory reactions of the gums.

A common symptom of general pathology in the oral cavity is glossalgia and chronic recurrent aphthous stomatitis. Thus, all children with chronic pathology of the gastrointestinal tract have inflammatory periodontal diseases (from 33,4% in chronic gastritis to 35,7% in peptic ulcer of the 12th intestine). At the same time, chronic recurrent aphthous stomatitis in these children was diagnosed three times more than in somatically healthy children.

Given that the highest proportion of dental hard tissue diseases among dental pathology in the examined children with chronic gastrointestinal diseases, the structure of dental hard tissue lesions in the examined children was analyzed, taking into account age and pathology of the gastrointestinal tract (Table 2).

The data presented in Table 2 demonstrate the incidence of dental caries in children with chronic gastritis. The results obtained on the prevalence of dental caries in children aged 6-8 years indicate a massive incidence according to WHO estimates with a high intensity of lesions (84,65±4,39% with 6,21±0,32 for teeth and 9,32±0,48 for cavities). The prevalence of dental caries in children aged 12 years was 63,42±3,29% and is high according to WHO estimates.

*Table 2*

Incidence of dental caries in children with chronic gastritis, (M ± m)

Age	Quantity	Indicators	%, units
7 years	47	prevalence	84,65±4,39
		DMFT +dft	6,21±0,32
		DMFS +dfs	9,32±0,48
12 years	65	prevalence	63,42±3,29
		DMFT	4,37±0,25
		DMFS	6,05±0,31
15 years	84	prevalence	72,87±3,78
		DMFT	5,82±0,31
		DMFS	8,21±0,43

However, the intensity of dental caries in this age group was average (DMFT - 4,37 ± 0,25 units and DMFS - 6,05 ± 0,31 units). In adolescents aged 15 years, the numerical values of prevalence (72,87±3,78%) and intensity of caries (5,82 ± 0,31 units on teeth and 8,21±0,43 units on surfaces).

Table 3 shows the incidence of dental caries in children with chronic duodenitis. The results obtained in the group of children aged 6-8 years also established quite high rates of dental caries intensity in children with chronic duodenitis (DMFT + dft –  $6,45 \pm 0,31$  i DMFS + dfs –  $9,98 \pm 0,21$  units). The prevalence of carious lesions of dental hard tissues in this age group was  $87,25 \pm 4,52\%$ . Significantly lower were the intensity and prevalence of caries in children aged 12 years ( $64,91 \pm 3,89\%$  by the index DMFT -  $4,76 \pm 0,51$  units and by the index DMFS -  $6,35 \pm 0,31$  units).

At the same time, in adolescents aged 15 years, the prevalence of dental caries was  $74,08 \pm 4,36\%$ , which according to the WHO gradation is defined as massive. The intensity of caries lesions by the index DMFT was  $5,97 \pm 0,31$ , and by the index DMFS -  $8,89 \pm 0,46$  units.

*Table 3*

Incidence of dental caries in children with chronic duodenitis, (M ± m)

Age	Quantity	Indicators	%, units
7 years	18	prevalence	$87,25 \pm 4,52$
		DMFT + dft	$6,45 \pm 0,31$
		DMFS + dfs	$9,98 \pm 0,21$
12 years	37	prevalence	$64,91 \pm 3,89$
		DMFT	$4,76 \pm 0,51$
		DMFS	$6,35 \pm 0,31$
15 years	60	prevalence	$74,08 \pm 4,36$
		DMFT	$5,97 \pm 0,31$
		DMFS	$8,89 \pm 0,46$

The prevalence and intensity of dental caries in children with 12 duodenal ulcer and malabsorption syndrome also depend on age. The data shown in Table 4 demonstrate that the intensity of dental caries in children with peptic ulcer disease of the 12th intestine and malabsorption syndrome aged 6-8 years was  $7,25 \pm 0,38$  units by the index DMFT and  $9,68 \pm 0,51$  by the index DMFS. At the same time, the prevalence of dental caries in these children was  $89,65 \pm 4,65\%$  and according to the WHO grading was defined as continuous. In children aged 12 years with the same somatic pathology, the numerical values of the intensity and prevalence of caries lesions of hard tissues of teeth were high. In adolescents aged 15 years there was a massive prevalence of dental caries ( $78,37 \pm 4,06\%$ ). The intensity was by the index DMFT -  $6,54 \pm 0,34$  units and by the index DMFS -  $8,99 \pm 0,47$  units.



*Table 4*

Incidence of dental caries in children with peptic ulcer disease  
12 duodenal ulcer and malabsorption syndrome, (M ± m)

Age	Quantity	Indicators	%, units
7 years	5	prevalence	89,65±4,65
		DMFT +dft	7,25±0,38
		DMFS +dfs	9,68±0,51
12 years	8	prevalence	67,96±3,52
		DMFT	5,04±0,26
		DMFS	6,97±0,36
15 years	12	prevalence	78,37±4,06
		DMFT	6,54±0,34
		DMFS	8,99±0,47

**Conclusions.** 1. Thus, when analyzing the results of the study, it was found that the highest prevalence and intensity of caries was observed in children aged 6-8 years during the variable bite. Up to 12 years, the studied indicators decreased due to physiological changes in the teeth and the formation of a permanent bite. And in adolescents aged 15 years the prevalence of dental caries increased again.

2. However, the data obtained allow us to conclude that children with chronic diseases of the gastrointestinal tract of all age groups had a high prevalence and intensity of dental caries. At the same time, the highest prevalence of dental hard tissue damage and increased intensity of caries was found in children with duodenal ulcer and malabsorption syndrome.

3. Thus, the results obtained by epidemiological research, clearly confirm the data on the relationship of the occurrence and development of dental diseases, namely dental caries, with the severity and duration of chronic diseases of the gastrointestinal tract. This once again emphasizes the need for a scientific approach to solving the problem of prevention and treatment of dental pathology in this contingent of children on the basis of modern ideas of the nature of dental demineralization with reasonable correction of etiologic and pathogenetic direction.

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# **Analysis of modern ways of development of science and scientific discussions**

## Scientific publications

Proceedings of the X International Scientific and Practical Conference  
«Analysis of modern ways of development of science and scientific discussions»,  
Bilbao, Spain. 606 p.  
(November 29 – December 02, 2022)

UDC 01.1

ISBN – 979-8-88831-928-4

DOI – 10.46299/ISG.2022.2.10

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The recommended citation for this publication is: Melnyk D., Shevchenko O. Potential for using VLP-based vaccines against COVID-19 // Analysis of modern ways of development of science and scientific discussions. Proceedings of the X International Scientific and Practical Conference. Bilbao, Spain. 2022. Pp. 41-42

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