Prevalence Indicators of Caries and Parodont Soft Tissue Diseases in Children with Congenital Heart Defects

Hamroeva Dilafruz Shukurovna

Bukhara State Medical University

ABSTRACT

In order to study the prevalence of major dental diseases in children with congenital heart disease compared to healthy children without somatic disease, children were divided into observation and control groups. The blue and white form of congenital heart defect formed the observation group, and a dental examination was performed.

Keywords: Congenital heart defect, intensity PMA index, caries, gingivitis, parodontitis

Relevance of the research:

One of the most common complications of diseases of the cardiovascular system is the development of heart failure. In developed countries, heart disease is one of the leading causes of disability and death in the working age population (WHO, 2005). Maintaining and strengthening the dental health of the population is one of the strategic directions in medicine. Despite the current scientific progress, the intensity and spread of caries, as well as diseases of periodontal tissues are always high. Systemic somatic diseases of the body are one of the important factors in the development of dental hard tissue and periodontal tissue diseases. In this regard, infectious diseases of the oral cavity are considered as a risk factor for the development of cardiovascular diseases (Gordon L.D., 2001; Beck J.D., 2001; Kuramitsu H.K., 2001). When optimizing the existing standards for the treatment of oral diseases, it is necessary to take into account the relationship of the heart defect syndrome with damage to other organs and systems, including the state of dental health.

The purpose of the study: to study the prevalence and intensity of the main dental diseases in children with congenital heart defects and to improve their caries prevention.

Research material and examination methods: A follow-up group of 115 children from 2 to 11 years old who applied to the Department of Cardiorheumatology of the Bukhara Regional Children's Multidisciplinary Medical Center with congenital heart defects during 2019-2021, without somatic diseases, with age-related follow-up groups A similar control group of 25 children was recruited for the study and underwent dental examination. The majority of examined children were children with blue and white forms of congenital heart defects. The diagnosis of the main disease was made by a pediatrician-cardiologist.

Table 1
Grouping of examined children by age

Age	Research object					
	Supervising group			Control group		
	Abs	M±m,%	P	Abs	M±m,%	P
Age 2-3	20	17,39±3,53	χ^2=2,087; p = 0,720	2	8,00±5,43	χ^2 = 2,800;p = 0,592
Age 4-5	25	21,74±3,85		6	24,00±8,54	
Age 6-7	22	19,13±3,67		5	20,00±8,00	
Age 8-9	28	24,35±4,00		7	28,00±8,98	
Age 10-11	20	17,39±3,53		5	20,00±8,00	
P	χ^2=Pearson = 1,396; p = 0,845					
Overall	115	100,0±0,00		25	100,0±0,00	
P	χ^2=57,857; p = 0,000					

Children were examined in the dental room using a standard set of dental equipment. During the examination of children, the generally accepted sequence was followed: external examination, study of the functions of the maxillofacial area, examination of the lips and oral mucosa, study of the condition of periodontal soft tissues, assessment of the location of teeth, tooth rows and occlusions, assessment of oral hygiene, study of hard tissues of teeth and oral fluid.

In addition to these research methods, caries prevalence, intensity and acceleration were studied in 115 children with heart disease. Examination of oral cavity organs in children was carried out according to generally accepted clinical methods. The position of the existing teeth in the oral cavity of children was studied, starting from the upper jaw from right to left, then from left to right in the lower jaw. Changes in the dental hard tissue of children - caries and its complications, periodontal soft tissue diseases - gingivitis and periodontitis, and the state of oral cavity hygiene were studied. Also, the knowledge of patient children and their parents on proper oral hygiene was determined. Extensive preparatory work and appropriate organizational measures provided the opportunity to accurately conduct dental examinations in minimal time. As a control group, the indicators of healthy children were used.

Caries diagnosis was made on the basis of established clinical symptoms of caries development, taking into account the depth of damage to the hard tissues of the tooth. During the dental examination of children, the main indicators of caries damage were the intensity and increase in intensity - the KPO/kp index according to the WHO nomenclature.

The papillary-marginal-alveolar index (PMI) was used to assess the periodontal tissue condition. Milk condition was evaluated after staining with Schiller-Pisarev mixture in each tooth: 30% and less – mild level of gingivitis severity; 31 – 60% - medium level of weight; 61% and above – severe level.

Analysis: In the results of the study of children with congenital heart defects, a high frequency of primary dental diseases in the oral cavity was determined in a comparative study of patients with healthy children in the control group. In patients with white form of congenital heart defect and in children with blue form of congenital heart disease, the indicators of identification of primary dental diseases showed a significantly higher frequency of primary dental diseases compared to healthy children in the control group. During the study, the incidence in children with the blue pattern was particularly high compared to both controls and children with the white pattern.

Table 1
Prevalence of major dental diseases in children with congenital heart disease and controls

Forms	Dental diseases								
	Caries			Gingivitis			Parodontitis		
	abs	M±m,%	P	abs	M±m,%	P	Abs	M±m,%	P
Blue form, n=74	72	97,30±1,89	Pearson = = χ^2 25,933; p 0,000	48	64,86±5,55	Pearson = = χ^2 10,718; p 0,005	36	48,65±5,81	Pearson = = χ^2 10,642; p 0,005
White form, n=41	39	95,12±3,36		25	60,98±7,62		18	43,90±7,75	
Control group, n=25	16	64,00±9,60		7	28,00±8,98		3	12,00±6,50	

Early and aggressive caries in the teeth of children with congenital heart defects, pulpitis and periodontitis as a complication of caries have been described. It is typical for children with congenital heart defects to have many teeth affected by caries (up to 3-4). The location of caries is observed not only in its specific places, but also in the neck area.

Table 2
Indicators of caries intensity in research groups, M±m

Children group	Control group (n=25)	Supervising group (n=115)
Age 2-3	1,45±0,02	3,85±0,20***
Age 4-5	1,95±0,08	5,19±0,24*
Age 6-7	1,98±0,11	4,85±0,17*
Age 8-9	2,14±0,11	5,21±0,20*
Age 10-11	2,10±0,08	5,21±0,19*

Comment: * - with the reliability difference compared to the control group (* - P<0,001; ** - P<0,01; *** - P<0,05).

In children with congenital heart disease, PMI gingivitis index blue and white showed more severe gingival inflammation compared to the control group, and mild, moderate, and severe gingivitis were observed. It should be noted that the intensity of damage to periodontal tissues is significantly different from the intensity in children of the control group, which is related to the low level of hygiene in the oral cavity against the background of the main course of the disease, as well as to the periodicity of the rapid exchange rate and the changes formed by the heart defect in the long-term blood vessels.

Table 3
Analysis of the results of the PMI index in children with congenital heart defects and in the control group

Degree	Control group			Blue form^{x}			White form$^{\Delta\#}$		
	abs	M±m,%	P	abs	M±m,%	P	Abs	M±m,%	P
Light (up until 30%)	14	56,00±9,93	re =6,320; p	7	9,46±3,40	re =21,432;	4	9,76±4,63	re =11,171;

Heavier (30-60%	7	28,00±8,98		28	37,84±5,64		16	39,02±7,62	
Heavy (More than 60%)	4	16,00±7,33		39	52,70±5,80		21	51,22±7,81	
P	Chi-Square Pearson = 31,292; p = 0,000								
Overall:	25	100,00±0,00		74	100,00±0,00		41	100,00±0,00	

Comment: [x] – Chi-Square Pearson to Control Group = 25,389; p = 0,000; [Δ] - Chi-Square Pearson to Control Group = 17,805; p = 0,000; [#] Chi-Square Pearson to blue form= 0,023; p = 0,988.

Conclusion: Children with congenital heart defects have specific characteristics of dental caries. As a result of the examination of the sick children, a high rate of occurrence of the main dental diseases was determined: dental caries, 97.30% of congenital heart defects in the blue form, 95.12% in the white form, compared to healthy children in the control group. Gingivitis is 28.00% in healthy children, 64.86% and 60.98% in sick children according to the form of the disease, parodontitis is 12.00% in healthy children, 48.65% and 43.90% in sick children according to the form of the disease organized the It was found that the prevalence of major dental diseases in children with the blue and white form of congenital heart disease was reliably higher than in the control group.

References:

1. D. Sh. Hamroeva. Comparative analysis of the effectiveness of the treatment of parodontitis in patients with obesity// International Journal of Progressive Sciences and Technologies. – 2020. № 24 – P. 469-472. (IJPSAT) ISSN: 2509-0119.
2. D. Sh. Hamroeva FACTORS AFFECTING THE DENTAL STATUS OF THE POPULATION// Journal For Innovative Development in Pharmaceutical and Technical Science. Austria, -2021. - Volume -4, Issue-3. -P. 38-42.
3. D. Sh. Hamroeva. RISK FACTORS AFFECTING THE DENTAL STATUS OF THE CHILDREN AND WAYS TO PREVENT THEM// A Multidisciplinary International Scientific Conference Hosted online from, Rome, Italy, - November 25th, 2021. -P. 53-55.
4. Hamroyeva D. Sh. COMPARATIVE EFFECTIVENESS OF TREATMENT OF INITIAL DENTAL CARIES IN CHILDREN // NEW DAY IN MEDICINE. Bukhara. - 2022. -№: 3 (41). -P. 109-112. ISSN 2181-712X. EiSSN 2181-2187.
5. Hamroeva Dilafruz Shukurovna. GENERAL DENTAL CONDITION OF CHILDREN WITH GENERAL HEART DEFECTS. PECULIARITIES OF DENTAL CARIES IN CHILDREN WITH GENERAL HEART DEFECTS// Международный научно-образовательный электронный журнал «ОБРАЗОВАНИЕ И НАУКА В XXI ВЕКЕ».-2022 (июль). -№ 28 (3). –P. 864-871. ISSN 2658-7998; UDC 37; BBK 94.
6. Ҳамроева Дилафрўз Шукуровна. УМУМИЙ ЮРАК НУҚСОНИГА ЭГА БОЛАЛАРДА ПАРОДОНТ ТЎҚИМАЛАРИНИНГ ҲОЛАТИНИ БАҲОЛАШ ПРИНЦИПЛАРИ// FAN, TA'LIM VA AMALIYOT INTEGRATSIYASI. Samarqand. – 2022 June. –Vol. 3. –No. 7. ISSN: 2181-1776.
7. Hamroyeva D.Sh. THE METHOD OF DETERMINING THE VISCOSITY OF SALIVA IN CHILDREN WITH A COMMON HEART DEFECT AND CYTOLOGICAL STUDIES// Тиббиётда янги кун. Бухара. -2022 (сентябрь). -№9 (47). – P. 7-10. ISSN 2181-712X. EISSN 2181-2187.
8. Hamroeva Dilafruz Shukurovna. COMPARATIVE EVALUATION OF THE THERAPEUTIC EFFECT OF INDIVIDUAL AND COMPLEX DENTAL EXAMINATION IN CHILDREN WITH COMMON HEART

DISEASE// EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE. -2022(Oct). -Vol. 2 No.10. -P. 103-107. EJMMP ISSN: 2795-921X.

9. Hamroeva Dilafruz Shukurovna. ASSESSMENT OF THE CONDITION OF THE ORAL CAVITY IN CHILDREN WITH HEART DEFECTS// EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE. -2022(Nov). -Vol. 2 No. 11. -P. 42-47. EJMMP ISSN: 2795-921X
10. Ҳамроева Дилафрўз Шукуровна. Туғма юрак нуқсони билан касалланган болаларда оғиз суюқлигини клинико-лаборатор текшириш ва тиш кариеси профилактикасини такомиллаштириш // Тиббиётда янги кун. - Buxoro, 2023. - №6 (56). - С. 232-237.
11. Ҳамроева Д.Ш., Мирсалихова Ф.Л. УМУМИЙ ЮРАК НУҚСОНИ БИЛАН КАСАЛЛАНГАН БОЛАЛАРНИНГ УМУМИЙ СТОМАТОЛОГИК ҲОЛАТИ// Педиатрия Научно-практический журнал.Ташкент. -2022 (октябрь). -№3. -С.158-162. ISSN 2091-5039.
12. Д. Ш. Хамраева, Н. Н. Казакова. БОЛАЛАРДА КАРИЕС ПРОФИЛАКТИКАСИНИНГ ЗАМОНАВИЙ УСУЛЛАРИ// Доктор ахборотномаси. Самарканд, - 2021. - №: 2 (99). - Б. 104-108. ISSN 2181-466X.