

Research Article

Dental and Somatic Pathology Comoridity in Children

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Abstract

The aim of the research is to study the dental status of children with concomitant somatic pathology, to establish the interrelated correlations.

To reach the aim the clinical observation of 460 12-15-year-old children was conducted: I group - children with chronic gastroduodenitis (90 people); II - children with dystonia (100); III - children with chronic diseases of the upper respiratory tract (90 people); IV - children with diabetes type 1 (80), V - children with diffuse nontoxic goiter (100 people).

Dental status of children was assessed by the indices OHI-S, PMA, CPI, prevalence and intensity of dental caries (DMF - Decayed, Missing, Filled), non-carious lesions of dental hard tissues and dentoalveolar anomalies and deformities.

Conclusions. The highest intensity and prevalence of dental caries and periodontal tissue diseases is observed in case of gastroenterological pathology (96.7 and 90.0%, respectively). Dental caries complications are often observed in children with diabetes mellitus (62.5%) and diseases of the gastrointestinal tract (44.4%). Dentofacial anomalies and deformities mostly occur in children with endocrinopathy (66% approximately). Poor oral hygiene, as well as the percentage of carious and extracted teeth in the DMF index structure indicates the need to improve dental care for these children.

Development of prevention and treatment differentiated methods of children with concomitant somatic and dental pathology is promising.

Keywords

children; dental status; somatic pathology

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Problem statement and analysis of the recent research

The level of somatic morbidity in Ukraine and in the world is constantly increasing [2, 7]. Taking into consideration the socio-economic state of our country and the level of anthropogenic contamination, the persistence of negative trends can be expected in the formation of children's health due to the diseases growth of the digestive system, respiratory, cardiovascular, endocrine, immune systems, etc.

The same trend is observed regarding dental morbidity [3, 4, 9-11]. The integrated index of dental health level of 12 year old children from different regions of Ukraine is reduced to 22-35%, especially for high caries prevalence, diseases of periodontal tissues and dental anomalies [5, 8].

The human body is a complete system, so undoubtedly there is a relationship between pathological conditions of the oral cavity and diseases of the internal organs. I.L. Makovka found that in children suffering from chronic gastroduodenitis, the prevalence and intensity of caries of teeth increased an average 1.4-fold, and chronic catarrhal gingivitis - 2-fold [6]. Children with respiratory diseases also have higher rates of caries involvement than healthy children [1]. According to O.I. Ostapko, the most unfavorable course of caries of teeth is

in children with chronic liver and biliary tract diseases [6]. In children with allergic pathology there is a high prevalence of caries of teeth - 90-100% [1].

Despite the significant number of scientific works, the theme does not lose its relevance, as the percentage of both somatic and dental-ill children is constantly growing, new clinical forms of diseases appear, and methods of research and treatment are improved. This necessitates the continuous monitoring and detailed comprehensive study of the combined pathologies, as they require more attention from both dental and pediatric physicians.

Objective of the research is to study the dental status of children with concomitant somatic pathology, for determination of the interrelated correlations.

1. Material and methods

There were examined 460 children aged 12-15 years, who were hospitalized in the endocrinologic, gastroenterologic and pediatric departments of the Chernivtsi Regional Children's Clinical Hospital. Five observation groups were formed from the total amount of patients: I group - children with chronic gastroduodenitis (90 patients); II - children with dystonia (100); III - children with chronic diseases of the upper respiratory tract (90 patients); IV - children with diabetes type 1

(80 patients), V - children with diffuse nontoxic goiter (100 patients).

Standard examination methods of dental patients and the clinical indices and tests: DMF (DMF - Decayed, Missing, Filled), oral hygiene index OIH-S (J. C. Green, J. R. Vermillion, 1964), gingival index PMA (C. Parma, 1960), CPI were used for the study. Statistical data processing was performed by the method of variation statistics using Student's t-test.

2. The results of the study and their discussion

The study showed high prevalence of caries of permanent teeth in all examined groups: 87.5% and 88.0% in children with diabetes mellitus and vascular dystonia, 96.7% - in gastroenterological pathology, 92.2% - in chronic bronchitis, 91.8% - in diffuse nontoxic goiter.

The intensity of caries in accordance with the evaluation criteria recommended by WHO for children under the age of 12 is high in all groups of observations, as its range is from 4.5 to 6.5, and it is very high in children with chronic gastroduodenitis (the average index is 6.82). The figure data of each group are shown in Table 1.

Table 1. The intensity and structure of dental caries damage in children of study groups, $M \pm m$

Group	DMF	DMF		
		D	M	F
I	6.82±0.45	4.74±0.23	1.45±0.12	0.63±0.03
II	5.20±0.41	4.07±0.38	1.02±0.10	0.11±0.02
III	4.91±0.33	3.64±0.21	1.12±0.07	0.15±0.01
IV	5.17±0.34	3.40±0.18	1.32±0.10	0.42±0.02
V	5.80±0.15	3.10±0.15	2.29±0.18	0.41±0.03

In the DMF index structure a significant percentage of untreated, carious teeth attracts attention and the presence of the removed permanent teeth is especially disturbing. The figures in the table indicate that most of these children were in I, IV and V observation groups.

Complications of caries in the form of pulpitis and periodontitis of permanent teeth were observed in 44.4% of patients with chronic gastroduodenitis, in 28.0% of children with dystonia and in 32.2% - in chronic bronchitis, and were diagnosed in more than half of the children with diabetes mellitus (62.5%). In case of diffuse non-toxic goiter this index was 42.7%

Non-carious lesions of hard dental tissues, the main form of which was systemic and local hypoplasia, were approximately 30-40% among the studied patients, the greatest number of cases was observed in children of group III (Fig. 1).

Orthodontic pathology was registered almost in half of the examined children. The highest rate of dental anomalies and deformities was in children with endocrinopathy (69.4 and 62.5%), the lowest (44.0%) - in case of vascular dystonia.

Our study confirmed the literature data about the high prevalence of periodontium diseases with gastrointestinal tract pathology and diabetes. Respectively, these indicators were 90.0 and 92.5%. The lowest rate was in the examined patients in group III (68.9%), it can be interpreted as an average one.

The prevalence of the bleeding symptom and its intensity in children of observation groups is described in Table 2.

Table 2. The prevalence and intensity of gingival bleeding in children of study groups, $M \pm m$

Group	Prevalence, %	Intensity, sextants
I	90.0	3.24±0.26
II	77.0	2.18±0.17
III	71.1	1.67±0.13
IV	97.5	3.39±0.28
V	84.0	3.05±0.24

Taking into account the evaluation criteria of WHO, the periodontal diseases prevalence according to the gingival bleeding symptom can be classified as "high", and the intensity of bleeding is approaching to the "high" one in all examined groups. The state of oral hygiene in children of all observation groups was poor and varied between indices of 1.63 to 1.92 (Fig. 2).

3. Conclusions

1. The highest intensity and prevalence of dental caries and periodontal tissue diseases is observed in gastroenterological pathology (96.7 and 90.0%). Taking into account the fact that the gastrointestinal tract and other somatic diseases may be both a cause and a consequence of dental pathology we consider it appropriate to emphasize the necessity for the full sanitation of these children.
2. Dental caries complications are often observed in children with diabetes mellitus (62.5%) and diseases of the gastrointestinal tract (44.4%), which indicates the necessity for early diagnosis of the disease, which can be implemented through frequent checkups.
3. Dentofacial anomalies and deformities mostly occur in children with endocrinopathy (approximately 66%).
4. Poor oral hygiene, as well as the percentage of carious and extracted teeth in the DMF index structure indicates the necessity to improve dental care for these children.

4. Prospects for further research

Development of prevention and treatment differentiated methods of children with concomitant somatic and dental pathology is currently important.

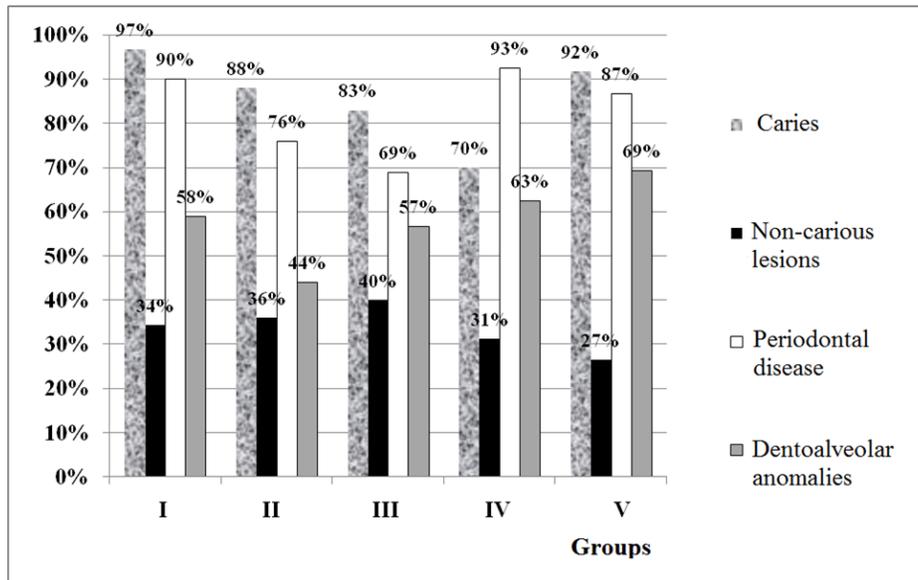


Figure 1. The prevalence of major dental diseases in children of observation groups

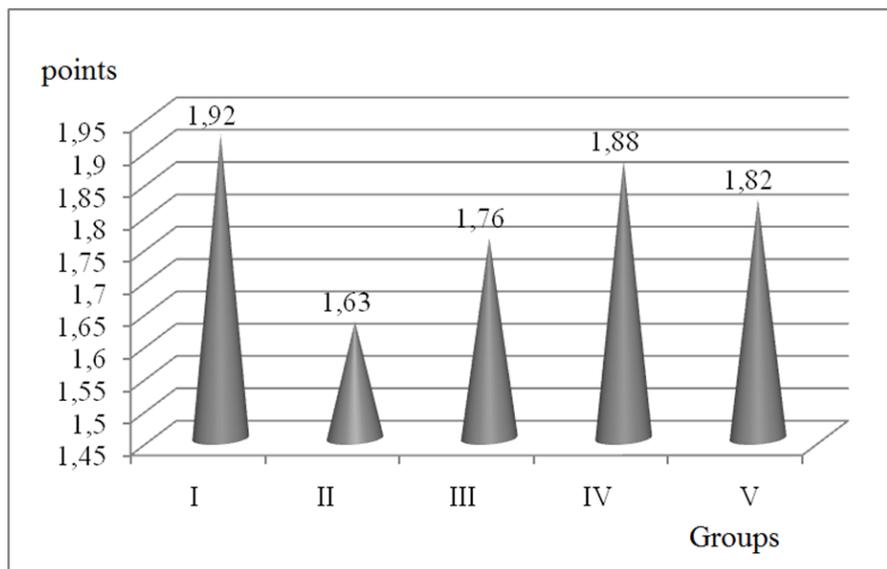


Figure 2. The state of children's oral health of examined groups according to the index OIH-S

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Received: 22 Feb 2018

Revised: 18 June 2018

Accepted: 18 June 2018