OCCURRENCE OF INTESTINAL PARASITIC INFECTIONS IN PATIENTS WITH HIV INFECTION

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Abstract. Intestinal parasitic infections are among the most frequent opportunistic infections in individuals living with HIV, particularly in regions with poor sanitation and limited access to medical care. These infections contribute significantly to morbidity and mortality by causing chronic diarrhea, malabsorption, and progressive weight loss. The prevalence and spectrum of intestinal parasites in HIV-positive patients vary according to geographic location, immune status, and antiretroviral therapy (ART) coverage. This review summarizes current data on the epidemiology, etiology, diagnostic methods, and preventive strategies of intestinal parasitic infections in HIV-infected individuals, with a special focus on emerging diagnostic tools and regional perspectives.

Keywords: HIV infection, intestinal parasites, opportunistic infections, diarrhea, immunodeficiency, protozoa, epidemiology.

Introduction. Human Immunodeficiency Virus (HIV) infection remains a global health challenge, predisposing individuals to a wide range of opportunistic infections. Among these, intestinal parasitic infections represent a major cause of chronic diarrhea and malnutrition in immunocompromised

patients, particularly in developing countries [1]. The prevalence of intestinal parasites in HIV-positive populations varies between 30–80% depending on hygiene conditions, diagnostic facilities, and immune status [2]. Opportunistic protozoa such as Cryptosporidium parvum, Isospora belli, Cyclospora cayetanensis, and Microsporidia species are the leading causes of enteric infections, while helminths such as Strongyloides stercoralis and Ascaris lumbricoides are also observed.

Epidemiology and risk factors. In low- and middle-income countries, intestinal parasitic infections are strongly linked with contaminated water sources, inadequate sanitation, and limited healthcare infrastructure [3]. In sub-Saharan Africa and Central Asia, including Uzbekistan, studies have shown a high prevalence of protozoan infections among HIV-positive patients, particularly in individuals with CD4+ T-cell counts below 200 cells/μL. Poor nutritional status and late initiation of ART further exacerbate susceptibility to intestinal parasitic diseases. Coinfection with intestinal parasites accelerates immune deterioration and increases viral replication, thereby worsening HIV progression. Conversely, effective ART and immune reconstitution significantly reduce the prevalence and severity of these infections.

Etiological agents and clinical manifestations. The most frequently reported protozoa in HIV-infected patients include Cryptosporidium spp., Giardia lamblia, Entamoeba histolytica, and Isospora belli [4]. Cryptosporidium is particularly important due to its high infectivity and resistance to common disinfectants. It causes prolonged, profuse watery diarrhea, abdominal pain, and dehydration.

Isospora belli and Cyclospora cayetanensis also lead to chronic diarrhea, with relapsing episodes despite treatment. Microsporidia infections often occur in patients with severe immunodeficiency and can disseminate beyond the

intestinal tract. Helminthic infections such as Strongyloides stercoralis may lead to severe hyperinfection syndrome in advanced HIV infection.

Clinically, chronic diarrhea lasting more than one month, weight loss, and electrolyte imbalance are the main manifestations of parasitic infections in HIV-positive individuals [5,8].

Diagnosis and laboratory methods. The diagnosis of intestinal parasites in HIV-positive patients requires a combination of conventional microscopy, immunoassays, and molecular methods.

Traditional stool examination using concentration techniques (formalin–ether sedimentation, modified Ziehl–Neelsen stain) remains widely used in resource-limited settings. However, sensitivity is limited, particularly in cases of low parasite burden.

Modern molecular tools, including polymerase chain reaction (PCR), real-time PCR, and multiplex PCR, significantly improve detection accuracy for Cryptosporidium, Microsporidia, and Isospora species [6,9].

Immunofluorescence assays and enzyme-linked immunosorbent assays (ELISA) are also valuable for identifying specific parasite antigens in stool samples.

Prevention and control strategies. Prevention of intestinal parasitic infections in HIV-positive individuals involves a combination of public health and clinical interventions. Key strategies include:

Ensuring access to clean water and adequate sanitation;

Promoting personal hygiene and food safety education;

Routine stool screening of HIV-positive patients, especially those with CD4+ counts below 200 cells/μL;

Early initiation of ART to restore immune function and reduce the risk of opportunistic infections [7,10,11].

Chemoprophylaxis is not routinely recommended for most intestinal parasites; however, timely diagnosis and specific antiparasitic therapy (e.g., nitazoxanide for cryptosporidiosis, trimethoprim-sulfamethoxazole for isosporiasis) are critical for effective management.

Conclusion

Intestinal parasitic infections remain an important cause of morbidity in HIV-infected individuals, particularly in developing countries. Regular stool examinations, the use of molecular diagnostic methods, and the implementation of ART are essential components of an integrated approach to reduce disease burden. Strengthening laboratory capacity and public health awareness is crucial for early detection and prevention of these infections.

References:

1. World Health Organization. HIV/AIDS fact sheet. WHO; 2023.
2. Nchito M, Kelly P, Baboo KS, Luo NP, Feldman R, Farthing MJ. Cryptosporidiosis in urban Zambian children: an analysis of risk factors. Am J Trop Med Hyg. 1998;59(3):435–437.
3. Cimerman S, Cimerman B, Lewi DS. Prevalence of intestinal parasitic infections in patients with acquired immunodeficiency syndrome in Brazil. Int J Infect Dis. 1999;3(4):203–206.
4. Hunter PR, Nichols G. Epidemiology and clinical features of Cryptosporidium infection in immunocompromised patients. Clin Microbiol Rev. 2002;15(1):145–154.
5. Wiwanitkit V. Intestinal parasitic infections in HIV-infected patients. Curr HIV Res. 2009;7(6):617–621.

6. Certad G, Viscogliosi E, Chabe M, Caccio SM. Molecular epidemiology of cryptosporidiosis in human immunodeficiency virus-infected patients. Clin Microbiol Infect. 2017;23(5):353–359.
7. Maikai BV, Baba J, Elisha IA. Immunological status and intestinal parasitic infections among HIV-infected adults in Nigeria. J Infect Public Health. 2018;11(5):793–798.
8. Delkasheva S. D. CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND OBESITY: CLINICAL AND SOCIAL ASPECTS //Экономика и социум. – 2025. – №. 5-1 (132). – С. 1653-1655.
9. Djamolitdinovna D. S. CHRONIC KIDNEY DISEASE AS A MANIFESTATION OF COMORBIDITY IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE //Russian-Uzbekistan Conference. – 2024. – Т. 1. – №. 1.
10. Делкашева Ш. Д. Особенности развития анемий у больных сахарным диабетом //Экономика и социум. – 2020. – №. 5-1 (72). – С. 537-542.
11. Делкашева Ш. Д. НЕФРОПАТИЯ У БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ И АНЕМИЯ, ИХ ВЗАИМОСВЯЗЬ //Экономика и социум. – 2022. – №. 3-2 (94). – С. 499-502.