

CHANGES IN THE IMMUNE STATUS OF PATIENTS WITH PARASITIC DISEASE

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Annotation: *The study of the concentration of immunoglobulins in the blood serum of adults and children with hymenolepidosis showed that there were no differences in IgA and IgM in both age groups, no convincing changes were detected. Significant differences from the control group were observed mainly in IgG and IgE, in adults the difference with the control group was 1.73 and 4.53 times, respectively, and in children these indicators were higher than the control indicators up to 1.65 and 3.45 times.*

Keywords: *Hymenolepidosis, immune status, helminths, allergic background, children.*

Relevance. The prevalence of helminths varies by regions of Uzbekistan. Enterobiosis and hymenolepidosis are widespread everywhere, both in urban and rural areas. Foci of ascariasis are recorded in the mountainous foothill zones of the Fergana, Namangan and Surkhandarya regions. The intensive focus of teniarinkhoz is the Khorezm region. Uzbekistan belongs to the regions endemic to echinococcosis, and in recent years there has been a tendency to increase the incidence of the population. In some preschool institutions and secondary schools, the invasiveness of children with *Enterobius vermicularis*, *Hymenolepis nana*, *Lambliia intestinalis* is 30-35%. Analyzing the current situation in terms of the prevalence and clinical manifestations of parasitosis, we can note a certain role of helminthiasis and parasitosis in the formation of background conditions in children [4,7].

Helminths parasitize the respiratory organs, digestive system, muscles, liver, gallbladder, spleen, amygdala, brain, eyes and other organs of the human body. One of the determinants of public health is diseases related to social aspects, including protozoonosis and helminthiasis, which account for 99% of parasitic diseases [3, 6, 8]. Migrating helminth larvae can damage organs and tissues on their way: visceral membranes, brain, eyes, lungs, nervous system. 5-7% of larval migrants enter the brain, larvae of more than 30 species of parasites infect the lung tissue [1,2].

The pathological effect of all parasites is due to the modulating effect on the human immune system. Parasites and their waste products are allergens, cause inflammatory changes, have a sensitizing effect, which initiates the development of chronic allergic diseases [5,8].

The purpose of our study: To determine and evaluate the immune status in children and adults diagnosed with hymenolepidosis.

Materials and methods of research. The immune status of 79 adults and children with a diagnosis of parasitic diseases living in the Bukhara and Khorezm regions was studied. Enzyme immunoassay (ELISA) was used to achieve the goal. The principle of ELISA is based on the specific action of antibodies with preliminary immobilization (fixation) of the antigen on a solid-phase carrier when detecting the resulting antigen-antibody complex. in the pores of polystyrene tablets.

The identification of the resulting complex was carried out by measuring the color-optical density of the substrate mixture, which is an indicator that changes color under the influence of the products of the enzymatic-substrate reaction. A complex of reagents "BEST" (RF) was used for ELISA.

Results and discussion. A comparative analysis of the main indicators of the immune status of adults with an allergic background and the diagnosis of hymenolipid dose showed that IgA in adults (comparison group) did not significantly differ from the indicators of the control group (Table 1).

Table 1

The results of a comparative analysis of the main indicators of the immune status of the body in adults on an allergic background with a diagnosis of hymenolipidosis, $M \pm m$

Indicators	Control group, n=15	Older age, n=32
IgA, g/l	1,65±0,07	1,57±0,12 ↔
IgM, g/l	0,85±0,04	1,34±0,18* ↑
IgG, g/l	9,11±0,37	15,72±0,74* ↑
<u>IgE</u> , mg/ml	35,00±1,40	158,71±0,89* ↑
C3, mg/ml	34,60±1,20	33,51±1,00 ↔

*note: * - sign of significant differences compared to the control group; ↑ - direction of changes; ↔ - there is no significant difference.*

This indicator was 1.57±0.12 g/l in adults, while in the control group it was 1.65±0.07 g/l ($P > 0.05$), but the concentration of IgM in their blood serum was higher than in the control group. 1.34± 0.18 g/l and 0.85±0.04 g/l, respectively (the difference is on average 1.58 times, $P < 0.05$). The same trend continued for IgG, that is, the indicator was 1.73 times higher than in the control group - 15.72±0.74 g/l and 9.11±0.37 g/l, respectively ($P < 0,001$).

We will pay special attention to the IgE indicators, because we want to emphasize that the patients we study have not only the disease hymenolipidosis, but also an allergic background. This indicator is 158.71± 0.89 g/l in adult patients with hymenolipidosis, which is 4.53 times higher than in the control group (35.00± 1.40 g/l). This condition not only indicates the presence of a high level of allergic background in the body, but also indicates that it is one of the main causes of this allergic background.

This situation must be taken into account in the diagnosis and course of the disease, and the concentration of this immunoglobulin can be used as a prognostic immunological criterion in determining the outcome of the disease under study.

The amount of the C3 component of the complement, which is part of the nonspecific protection factors, did not significantly differ from each other in both compared groups ($P > 0.05$), which is the main sign that there is no activation of complement components in hymenolipidosis.

Table 2.

The results of a comparative analysis of the main indicators of the immune status of children with an allergic background with a diagnosis of hymenolipidosis, $M \pm m$

Indicators	Control group, n=15	children, n=47
IgA, g/l	1,65±0,07	1,19±0,10* ↓
IgM, g/l	0,85±0,04	1,00±0,14 ↔
IgG, g/l	9,11±0,37	15,07±0,51* ↑
IgE, mg/ml	35,00±1,40	120,80±0,73* ↑
C3, mg/ml	34,60±1,20	35,27±0,90 ↔

The trend of changes in the concentration of immunoglobulins was similar to the indicators of adult patients, but we note that the direction of the changes was different compared to the indicators of the control group.

The IgM concentration did not significantly differ from the control group (0.85 ± 0.04 g/l) against the background of a significant decrease in the amount of IgA (up to 1.19 ± 0.10 g/l) (up to 1.00 ± 0.14 g/l, $P > 0.05$). It is noteworthy that the figures compared in both cases do not differ significantly from each other.

These indicators in the blood serum are almost the same in adults and children and are characterized by the fact that they are close to the limits of the norm, which indicates that hymenolipidosis occurs in the same condition in people of different ages, significant stress on the immune system, and it is almost impossible to diagnose IgM and IgA indicators. The low diagnostic and prognostic value of these 2 immunoglobulins in the diagnosis of hymenolipidosis and assessment of immune status is recognized. A different picture was observed for the other studied immunoglobulins - IgG and IgE, the concentration of which in the blood serum was significantly higher than in the control group ($P < 0,001$). If in sick children the amount of IgG increased by 1.65 times (15.07 ± 0.51 g/l and 9.11 ± 0.37 g/l, respectively, $P < 0,001$), then the concentration of IgE was even higher (120.80 ± 0.73 g/l and 35.00 g/l). ± 1.40 g/l, respectively, the difference in 3.45 times, $P < 0,001$). No significant differences were found with respect to the C3 component of the complement ($P > 0,05$).

If we compare the indicators of children and adults, we can see that there is the same trend of changes, only the intensity of changes is higher in adults. The changes in both age groups were the same, there were no age-related changes in the course of parasitic diseases, specific changes in the immune system, duration and strength of the immune response.

Conclusion. Thus, the study of the concentration of immunoglobulins in the blood serum of adults and children with hymenolipidosis showed that there were no differences in IgA and IgM in both age groups, we want to admit that there were no convincing changes.

Convincing differences from the control group were observed mainly in IgG and IgE, in adults the difference with the control group was 1.73 and 4.53 times, respectively, and in children these indicators exceeded the control indicators up to 1.65 and 3.45 times, which can be seen that this trend of quantitative increase in immunoglobulins was the same in both age groups, only the severity changes were higher in adults compared to children.

This situation is associated with a stronger influence of the adult immune system on an external factor (the etiological agent of hymenolipidosis) and a relatively stronger immune response. The high concentration of IgG and IgE is explained by the high allergic background, strength and duration of antigenic stimulation. It is proved that the determination of these two immunoglobulins (IgG and IgE) is important in assessing the immune status in hymenolipidosis and in determining the allergic background.

LIST OF LITERATURE:

1. Ibrakhimova Hamida Rustamovna. (2022). DEGREE OF CLINICAL SYMPTOMS IN CHILDREN WITH PARASITIC DISEASES. *Galaxy International Interdisciplinary Research Journal*, 10(10), 273–277. Retrieved from <https://www.giirj.com/index.php/giirj/article/view/2822>
2. Bakiyev B.R, & Ibrakhimova Kh.R. (2023). THE SPECIALITY OF PATHOGENETIC BASES AND PREVALENCE OF PARASITIC INFECTIONS IN CHILDREN: REVIEW . *Scientific Impulse*, 1(9), 1161–1168. Retrieved from <https://nauchniyimpuls.ru/index.php/ni/article/view/8093>
3. Ibrakhimova H. R. et al. THE PREVALENCE OF PARASITES IN THE CHILD POPULATION WITH THE DEVELOPMENT OF FUNCTIONAL PATHOLOGY OF ORGANS //Finland International Scientific Journal of Education, Social Science & Humanities. – 2023. – T. 11. – №. 4. – С. 1-5.
4. Masharipova Sh.S, Ibrakhimova H.R, & Nurllayev R.R. (2023). A METHOD FOR OBTAINING PRECIPITATING SERUMS FOR THE DETECTION OF HUMAN SEMINAL FLUID USED IN THE STUDY OF PHYSICAL EVIDENCE IN FORENSIC BIOLOGICAL LABORATORIES.

World Bulletin of Management and Law, 19, 42-44. Retrieved from <https://scholarexpress.net/index.php/wbml/article/view/2119>

5. Юсупов Шавкат Рахимбоевич, Абдуллаева Дилфуза Кадамовна, Машарипова Шохиста Сабировна, Матякубова Ойша Уриновна Применение пектина в комплексной терапии при острых кишечных инфекциях // Вестник науки и образования. 2020. №5-2 (83). URL: <https://cyberleninka.ru/article/n/primeneniie-pektina-v-kompleksnoy-terapii-pri-ostryh-kishechnyh-infektsiyah> (дата обращения: 30.10.2023).

6. Шохиста Сабировна, М., Икром Ахмеджонович, А. ., Сирож Эрназарович, С. ., & Дилфуза Кадамовна, А. . (2022). ТЕЧЕНИЕ КОРОНАВИРУСНОЙ ИНФЕКЦИИ НА ФОНЕ ГЕПАТИТОВ. Новости образования: исследование в XXI веке, 1(5), 573–577. извлечено от <https://nauchniyimpuls.ru/index.php/noiv/article/view/2409>

7. Ойша Уриновна, М. ., Шохиста Сабировна, . М. ., Хамида Рустамовна, . И., & Руслан Рустамбекович, Н. . (2022). КЛИНИЧЕСКОЕ ТЕЧЕНИЕ ТУБЕРКУЛЕЗА У БОЛЬНЫХ ГЕПАТИТОМ В. Новости образования: исследование в XXI веке, 1(5), 565–568. извлечено от <https://nauchniyimpuls.ru/index.php/noiv/article/view/2405>

8. Ibrakhimova H. R. et al. THE PREVALENCE OF PARASITES IN THE CHILD POPULATION WITH THE DEVELOPMENT OF FUNCTIONAL PATHOLOGY OF ORGANS //Finland International Scientific Journal of Education, Social Science & Humanities. – 2023. – Т. 11. – №. 4. – С. 1-5.

9. Ҳамида Рустамовна Ибрахимова ПАРАЗИТАР КАСАЛЛИКЛАР ТАШҲИСЛАНГАН ТУРЛИ ЁШДАГИ ОДАМЛАРДА ИММУН СТАТУСИГА ТАВСИФ // Academic research in educational sciences. 2022. №4. URL: <https://cyberleninka.ru/article/n/parazitar-kasalliklar-tash-islangan-turli-yoshdagi-odamlarda-immun-statusiga-tavsif>

10. Ибрахимова Хамида Рустамовна, Нурллаев Руслон Рустамбекович, Артиков Икром Ахмеджанович Влияние паразитарных болезней на особенности развития туберкулеза у детей, проживающих в Хорезмской области // Наука, техника и образование. 2019. №9 (62). URL: <https://cyberleninka.ru/article/n/vliyanie-parazitarnyh-bolezney-na-osobennosti-razvitiya-tuberkuleza-u-detey-prozhivayuschih-v-horezmskoj-oblasti> (дата обращения: 30.10.2023).

11. Masharipova Shokhista Sabirovna, & Masharipov Sobir. (2023). UDC: 619:616.995.132.6 IMMUNE STATUS OF ADULTS AND CHILDREN WITH AN ALLERGIC BACKGROUND DIAGNOSED WITH ENTEROBIOSIS. Новости образования: исследование в XXI веке, 2(14), 24–28. извлечено от <https://nauchniyimpuls.ru/index.php/noiv/article/view/11911>

12. Masharipova Sh.S, Ibrakhimova H.R, & Nurllayev R.R. (2023). A METHOD FOR OBTAINING PRECIPITATING SERUMS FOR THE DETECTION OF HUMAN SEMINAL FLUID USED IN THE STUDY OF PHYSICAL EVIDENCE IN FORENSIC BIOLOGICAL LABORATORIES.

World Bulletin of Management and Law, 19, 42-44. Retrieved from <https://scholarexpress.net/index.php/wbml/article/view/2119>

13. Sabirovna, M. S., & Sobir, M. (2023). UDC: 619: 616.995. 132.6 IMMUNE STATUS OF ADULTS AND CHILDREN WITH AN ALLERGIC BACKGROUND DIAGNOSED WITH ENTEROBIOSIS. *Новости образования: исследование в XXI веке*, 2(14), 24-28.

14. Садуллаев С.Е., Машарипова Ш.С., Машарипов С. (2023). КЛИНИКО-ЛАБОРАТОРНЫЕ ОСОБЕННОСТИ ТЕЧЕНИЯ ПНЕВМОНИИ, АССОЦИИРОВАННОЙ С COVID-19, У ДЕТЕЙ РАННЕГО ВОЗРАСТА. *Международный журнал образования, социальных и гуманитарных наук*. Finland Academic Research Science Publishers, 11(9), 851–856. <https://doi.org/10.5281/zenodo.8411154>

15. Шохиста Сабировна, М., Икром Ахмеджонович, А. ., Сирож Эрназарович, С. ., & Дилфуза Кадамовна, А. . (2022). ТЕЧЕНИЕ КОРОНАВИРУСНОЙ ИНФЕКЦИИ НА ФОНЕ ГЕПАТИТОВ. *Новости образования: исследование в XXI веке*, 1(5), 573–577. извлечено от <https://nauchniyimpuls.ru/index.php/noiv/article/view/2409>