International Journal of
Health Systems and Medical Sciences

ISSN: 2833-7433
Volume 2 | No 2 | February -2023

Predisposition Factors for the Development of Bronchial Asthma in Children

Khudoyberdieva Shahnoza Iskandarovna

Assistant of the Department of Propaedeutics of Children's Diseases, Bukhara State Medical Institute, Republic of Uzbekistan, Bukhara

Abstract: Bronchial asthma (BA) is a disease based on a chronic inflammatory process in the bronchial tree, characterized by migration and infiltration of mast cells and mucosal eosinophils, regulated by Th2 cytokines of lymphocytes. It seems that bronchial asthma (BA) in children is the result of the interaction of genetic predisposition and factors affecting the child's body in perinatal and early childhood. The article presents current data on the main endogenous and exogenous risk factors for the development of bronchial asthma (BA) in children.

Key words: bronchial asthma, allergic rhinitis, cytokines, lymphocytes, risk factors, hereditary predisposition.

Relevance. The end of the 20th and the beginning of the 21st century are characterized by an alarming increase in the number of patients with various allergic diseases, among which bronchial asthma (BA) occupies one of the first places. In developed countries, from 10 to 30% of the population suffers from allergic diseases, and in areas with unfavorable environmental conditions - more than 50%. In the Republic of Uzbekistan, according to epidemiological studies, up to 35% of the child population suffers from allergic reactions and diseases [1]. The prevalence of bronchial asthma (BA) among children in the Republic of Uzbekistan ranges from 8.6 to 18.9%. Hereditary predisposition is considered as a fundamental factor in the formation of allergic diseases, which primarily include bronchial asthma (BA), atopic dermatitis (AD) and allergic rhinitis (AR). All these diseases are regarded as manifestations of a single atopic condition, which is realized in the form of allergic inflammation in various body systems with a primary lesion of certain target organs.[2]

Hereditary Predisposition. Indisputable evidence of the significance of hereditary burden in the formation of allergic pathology was obtained as a result of numerous clinical, genealogical, population-statistical and twin studies. It is known that in the presence of bronchial asthma (BA) in one of the parents, the risk of bronchial asthma (BA) in the offspring increases by 3 times compared with the population and by 6–7 times if both parents suffer from bronchial asthma (BA) [2]. According to E.T. Lilyina et al ., in the presence of the disease in one of the parents, bronchial asthma (BA) develops in 31% of children, in both parents - in 70% of cases, and the empirical risk of developing bronchial asthma (BA) in a child born after a patient with bronchial asthma (BA) is 14% [3]. Works on the study of hereditary predisposition to atopic dermatitis (AD) have shown that the development of this pathology is observed in 82% of children if both parents suffer from allergies, in 59% if only one of the parents has atopic dermatitis (AD) and the other has an allergic pathology respiratory tract. The burden of a family history of allergic pathology on the mother's side is more significant than on the father's side. It is known that children whose mothers suffer from allergic diseases, in particular asthma, are much more likely to have manifestations of atopy and high levels of immunoglobulin E (IgE) than children from families where fathers suffer from allergic

pathology. According to RG Ruiz et al ., children born to mothers with allergic diseases have a 5 times greater risk of developing atopic dermatitis (AD) than children whose fathers had manifestations of atopy [4]. Thus, genetic predisposition to allergic diseases is an important risk factor for the development of this pathology in offspring. However, in addition to the genetic predisposition in the development of an allergic disease, external influences that the child's body is exposed to at the perinatal and early postnatal stages of life also play a role.

Delivery method. Over the past two decades, in Western industrialized countries, the prevalence of bronchial asthma (BA) has been growing in parallel with the increase in the frequency of caesarean section [5]. There are two possible explanations for this correlation. Unlike vaginal delivery, a caesarean section does not allow the newborn to pass through the mother's birth canal and encounter the vaginal microflora; as a result, the sterile intestines of the newborn do not stimulate the maturation of the immune system. Another possible reason is that newborns delivered by caesarean section may develop transient tachypnea. Both of these factors predispose to an increased risk of developing bronchial asthma (BA) in early childhood. [2,17]

Breast-feeding. The development and formation of the child's immune system may depend both on the characteristics of the perinatal period and on the characteristics of nutrition in the early postnatal period. Feeding a newborn is one of the main factors affecting his subsequent health, psychomotor development and intellectual potential. At present, there is no doubt that mother's milk is the most optimal food for a newborn. However, the productive role of breastfeeding in the development of allergic pathology in children is still the subject of discussion. [1,18] Along with the results of recent large-scale studies confirming the preventive role of breastfeeding in the development of both atopic dermatitis (AD) and bronchial asthma (AD) in young children, there is evidence of an increased risk of developing these diseases in children receiving breast milk. Moreover, according to AL Wright et al ., breastfeeding reduces the risk of wheezing syndrome in children of the first 2 years of life, regardless of the presence of bronchial asthma (BA) in the mother, but increases the risk of developing this pathology, as well as bronchial asthma (BA) in children older than 6 years, whose mothers suffered from bronchial asthma (BA) [6,14]. The contradictory data on the protective role of breastfeeding in the development of allergic diseases in a child can be explained by the diversity of the biochemical and immunological composition of mother's milk. Breast milk contains a wide variety of specific and non-specific biologically active substances that modulate the maturation of the immune system and influence the formation of an immune response in a child. Breast milk contains IgG , IgM , nucleotides, some amino acids (taurine), polyunsaturated fatty acids (a mixture of eicosanoids , docosanoids), monoglycerides , various cytokines (IL-7, IL-8, tumor necrosis factor α, adiponectin), immunoglobulin isoforms (sIgA), soluble receptors (CD14, soluble Toll -like receptor 2 (sTLR2)), chemokines , antibacterial proteins (lactoferrin, lysozyme, β-lactoglobulin, casein) [7,15]. Despite the inconsistency of the data presented, at present, the duration of breastfeeding for at least 4–6 months remains one of the key recommendations in the prevention of allergic diseases in children. A recent study found that infants are exposed to the mother's microflora. During breastfeeding, maternal exposure to the microbiota determines the development of the neonatal gut flora and may play a protective role.[16]

Conclusions. Thus, the development of allergic pathology, including bronchial asthma (BA), in addition to hereditary predisposition, is influenced by a number of factors affecting the child perinatally and at an early age. Carrying out preventive measures to prevent the development of bronchial asthma (BA) is possible only with the help of complex efforts of specialists in various fields, starting from the prenatal period of fetal development and pregnancy management.

List of sources used:

1. Khudoiberdieva , Sh. I. (2022). Allergen -Specific Features of Sensitization to Food Allergens of Plant Origin in Patients with Seasonal Allergic Rhinitis. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI* , *1* (7), 325-328.
2. Khudoiberdieva , Sh. (2023). CURRENT PROBLEMS OF CHILDHOOD ALLERGOLOGY AT THE PRESENT STAGE. *Zamonaviy dunyoda innovation tadqiqotlar : Nazariya va*

amaliyot, *2* (3), 20-22.

3. Lilyin E.T. Handbook for those studying medical and clinical genetics. M., 1996
4. Ruiz R.G. et al. // clinic. Exp. Allergy. 1992. V. 22. No. 8. P. 762.
5. Magnus M.C. et al. // Am. J. epidemiol. 2011. V. 174. No. 11. P. 1275.
6. Wright AL et al. // Thorax. 2001. V. 56. No. 3. P. 192.
7. M'Rabet L. et al. // J. Nutr . 2008. V. 138. No. 9. P. 1782S.
8. Makarova S.G., Boldyrev M.N., Lavrov THOSE., Petrovskaya M.I. Intestinal microbiocenosis, food tolerance And food allergy. Contemporary state Problems. Questions contemporary pediatrics. 2014; T. 13(3): 24–32.
9. Makarova S.G., Namazova -Baranova L.S., Borovik T.E. etc. Gastrointestinal manifestations of allergy to cow's milk protein in children. Medical advice. 2014; N.1.1 .
10. Braun C., Eigenmann P. Management of childhood food allergies. Rev Med Suisse. 2019 Feb 13; 15.(638): 398–401. French.
11. Bogdanova Nm, Kosenkova TV, Novikova VP, Boytsova EA, Gaile LO, Gavrina IA Epigenetic fac- tors of atopic phenotype formation in infants, born from mothers with bronchial asthma. Archives of Disease in Childhood. 2017; T . 102(S2): A 42.
12. Luss L.V. food allergy And food intolerance. Cytokines And inflammation. 2005; 3: URL: http://www.cytokines.ru/russian/2005/3/ Art26.php
13. Hyman PE, Milla PJ, Benninga MA et al. Childhood functional gastrointestinal disorders: neonate/toddler. gastroenterology. 2006; 130: 1519–1526
14. Khamraeva , DR "Functional constipation in children and its neuro-immune feature: Special issue on COVID-19: Yesterday." Today, and Tomorrow p : 243-248.
15. Razzakovna KD. THE FREQUENCY OF THE SPREAD OF FUNCTIONAL CONSTIPATION IN CHILDREN IN THE BUKHARA REGION. ResearchJet Journal of Analysis and Inventions . 2022 Jan 5;3(1):51-7.
16. Khamrayeva DR. FREQUENCY OF DISTRIBUTION OF FUNCTIONAL CONSTIPATION IN CHILDREN IN BUKHARA REGION. Experience and prospects for the development of the export potential of educational services in higher education. 2021:227-32.
17. Khamraeva , D. R. "IMPORTANCE OF INTERLEUKINS IN THE BLOOD OF CHILDREN WITH FUNCTIONAL DISCLAIMER." *BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI* 2.12 (2022): 369-372.
18. Iskandarovna , K.S. (2022). RISK FACTORS FOR DEVELOPING FOOD ALLERGIES. *BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI* , *2* (12), 511-516.