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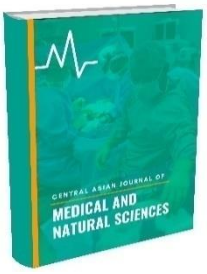

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Disorder of Hormonal Status as a Result of Food Allergen Exposure in Children

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Annotation: Food Allergy was detected in 65% of children. Etiological structure of food sensitization has its own characteristics in accordance with the nosology of the disease. Children with atypical signs of disease show a combination of pathogenetic mechanisms of development of food Allergy. The results of the evaluation of the frequency and risk factors of developing food allergies, particularly its etiological structure and immunological characteristics in children of HELL, which has several pharmacologically stable chronic diseases presented in the article.

Keywords: atopic dermatitis, food allergies, features of manifestation, types of allergic reaction Annotatsiya.

Relevance. The results of studies by many authors indicate that children with atopic dermatitis are burdened with heredity in relation to allergic diseases. Approximately 80% of children suffering from atopic dermatitis (AD), a history of allergic diseases (food allergy, pollinosis, bronchial asthma, recurrent allergic reactions in parents) is detected [1,2]. Food sensitization involves directly or indirectly almost all organs and systems of the organism. The localization and a number of "shock organs" involved in the pathological process determines the clinical picture of the disease, which determines the diversity of its clinical manifestations. Due to the lack of common specific symptoms of food allergies and diagnostic methods, it is still not possible to accurately determine all clinical manifestations of the disease. Probably, therefore, so far in the literature there is no data on randomized studies conducted, allowing to get a complete picture of all the clinical manifestations of food allergies. It is generally recognized that the most common food allergies affect the gastrointestinal tract, the skin and the respiratory tract. These manifestations are usually attributed to the obvious signs of food allergies. Other manifestations of allergy include disorders of other organs and systems, such as cardiovascular, nervous, hematopoietic, urinary, articular [2, 3]. Matalygina O.A. and Vorontsov I.M. suggest atypical manifestations of food allergies to be considered as "minor" clinical symptoms and syndromes [4]. Thus, there are great complexities of a terminological plan, since at present there are no generally accepted terms in allergology to denote the multi-organ character of a lesion. [four]. The polymorphism of food allergy symptoms depends on the participation of one or another immunological mechanism [6]. The difficulty in identifying the mechanism of food allergy is that a combination of different mechanisms of tissue damage is possible in one patient [7]. This is confirmed, in our opinion, by the contradiction in the literature of the data on the leading mechanism in the pathogenesis of food allergies. Some authors believe that, in the base of food allergy

in children with AD, in most cases lies the reagin type [8], others are slow or immunocomplex type of allergic reactions [9]. In this regard, according to Wraitha D., in the usual practice, clinical manifestations that occur with other types of allergic response, other than immediate, are usually not attributed to the manifestations of food allergy [10]. Thus, the clinical manifestations of food allergies are characterized by nonspecific symptoms, and therefore the percentage of diagnostic errors among this group of patients still remains high [11,12]. The lack of adequate pathogenetic treatment determines the chronic course of the disease and leads to the development of severe forms. At the same time, the timeliness and accuracy of the diagnosis of food allergy allows, in most cases, to limit treatment by using only an elimination diet therapy, which, regardless of the number and degree of damage to organs involved in the pathological process, allows one to abandon polypragmasy [13].

The purpose - of the work is to determine the frequency, risk factors for the development of food allergy, the peculiarities of its etiologic structure and immunological manifestations in children with AD.

Materials and research methods. The survey included 88 children with AD in age from 2 to 14 years (16% are children of pre-school age and 84% are children over 8 years old) who suffer from persistent flow of various chronic pathologies. Moreover, 25% were patients who turned directly to an allergist about their typical manifestations of allergy (dermatitis, bronchial asthma). The majority (75%) were patients who were treated in the somatic departments for the underlying disease or were registered by a pediatrician or narrowly specialized physicians (neurologist, rheumatologist, otolaryngologist). All children regularly (2-3 times a year) received planned therapy for the underlying disease. Criteria for inclusion of patients in the study - the duration of the disease is not less than 6 months; continuous relapsing course of the disease; frequency of exacerbations at least 1 time per month; short-lasting effect of classical therapy. Standard clinical and instrumental examination methods were used. According to the testimony, an additional instrumental study was carried out - analysis of the fundus pattern, REG, EEG, and MRI of the brain. All children were immunologically examined to determine the content of immunoglobulins A, M, G, E and the CEC. The concentration of immunoglobulins (A, M, G) in the serum was determined by the method of radial immunodiffusion according to G. Mancini, the content of total and specific IgE antibodies was determined by ELISA, the level of CEC by PEG precipitation (polyethylene glycol precipitation) . The diagnosis of food allergy was made on the basis of a comprehensive clinical and laboratory examination of patients, taking into account the allergological anamnesis data, the analysis of the food diary, the results of skin testing with allergies, elimination and provocation tests. Skin tests were carried out with the nutritional allergens of the company AOOT Biomed them. THEM. Mechnikov. According to the main clinical manifestations of the disease, 5 groups were singled out - 1st c. (n = 22) - patients with arthralgia, 2nd gr. (n = 20) cephalalgia, 3rd gr. (n = 18) - gastritis and / or gastroduodenitis, 4th gr. (n = 17) - nasal bleeding, 5th gr. (n = 11) - enuresis. The duration of the disease ranged from 6 months. up to 1 year - 17%, up to 2-3 years - 35%, more than 3 years - 48% of cases. The frequency of diseases from weekly to daily was recorded in 59% of patients and most often in the group of patients suffering from cephalalgia (80%) and enuresis (75%). In 22% of patients, exacerbations occurred from 1 to 3 times a month; in 24%, exacerbations were irregular (associated with fatigue, hypothermia, meteorological conditions, etc.). In 45% of patients, a combination of the underlying disease with the skin (atopic dermatitis) or respiratory (bronchial asthma, allergic rhinitis) manifestations of allergy was noted.

Statistical data processing was carried out using the applied software package "Statistica 6.0". For comparison of samples, the non-parametric Mann-Whitney test was used; the critical level of significance was taken to be 0.05.

Results and discussion. Analysis of the most common clinical manifestations of chronic pathology in children showed that in the structure of cephalgia, chronic headache was determined - 42%, headache

with cerebral angiodystonia - 20%, vegetovascular dystonia - 18%, migraine - 13%, residual organically lesion of the central nervous system - 6%; in the structure of arthralgia: arthralgia of unspecified etiology - 58%, arthralgia with reactive arthritis - 42%; in the structure of gastrointestinal manifestations, chronic gastritis with normal acidity - 63%, chronic gastroduodenitis with normal acidity - 31%, erosive gastroduodenitis - 6%. It is known that the main risk factors for the development of food allergies are aggravated atopic heredity and perinatal factors. A detailed study of the risk factors for the development of food allergy revealed that the possibility of allergic reactions to food products is almost equally affected by the burdened allergy and the pathological course of pregnancy (65% and 52%, respectively). When studying the data of allergic anamnesis, we found that the first symptoms of allergy in the form of skin manifestations were recorded in 61% of patients already at an early age. Further, during the life of a child, 60% periodically experienced food and / or drug intolerance phenomena. Naturally, in children with combined manifestations (with typical forms of allergy), the percentage of one or another intolerance was significantly higher than in children with isolated forms of the disease (85% vs. 15%, respectively). In addition to hereditary burdens, the development of food allergies requires sensitization of the body. In this regard, significant results are presented by the results of skin testing, which revealed in 84% of cases an increased sensitivity to food allergens. A characteristic feature of skin testing in all patients was the presence in the overwhelming majority of cases (90%) of a weakly positive degree of sensibilization. This, apparently, is one of the reasons for the lack of a clear relationship between taking the product and the appearance of complaints, in connection with which patients do not associate their suffering with food allergies. In the structure of the etiological factors of food sensitization, chicken eggs (80%), food grains (73%), meat (67%), cow milk (55%) citrus fruits (42%), fish (45%) are identified. Moreover, depending on the nosological form of the disease, the etiological structure of food sensitization has its own characteristics. Analyzing the structure of the etiological factors of food sensitization, it was found that in all forms of diseases, sensitization to the egg was practically the same frequency (from 78% to 86%). Sensitization to other food allergens occurred with varying frequency.So, most often sensitization was determined:

- in patients with cephalalgia: cereals (91%), egg (75%), milk (63%), meat (56%);
- in patients with arthralgia: egg (85%), cereals (70%), fish and meat (58%), milk (51%);
- in patients with nasal bleeding: meat (93%), citrus fruits, egg (75%), cereals (69%);
- in patients with enuresis: egg (82%), meat (64%), milk and cereals (55%);
- in patients with gastritis: cereals, egg (78%), meat (69%).

Considering that these products are products of daily consumption, it is impossible to establish a clear connection between exacerbations and their intake (according to anamnesis data) in most cases. In this regard, in each individual case, food allergies were confirmed by elimination and provocative tests, according to the results of which 65% of the examined children showed food allergies, and depending on the clinical manifestations, they were recorded with a different frequency. most often food allergies occur in patients with cephalgia (82%) and gastritis / gastroduodenitis (75%), slightly less often in patients with arthralgia (63%), nasal bleeding (53%) and enuresis (40%). The most frequent products that cause the development of food allergies in this group of children were egg (40%), food grains (39%), milk (22%) and food additives (preservatives, dyes, etc.) (22 %). Products such as meat, fish, citrus and nuts in rare cases caused complaints (from 1.5% to 3% of cases). Moreover, depending on the clinical manifestations of the disease, the etiological structure of food allergies that cause an allergic reaction is different. The most common cause-significant allergens in patients with cephalalgia are milk (36%), cereals (36%), and egg (29%); in patients with arthralgia - cereals (67%), in patients with enuresis - an egg (75%), in patients with nasal bleeding - an egg (62%) and food additives (38%); in patients with gastritis - cereals (42%), food additives (33%).

Thus, the same product can cause an allergic reaction in any "shock" organ. The study showed that the use of eggs most often caused the appearance of nasal bleeding and enuresis; eating cereals - arthralgia, gastritis / gastroduodenitis, headaches; use of milk - headaches; the use of nutritional supplements - the cause of nosebleeds, as well as gastritis. It is interesting to note that in 59% of cases food allergies to one product were determined, in 6% - to 2 products, and only 4% - to 3 or more products.

It is known that food allergy is a clinical manifestation of the immunological process. In accordance with the immunopathological basis for triggering an allergic reaction (Cell P. & Coombs R., 2008), 4 types of allergic reactions are distinguished. Based on the analysis of clinical and immunological examination data, we have identified the leading immunological mechanisms for the development of atypical manifestations of food allergy. The types of allergic reactions were confirmed:

- Type I: positive skin test results for 20 minutes, early (within the first 2 hours) or delayed (from 2 to 6 hours) positive reactions during provocative tests.
- Type II: the presence of elevated levels of total IgE and / or specific IgE / IgG antibodies in the blood.
- Type III: delayed (from 6 to 12 hours) positive reactions during provocation tests, the presence of elevated levels of CIC and immunoglobulins M, G in serum.
- Type IV: positive results of skin tests after 24.48.72 hours, slower (after 24.48.72 or more hours) positive reactions during provocative tests, elevated levels of immunoglobulins M, G in blood serum.

Immediatetype hypersensitivity was found in 77% of patients, in 28% - immunocomplex, in 55% - delayed type of allergic response. Analysis of the obtained data allowed us to identify the features of the immune response within each clinical group.It has been established that in each group of patients types of allergic reactions are rarely seen in isolated form, since in most cases there is a combination of pathogenetic mechanisms of food allergy development (table).

Table 1. Types of allergic reactions in patients with a typical manifestations of food allergies (%)

Clinical manifestations of food allergies	Types of allergic reactions according to the classification of P. Gell& R. Coombs		
	I	III	IV
Nosebleeds	61	49	56
Cephalgia	51	33	45
Arthralgia	75**	22	54
Gastritis	100*	17	40
Enuresis	100**	20	80

Note: * - p <0.001; ** - p <0.01 in horizontal rows

So, in patients with gastritis and enuresis of food etiology, it is statistically significantly more often (p <0.001) that type I of allergic reactions is recorded in comparison with patients of other groups. patients with arthralgia (p <0.01), enuresis (p <0.01) and gastritis, gastroduodenitis (p <0.001) are more common to type I and IV types and reactions. Patients with nasal bleeding and cephalgia do not have statistically significant differences in the prevalence of one or another type of immune response, since they have I, III, and IV types with almost the same frequency.

Conclusion.

1. The high frequency of food allergy detection (65%) among children with persistent course of various chronic pathologies indicates a variety of its clinical manifestations. The etiological structure of food allergies, depending on the nosology of the disease, has its own characteristics.

2. The detected changes in immunity indices indicate that various types of allergic reactions are involved in the development of food allergy, and in most cases a combination of pathogenetic mechanisms is noted.

3. The results obtained allow us to recommend that children suffering from continually recurring various chronic diseases conduct a specific allergic diagnosis in order to exclude food allergies.

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