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Prevalence of Allergic Diseases in School-Age Children Living in Jizzakh Region of Ruz

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ABSTRACT
A study conducted under the ISAAC program revealed a tendency towards an increase in the prevalence of symptoms of allergic diseases among schoolchildren of 7-8 and 13-14 years old, living in the Jizzakh region, as well as underdiagnosis of these allergic diseases.

KEY WORDS: allergy, bronchial asthma, underdiagnosis, children, hay fever, prevalence, schoolchildren.

INTRODUCTION

The problem of allergic morbidity in children is relevant in modern medicine. Allergologyis currently successfully developing in many areas. Among them, the issues of epidemiology, clinical picture, etiology and pathogenesis of allergy in children are of great scientific and practical importance. According to international statistics, over the past two decades, the frequency of allergic diseases has increased 3-fold, and 250,000 people die from bronchial asthma every year.

By 2025, according to WHO forecasts, more than 50% of the world's population will suffer from allergic diseases. This allowed the medical community to consider the 21st century as the “century of allergy”, and the disease itself as an “epidemic”.

An increase in the incidence of allergies, including among the child population, is becoming a global medical and social problem. The most common forms of allergic reactions are bronchial asthma, atopic rhinitis or pollinosis, as well as atopic dermatitis and eczema [1, 2].

For modern clinical allergology of children, the problem of studying the clinical and epidemiological aspects of allergic diseases is very relevant. The last decades have been characterized by a significant prevalence of allergic diseases in many countries.

According to the WHO, at present, there is both an absolute increase in the number of allergic diseases and an increase in their share in the structure of overall morbidity. The number of patients with atopic diseases is increasing especially rapidly.

One of the important areas of modern clinical allergology is the study of regional and climatic-geographical features of the epidemiology of allergic diseases in children [3, 4].

The study of the epidemiology of allergy is explained by the need to establish the true frequency of allergic morbidity in the population, to clarify the clinical forms of manifestations, etiology, etc.

Epidemiological information is also valuable because it makes it possible to identify risk factors that contribute to the occurrence of allergic diseases [5, 6].

There is a need to clarify the impact on the health of the population of specific factors of the biosphere that have developed in this particular settlement: climatic and weather conditions,
the degree of air pollution, the quality of drinking water, population density and other factors. The pathogenic effect of some environmental factors on the body of children is beyond doubt.

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Another important task of studying allergic morbidity in children is to identify the influence of the so-called internal factors that contribute to the onset and development of diseases. These include: age, gender of children, the state of the mother's body during pregnancy, hereditary predisposition and allergic constitution.

Allergology is currently successfully developing in many areas. Despite significant advances in scientific research in the field of allergology, many of its aspects (causes of sensitization, regional features of epidemiology, clinical and immunological manifestations, etc.) remain undisclosed. No one doubts the presence of peculiarities of the clinical course of atopic allergic diseases in individuals belonging to different ethnic populations and living in different climatic and geographical regions [7, 8, 9].

The organization of high-quality treatment of allergic diseases, as well as timely prevention, is impossible without knowledge of the true prevalence, etiology and risk factors of these diseases. However, despite the changed structure of allergic pathology and the introduction of new diagnostic criteria, the study of the prevalence of asthma and other allergic diseases in accordance with international standards (ISAAC program - "International Study of Asthma and Allergy in childhood") did not cover all territories of the Republic of Uzbekistan (Nukus, Bukhara, Fergana).

One of the most allergenic regions of the republic, in the Jizzakh region, no such studies have been conducted.

In the Jizzakh region, over the past 5 years, the number of requests with clinical manifestations of allergies of various localization has doubled, especially among children and adolescents, and amounted to 10% of the total number of requests.

The reasons for the rapid growth of atopic diseases (risk factors) are still not well understood. These include: environmental pollution, a high level of industrialization, past infections of a pregnant woman, vaccinations, hygienic living conditions of the population. Risk factors for the development and growth of atopy are intensively studied.

One of the features of the Jizzakh region, along with climatic conditions (temperate continental climate with short warm winters with little snow, long hot summers and little rainfall), is its rapid economic development.

Considering the importance of the problem of atopic allergic diseases in children, the lack of information about the regional features of this form of pathology, as well as the importance of the results of these studies for practical health care in the city of Jizzakh and the Jizzakh region, further detailed studies of the allergic incidence of the child population are needed.

A complete survey of the entire population living in a given region is not always possible and unnecessary. Modern epidemiological studies and mathematical analyzes with a lot of reliable information are enough to survey 3% of the total population of the region.

The aim of this study was to study the prevalence of allergic diseases among school-age children in the Jizzakh region.

To achieve this goal, the following tasks were set:

- To study the prevalence of allergic diseases among children 7-8 and 13-14 years old in some districts of the Jizzakh region on the basis of the international ISAAC program.
- Summarize the information characterizing the climatic and geographic features, the level of environmental stress in certain areas of the Jizzakh region and the city of Jizzakh.

MATERIALS AND METHODS

We surveyed a total of 1,432 children, which is 5.2% of the total number of schoolchildren.

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Of this total number of respondents, 253 were identified with allergies, which is17.6%.

All digital data were processed by the method of variation statistics: the mean values,the error of the mean values, and the reliability of numerical differences were calculated. Differences were considered significant at $t \geq 2$ and $P < 0.05$.

RESULTS AND DISCUSSION

The clinical forms of allergy in children were different (Table 1).

The children suffered from various clinical forms of allergies. The proportion of allergic rhinoconjunctivitis, bronchitis - 68 (26.9 ± 2.7%), pollinosis - 62 (24.5 ± 2.7%), allergic dermatoses - 51 (20.2 ± 2.5%) slightly prevailed in comparison with bronchial asthma -39 (15.4 ± 2.2%) and other allergic diseases (drug and food allergies, migraine) -33 (13.0 ± 2.1%).

Table 1. Clinical forms of allergy in children

№	Name of diseases	Boys	Girls	Both
1.	Allergic rhinoconjunctivitis, bronchitis	39 (25,7±3,5)	29 (28,7±4,4)	68 (26,9±2,7)
2.	Pollinosis	37 (24,3±3,4)	25 (24,8±4,2)	62 (24,5±2,7)
3.	Allergodermatosis	29 (19,1±3,1)	22 (21,8±4,1)	51 (20,2±2,5)
4.	Bronchial asthma	25 (16,4±3,0)	14 (13,9±3,4)	39 (15,4±2,2)
5	Other allergic diseases	22 (14,5±2,8)	11 (10,8±3,0)	33 (13,0±2,1)
	Total	152(100)	101(100)	253 (100)

According to our data, boys suffered from allergies more often than girls. So, of the total number of identified patients (253), boys accounted for 152 (60.1 ± 3.0%), and girls - 101 (39.9 ± 3.0). The difference is reliable. ($P < 0.05$).

The incidence of allergies was relatively independent of the age of the patients. Within the studied age, the frequency of allergic morbidity was approximately the same.

The study of intensive indicators of allergic morbidity in school-age children revealed interesting patterns (Table 2). Thus, the incidence rate per 1000 schoolchildren depended on the clinical forms of allergic diseases. Both boys and girls were more likely to suffer from allergic rhinoconjunctivitis and bronchitis (47,4). In second place were pollinosis (43.2). Further, the frequency of allergic morbidity in children in descending order was: allergic dermatoses (35.6), bronchial asthma (27.2) and other allergic diseases (23.0).

In general, the frequency of allergic morbidity per 1000 child population was 176.6 ± 23.9, and the incidence of illness in boys was slightly higher (201.5 ± 32.5) than in girls (148.9 ± 35.4). However, this difference is not statistically significant ($P > 0.5$).

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Table 2. Frequency of allergic morbidity among schoolchildren in the Jizzakh region of Uzbekistan

№	Name of diseases	Boys	Girls	Total
1.	Allergic rhinoconjunctivitis, bronchitis	51,7	42,7	47,4
2.	Pollinosis	49,0	36,8	43,2
3.	Allergodermatosis	38,4	32,4	35,6
4.	Bronchial asthma	39,1	20,6	27,2
5.	Other allergic diseases	29,1	16,2	23,0
	Total	201,5	148,9	176,6

The analysis of the frequency of individual clinical forms of allergic diseases showed the prevalence of cases of allergic rhinoconjunctivitis and bronchitis. So, if these forms of allergic diseases are taken as 100%, then the share of pollinosis accounts for 91.1 ± 3.6%, allergic dermatoses -75.1 ± 6.0%, bronchial asthma -57.3 ± 7.9%, others allergic diseases - 48.5 ± 8.6%. Exogenous factors played a significant role in the development of the disease. Thus, in a certain number of sick children, the underlying disease was combined with other allergic and somatic diseases.

Of the total number of patients (253), the underlying disease was combined with other allergic and somatic diseases in 189 (74.7 ± 2.7%), and in 91 (5.9 ± 3.0%) with somatic diseases (gastrointestinal pathology). tract, cardiovascular, nervous, endocrine systems, etc.).

According to the anamnesis, 135 (53.3 ± 4.3%) sick children were on artificial or early mixed feeding.

CONCLUSION

1. Allergic diseases are often found in the regional conditions of the Jizzakh region, which is established on the basis of epidemiological studies using the expeditionary method, which makes it possible to more accurately identify the true indicators of the incidence of the population. The frequency of allergic morbidity in children exceeds the official statistics established by practical health authorities almost three times, which indicates an underdiagnosisof allergies.
2. New scientific data, established on the basis of clinical and epidemiological studies, determine regional features, clinics, diagnosis and prevention of allergic diseases in children.
3. Atopic allergy in schoolchildren living in the Jizzakh region is characterized by the following regional features of the clinical course: prevalence of cases of polymorphism of symptoms, poly- and combined sensitization.
4. The results of epidemiological studies help to find out the true indicators of allergic morbidity in the child population, which is of great importance in the development of effective therapeutic and prophylactic measures aimed at reducing the dynamics of the growth of morbidity and mortality from allergic diseases.

In addition, elucidation of allergic morbidity is of great importance for practical health authorities for scientifically grounded planning of the organization of specialized allergic treatment and prophylactic care for children suffering from allergic diseases.

5. The conducted epidemiological studies confirm the advantages of the ISAAC program, which contributes to obtaining true indicators of the prevalence of allergies in children, which is of

great importance in determining preventive and therapeutic measures for children suffering from allergic diseases.

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CONSENT

Written informed consent was obtained from all participants of the research for publicationof this paper and any accompanying information related to this study.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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