

Etiological Factors of Acute Allergic Conditions in Children Living in the Conditions of the City of Bukhara

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Abstract: The results of the research conducted among children living in the city of Bukhara showed that food allergens (68.2%) had a significant role in the structure of the causes of food allergies. Anamnestic intolerance to cow's milk was detected in 15.1%, egg protein in 12.5% of cases. The biggest cause of allergy was to an allergen from cow's milk. 1450 (15.1%) patients referred to this factor. Egg white was indicated in 1201 (12.5%) patients. 1037 (10.8%) patients pointed to beef meat. 950 (9.9%) patients indicated allergy to fish. Fruits and vegetables were considered the cause of allergy in 778 to 230 patients. It should be emphasized that the cause of the disease remained unexplained in 3053 patients, which is 31.8% of cases.

Key words: allergic dermatosis, atopic dermatitis, allergic contact dermatitis, etiology.

Relevance. The allergy phenomenon was first noticed and described in 1906 by the Austrian pediatrician Clemence Pirquet. Allergy is an immune reaction of the body, which is accompanied by damage to the structure and function of the cells and tissues of the body.

An allergic reaction is a type of immune response.

The goal of an allergic reaction is to free the body from Ag either with the help of antibodies or with the help of T-lymphocytes.

Allergens are the cause of allergic diseases. The conditions for the occurrence of allergies are certain features of the external environment and the state of the reactivity of the body. Despite the many allergens surrounding a person, a certain percentage of people fall ill, and not all, since a significant role in the development of allergic diseases belongs to those specific adverse conditions that are developing at the moment and contribute to the implementation of the allergen's effect on the body. An allergen is a substance that causes an allergic reaction. How is an allergen different from an antigen? The main difference is the end result of the action. If a substance causes an allergic reaction, then it is called an allergen, if it leads to the development of an immune reaction, it is called an antigen. It turns out that allergens have all the properties of antigens (this is mainly a protein nature, macromolecularity, foreignness for a given organism, etc.).

But allergic reactions can cause not only substances of an antigenic nature, but also substances that have these properties. These include many micromolecular compounds, such as drugs, simple chemicals (bromine, iodine, chromium, nickel, etc.), as well as more complex non-protein products (some microbial products, polysaccharides, etc.). These substances are called haptens. When they enter the body, they do not turn on immune mechanisms, but become antigens (allergens) only after they combine with body tissue proteins. In this case, the so-called conjugated (or complex) antigens are formed, which sensitize the body. When re-entering the body, these

haptens (allergens) can often combine with the formed antibodies and (or) sensitized lymphocytes on their own, without prior binding to proteins.

The specificity of the complex antigen is determined by the specificity of the hapten. In this case, changes in the properties of the protein (carrier) can be different. In some cases, its spatial configuration (i.e., conformation) does not change or changes slightly. It does not become alien to the body, so sensitization goes only to the hapten. In other cases, the attachment of the hapten causes significant changes in the carrier conformation. Protein molecules are denatured. This is observed during the addition of a halogen, nitration, acetylation, addition of chromium, etc. In these cases, sensitization develops not only to the hapten, but also to the altered regions of the protein molecule.

Thus, summarizing the above, it should be concluded that if the conformation of the carrier does not change, then allergic reactions develop, proceeding according to the type of reactions to an exogenous (external) allergen, i.e. with the development of allergic diseases, when the conformation of the carrier changes, autoallergic reactions are added, which, with their extreme severity, can develop into autoallergic diseases. However, not every combination of a chemical with a protein results in the formation of an antigen. Many drugs in the body combine with serum proteins, but the resulting complexes do not always become antigens for the body. Whey proteins also combine with many endogenously formed micromolecular compounds (for example, steroid hormones, copper and iron ions, metabolic products), performing a transport function in relation to them. But this also does not lead to the appearance of antigenicity. The combination of transport proteins with the corresponding endogenous product or metabolite can change the conformation of the carrier, but does not lead to its denaturation, since these structural changes, developed in the course of evolution, are “own” for the organism, there is immunological tolerance to them, i.e. they are not perceived as foreign.

In recent years, on the basis of clinical and experimental data, it was possible to prove the strengthening of the allergenic properties of non-infectious allergens, acting against the background of the influence of atmospheric pollutants (industrial emissions, power plants, vehicle exhaust gases, etc.) in an ecologically unfavorable region.

There are various clinical forms of OSA, but combined forms with a severe clinical course predominate. In this regard, new scientific research is needed aimed at elucidating the features of the frequency, clinical forms of manifestations of acute allergic diseases in children in ecologically unfavorable regions of Uzbekistan, including in the conditions of the city of Bukhara.

The results of the research conducted among children living in the city of Bukhara showed that food allergens (68.2%) had a significant role in the structure of the causes of food allergies. Anamnestic intolerance to cow's milk was detected in 15.1%, egg protein in 12.5% of cases. Along with this, the exacerbation of the disease was also associated with other foods: beef, fish, lemons, vegetables, and fruits. In a significant proportion of patients (31.8%), the causes of allergic reactions remained unclear.

The biggest cause of allergy was to an allergen from cow's milk. 1450 (15.1%) patients referred to this factor. Egg white was indicated in 1201 (12.5%) patients. 1037 (10.8%) patients pointed to beef meat. 950 (9.9%) patients indicated allergy to fish. Fruits and vegetables were considered the cause of allergy in 778 to 230 patients.

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Allergens can be drugs, dyes and detergents, various synthetic polymers, cosmetics and perfumes.

Simple low molecular weight products can acquire allergenic properties in the body after being attached to whey and tissue proteins. Exoallergens are numerous substances that enter the body from the outside.

Exoallergens include allergens of non-infectious origin:

- 1) household (house dust, library dust, daphnia);
- 2) medicinal (antibiotics, etc.);
- 3) epidermal (human epidermis, animal epidermis, bird feathers, wool, hair, fur);
- 4) pollen (flowers of cultivated plants, flowers of wild plants, meadow grasses, weeds, trees, shrubs, crops);
- 5) chemicals (gasoline, benzene, etc.);
- 6) food allergens (livestock meat, poultry meat and eggs, fish products, plant products, and dairy products);
- 7) insects (stinging, blood-sucking, arachnids).

Infectious allergens include:

- 1) bacterial - various types of pathogenic and non-pathogenic bacteria, their metabolic products;
- 2) fungal allergens (pathogenic and non-pathogenic fungi), pathogens of fungal diseases, molds;
- 3) various types of viruses;
- 4) various types of protozoa;
- 5) saprophytes and conditionally pathogenic organisms.

Molds cause allergies in 30% of cases, food additives in 21%, house dust mites in 20%, plant pollen in 16%, food in 14%, drugs in 12%, pets in 8%.

When studying the causative factors of allergic dermatitis in children hospitalized with OSA, anamnestic studies revealed that in 35.3% of cases of allergic dermatitis the cause was various food allergens, drug allergens were also important - 27.4%, insect allergens (venom of stinging and biting insects) in 11.0% of cases. In 26.3% of sick children, the cause of allergic dermatitis remained unclear (Table 3).

The main causes of skin lesions in drug allergies are antibiotics of all groups, sulfa drugs, vitamins.

Allergic reactions to insect stings were manifested both in the form of local and systemic changes.

It should be pointed out that, in addition to causative factors, factors of a burdened premorbid background were important in the development of allergic dermatitis. So among children with allergic skin diseases, there are often children who were on early artificial feeding (56%), who had feeding defects - early complementary foods, the introduction of foods that do not correspond to age or have highly allergenic properties (46%), with anomalies of the constitution, in particular, with exudative-catarrhal diathesis (78%) and hereditary burden (72%) (Fig. 4).

Mass diseases of the population with bronchial asthma in cities with severe air pollution are described. Skin tests with some substances found in the air gave positive reactions.

Crimi E (1998) using a multivariate correlation analysis in the study of the incidence of 2.9 million children living in 30 regional centers and data on urban air pollution (SO₂, dust, nitrogen oxides, CO), found that there is a fairly strong relationship between pollution atmospheric air and the incidence of pneumonia, asthma, acute bronchitis and allergic diseases in children.

A similar study was conducted by Navruzova Sh.I. (1996) in the conditions of the city of Bukhara and established a relationship between the pollution of the city's atmospheric air with dust oxides of N, CO and the incidence of respiratory allergies in children.

The allergenic effect of chemical environmental factors depends on their threshold dose, which ensures the excitation of immunocompetent cells responsible for the synthesis of specific allergic antibodies or the proliferation of sensitized lymphocytes.

Children suffering from acute food allergies most often applied to the ambulance service (SMP) of the city of Bukhara. During the last 5 years, the total number of acute allergic reactions in children with food allergies, in relation to the total number of calls, was 9602 (39.3%). Frequency of calls for acute reactions associated with food allergies, in relation to the total number of calls, from 2001 to 2003 was in the range of 6.1-7.4%, and in the period from 2004 to 2005 increased to 9.1-10.1%.

Consequently, the number of calls for acute reactions associated with food allergies has increased by 1.6 times over the past 5 years ($p>0.05$).

Thus, in the etiology of food allergy in children in the city of Bukhara, cow's milk, then egg white, beef meat, fish, lemons, oranges, cucumbers, and tomatoes are important. Along with this, the causes of a significant part of the disease remain unexplained. In the etiology of urticaria and Quincke's edema, food allergens were important in 35.3% of cases, drug allergens - in 27.4%, insect allergens (venom of stinging and biting insects) in 11.0% of cases. The cause of these allergic diseases remained unclear in 26.3% of patients.

In the etiology of drug allergy, antibiotics were significant - 35.6%, sulfanilamide preparations - 15.9%, therapeutic sera and vaccines - 10.1%, vitamins - 2.9%, local anesthetics - 2.3% of the total reactions. In 33.1% of cases, the etiological significance of drug allergy remained unclear.

The cause of asthma attacks were non-infectious allergens: house dust (60.1%), epidermal (14.7%): pet hair (cats, dogs) - 12.0% and pollen allergens (3.0%). In a significant proportion of patients (13.1%), the cause remained unclear.

In the occurrence of pollen and dust allergies, pollen allergy is of great importance 49.1%, and dust allergy is 17.5% In a significant proportion of patients (33.4%), the cause of these allergic diseases remained unclear.

In the etiology of insect allergy, the poison of stinging insects (wasps, bees, bumblebees and mosquitoes) played a decisive role (60.8%). The cause could not be determined in 39.2% of patients.

In the formation and development of OSA, in addition to the above reasons, risk factors played a significant role. According to our data, hereditary burden was detected in 70.3% of cases, allergic diathesis in 60.5%. 55.3% of sick children were bottle-fed.

Combined forms of allergy with a severe clinical course prevailed among OSA. In the structure of etiological factors, food and drug allergies, allergic dermatitis, bronchial asthma, pollen, dust and insect allergies were of great importance.

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