



Immunological Indicators of Dermo-Respiratory Syndrome

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Abstract: 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, a special place is occupied by dermo-respiratory syndrome, one of the most common allergic conditions. In the article, the authors studied the immunological aspects of the dermo-respiratory syndrome, highlighted informative indicators that can act as markers of the disease.

Key words: dermo-respiratory syndrome, allergy, cytokines, markers.

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 [7,8].

It is currently known that interleukin-4-as an anti-inflammatory cytokine suppresses the synthesis of interleukins-1,6, 8 and TNF- α . It inhibits the cytotoxic activity of T cells, macrophages. Switches the synthesis of immunoglobulin G1 to the synthesis of immunoglobulin G4 and IgE [4].

Interleukin-17 belongs to proinflammatory cytokines and is involved in many stages of the immune response. It stimulates the production of chemokines and, as a result, stimulates the migration of neutrophils to the site of inflammation. IL-17 triggers an extensive tissue reaction leading to the migration of neutrophils into the inflammatory zone [2].

IL17A is a dimeric glycoprotein (15 kDa) consisting of 155 amino acids. Its biological function is aimed at ensuring the interaction between innate and acquired immunity [1,6].

One of the main chemokines for monocytes/macrophages and activated T lymphocytes is monocyte chemotactic protein-1 (MCP-1). MCP-1 was first identified as a product of secretion of monocytic leukemic cells stimulated by lipopolysaccharide, as well as peripheral blood mononuclear cells. MCP-1 belongs to the class of CC chemokines and is a powerful chemoattractant of monocytes/macrophages. MCP-1 is not only a chemoattractant that ensures the migration and extravasation of mononuclear cells into the focus of inflammation, but also a mediator of inflammation, activating resident cells at the same time. Human MCP-1 is a protein consisting of 76 amino acids. MCP-1 is produced by many cell types, including mononuclear cells, mast cells, T cells, osteoblasts, fibroblasts, endothelial cells, bone marrow cells, epithelial cells, astrocytes. The synthesis of MCP-1 is induced by IL-1 β , α -TNF, γ -INF, IL-6, IL-4. Under the influence of MCP-1, proliferation of vascular smooth muscle cells also occurs with their secretion of proinflammatory cytokines, which contribute to the progression of the disease due to vascular damage [3,5].

The purpose of the study:

The study of immunological parameters in dermo-respiratory syndrome.

Materials and methods.

For the differential diagnosis of clinically similar symptoms of respiratory allergy with dermo-respiratory syndrome, it became necessary to conduct immunological tests.

In order to study the immunological parameters of the blood, 70 patients were selected, 35 of them with DRS and 35 with RA. The immunological parameters of the blood were studied and the levels of IgE, IL-4, IL-17A, and MCP-1 were determined in the patients selected for examination.

Results and discussion.

A comparative analysis of the obtained results was carried out for differentiation. The results showed higher rises in the IgE level in RA, and in DRS patients had a 5.4-fold increase in MSR-1, Fig.1.

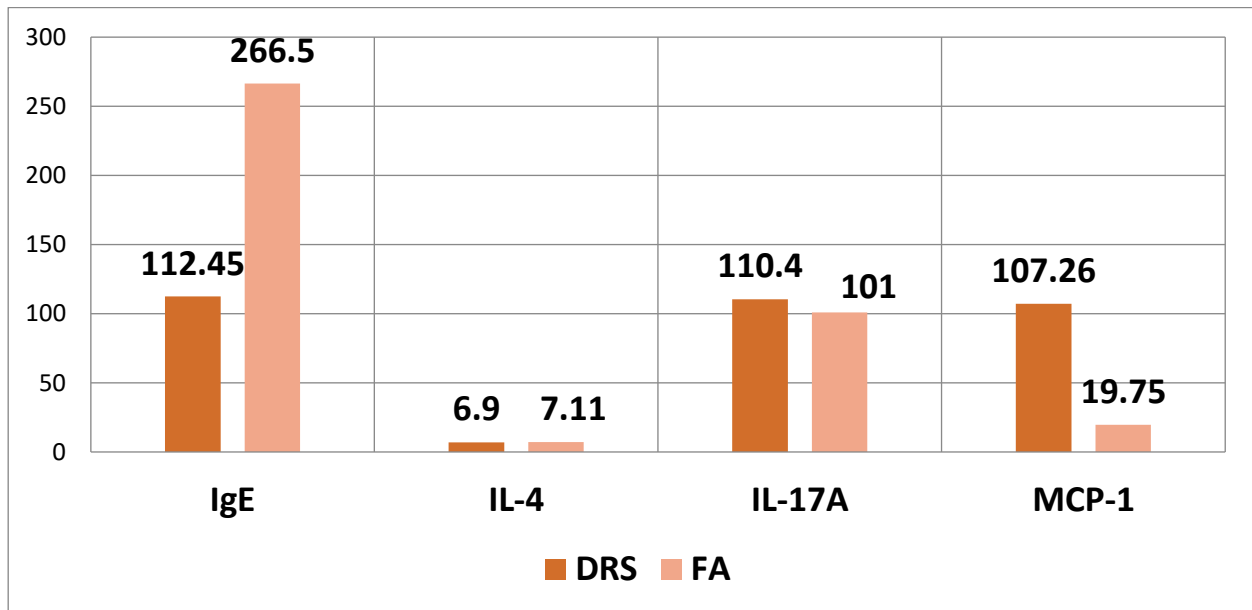


Figure 1. Immunological parameters of blood in dermo-respiratory syndrome and respiratory allergy

The study found a slight tendency to increase the level of IL-4 in patients with RA to 7.11 ± 0.46 pg/ml.

The most studied representative of the IL-17 family is the cytokine IL-17A. This cytokine plays a central role in inflammatory processes, so the regulation of its functioning is of great importance for the body. Numerous mechanisms of signaling pathways of such regulation are known, presumably neutralizing the side effects of inflammation. IL-17 plays a key role in protecting the body from extracellular bacterial and fungal infections.

At the same time, the key cytokine IL 17A, which determines bone damage, plays a complex role in this process. IL 17A has been shown to cause bone resorption in experimental arthritis. This effect is associated with the activation of the RANKL system, as a result of which the activity of osteoblasts is inhibited, therefore, the production of bone tissue decreases.

In patients with DRS, the level of IL-17A increased to 110.4 ± 9.94 pg/ml, compared to the indicators of the group of patients with RA- 101 ± 4.78 pg/ml. Consequently, the obtained result confirms the development of inflammation syndrome in patients with DRS.

The study found an increase in the level of MSP-1 in DRS by 5.4 times, which shows the activation of inflammatory mediators.

Thus, the obtained results of immunological and molecular allergological studies made it possible to develop a scheme for a differentiated step-by-step approach to the diagnosis of DRS and the prognosis of the transformation of DRS into AD.



Thus, the developed scheme of a step-by-step differentiated approach to the diagnosis of DRS is convenient for use in the practical activities of gps, therapists, allergists and immunologists. Its active implementation contributes to the early diagnosis and prevention of asthma in young people

CONCLUSION

An increase in the level of IgE was found to be 2.36 times in RA, and in DRS patients there was an increase in MSR-1 by 5.4 times. To prevent complications of DRS, it is recommended to determine IgE, IL-17A and MCP-1 in the blood. When making a diagnosis and differentiation of DRS, it is recommended to take into account information that the content of MCP-1 in the blood is an informative indicator of the differential diagnosis of DRS. In order to maintain continuity in the management of patients with DRS at the primary health care stage of the GP and at the 2nd stage in regional and centralized specialized centers, allergologists and therapists, dermatologists recommend the introduction of the definition of IgE, IL-17A and MCP-1 in the blood into the standards of diagnosis of DRS.

References

1. Cypowyj, S., Picard, C., Maródi, L., Casanova, J.-L., and Puel, A. (2012) Immunity to infection in IL-17-deficient mice and humans. *Eur. J. Immunol.*, 42, 2246–2254
2. Gravallesse EM, Schett G Effects of the IL23-IL17 pathway on bone in spondyloarthritis // *Nat Rev Rheumatol*, 2018, 14: 631–40
3. Jo S et al. IL17A induces osteoblast differentiation by activating JAK2/STAT3 in ankylosing spondylitis // *Arthritis Res Ther* 2019, 20
4. Zhu S, Qian Y. IL-17/IL-17 receptor system in autoimmune disease: mechanisms and therapeutic potential. *Clin Sci*. 2012;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*. 2009;9(8):556–67. DOI: <http://dx.doi.org/10.1038%2Fnrri2586>
5. Ганиева Ш.Ш., & Эргашева М.У. (2022). Современные Этиопатогенетические Механизмы Гломерулярных Патологий У Детей. *Periodica Journal of Modern Philosophy, Social Sciences and Humanities*, 12, 104–109. Retrieved from <https://periodica.org/index.php/journal/article/view/275>
6. Насонов ЕЛ, Денисов ЛН, Станислав МЛ. Интерлейкин 17 – новая мишень для антицитокиновой терапии иммуновоспалительных ревматических заболеваний. *Научно-практическая ревматология*. 2013;51(5):545–52
7. Никитина В.В., Захарова Н.Б. Значение MCP-1 как предиктора сосудистых нарушений // *Саратовский научно-медицинский журнал*. 2010. Т. 6, № 4. С. 786-790
8. Ш., Г. Ш., & Б., Р. Г. (2021). Клинико-Лабораторная Оценка Состояния Здоровья Больных Хронической Обструктивной Болезнью Легких, Перенесших Коронавирусную Инфекцию. *Central Asian Journal of Medical and Natural Science*, 76-80. <https://doi.org/10.17605/cajmn.vi0.353>