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Diagnosis of Sensitization in Allergic Diseases

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Abstract: Symptoms of respiratory allergies not only affect the quality of life of patients, but also increase healthcare costs due to the appointment of unnecessary, sometimes expensive studies, which is primarily due to the lack of knowledge of internists about the causes and mechanisms of disorders that occur in patients with allergies. The article is devoted to the differential diagnosis of allergic diseases depending on allergic sensitization, which contributes to improving the quality of preventive allergological, gastroenterological and therapeutic services with a subsequent reduction in morbidity and disability.

Keywords: respiratory allergy, allergic diseases, sensitization, diagnosis, test.

In recent years, allergic diseases have increasingly been called a "global problem of humanity" due to their high prevalence in children and adults. About 40% of the inhabitants of our planet suffer from allergic reactions/diseases. Among them, bronchial asthma (BA) occupies a special place — one of the most common diseases (10-15% in the population). BA still refers to life-threatening conditions [4].

Recent observations indicate that there is a clear trend towards an increase in the number of patients with combined forms of skin and respiratory allergies. Among the latter, one of the leading places is occupied by a combination of asthma and atopic dermatitis, called "dermo-respiratory syndrome" (DRS). This term is widely used in clinical practice, although it has not received official recognition and has not been reflected in the International Classification of Diseases [2].

The frequency of combined skin and respiratory manifestations of allergies in the structure of allergic diseases in children depends on age and reaches 50-65% [1].

It should be noted that DRS should not be considered as a set of various allergic diseases, but as a natural course of the "allergic march", i.e., the natural course of atopy, characterized by an age-related sequence of clinical picture development and sensitization [5].

According to world statistics, atopic dermatitis (AtD) affects 15-30% of the child population, 2-10% of adults. 15% of patients with AtD are patients with a very severe course of the disease [3].

The purpose of the study: diagnosis of allergic sensitization factors.

Materials and methods:

213 patients with respiratory allergies aged 19 to 74 years were examined. Of these, there were slightly more women-134 (62.9%) than men-79 (37.1%). The ratio of men and women is 1:1.7. The age structure consisted of 100 (46.9%) patients aged 19-44 years, 69 (32.4%) patients aged 45-59 years and 44 (20.7%) patients aged 60-74 years.

The analysis of the morbidity characteristics of patients at the place of residence showed a predominance of urban residents - 121 (56.8%) than those living in rural areas - 92 (43.2%). The spectrum of allergic sensitization was studied at the International Center for Molecular Allergology (Tashkent), 295 types of allergens were tested.

At the beginning of the study, a blood test for IgE was performed. The results of the IgE content in the blood were evaluated according to the degree:

- ✓ degree 0 (negative or indefinite) -<0.3 kUA/L;

- ✓ grade 1 (low IgE level) -0.3-1.0 kUA/L;
- ✓ grade 2 (moderate IgE level) -1-5 kUA/L;
- ✓ Grade 3 (high IgE level) -5-15 kUA/L;
- ✓ grade 4 (very high IgE level) ->15.0 kUA/L.

The allergens were:

- ✓ grass pollen;
- ✓ tree pollen;
- ✓ weed pollen;
- ✓ tick;
- ✓ mold and yeast fungi;

The allergen products of plant origin for the study were:

- ✓ legumes;
- ✓ cereals;
- ✓ spices;
- ✓ fruits;
- ✓ vegetables;
- ✓ nuts;
- ✓ seeds.

Allergen products of animal origin for analysis were:

- ✓ milk;
- ✓ the egg;
- ✓ seafood;
- ✓ meat of domestic animals and insects.

The venom of the hymenoptera was:

- ✓ fire ant, poison;
- ✓ bee venom;
- ✓ wasp, poison;
- ✓ a cockroach.

Animal allergens were:

- ✓ pets;
- ✓ livestock.

The panel of other allergens was made up of:

- ✓ latex;
- ✓ ficus;
- ✓ a parasite.

Results and discussion.

For a more in-depth analysis and prediction of the transition of DRS to BA, the probability of the outcome of the development of BA was determined according to the criteria for assessing the strength of the relationship between the identified sensitization factors.

As a result of a comparative analysis of the relationship of the studied sensitization factors with the development of asthma in young people, the forces of connection with the outcome of DRS were established, while a strong relationship was established in the presence of sensitization to pig dust (Cyn d) and cat allergen (Fel d 1, Uteroglobin);

A relatively strong association with the formation of AD in patients with DRS is present in the presence of sensitization to:

- Perennial chaff (Lol p 1, Beta-Expansin);
- Paspalum/buckwheat noticeable (Pas n);
- Timofeevka lugovaya (Phl p 1, Beta-Expansin);
- Timofeevka lugovaya (Phl p 5.0101 Grass Group 5/6);
- Timofeevka lugovaya (Phl p 6, Grass Group 5/6);
- Timofeevka lugovaya (Phl p 12, Profilin);
- Buckwheat, pollen (Jug r_pollen);
- Date palm (Pho d 2, Profilin);
- Ambrosia (Amb a);
- Wormwood (Art v 3, nsLTP);
- Ordinary mar (Ama r);
- European house dust mite (Der p 20, Arginine kinase);
- Latex (Hev b 8, Profilin). At the same time, molecular diagnostics made it possible to determine the sensitization to Beta-Expansin and Profilin molecules of grass and tree pollen, including latex.

Thus, of the tested 295 allergens in patients selected for examination, 15 were above the detection limit of 0.3 kUA/L.

For the differential diagnosis of clinically similar symptoms of respiratory allergy with dermo-respiratory syndrome, there is also a need for immunological tests.

Conclusions:

Respiratory allergies are more common in young people (46.9%), predominant in women and urban residents (56.7%). A strong correlation has been established between the transformation of respiratory allergy into bronchial asthma in patients with sensitization to pig dust (Cyn d) and cat allergen (Fel d 1, Uteroglobin). For the early prevention of complications of respiratory allergoses, it is recommended to put into practice a scheme for the differential diagnosis of allergic diseases.

References

1. Rael E.L., Lockey R.F. Interleukin-13 signaling and its role in asthma. World Allergy Organ. J., 2015, Vol. 4, no. 3, pp. 54-64.
2. Rodríguez CL, Shah SA, Stokholm J. The infant gut virome is associated with preschool asthma risk independently of bacteria. Nat Med. 2023;1-11. Available from: doi:10.1038/s41591-022-00001-3.

3. Silva IS, Almeida AD, Klein A. Platelet-activating factor and protease-activated receptor 2 cooperate to promote neutrophil recruitment and lung inflammation through nuclear factor-kappa B transactivation. Sci Rep. 2023;13(1):21637. Available from: doi:10.1038/s41598-022-00002-1.

4. Tregoning JS, Schwarze J. Respiratory viral infections in infants: causes, clinical symptoms, virology, and immunology. Clin Microbiol Rev 2015; 23 (1): 74–98. DOI: 10.1128/cmr.00032-09.

5. Tutino M, Hankinson J, Curtin JA. Identification of differences in CD4 + T-cell gene expression between people with asthma and healthy controls. Sci Rep. 2023;13(1):22796. Available from: doi:10.1038/s41598-022-00001-2.

6. Zhang H, Xue K, Sun L. Cullin5 drives experimental asthma exacerbations by modulating alveolar macrophage antiviral immunity. Nat Commun. 2024;15(1):252. Available from: doi:10.1038/s41467-023-00002-3.

7. Zhu S, Qian Y. IL-17/IL-17 receptor system in autoimmune disease: mechanisms and therapeutic potential. Clin Sci. 2017;122(11):487–511. DOI: http://dx.doi.org/10.1042%2FCS20110496, Gaffen SL. Structure and signalling in the IL-17 receptor family. Nat Rev Immunol. 2019;9(8):556–67. DOI: http://dx.doi.org/10.1038%2Fnri2586