Incidence of allergic diseases in children with congenital heart defects

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Abstract: Objective: to study the frequency of allergy in children with congenital heart disease (CHD). Materials and мethods: A survey of 103 children (from 1 month to 3 years) was conducted, who were hospitalized in the department of cardiac surgery examination at the regional children's multidisciplinary medical center (RChMMC) in Samarkand in the period from 2021 to 2022. Results: The prevalence of allergic diseases (AD) in children with CHD was 19.41%. The data obtained by us make it possible to classify sick children with CHD as a risk group for the formation of AD. Conclusions. Currently, despite the fact that more and more children are born with CHD, their surgical correction gives favorable results. From this point of view, in the treatment of children with CHD, along with surgical treatment, it is also necessary to correct the comorbid pathology, in this case, allergic diseases.

Keywords: congenital heart disease, allergic diseases, comorbid conditions, prevalence

INTRODUCTION

Congenital heart defects are the most common birth defects, and allergic diseases (AD) are common diseases in childhood. AD has attracted more and more attention in recent decades due to its increasing prevalence among the population. Numerous epidemiological studies studying the prevalence of AD in the world objectively reflect the steady growth of allergopathology, especially in children. Their co-occurrence is not well understood, but may increase due to similar risk factors or immune dysregulation associated with inflammation at an early age.

The relevance of this problem is due not only to the high prevalence, but also to the tendency to increase the proportion of more severe, combined CHD with frequent adverse outcomes in the first year of life.

OBJECTIVE

To study was to study the frequency of allergy in children with congenital heart disease (CHD) according to the pediatric cardiosurgical department of the Regional Children's Multidisciplinary Medical Center of Samarkand. This study aims to compare the prevalence of allergic diseases in children with CHD and their healthy

siblings, as well as to assess their impact on the physical functioning of children with AD.

MATERIALS AND METHODS

A survey of 103 children (from 1 month to 3 years) was conducted, who were hospitalized in the Department of Cardiac Surgery and outpatient examination at the Regional Children's Multidisciplinary Medical Center (RChMMC) of Samarkand in the period for 2021 to 2022, which were divided into I and II groups:

- Group I consisted of 72 operated children (main group) with congenital septal heart defects.

- Group II consisted of 31 children (comparison group) who received only conservative treatment, due to the presence of contraindications to surgery.

To achieve this goal, a set of studies was carried out, including clinical and instrumental data, including ultrasound - echocardiography (EchoCG) with Doppler ultrasound to assess the anatomical structure and function of the heart and large vessels using the Vivid apparatus S 60 N according to the standard method. In addition to echocardiography of the heart, all children underwent electrocardiography (ECG), chest x-ray, and laboratory methods. In addition, additional research methods were carried out in the form of measuring anthropometric parameters.

Parent-reported data on allergic reactions to drugs, foods, and plant pollen were collected.

RESULTS

When studying the prevalence of AD among children with congenital heart diseases in the districts of Samarkand and regions and the Republic of Uzbekistan, in terms of referral and hospitalization in the pediatric cardiosurgical department, a trend was revealed in the following order: in Urgut district 8,73% (n = 9), in Ishtikhan district 6,79% (n =7), in Kushrabad district 2,91% (n =3) and in Jizzakh region 0,97% (n =1).

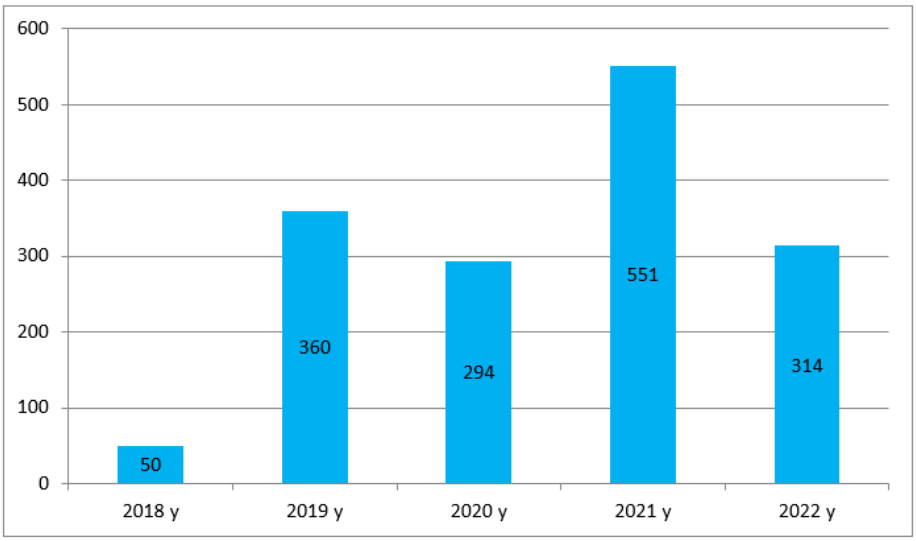

Fig. 1. The number of patients admitted to the Department of Cardiac Surgery of the Samarkand RChMMC for the period 2018-2022.

Within 5 years, the number of patients admitted to the Department of Cardiac Surgery of the Samarkand RChMMC has been progressing (Fig. 1.).

We noted a significant increase in the number of operated patients with CHD during the period 2018-2022, that is, from year to year, the number of patients increased almost 2 times (Fig. 2.).

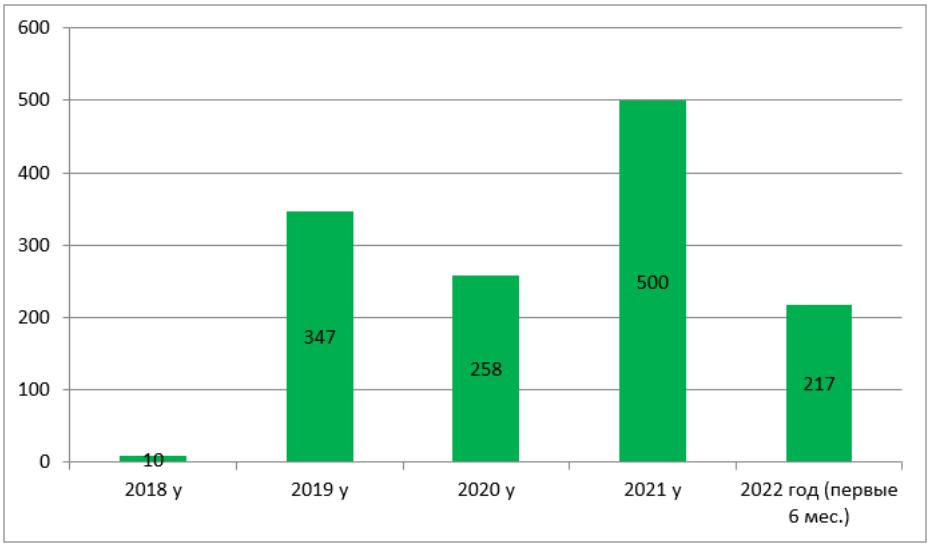

Fig. 2. The number of operated patients with CHD for the period 2018-2022

It should be noted that during the survey period there was a trend towards an increase in CHD in children in all regions.

According to the literature, the ratio of patients depending on gender is different. According to the results of our research, girls numerically predominate over boys. Among the examined children there were 48 boys (46.60%) and 55 girls (53.39%).

Children from the main group and the comparison group had an allergic reaction to drugs such as azithromycin, chikoncil; for food products: berries-raspberries, strawberries, citrus fruits-tangerines, oranges; for sweets: chocolates; on plants; also, some parents found it difficult to answer and did not know what could cause an allergic reaction in children. An allergic reaction to all the above allergens in 70% manifested itself in the form of rashes on the body, 19,44% (n=14), 19,35% (n=6) had the same level of allergic diseases.

Of allergic reactions, food allergy 55% (n=11), drug allergy 30% (n=6) and allergic rhinitis 15% (n=3) were intermittently observed. Allergic reactions in children were manifested in the form of rashes on the body, rhinoconjunctivitis, itching, redness and peeling of the skin. In all children with AD, antihistamines were found, with the elimination of causative inflammation.

The prevalence of AD in children with CHD was 19,41%. Our data allow us to classify sick children with congenital heart disease as a risk group for the formation of AD.

Currently, despite the fact that more and more children are born with CHD, their surgical correction gives favorable results. From this point of view, in the treatment of

children with CHD, along with surgical treatment, it is also necessary to correct the comorbid pathology, in this case, allergic diseases. This improves the quality of life of children after surgery, and also ensures age-related adaptation to social life.

References

1. Зиньковский М.Ф. Ранняя диагностика врожденных пороков сердца // Журнал практичного лікаря. — 2022. — № 5. — С. 19-26.Д.

2. Нарзулаева У. и др. Значение диеты в лечении артериальной гипертензии //Журнал биомедицины и практики. – 2021. – Т. 1. – №. 3/2. – С. 111-116.

3. Таирова С. Б., Буронов М. И. У. Эпидемиология и факторы риска развития врождённых пороков сердца у детей (литературный обзор) //Science and Education. – 2023. – Т. 4. – №. 2. – С. 536-542.

4. Таирова С. Б., Мухамадиева Л. А. РАССТРОЙСТВА ПОВЕДЕНИЯ У ДЕТЕЙ С ВРОЖДЕННЫМИ ПОРОКАМИ СЕРДЦА //Journal of cardiorespiratory research. – 2022. – Т. 1. – №. 2. – С. 19-21.

5. Таирова С. Б., Мухторов А. А. У., Зиёдуллаева М. С. Нейрокогнитивные расстройства у детей с врождёнными пороками сердца (литературный обзор) //Science and Education. – 2023. – Т. 4. – №. 2. – С. 543-548.

6. Таирова С. Б., Хушвактова Б. Б. Қ. Особенности течения коморбидной патологии с врожденными септальными пороками сердца (литературный обзор) //Science and Education. – 2023. – Т. 4. – №. 2. – С. 549-555.

7. Таирова С. Б. ALLERGIC REACTIONS ON THE BACKGROUND OF CONGENITAL HEART DEFECTS IN YOUNG CHILDREN //Журнал кардиореспираторных исследований. – 2023. – Т. 4. – №. 1.

8. Bakhodirovna T. S., Atamuradovna M. L. ДИАГНОСТИКА ВРОЖДЕННЫХ СЕПТАЛЬНЫХ ПОРОКОВ СЕРДЦА У ДЕТЕЙ С КОМОРБИДНОЙ ПАТОЛОГИЕЙ (литературный обзор) //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – Т. 7. – №. 2.

9. Хусинов А. А., Таирова С. Б. ФУНКЦИОНАЛЬНОЕ СОСТОЯНИЕ ГИПОТАЛАМО-ГИПОФИЗАРНОЙ НЕЙРОСЕКРЕТОРНОЙ СИСТЕМЫ В ФИЗИОЛОГИЧЕСКИХ УСЛОВИЯХ У ИНТАКТНЫХ ЖИВОТНЫХ //Материалы XXIII съезда Физиологического общества им. ИП Павлова с международным участием. – 2017. – С. 1595-1597.

10. Bakhodirovna T. S., Atamuradovna M. L. PATHOGENETIC ASPECTS OF ALLERGIC REACTIONS AMONG CHILDREN WITH CONGENITAL HEART DEFECTS //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2023. – Т. 8. – №. 2.

11. Gravholt CH, Viuff MH, Brun S, Stochholm K, Andersen NH. Turner syndrome: mechanisms and management. Nat Rev Endocrinol. (2019) 15:601–14.

12. Huggard D, Koay WJ, Kelly L, McGrane F, Ryan E, Lagan N, et al.. Altered Toll-Like Receptor Signalling in Children with Down Syndrome. Mediators Inflamm. (2019) 2019:4068734.

13. Robinson GA, Peng J, Donnes P, Coelewij L, Naja M, Radziszewska A, et al.. Disease-associated and patient-specific immune cell signatures in juvenile-onset systemic lupus erythematosus: patient stratification using a machine-learning approach. Lancet Rheumatol. (2020) 2:e485–96.

14. Rouatbi H, Farhat N, Heying R, Gerard A, Vazquez-Jimenez JF, Seghaye MC. Right atrial myocardial remodeling in children with atrial septal defect involves inflammation, growth, fibrosis, and apoptosis. Front Pediatr. (2020) 8:40.

15. Utkurovna S. G. The character of dysbiotic changes in the acute period of stenosing laryngotracheitis of respiratory tract //European science review. – 2014. – №. 9-10. – С. 49-50.

16. Samieva G. U. et al. Features Of Distribution And Density Of Lymphoid Cells Of The Mucosa Of The Larynx As A Manifestation Of Local Immunity In Chronic Laringitis (Analysis Of Sectional Material) //European Journal of Molecular & Clinical Medicine. – 2020. – Т. 7. – №. 03. – С. 2020.

17. Singampalli KL, Jui E, Shani K, Ning Y, Connell JP, Birla RK, Bollyky PL, Caldarone CA, Keswani SG, Grande-Allen KJ. Congenital Heart Disease: An Immunological Perspective. Front Cardiovasc Med. 2021 Aug 9;8:701375.