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CORRELATION OF FOCI OF CHRONIC ODONTOGENIC INFECTION AND VERIFIED SOMATIC PATHOLOGY IN CHILDREN

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Annotation. The aim of the work is to determine the ratio of chronic odontogenic infection foci and verified somatic pathology in children on the basis of a retrospective study of medical records.

Objects and methods. 111 outpatient medical records of children aged 1-16 years were analyzed. The following were taken into account: sex of the patients; age; caries index of extracted tooth fillings (CFE); caries intensity level (CIL); simplified oral hygiene index (OHI-S); somatic status of the patient. The obtained data were processed statistically using the application program package "Statistica 10.0".

Results. Dental and somatic examination of 61.3% (68) boys and 38.7% (43) girls were analyzed. A CFE value of 0 to 3 was in 41.0% (45) of the individuals and multiple foci of odontogenic infection were in 59.0% (66) of the subjects. Of the total sample, 42.3% (47) individuals were practically healthy and 57.7% (64) had somatic diseases. In persons having multiple foci of odontogenic infection, 54.5% (36) were practically healthy and 45.5% (30) had somatic diseases. Of those who have even a small number of foci of odontogenic infection only 24.4% (11) are practically healthy, and 75.6% (34) of patients have somatic diseases.

Conclusion. The presented results convincingly prove the necessity of dispenserization of persons with multiple foci of odontogenic infection and raise the question about the need to improve the known and develop new preventive measures for the group of patients with low caries intensity.

Keywords: focal infection center; somatic disease; odontogenic infection; pediatric population; generalized pathological process.

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Introduction. It is known that focal infection is the occurrence of foci of secondary infection with lesions of remotely located organs and tissues [8]. The focus of primary infection can be the sinuses, tonsils, adenoidal vegetations, as well as otogenic [7], urogenic, abdominal, and odontogenic foci [5]. The negative impact of foci of focal infection on the development and course of somatic diseases is recognized by specialists all over the world [6]. From the analysis of special literature, it is obvious that chronic foci of odontogenic infection in children represent an immunopathological process, a focus of sensitization and chronic intoxication of the developing organism [9]. At the same time, the available domestic and foreign special periodical literature lacks information on the prevalence of foci of chronic odontogenic infection in children according to gender and age groups of observation recommended by the World Health Organization (WHO). In the anals of special information there are no clear data on the correlation between foci of chronic odontogenic infection and the presence of somatic diseases in the pediatric population.

All the above facts together determine the relevance and social significance of the research topic chosen by the authors.

The aim of the work is to determine the ratio of chronic odontogenic infection foci and verified somatic pathology in children on the basis of a retrospective study of medical records.

Objects and methods. The study was carried out in accordance with the Universal Declaration on Bioethics and Human Rights (1997), the Council of Europe Convention on Human Rights and Biomedicine (1997) and the norms of the Helsinki Declaration of the World Medical Association on the Ethics of Scientific and Medical Research as amended in 2000-2008. This work was approved by the Bioethics Commission of the Belarusian State Medical University.

111 outpatient medical records of children aged 1 to 16 years who applied to the Minsk City Children's Clinical Center for Dentistry for preventive examinations were retrospectively analyzed.

Medical records were analyzed according to the following parameters: sex of patients; age; caries index of extracted tooth fillings (CFE); caries intensity level (CIL) calculated on the basis of CPI; simplified oral hygiene index (OHI-S) J. C. Green, J. R. Vermillion (1964) [3]; somatic status of the patient taking into account nosological forms [1].

Dental and somatic examination reflected in medical records was performed on the basis of clinical protocols approved by the Ministry of Health of the Republic of Belarus. Nosologic forms of somatic diseases were noted in accordance with the International Classification of Diseases (ICD-10). The obtained data were processed statistically using the application program package "Statistica 10.0".

Results of the study. Analysis of medical records showed that dental and somatic examinations were analyzed for 61.3% (68) of boys and 38.7% (43) of girls.

When analyzing the CFE index, the following was revealed. The minimum number of carious lesions in the sample was 1, and the maximum was 14. The index value from 0 to 3 was found in 41.0% (45) people, and multiple foci of odontogenic infection occurred in 59.0% (66) of the examined.

At the same time, 37.0% (41) of patients had a low CIL, 20.0% (22) had a medium CIL, 14.0% (16) had a high CIL, and 29.0% (32) had a very high CIL. The distribution of the sample patients by age groups depending on their CIL is presented in table 1.

Table 1

Caries	Age groups of patients allocated according to WHO recommendat					
intensity levels	0-5 vears old	6 vears old	7-11 vears old	12 vears old	13-15 vears old	16-19 vears old
10 1015	ycars olu	ycars olu	ycars olu	ycai s olu	ycars olu	ycars olu
Low	8 (7.2%)	5 (4.5%)	12 (10.9%)	1 (0.9%)	14 (12.6%)	1 (0.9%)
Medium	5 (4.5%)	2 (1.8%)	10 (9.0%)	1 (0.9%)	4 (3.6%)	1 (0.9%)
High	2 (1.8%)	3 (2.7%)	10 (9.0%)	0 (0.0%)	1 (0.9%)	0 (0.0%)
Very high	19 (17.1%)	4 (3.6%)	8 (7.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Distribution of the sample patients by age groups recommended by WHO, depending on the defined CIL (abs./%).

Note: The number of individuals in the sample (111) was taken as 100.0%.

The analysis of the oral hygiene index OHI-S was revealed that it was determined in 91.0% (101) of patients and was not determined in 9.0% (10) of individuals. A good level of oral hygiene was found in 15.3% (17) of patients, satisfactory - in 67.6% (75) people, unsatisfactory - in 8.1% (9) of individuals, no persons with poor level of hygiene were found.

Based on the analyzed medical records, it was determined that out of the total number of the sample, somatic diseases were verified in 77.0% (86) of the patients, and 23.0% (25) were practically healthy. At the same time, the sample patients had the following somatic lesions: allergic conditions – in 18.0% (20) people; infectious diseases – in 7.2% (8) patients; pathology of cardiovascular system – in 6.3% (7); respiratory diseases – in 36.0% (40); pathology of gastrointestinal tract – in 2.7% (3); diseases of the endocrine system – in 0.9% (1); immune diseases – in 0.9% (1); diseases of the nervous system – in 1.8% (2); blood diseases – in 0.9% (1); pathology of the genitourinary system – in 2.7% (3) of people.

One somatic disease was present in 52.3% (45) individuals, two in 17.4% (15), and three in 3.5% (3) patients. It should be emphasized that of the total number of patients with one somatic disease, 57.8% (26) individuals had a low CIL, 13.3% (6) – medium, 8.9% (4) – high, 20.0% (9) – very high caries intensity. Of the individuals with two somatic diseases, 33.3% (5) individuals had low CIL, 20.0% (3) had medium, 20.0% (3) had high, and 26.7% (4) had very high CIL. Of those

with three somatic diseases, 66.7% (2) individuals had a low CIL and 33.3% (1) had a very high CIL. A comparative assessment of the number of patients with low and average CIL and with high and very high CIL with somatic pathology is presented in Figure 1.



Figure 1. Comparative comparison of the number of patients with low and medium CIL and those with high and very high CIL and medium CIL and high and very high CIL with 1, 2 and 3 somatic diseases.

It is noteworthy that in patients with somatic diseases the total number of persons with low and average CIL is 1.7 times higher than in patients with high and very high CIL.

Combined pathology was stated in 20.9% (18) of patients. Combination with allergic reactions took place in 12.8% (11) patients, with infectious diseases – in 5.8% (5), with diseases of cardiovascular system – in 1.2% (1), with pathology of respiratory organs – in 16.3% (14), with diseases of gastrointestinal tract – in 3.5% (3), with diseases of genitourinary system – in 3.5% (3) people.

Of the total sample of patients, 42.3% (47) were practically healthy and 57.7% (64) had somatic diseases. In persons with multiple foci of odontogenic infection, 54.5% (36) people are practically healthy and 45.5% (30) have somatic diseases. Moreover, 30.3% (20) of persons have one disease; 13.6% (9) have two diseases and 1.5% (1) have three diseases. The predominant proportions come from respiratory system pathology, 51% (21) of verified facts and 22% (9) from allergic conditions. It is noteworthy that only 24.4% (11) of persons with even a small number of foci of odontogenic infection are practically healthy, and 75.6% (34) of patients have somatic diseases. Moreover, 57.8% (26) people have one disease;

13.3% (6) – two diseases, 4.4% (2) – three diseases. The predominant proportions come from respiratory system pathology, 41% (18) verified facts and 25% (11) allergic conditions.

The fact that the sample of children from somatic diseases is dominated by respiratory system pathology and allergic diseases is consistent with the information provided by E. G. Asiran (2013) and A. Kamalova, H. Ilhomova (2023) [2, 4], but at the same time represents fundamentally new data that require further in-depth fundamental research.

Conclusion. Firstly, the presented results convincingly prove the necessity of medical examination of persons with multiple foci of odontogenic infection. Secondly, the results of the analysis indicate the need for further targeted studies of the relationship between foci of odontogenic infection and foci-related somatic pathology based on the principles of evidence-based medicine. Thirdly, it raises the question of the need to improve the known and develop new preventive measures for the group of patients with low caries intensity.

Literature

1. Arsent'ev V.G., Devjatkina S.V., Ivanova N.A., Kaljadin S.B., Platonova T.N., Revin V.A., Sergeev Ju.S., Sereda Ju.V., Staroverov Ju.I., Tihonov V.V., Shabanov N.P. Pediatrics: textbook for medical schools; Ed. N.P. Shabalova; C.G. Arsentyeva, E.S. Antsiferova. – Moscow: «SpetsLit», 2024. – 943 p. (in Russ.).

2. Asiran E.G. The role of food allergens in the development of atopic dermatitis in children // Protection of Motherhood and Childhood. – 2013. – Vol. 21, N 1. – P. 53–58. (in Russ.).

3. Dental examination. Basic methods. Ed. E.M. Kuzmina. – WHO, 2013. – 135 p. (in Russ.).

4. Kamalova A., Ilhomova H. The frequency of occurrence of various diseases of the bronchopulmonary system in adolescents // Sci. Works of Gifted Youth and Medicine of the XXI Century. -2023. Vol. 1, N 1. -P. 91. (in Russ.).

5. Kasparova E.A., Kasparov A.A., Levitsky Yu.V., Tsipurskaya Ol. The role of infection foci in the onset and sustenance of inflammatory diseases of the eye // Rus. Annals of Ophthalmology. – 2019. – Vol. 135, N 6. – P. 124–133. (in Russ.). Doi: 10.17116/oftalma2019135061124

6. <u>Mainas</u> G., <u>Ide</u> M., <u>Rizzo</u> M., <u>Magan-Fernandez</u> A., <u>Mesa</u> F., <u>Nibali</u> L. Managing the systemic impact of periodontitis // Medicina (Kaunas). – 2022. – Vol. 58, N 5. – P. 621. Doi: 10.3390/medicina58050621

7. Pal'chun V.T. Focial infections in otorhinolaryngology // Rus. Bull. of Otorhinolaryngology. – 2016. – Vol. 81, N 1. – P. 4–7. (in Russ.). Doi: 10.17116/ otorino20168114-7

8. Somma F., Castagnola R., Bollino D., Marigo L. Oral inflammatory process and general health. Part 1: The focal infection and the oral inflammatory lesion // Eur. Rev. Med. Pharmacol. Sci. – 2010. – Vol. 14, N 12. – P. 1085–1095.

9. Supiev T.K., Negametzjanov N.G., Nurmaganov S.B., Ahanov S.A. The problem of odontogenic infection in children in the Republic of Kazakhstan // Vestnik KazNMU. -2017. - N2. - P. 117-120. (in Russ.).

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