

IMMUNE STATUS IN PATIENTS WITH PARASITIC DISEASES IN KHOREZM REGION

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**Annotation:** Parasitic diseases remain an urgent public health problem, especially in regions with high incidence. This article presents the results of a study of the immune status in 112 patients, including children and adults, diagnosed with parasitic diseases in the Khorezm region. The method of enzyme immunoassay (ELISA) was used to determine the immune status, which made it possible to evaluate the interaction of antibodies and antigens and identify the features of the immune response.

**Keywords:** parasitic diseases, immune status, enzyme immunoassay, antibodies, antigens.

### Introduction

Parasitic infections cause a wide range of clinical manifestations that affect human health. One of the key factors determining the course and outcome of the disease is the state of the immune system. The study of the immune status in patients with parasitic diseases is essential for the development of effective diagnostic and treatment methods.

**The aim of the study** was to study the immune status of patients with parasitic diseases in the Khorezm region.

#### Materials and methods:

The study included 112 patients with a diagnosis of parasitic diseases living in the Khorezm region. The study of the immune status was carried out using the method of enzyme immunoassay (ELISA), which allows detecting and quantifying the level of antibodies in the blood serum.

The principle of ELISA is the specific interaction of antibodies and antigens. The antigens were immobilized on a solid-phase carrier, in this case on polystyrene tablets. The formation of the antigen-antibody complex was recorded, and the identification of each complex was carried out by measuring the color-optical density of the substrate mixture, which varies depending on the activity of the enzymatic reaction.

To perform ELISA, the BEST reagent complex was used, which includes highly purified antibodies and standards, which ensures the reliability and accuracy of the data obtained.

#### Results:

The results of the study showed significant differences in the immune status among groups of patients with different types of parasitic diseases. It was found that in most cases there was a hyperergic reaction of the immune system, manifested by an increased level of specific antibodies to certain antigens.

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In addition, it was observed that children had more pronounced changes in their immune status compared to adults, which may indicate a more sensitive immune response in childhood. A number of patients also had a combination of a hyperimmune response with a hypimmune one, which indicated possible abnormalities in the regulation of the immune response.

#### **Discussion**

The obtained data on the immune status of patients with parasitic diseases allow us to conclude that an individual approach to treatment and prevention is necessary. The identified features of the immune response can serve as a basis for further research aimed at clarifying the mechanisms of interaction between parasites and the immune system.

The introduction of new methods of enzyme immunoassay can significantly improve the diagnosis and monitoring of the therapeutic process in patients with parasitic diseases. Taking into account the variability of the immune response in different age groups, the creation of specialized protocols for children and adults is an urgent task. It is important to take into account that the immune status is influenced not only by the characteristics of the infection, but also by environmental factors, nutrition and concomitant diseases. Additional research aimed at studying the molecular and genetic mechanisms of parasites' interaction with the immune system may open up new opportunities for the development of vaccines and immunotherapies. It is also necessary to focus on studying the dynamics of changes in the immune status at various stages of the disease, which will allow for more precise emphasis in treatment.

At the same time, the development of new biomarkers capable of reflecting the state of the immune response provides a chance to obtain an objective assessment of the effectiveness of therapy. This, in turn, will allow medical professionals to adapt the prescribed treatment in accordance with the individual needs of the patient.

To improve the effectiveness of diagnostics, it is necessary to develop interdisciplinary approaches that combine knowledge from the field of infectious diseases, immunology and genetics. Cooperation between scientific and clinical institutions will provide an opportunity to integrate advanced scientific developments directly into practical healthcare.

For the successful implementation of new techniques and biomarkers, it is also necessary to establish active cooperation between research institutes and pharmaceutical companies. This collaboration will not only speed up the clinical trial process, but also ensure that new tests and treatments are available to a wide audience. Joint efforts in the development of new medicines will also reduce financial barriers to innovation in practice. Equally important is the creation of platforms for the exchange of information and experience among specialists.

Conferences, seminars, and webinars can be effective tools for spreading knowledge about the diagnosis and treatment of parasitic infections. This will allow health workers to keep their skills up to date and share successful practices. Research funding and infrastructure development also play a key role. Public and private investments in healthcare can significantly improve the quality of diagnosis and treatment, ensuring that the latest technologies and knowledge are available to the public.

#### **Conclusion**

Enzyme immunoassay is an effective method for assessing the immune status in patients with parasitic diseases. The results of our study highlight the importance of monitoring immune responses

in the context of the diagnostic and therapeutic process. Further research is needed to better understand the immunological aspects of parasitic infections and develop new approaches to their treatment. The active implementation of the results of this study in clinical practice will help improve the quality of life of patients and reduce morbidity in the Bukhara and Khorezm regions. Long-term goals include the harmonization of approaches to diagnosis and therapy based on identified immunological features. The importance of educational programs for medical personnel should not be underestimated. Their expertise in modern diagnostic techniques and treatment approaches will help improve understanding of patient characteristics and improve the quality of medical care in regions with high morbidity.

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