

Modern Diagnostic Methods for Identifying Allergic Diseases

Matniyozova Zaynab To'xtaboyevna

Bukhara state medical institute after named Abu Ali ibn Sino

Abstract: The allergen-specific diagnosis during allergic diseases aims at establishing the causal significance of allergens in the occurrence of allergic disease, which bears high importance for the development of efficient therapeutic and prophylactic programs for children suffering from allergic diseases. During the last years the opportunities of diagnosis of allergic diseases have broadened thanks to standardization of the majority of inhalation allergens. Specific diagnosis is based on the evaluation of allergic history data, results of allergy skin tests, use of in vitro allergy diagnosis tests and the performance of provocation tests [1].

Key points: allergic diseases, allergic rhinitis, atopic dermatitis, bronchial asthma.

They find out whether the child or his parents have complaints, the presence of allergic diseases both in the anamnesis and at the time of examination. Collecting allergy history data makes it possible to establish the features of its development before the manifestation of allergy manifestations, to identify sources of sensitization and the factors that determined their development. They may be excessive consumption by the mother during pregnancy and breastfeeding of foods with high allergenic activity, drug therapy by the mother during the specified period, and contact with aeroallergens. After the birth of a child, these factors can cause sensitization of the body. Information about previous allergic diseases and reactions is of great importance; their presence in the past most likely indicates the atopic genesis of a newly developed allergic disease. In cases where a child has a history of allergic diseases and reactions, the results of a previous allergological examination, the effectiveness of antiallergic pharmacotherapy and allergen-specific immunotherapy are determined. A positive result of antiallergic treatment indicates the allergic nature of the disease.

When collecting an allergy history, they find out the time of occurrence and causes of the first manifestation of the disease, the frequency and causes of its subsequent exacerbations, their seasonality or occurrence throughout the year. The manifestation of allergy manifestations during the flowering season of plants indicates the probable development of hay fever; their year-round presence may be due to sensitization by aeroallergens in homes. Pay attention to the connection between the occurrence of allergic symptoms and the time of day. Children with hay fever feel worse during the daytime due to an increase in the concentration of pollen in the air during this period of time. In patients with bronchial asthma and atopic dermatitis associated with tick-borne sensitization, bronchial obstruction and allergic inflammation of the skin often worsen in the evening and night hours.

Manifestations of bronchial asthma, allergic rhinitis, allergic conjunctivitis caused by tick-borne sensitization most often occur at home, while when changing place of residence or during hospitalization, the condition of patients improves. In children with allergic diseases caused by sensitization to mold fungi allergens (bronchial asthma, allergic rhinitis), an exacerbation of the disease is usually observed when living in damp living quarters, near water bodies, in forests with high humidity, upon contact with rotten leaves, hay. An increase in the body's sensitization to house dust allergens and an increase in exacerbations of bronchial asthma and atopic dermatitis is

facilitated by living in residential premises with a large amount of upholstered furniture, curtains, and carpets. The connection between the occurrence of allergic manifestations and the intake of certain foods indicates that the patient may have food sensitization. The appearance of allergic symptoms upon contact with pets, birds, or when visiting a zoo or circus indicates the development of sensitization to epidermal allergens. In insect allergies, there is a connection between the occurrence of allergic manifestations and insect bites and contact with them, in particular with cockroaches. An allergic history allows us to establish a connection between the development of allergic symptoms and the use of certain medications.

Skin tests are an informative method of allergological examination. The purpose of performing skin tests is to confirm the significance in the development of the disease of allergens to which, according to the anamnesis, increased sensitivity is assumed, to identify causally significant allergens with which the connection with exacerbations of the disease has not been traced in the anamnesis. The results of skin tests make it possible to assess the level of sensitization and evaluate the possibilities of allergen-specific immunotherapy.

Allergen extracts administered during skin testing may cause allergic skin reactions of type 1 (IgE-mediated reactions), type 3 (Arthus-like reactions), type 4 (delayed type reactions). IgE-mediated skin reactions appear immediately (15–20 minutes after the test). An immediate skin reaction to an allergen is a highly sensitive biological method for detecting specific allergic antibodies. Histamine released during exposure to an allergen in the skin from mast cells causes dilation of capillaries with the development of hyperemia and edema (papules). The skin reaction that occurs after 15–20 minutes can quickly fade away or persist for 1 hour. At the site of allergen injection, skin infiltration with eosinophils and polymorphonuclear leukocytes is noted. Such reactions most often occur to house dust, mite, pollen and epidermal allergens[2].

Arthus-like reactions occur 3–6 hours after the test with a maximum of manifestations 8–12 hours after the administration of the antigen and subsequent reverse development by the end of the day after the test. Arthus-like reactions are based on an immunocomplex mechanism of development, leading to local inflammation of the skin. The occurrence of such reactions is possible to food, fungal, bacterial antigens.

Delayed reactions often occur when performing intradermal tests with allergens. They manifest themselves as hyperemia and infiltration of the skin 12–48 hours after the introduction of the antigen and often develop when performing skin tests with bacterial and fungal allergens.

In the structure of allergic morbidity in children, atopic diseases (bronchial asthma, atopic dermatitis, allergic rhinitis) are predominant. Their pathogenetic basis is IgE-mediated allergic reactions to exogenous allergens that occur in children and adolescents with a hereditary predisposition to allergic diseases. The IgE-mediated mechanism underlies the pathogenesis of hay fever, insect allergies and is involved in the development of urticaria, angioedema, food and drug allergies. The detection of specific IgE antibodies in the blood serum to certain allergens in these groups of patients indicates that they have developed sensitization of the body and, if there is anamnestic confirmation, indicates the causal significance of these allergens. The level of allergen-specific IgE has important diagnostic significance and is comparable in its information content to skin tests [3].

Modern allergy diagnostics in vitro is based on the use of methods for determining specific IgE in blood serum. These research methods include radioallergosorbent test (ELISE), combined allergosorbent test (MAST), immuno CAP. The advantage of immunological methods for determining specific IgE compared to skin tests is the ability to carry out allergy diagnostics in the acute period of allergic diseases (exacerbation of atopic dermatitis, allergic rhinitis, partially controlled or uncontrolled bronchial asthma, chronic urticaria); the results of these tests are not affected by pharmacotherapy [4]. The results of these in vitro allergy diagnostic methods correlate with the results of skin tests, the severity of the allergic process, and the level of total IgE in the blood serum. For practical purposes, the determination of specific IgE antibodies makes it possible to determine the presence of sensitization to allergens: house dust, *Dermatophagoides*

pteronysinus, Dermatophagoides farinae, food products, plant pollen, mold spores, insects, animals, birds, latex, penicillin, aspirin, and some food colorings.

Provocative tests (conjunctival, nasal, inhalation) are used to confirm the causal significance of the allergen in cases of discrepancy between the anamnesis and intradermal tests. If the test results are positive, symptoms of allergic rhinitis, allergic conjunctivitis, and bronchial asthma occur. Provocative tests can be performed only during remission of the disease. Conjunctival tests are more sensitive than prick tests and less sensitive than intradermal tests. The test can be performed on children over 5 years of age.

Rererences:

1. Балаболкин И.И. Современные подходы к проведению аллергенспецифической диагностики при аллергических заболеваниях у детей // Аллергология и иммунология в педиатрии. URL: <https://cyberleninka.ru/article/n/sovremennye-podhody-k-provedeniyu-allergenspetsificheskoy-diagnostiki-pri-allergicheskikh-zabolevaniyah-u-detey>
2. Горячкина Л.А., Кашкин К.П. Клиническая аллергология и иммунология. – М.: Миклош, 2009. – 430 с.
3. Наврузова Ш.И., Юлдашева Г.Г. Эффективность терапии сурфактантом у недоношенных детей с респираторным дистресс-синдромом УДК 616.24–008.4:616–001.8–08–053.32
4. Bahodirov Behruz Shavkat o'g'li. (2024). Respiratory mycoplasmosis in children. American Journal of Pediatric Medicine and Health Sciences (2993-2149), 2(4), 219–223. Retrieved from <https://grnjournal.us/index.php/AJPMHS/article/view/4362>