Epidemiology of parasitic infections in endemic regions.

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ANNOTATION

Parasitic infections remain a significant public health problem in endemic regions of the world. The aim of this study is to analyze the prevalence, risk factors, incidence dynamics, and impact of parasitic infections on public health. Data from various geographic areas and current approaches to surveillance, prevention, and control are presented.

Keywords: *parasitic infections, epidemiology, endemic region, morbidity, prevention.*

SUMMARY

Parasitic infections are infectious diseases caused by protozoa and helminths that continue to significantly impact human health, particularly in tropical and subtropical regions. Endemic areas are characterized by persistent parasite circulation, high pathogen prevalence, and a significant proportion of complications that impact socioeconomic development .

The relevance of the study is due to the need to assess the epidemiological situation taking into account climate change, migration flows and resistance to therapy.

Materials and methods .

A systematic analysis of 10-15 years of surveillance data on the most common parasitic infections (malaria, giardiasis, schistosomiasis, hookworm, ascariasis, etc.) in endemic regions of Africa, Southeast Asia, and Latin America was conducted. Data from the WHO, national morbidity registries, epidemiological studies, as well as the results of field surveys and laboratory data were used. Hookworm and ascariasis: epidemiology and sanitary aspects . Hookworm (caused by Ancylostoma duodenale and Necator americanus) and ascariasis (Ascaris lumbricoides) are among the most common helminthiases of humans, especially in tropical and subtropical regions with poor sanitation. Global prevalence. According to WHO estimates, more than 1.5 billion people are infected with intestinal helminths, with ascariasis accounting for the majority

Hookworm infections are common in rural areas with a warm and humid climate that favors the development of larvae in the soil. The main endemic regions are South Asia, Central and South America, and sub- Saharan Africa. Ascariasis is transmitted by the fecal -oral route through contaminated eggs in soil, food, or water. Hookworm infection occurs through active penetration of larvae through the skin upon contact with contaminated soil (for example, by walking barefoot). Lack of access to improved sanitation (pit toilets or their complete absence). Contamination of water sources with feces. Poor personal hygiene and lack of hygiene education. Living in overcrowded areas with high poverty rates . Ascariasis: intestinal obstruction, malnutrition, delayed physical and cognitive development in children. Hookworm infection: chronic blood loss, iron deficiency anemia, especially dangerous in children and pregnant women.

Prevention and control.Mass deworming (in schools and vulnerable population groups).Improving sanitation and organizing safe water supply.Educational programs on hygiene (hand washing, wearing shoes, cooking food). Monitoring infection rates and resistance to anthelmintic drugs . Prevalence of parasitic infections. Malaria remains one of the leading causes of infectious morbidity and mortality in sub- Saharan Africa .

The geographic distribution of intestinal helminthiasis (e.g., ascariasis, trichuriasis) is closely linked to sanitation conditions and the quality of drinking water. Protozoan infections (giardiasis, amebiasis) are widespread in areas with unfavorable

socioeconomic conditions. Schistosomiasis persists in areas with fresh water and inadequate sanitation.

Age and gender characteristics and risk factors. The highest incidence is observed among school- age children. Risk factors include: low education, poverty, limited access to healthcare, poor sanitation, and contact with contaminated water or soil. The highest incidence of parasitic infections is recorded among school-age children (5–14 years). This is due to a combination of factors: intense physical activity, living in organized groups, frequent contact with soil, open water, and pets, and a lack of developed personal hygiene skills . Preschoolers (1–5 years) are also at increased risk due to their generally immature immune system and passive behavior related to the environment (crawling, playing on the ground, swallowing contaminated objects).

Adolescents and adults have a lower incidence, but the risk of chronic forms and reinfection remains, especially in unfavorable conditions. Gender also influences infection rates. Men are more likely to engage in occupations that involve increased exposure to contaminated soil and water, such as agriculture, fishing, mining, and construction. This increases the risk of infection, particularly with hookworm. Women , especially in rural and poor areas, are at risk due to childcare responsibilities, food preparation, and water collection in settings with limited sanitation.

Pregnant women are particularly vulnerable to the effects of anemia caused by parasitic infection, which can complicate pregnancy and affect fetal development. The prevalence of parasitic infections is closely related to socio-economic status and sanitary living conditions: Low level of education leads to a lack of knowledge about the methods of infection, rules of personal hygiene and methods of prevention, reducing the level of adherence to hygiene habits . Poverty limits access to clean water, personal hygiene products, medical services and deworming, which contributes to the formation of permanent foci of infection. Poor sanitation and hygiene - lack of toilets, open defecation, contamination of soil and water bodies create conditions for the transmission of helminths and protozoa. Contact with infected soil and water - walking barefoot, using untreated water for drinking and household needs, working in agriculture - all this

increases the risk of infection with hookworm, schistosomiasis and other parasitoses. Limited access to health care - the lack of regular mass deworming programs, a shortage of qualified diagnosis and treatment increase the likelihood of chronicity Infections. Dense living conditions facilitate the rapid spread of parasites in organized communities: schools, kindergartens, camps, boarding schools, as well as in poor urban areas with high population density.

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