IMMUNOLOGICAL MECHANISM OF ALLERGIC REACTIONS AS THE CAUSE OF DYSBIOSIS

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Introduction. Over the past two decades, the frequency of allergic diseases has increased significantly, especially in economically developed countries and countries with unfavorable environmental conditions. According to some scientists, the 21st century will be the century of allergic diseases. Currently, more than 20 thousand allergens are already known, and their number continues to increase.

According to official medical statistics presented in WHO reports, more than 30% of the population suffers from allergy symptoms, which are often serious, lead to disability and life-threatening, in particular allergic reactions such as anaphylactic shock, Quincke's edema, asmatic status, etc. Population studies by Valenta R. et al. (2018) show that up to 60% of the world's population show IgE sensitization to allergens, most of which are protein antigens. Recently, clinical data appear on the possible relationship of allergic reactions with dysbiosis.

The aim of our study was to analyze the available data and identify the presence and nature of the relationship of allergic reactions and dysbiosis.

Materials and methods. Used analytical, comparative, systemic, logical research methods. We analyzed 34 publications over the past 10 years (2010-2020) on the topic of this study, which are located on the international resource PubMed.

Results. An analysis of the scientific literature revealed that microbiome plays an important role in the immunological status of the human body and, accordingly, positively correlates with the development of allergic diseases. A study by Lunjani N. (2018) proved that dysbiosis is accompanied by changes in the skin, mucous membranes and colon of patients with atopic dermatitis, food allergies and asthma. Patients with atopic dermatitis (Yvonne J. Huang, 2017) are prone to dysbiosis with a predominance of pathogenic forms of viruses, fungi and bacteria, which exacerbate allergic skin inflammation.

The most common pathogen in patients with atopic dermatitis is Staphylococcus aureus, the enhanced colonization of which is associated with increased IgE responses and increased expression of IL-4 and IL-13, due to the classical pathogenesis of an allergic reaction. It has been established (Denner DR, 2016; Durack J. 2017) that specific clinical and inflammatory signs of bronchial asthma are associated with the composition of the microbiota, which can have a strong effect on respiratory reactions. Colonic dysbiosis leads to an increase in circulating short-chain fatty acids, which may be associated with the precursors of dendritic cells and the reactivity of the bronchopulmonary system, which induces the development of allergic inflammation of the respiratory tract.

Conclusions. A positive correlation between dysbiosis and allergic diseases implies the search for fundamentally new treatment regimens for allergies and the creation of drugs that, in addition to standard antihistamine activity, can have a multimodal pharmacological effect on all links of etiopathogenesis.