

1 Prevalence and Risk Factors for the Formation of Bronchial 2 Asthma

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6 **Abstract**

7 Bronchial asthma is a multifactorial disease. Industrial chemical compounds are also included
8 in the list of causative factors of bronchial asthma. The contribution of industrial allergens to
10 the formation of bronchial asthma is undeniable. In studies carried out in conjunction with
11 professional pathologists, children were found to be sensitized to industrial allergens (nickel,
12 chromium, formaldehyde, etc.), which contribute to the formation of bronchial asthma.
13 However, determining factor, is the presence of atopy.

14
15 **Index terms**— respiratory diseases, bronchial asthma, prevalence, risk factors.

16 **1 Introduction**

17 In the previous versions of the National Program ??1997, 2006 -2008), it is rightly indicated that bronchial asthma
18 is an independent nosological form characterized by a complex pathogenesis. In children, the immunological
19 mechanism of the development of the disease is the leading and decisive one. The question of non-immunological
20 forms of bronchial asthma in children, as before, is the subject of scientific discussions.

21 According to most researchers, nonspecific factors provoking bronchial asthma in children are secondary, and
22 their effects are preceded by body sensitization and the development of allergic inflammation of the bronchi.

23 Modern genetic studies have proven the role of hereditary predisposition to the development of bronchial
24 asthma; however, the phenotypic realization of the genotype is determined by the influence of environmental
25 factors.

26 The key role in the development of bronchial asthma in children belongs to the IgE-dependent type of allergic
27 reaction. Sensitization to allergens and their repeated exposure leads to asthma manifestations as a result of
28 airway inflammation, reversible obstruction and increased bronchial reactivity. However, it is possible to involve
29 non-allergic mechanisms of airway inflammation, which are not well understood in our time.

30 **2 II.**

31 **3 Materials and Methods**

32 The understanding of the immunological mechanisms of bronchial asthma is constantly deepening, new and
33 new aspects of them are being discovered not only at the cellular, but also at the molecular level. The
34 combination of various inflammatory mediators causes the whole complex of clinical manifestations characteristic
35 of bronchial asthma. Bronchoconstriction, mucus hypersecretion, edema of the bronchial mucosa develop,
36 bronchial hyperreactivity is formed. The dynamics of various immunological parameters correlates to a certain
37 extent with the activity of inflammation and clinical symptoms.

38 Currently, the important role of infection, primarily viral, as a triggering factor in the development of bronchial
39 asthma and the main trigger mechanism has been shown.

40 As clinical experience shows, typical for the overwhelming number of sick children are attacks of bronchial
41 asthma, occurring in the form of difficulty breathing, paroxysms of expiratory suffocation. Atypical manifestations
42 of bronchial asthma in children are sometimes expressed by attacks of persistent spasmodic cough.

5 RESULTS AND DISCUSSION

43 Treatment approaches are determined by the severity and control of the disease. The development of severe
44 exacerbations of bronchial asthma can pose a threat to the patient's life, and a severe exacerbation can develop
45 with any severity of the course of the disease.

46 Bronchial asthma is a real life-threatening disease, which makes it necessary to pay special attention to the
47 organization of medical care and social support for patients. Only under the influence of adequate and systematic
48 pathogenetic therapy in children with bronchial asthma, a stable remission can be achieved.

49 Taking into account the above fundamental provisions, the following definition of bronchial asthma in children
50 has been adopted: Bronchial asthma in children is a disease based on chronic allergic inflammation of the bronchi,
51 involving a number of cells, including eosinophils, neutrophils, mast cells, lymphocytes. This is accompanied by
52 airway hyperresponsiveness, bouts of shortness of breath or I suffocation as a result of widespread bronchial
53 obstruction caused by bronchoconstriction, mucus hypersecretion, edema of the bronchial wall. Bronchial
54 obstruction (under the influence of treatment or spontaneously) is reversible. The impact of allergens and various
55 nonspecific factors on the respiratory tract provokes the development of acute reactions in the sensitized organism
56 in the form of bronchospasm, edema of the bronchial wall, obturation of their lumen with mucus. Chronic allergic
57 inflammation leads over time to structural changes in the bronchial wall (remodeling). The clinical manifestations
58 of bronchial asthma in children depend on age. This is especially true for children in the first five years of life,
59 which suggests appropriate approaches to diagnosis and treatment. In clinical practice, until now, bronchial
60 asthma in children is often not diagnosed, the diagnosis is replaced by the concept of "obstructive syndrome",
61 "obstructive bronchitis", "asthmatic component in 17 respiratory viral infections", etc. Episodes of recurrent
62 cough and / or obstruction in 60-70% of children in the first six years of life are transient. Bronchial asthma
63 (BA) is a heterogeneous disease (a disease characterized by chronic inflammation of the respiratory tract and
64 diagnosed by respiratory symptoms such as wheezing, shortness of breath, tightness in the chest or coughing,
65 variable in duration and intensity, combined with reversible obstruction. Chronic inflammation, respiratory
66 hyperactivity and remodeling, which are at the heart of BA, are implemented with the participation of a large
67 number of different types of cells and mediators, which determines the pathogenesis, phenotypes and endotypes
68 of the disease. The cytokine cascade of an allergic reaction, which develops in a sensitized organism through
69 repeated contact with an allergen, causes allergic inflammation, tissue damage, and contributes to narrowing and
70 hyperreactivity of the respiratory tract [4]. In terms of frequency, current severity, disability and danger to life
71 (especially in teenagers), BA is one of the most important problems in modern paediatrics (3). According to
72 ISAAC, the true prevalence of BA in different regions of our country is 7-8 times higher than official statistics
73 [1,2]. In the structure of hospital morbidity of the Uzbekistan, children with AD make up 33%, specialized
74 children's pulmonary sanatorium -45%, among patients with diseases of the bronchopulmonary system the level
75 of disability from AD is 70%, which indicates the socioeconomic importance of this problem for the region under
76 consideration.

77 4 III.

78 5 Results and Discussion

79 In recent years, allergic diseases have been increasingly referred to as the "global problem of our time" because of
80 their high prevalence in children and adults (S.Yu. Kaganov, 1997; Patterson R., Gryammer L.K., 2000; Holgate
81 S.T., Arshad S.H., 2004). A special place among allergic diseases belongs to bronchial asthma as one of the most
82 significant and widespread diseases of childhood. The social significance of the disease and the impact of its
83 nature on the state of the labor force in present and future society have necessitated large-scale epidemiological
84 studies.

85 Epidemiological studies in recent years indicate that at least 5-10% of the child population and 5% of adults
86 suffer from bronchial asthma (Chuchalin A.G. 2000; National Programme "Bronchial Asthma in Children.
87 Treatment and Prevention Strategy "2006). At the same time, data on disease prevalence based on medical
88 statistics is much lower, and there is also a discrepancy between the distribution of patients by the severity of
89 bronchial asthma. Thus, according to official statistics, severe and severe forms of the disease are much more
90 common in children than mild asthma, which differs significantly from the prevalence structure revealed by
91 epidemiological methods, where mild asthma prevails (Mizernitsky Yu.L., Rosinova H.H. and others 2004; Geppe
92 H.A., Mokina H.A., 2007). Thus, a significant proportion of children with a mild course of the disease are
93 practically not diagnosed.

94 The published results of epidemiological studies conducted both in our country and abroad mainly concern
95 the prevalence of bronchial asthma in large industrial centres, while the overall incidence of bronchial asthma
96 in children living in rural areas has not been studied (E.G. Kondyrina, Elkina T.N., 1998; Petrova T.I. 2004;
97 Chernyak B.A., Tyarenkova C.B., 2004; Asher M.I., Weiland S.K., 1998). In addition, there are practically no data
98 on the prevalence of the disease in children of different age groups living in urban and rural areas, and the structure
99 of the disease by severity depending on age is not described. ??evyakina, 2005). This determines the importance
100 of epidemiological research to obtain reliable data on the prevalence of the disease in various climatological and
101 geographical regions, independent of the quality and level of health care development. However, the medical
102 and social significance of such studies also lies in their ability to better understand the role of exogenous and
103 endogenous factors in the development of such a multifactorial disease as bronchial asthma (Baranov A.A.,

104 1999). Determining the ratio of internal factors to environmental factors in the prevalence of this disease in
105 children, especially in connection with the growth of negative trends in the population health of children and
106 various environmental problems, is a difficult but promising trend in pulmonology (Veltishchev Yu.E., Fokeeva
107 V.V., 1996). Such information allows us to expand our understanding of factors predisposing to the disease,
108 and thus to make individual medical forecasts and, consequently, make the right decisions in planning both
109 therapeutic and preventive work.

110 Thus, conducting transverse single-stage studies to examine the true prevalence or prevalence of bronchial
111 asthma, in accordance with international recommendations, using a representative sample and a validated
112 questionnaire followed by clinical, instrumental and immunological examination seems to be a relevant and
113 up-to-date task.¹

5 RESULTS AND DISCUSSION

¹¹⁴ **.1 Conflict of Interests**

¹¹⁵ The authors declare the absence of obvious and potential conflicts of interest related to the publication of this
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¹¹⁹ **.3 Ethical Approval**

¹²⁰ No ethical approval is needed in accordance with the ethical standards laid down in the 1964 Declaration of
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