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THE ROLE OF FOOD ALLERGENS IN THE FORMATION OF FOOD ALLERGIES AND FOOD INTOLERANCES IN CHILDHOOD

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Annotation: In recent years, the problems of food allergies and food intolerances have attracted the close attention of doctors of various specialties. This is due to the increased frequency of food allergies in adults and children, changes in the nature of nutrition, the emergence of new technologies for processing food products, and the development of cross-reactivity between food and other groups of allergens. Food additives such as dyes, preservatives, and flavorings play an equally important role in the formation of food intolerance reactions.

Keywords: food allergy, children, classification, diagnosis, treatment, diet, elimination, permission-elimination diet.

The relevance of the food allergy problem is beyond doubt. In a number of countries of the world, its prevalence has increased by 2 times in recent years. Manifestations of food allergy, in contrast to food intolerance, are immunologically determined diseases. Immune-mediated diseases caused by food, based on the mechanism of development, are divided into IgE-mediated, non-IgE-mediated and mixed, differing from each other both clinically and immunopathogenetically. Essentially any allergic disease can be caused by food allergens. It should be noted that at present there are several theories of the development of allergies. The difference in food allergy endotypes in combination with other factors affecting the development of sensitization and manifestations of allergic reactions causes a wide variability in the phenotypic manifestations of allergopathology. Diagnosis of them provides individualization and increases the efficacy of the food allergies prevention and treatment. Various types of diets have been described. The permission-elimination diet proposed by us combines the advantages of all of them. Even isolated use of it provides a clinical effect in almost 25% of patients with food allergies. Particular attention is paid to the methods of early introduction of food products to create food tolerance. Methods of medical treatment are characterized including the use of allergen-specific immunotherapy and various biological preparations.

It should be noted that of the various allergic diseases, diseases caused by food allergens are the most common. In addition, in many cases they are the first of all allergic diseases registered in patients. Many authors emphasize that food allergy is the beginning of the "atopic march" and after or against the background of continued clinical manifestations of it, many patients develop hypersensitivity reactions to other allergens, such as household, pollen, medicinal, etc. It should be emphasized that in recent years the number of patients suffering from food allergies has increased significantly, and in some countries the number of people with allergies to food products has increased by 2 times [1-3].

Approximately 20% of the population believes that they suffer from food allergies [4]. Its prevalence in the child population reaches 10% (in children of the first year of life - 6-8%, in adolescents 2-4%), in adults - 2%. The share of anaphylactic reactions associated with food consumption accounts for 35-55%. It should be noted that these figures are constantly growing.

The cause of food allergies are food allergens. In children, food allergies are usually associated with the consumption of cow's milk, chicken eggs (yolk), and fish. Polyvalent sensitization is detected in 76% of children.

The most common food allergens in adults are peanuts and tree nuts (in particular, hazelnuts), fish. These allergens often cause severe reactions, including anaphylactic shock.

Usually, about 80-95 food allergens enter the human body during the day.

In the etiological spectrum of food allergies, the main role belongs to the cow's milk allergen. Allergy to cow's milk usually develops in children of the first year of life (up to 80%), as a rule, after the child is transferred to artificial feeding with milk formulas.

Food allergens of plant origin have pronounced sensitizing activity. Cereals and bread grains: wheat, barley, rye, malt, oats, corn, rice, sorghum, millet. The protein content in cereals is 5.3–12 g per 100 g of grain of different crops. The main proteins of cereals are albumins, glutelins, globulins. Pseudoallergic reactions associated with nonspecific histamine liberation in response to the consumption of wheat products are described. Legumes: peas, soybeans, peanuts, broad beans, lupine. Soybeans have pronounced allergenic activity and are classified as hidden allergens. The main allergens are globulins and albumins. Sensitization by inhaled particles is possible, for example, during industrial processing of soybeans.

Among non-toxic reactions to food, there are two main types of intolerance, differing in the mechanisms of development: immunologically mediated reactions to food products caused by disorders in the immune system (food allergy), and non-immunological reactions (food intolerance).

Food intolerance can develop in diseases of the gastrointestinal tract, hepatobiliary system, neuroendocrine pathology, congenital and acquired enzymopathies and other diseases not associated with disorders in the immune system.

Among immunologically mediated reactions to food, there are two main types of food allergy: true food allergy (TFA) and false food allergy (FFA), or pseudoallergy. In this case, true allergic reactions to food allergens are detected in approximately 35% of them, and pseudoallergic reactions - in 55% With normal functioning of the gastrointestinal tract and hepatobiliary system, sensitization to food products entering the enteral route does not develop.

Normal digestion and absorption of food products is ensured by the state of the neuroendocrine system, the structure and function of the gastrointestinal tract, hepatobiliary system, the composition and volume of digestive juices, the composition of intestinal microflora, the state of local immunity of the intestinal mucosa (lymphoid tissue, secretory immunoglobulins, etc.) and other factors.

The development of food allergies is provoked by factors common to adults and children. First of all, this is an increase in the permeability of the intestinal mucosa, which is observed in inflammatory diseases of the gastrointestinal tract, insufficient pancreatic function, enzymopathy, dyskinesia of the biliary tract and intestines, etc. Irregular eating, rare or frequent meals lead to disruption of gastric secretion, the development of gastritis, hypersecretion of mucus and other disorders that cause the formation of food allergies or pseudoallergies.

Results and discussion The conducted generalization shows that in the majority of analyzed diseases among such products milk and eggs are most often encountered. Moreover, allergy to the above products is most often encountered in infants. It should be noted that allergy to milk and eggs, as a rule, in infants is relatively short-lived and ceases within 1-3 years. And this concerns not only IgE-dependent diseases, but is also true for non-IgE-dependent diseases induced by food proteins - enteropathy (enteritis), enterocolitis, proctocolitis, etc. It should be noted that a number of allergic diseases of the upper and lower respiratory tract caused by food allergy are in the

overwhelming majority of cases a consequence of cross-allergy syndromes (pollen-food, etc.). Labile epitopes of allergen molecules cause the occurrence of oral allergic syndrome. In many cases, it is a result of cross-sensitization.

Causes and symptoms: Food allergies can be hereditary, and the risk is doubled if both parents have the same allergy. Often, an allergy to one product can later develop to such an extent that a reaction to another product will also occur - this is the so-called cross-allergy. Sometimes allergies are caused by substances that are used to preserve the color of food, such as fruits and vegetables. Such allergies can cause asthma attacks.

Allergic reactions usually develop within a few minutes to two hours after eating. But in patients suffering from severe allergies, simply touching or smelling food can cause an allergic response. Typical early symptoms include swelling and itching of the lips, mouth, and throat. Once in the digestive system, irritating food can cause nausea, vomiting, intestinal colic, and diarrhea. Itching, hives, eczema, and redness of the skin often begin.

In some patients, food can trigger allergic rhinitis, which is characterized by a runny nose, cough, and shallow breathing.

Sometimes a delayed allergic reaction can occur - a period of several hours to two days after the allergen is ingested. Compared to an immediate response, the symptoms of a delayed allergic reaction are not as severe and can include eczema, urticaria, and asthma.

Rarely, anaphylactic shock occurs. Symptoms include intense itching, urticaria, sweating, swelling of the mucous membrane of the pharynx, difficulty breathing, and low blood pressure. If this condition is not treated promptly and correctly, it can progress rapidly, leading to loss of consciousness or even death.

At present, non-IgE-mediated allergic reactions are less studied than food allergies caused by other mechanisms. Non-IgE-mediated food allergy covers a wide range of disorders affecting the gastrointestinal tract (allergic proctocolitis, enteropathy and enterocolitis syndrome induced by food proteins), celiac disease, allergic contact dermatitis caused by food products. It should be noted that specific IgE do not play a decisive role in the pathogenesis of these diseases. Among those who have developed these diseases induced by non-IgE mechanisms, a combination with IgE-allergic diseases is recorded in a relatively small number of people. It has been demonstrated that after the introduction of causative allergens into the diet (both the first and repeated, after a course of treatment), the symptoms of these diseases appear delayed - in hours, days and even weeks depending on their nature.

In the diagnosis of food allergies, a skin prick test is used, in which a diluted extract of the product is placed in a scratch on the skin. If redness and swelling similar in shape to a mosquito bite form within 15 minutes, you may have an allergy to the product being tested. However, such a test can give false positive and false negative results.

More accurate are blood tests known as a radioallergosorbent test (RAST) and enzyme immunoassay (EIA), an antibody test. However, they can also give false positive results.

If after skin tests and blood tests, the diagnosis remains unclear, an allergist may prescribe provocative tests. Such studies are carried out in allergy hospitals according to strict indications. When conducting provocative tests, a small dose of the allergen is injected into the nose, under the tongue or directly into the bronchi.

After establishing a diagnosis, the doctor prescribes drug therapy and a special hypoallergenic diet. With long-term adherence to the diet, allergies can get rid of sensitivity to irritating food. However, remember that such a diet should be made by a nutritionist, because you must receive all the necessary substances with food.

Conclusion Thus, the development of medical science and practice has currently determined the diagnosis of various types of food allergies. Analysis of the medical history, clinical, laboratory and instrumental data have identified diseases caused by the use of food products and food additives. A wide range of drugs developed for the prevention and treatment of diseases caused by food allergies allows increasing the effectiveness of these measures.

The main problems with food allergy and food intolerance remain:

- lack of unified approaches to terminology;
- high prevalence in the population and the general structure of allergic diseases;
- a wide range of food allergens;
- the emergence of new allergens, including genetically modified ones, the presence of cross-reactions with other groups of allergens, polyetiology of predisposing factors and immunological disorders in the pathogenesis of the disease;
- lack of specific clinical markers of allergic reactions to food products;
- lack of unified approaches to early diagnosis and therapy of food allergy.

The development of original schemes of therapeutic and preventive measures can also contribute to solving problems associated with food allergies. Thus, a permissive-elimination diet can prevent relapses of diseases, the development of sensitization to many food allergens and / or contribute to the elimination of sensitization to them. At present, food allergies are considered as a wide range of disorders that require various approaches for treatment and prevention, their combination, their change during treatment or preventive measures. To draw up an individual plan for prevention and treatment in clinical practice, it is necessary to take into account numerous factors. Research on these issues should be continued and deepened.

New knowledge about the ability of food allergens to cross-react is used to interpret the results of diagnostic tests, as well as to prescribe elimination diets. They open up prospects for ASIT with pollen allergens in patients sensitized to vegetables and fruits. Only carefully performed diagnostic procedures and knowledge of possible cross-reactions will allow an adequate elimination diet to be prescribed and the incidence of allergic reactions to be minimized.

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