reactivations of innate immunity. The blood cell that is made in the bone marrow, found in the blood, lymph tissue and survival can be promoted by enhanced a recycling process of autophagy and decreased apoptosis process of programmed cell destruction 72h after intensive fasting.

It can be concluded that occasional short-term intensive fasting may be exploited as an immunomodulatory intervention to major functions of the innate immune system to recruit immune cells by producing chemical factors, including chemical mediators cytokines, activate the complement cascade to identify the cells changes (including microorganisms, pathogens, substances etc.), activate cells, and promote clearance of antibody complexes or cell changes and dead cells.

## THE INFLUENCE OF MICROFLORA ON THE PATHOGENESIS OF ALLERGIC DISEASES

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**Relevance.** The urgency of the problem of allergic diseases is extremely high, both due to their high prevalence and due to the fact that they significantly reduce the quality of life. Nowadays, every third person on the planet suffers from some kind of allergic reaction.

World statistics show an increase in the number of patients with allergic diseases by 2 times every 10 years. Thus, according to one study, up to 20% of adults and children in various populations are susceptible to atopic dermatitis. According to the information of the World Allergy Organization (WAO), whichwas obtained from 35 countries, more than 20% of this population may be susceptible to various forms of allergic diseases. According to the World Health Organization (WHO), the rate of sensitization to one or several allergens among school-age children occurs in approximately 40-50% of cases. There has been a continued increase in the prevalence of allergic diseases in developed countries for more than 50 years. Today it is already known that infectious agents are an important factor in the development of allergic diseases, determining both the severity of allergic pathology and the options for choosing the necessary therapy for each individual patient.

An important problem is the socio-economic losses due to allergic diseases. Allergies have a fairly high percentage in the structure of overall morbidity throughout the world, especially in developed countries. American researchers have determined that the economic cost of food allergies in the United States is estimated at $24.8 billion annually ($4,184 per year per child). For example, in the European Union, economic losses associated with allergic diseases amount to about 150 billion euros per year. According to American researchers, this amount can be reduced by 30-90%, subject to optimization of treatment, early diagnosis and prevention of the development of diseases of this origin. Such losses are associated primarily with late diagnosis. In addition, undiagnosed and undetected cases of morbidity were not included in the general statistics.

**Aim.** Assess the role of microbial factors in the development of allergic diseases.

**Materials and methods.** Analysis of modern scientific research and literary sources in the field of allergology, immunology, medical microbiology and pathophysiology.

**Results and conclusions.** Studying the fundamental etiological and pathogenetic aspects of the development of allergic diseases is extremely important for optimizing the diagnosis and treatment of patients with atopic diseases. The influence of microbiota on the development of allergies is being actively studied in different groups of patients and in different directions. It is well known

that the formation of immune reactions occurs against the background of microbial colonization of the intestines at the birth of a child and for the first time the hours and days of his life, which plays a leading role in this process. This primary microflora can become the basis for the formation of a stable microbiota of the body in the future. The first microorganisms that enter the newborn's body generally are the mother's microorganisms: E. coli, bifidobacteria and lactobacilli. Already by the 5th day, Lactobacillus (85.8%), Bifidobacterium and Escherichia (71.4% each), Enterococcus (100%) were detected in the feces of breastfed children. Understanding the influence of the quantitative and qualitative composition of the intestinal microflora will make it possible to predict the development of allergic diseases associated with the intake of certain foods and to formulate the necessary algorithms for early diagnosis and prevention. A difference in the immunogenicity of microorganisms has been shown: the composition and number of lactobacilli mainly depend on the immune system of the human body, compared to the less immunogenic bifidobacteria. Microbiota components are capable of activating both innate and acquired immunity. The formation of intestinal microflora lasts more than 1 year, and only over the age of 2 years, 75% of children already have indicators that are very close to generally accepted norms.

The microbiota of the nasal cavity also influences the development and course of allergic diseases. Thus, the composition of the nasal microbiome differs in patients with complicated bronchial asthma, uncomplicated bronchial asthma and controlled bronchial asthma. The epithelium of the nasal cavity and mucous membrane synthesize a huge amount of various antimicrobial substances. These cells have many pattern recognition receptors, such as TLRs and T2Rs. T-helper type 2 (Th-2)-associated inflammation in allergic rhinitis, bronchial asthma or eosinophilic syndrome is associated with dysregulation of individual elements of the innate immune system, such as hBD-2, anti-leukoproteinase, immunoglobulin J-chain, SP-A, TLRs . Many microbial products (and products of normal microflora too) are ligands for these receptors and innate immune factors. Another known mechanism of the influence of microbiota on allergic reactions of the respiratory system is Staphylococcus aureus enterotoxin, which is a superantigen and promotes the development of inflammation with the participation of type 2 T helper cells (Th-2), leading to the production of cytokines (IL-13, IL-4, IL-5).

Allergic skin diseases are also associated with the activity of microbiota. Normally, different microorganisms are found in different areas of the skin. Mostly present on the skin are Actinobacteria (genus Propionibacterium and Corynebacterium), Firmicutes (genus Staphylococcus), Proteobacteria and Bacteroides. Opportunistic Staphylococcus epidermidis is distributed over the entire skin surface, but usually colonizes the scalp, axillary area, and nostrils.

Normal microflora and its proper formation probably counteract the development of allergic skin diseases. This is demonstrated by an analysis of the relationship between disturbances in natural microbial contamination during delivery and the development of atopic dermatitis. Thus, in one study, cesarean section, which leads to a limited microbial population compared with vaginal birth, led to an increased risk of diagnosed atopic dermatitis in 2,500 newborns in Germany.

The presence of pathogenic microorganisms also has a direct impact on the development of atopic skin diseases. Atopic dermatitis is known to be associated with colonization and frequent infections by Staphylococcus aureus. Other microbial agents that cause atopic dermatitis include Streptococcus epidermidis and fungi of the genus Malassezia. Patients with atopic dermatitis may experience increased levels of Streptococcus epidermidis on the skin. It has been shown that patients with atopic dermatitis have a higher level of IgE antibodies against Malassezia fungi compared to the

control group. Thus, allergic skin reactions can be triggered by both a disruption of the body's normal microflora and pathogenic microorganisms.

A deep understanding of the influence of microbial factors on the development of allergies will improve existing algorithms for the diagnosis and treatment of patients with allergic diseases. The study of the role of microflora must be based on the analysis of immunological and immunogenetic parameters of patients; climatic, environmental, genetic and other factors should be taken into account. You should also take into account the comorbid background, namely infectious diseases. In the context of an infectious factor, not only bacterial, but also fungal and viral antigens should be considered as potential triggers for the development of atopy. By studying data on a person's genotype, the presence of genes associated with atopy, and the influence of an infectious factor, it is possible to increase the percentage of early diagnosis of atopy and reduce the risk of their development.

## PROGNOSTIC VALUE OF CERTAIN TYPES OF HERPES INFECTION DIAGNOSTICS IN THE DEVELOPMENT OF CYTOPENIC SYNDROME IN CHILDREN

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**Relevance.** Cytopenic syndromes in children present significant diagnostic and therapeutic challenges to healthcare providers. Herpes infections, particularly herpes simplex virus (HSV), cytomegalovirus and Epstein-Bar virus, are recognized etiological factors contributing to cytopenic syndromes.

Recent studies have highlighted the association between herpes infections and hematological abnormalities in children. The presence of herpes DNA or antigens in blood or bone marrow samples has been correlated with the development of cytopenic syndrome, particularly thrombocytopenia and neutropenia. Moreover, herpes viral load measurements have shown promise as prognostic indicators for the severity and duration of cytopenias.

Furthermore, advancements in diagnostic modalities, such as polymerase chain reaction (PCR) assays and serological testing, have facilitated the timely detection of herpes infections in pediatric patients presenting with cytopenic syndrome. PCR-based techniques offer high sensitivity and specificity in identifying herpes DNA, enabling early intervention and targeted management strategies. Serological assays, detecting specific antibodies against herpes antigens, aid in differentiating primary infections from reactivations and assessing the immune status of patients.

**The aim** of this abstract is to study the prognostic value of the diagnostics of herpes zoster infections and their correlation with the chronicization of cytopenic syndrome in children.

**Methods**. During 2013-2023, 73 patients with cytopenic syndrome of varying severity participated in the study. The vast majority of patients were male - 48 (65.8%). All patients were included in the study after obtaining informed consent to participate in the study. Patients' anamnesis, clinical condition during hospitalization, results of general clinical laboratory diagnostic methods and results of specific diagnostics for the presence of herpes viruses by enzyme-linked immunosorbent assay and polymerase chain reaction in blood, urine and buccal scrapings were analyzed. 24 (32.9%) patients were tested for IgM and IgG titers by ELISA, 32 (43.8%) children were examined by PCR, and in 17 (23.3%) cases, diagnosis was combined by ELISA and PCR.