HELMINTHS IN UZBEKISTAN AND THEIR EPIDEMIOLOGICAL CHARACTERISTICS

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Annotation

This article comprehensively examines the most widespread helminthic diseases identified throughout Uzbekistan and explains their epidemiological significance among different population groups. The research describes biological characteristics, transmission mechanisms, clinical manifestations, preventive measures, and statistical indicators associated with enterobiasis, ascariasis, echinococcosis, hymenolepiasis, teniarhynchosis, and fascioliasis. Special attention is dedicated toward pediatric vulnerability, regional prevalence differences, environmental risk factors, and sanitary conditions contributing toward persistent parasitic transmission nationwide. Epidemiological data collected during different observational periods were analyzed for demonstrating the continuing medical importance of helminthic diseases within Uzbekistan.

Keyword Helminths, Uzbekistan, epidemiology, enterobiasis, ascariasis, echinococcosis, parasitology, hygiene, infection, prevention, statistics, pediatric population, transmission, parasites, sanitation.

Annotatsiya Ushbu maqolada O‘zbekiston hududida keng tarqalgan gelmint kasalliklari hamda ularning epidemiologik ahamiyati batafsil yoritilgan. Tadqiqot davomida enterobioz, askaridoz, exinokokkoz, gimenolepidoz, teniarinxoz va fassiolyoz kasalliklarining biologik xususiyatlari, yuqish mexanizmlari, klinik belgilari, profilaktik choralar hamda statistik ko‘rsatkichlari tahlil qilingan. Maqolada ayniqsa bolalar orasidagi zararlanish darajasi, hududiy tarqalish tafovutlari, sanitariya muammolari va ekologik xavf omillariga alohida e’tibor qaratilgan. Turli yillarda o‘tkazilgan epidemiologik kuzatuvlar natijalari asosida gelmintozlarning O‘zbekiston sog‘liqni saqlash tizimidagi dolzarbligi ko‘rsatib berilgan.

Kalit so‘zlar Gelmintlar, O‘zbekiston, epidemiologiya, enterobioz, askaridoz, exinokokkoz, parazitologiya, gigiyena, infeksiya, profilaktika, statistika, bolalar, yuqish, sanitariya.

Аннотация В данной статье подробно рассматриваются наиболее распространённые гельминтозы, встречающиеся на территории Узбекистана, а также их эпидемиологическое значение среди различных групп населения. В исследовании описаны биологические особенности, механизмы передачи, клинические проявления, профилактические мероприятия и статистические показатели энтеробиоза, аскаридоза, эхинококкоза, гименолепидоза, тениаринхоза и фасциолёза. Особое внимание уделено распространённости заболеваний среди детей, региональным различиям, санитарным проблемам и экологическим факторам риска, способствующим сохранению паразитарных инфекций. На основании эпидемиологических наблюдений различных лет показана актуальность гельминтозов для системы здравоохранения Узбекистана.

Ключевые слова Гельминты, Узбекистан, эпидемиология, энтеробиоз, аскаридоз, эхинококкоз, паразитология, гигиена, инфекция, профилактика, статистика, дети, заражение, санитария.

introduction

Helminthic diseases remain among the most widespread parasitic infections throughout Uzbekistan and continue causing serious epidemiological and medical problems among different population groups nationwide. Warm climatic conditions, extensive agricultural activities, insufficient sanitary culture, and close interactions with domestic animals significantly contribute toward continuous transmission of parasitic infestations. Children remain especially vulnerable because hygienic habits frequently remain incompletely developed during early physiological and behavioral maturation stages.

General characteristics of helminths

Helminths are parasitic worms surviving inside human organisms while absorbing nutrients directly from infected host tissues and biological fluids. These parasites may inhabit intestinal structures, hepatic tissues, pulmonary organs, muscular systems, blood vessels, and occasionally nervous tissues. Helminths are generally classified into nematodes, cestodes, and trematodes according to their anatomical and biological characteristics. Nematodes are roundworms represented mainly by Ascaris lumbricoides and Enterobius vermicularis species frequently identified throughout Uzbekistan. Cestodes include tapeworms such as Echinococcus granulosus and Taenia saginata, whereas trematodes include Fasciola hepatica causing fascioliasis among livestock-associated communities.

Enterobiasis in uzbekistan

Enterobiasis remains among the most widespread helminthic diseases affecting children throughout Uzbekistan, especially within preschool institutions and elementary educational facilities. The disease is caused by Enterobius vermicularis, commonly called pinworm, which deposits microscopic eggs around perianal skin surfaces predominantly during nighttime hours.

The principal clinical manifestation associated with enterobiasis includes persistent nocturnal itching causing sleep disturbances, irritability, decreased concentration abilities, and chronic fatigue among infected pediatric patients. Epidemiological observations revealed that enterobiasis infestation rates occasionally reached approximately thirty-five percent among organized pediatric collectives within several regions nationwide.

Scientific investigations additionally demonstrated that asymptomatic carriers contribute substantially toward hidden transmission because numerous infected children remain unaware regarding parasitic contamination during initial developmental stages.

Ascariasis and its epidemiological features

Ascariasis is caused by Ascaris lumbricoides, a large intestinal roundworm capable of reaching considerable lengths within infected human digestive systems. Adult parasites produce enormous quantities of microscopic eggs subsequently released into external environments through contaminated fecal materials.

After oral ingestion, infective eggs hatch inside intestinal structures while larvae migrate through hepatic tissues, cardiac circulation, and pulmonary organs before returning toward intestinal environments where adult worms complete biological maturation processes.

Patients suffering from ascariasis frequently experience abdominal discomfort, appetite disturbances, nausea, chronic weakness, cough, respiratory difficulties, and progressive nutritional deficiencies associated with prolonged parasitic infestations. Epidemiological surveillance investigations demonstrated that approximately two thousand to three thousand ascariasis cases are officially registered annually throughout Uzbekistan.

Fergana, Syrdarya, and Surkhandarya Provinces consistently demonstrate elevated ascariasis prevalence because climatic conditions strongly support long-term survival of parasitic eggs within contaminated soils and water reservoirs.

Echinococcosis and its medical significance

Echinococcosis represents one of the most medically dangerous helminthic diseases identified throughout Uzbekistan because developing hydatid cysts progressively damage vital internal organs during prolonged asymptomatic periods.

The disease is caused by Echinococcus granulosus utilizing dogs and wild carnivorous animals as definitive biological hosts. Following ingestion of microscopic parasite eggs, larvae migrate toward hepatic tissues, pulmonary structures, cerebral organs, and occasionally osseous skeletal systems where slowly enlarging hydatid cysts subsequently develop. Clinical manifestations include abdominal pain, nausea, respiratory difficulties, cough, neurological disturbances, and chronic organ dysfunction depending upon anatomical localization.

Scientific investigations conducted during 2015–2019 established that approximately 2,105 echinococcosis patients were officially registered annually throughout Uzbekistan. Hepatic echinococcosis represented nearly 79.4 percent of all diagnosed cases because liver tissues function as primary biological filtration structures intercepting migrating parasitic larvae. Syrdarya and Jizzakh Provinces demonstrated particularly elevated echinococcosis prevalence compared with numerous other administrative territories because livestock breeding and insufficient veterinary control remain widespread throughout these regions.

Hymenolepiasis among pediatric populations

Hymenolepiasis is another widespread intestinal helminthiasis affecting numerous pediatric populations throughout Uzbekistan, especially within densely populated educational environments characterized by insufficient hygienic supervision mechanisms. The disease is caused by Hymenolepis nana, commonly called dwarf tapeworm.

Clinical manifestations associated with hymenolepiasis frequently include abdominal discomfort, diarrhea, appetite disturbances, nervous irritability, dizziness, chronic fatigue, and reduced educational performance among infected children. Epidemiological investigations demonstrated that enterobiasis together with hymenolepiasis comprise nearly thirty-eight percent of all officially documented helminthiasis cases nationwide.

Teniarhynchosis and fascioliasis

Teniarhynchosis is caused by Taenia saginata, commonly called beef tapeworm, transmitted primarily through consumption of insufficiently thermally processed bovine meat contaminated by larval cysticerci. Khorezm, Surkhandarya, and Kashkadarya Provinces demonstrate relatively elevated prevalence because livestock breeding remains economically important throughout these territories.

Fascioliasis is caused by Fasciola hepatica infecting both livestock and humans inhabiting agricultural territories characterized by extensive irrigation systems and freshwater reservoirs. Humans become infected predominantly after consuming

aquatic vegetation contaminated by infective larval stages attached onto plant surfaces.

Patients suffering from fascioliasis frequently experience fever, allergic skin reactions, hepatic pain, appetite reduction, digestive disturbances, and progressive liver enlargement associated with inflammatory tissue damage.

Helminthic diseases in karakalpakstan

During 2022–2024, epidemiological monitoring programs conducted throughout the Republic of Karakalpakstan included approximately 1,013,935 laboratory examinations specifically intended for identifying helminthic infestations among regional populations. Investigations established that nearly 549,666 examined individuals belonged to pediatric categories younger than fourteen years old.

Healthcare specialists ultimately identified approximately 13,113 confirmed helminthiasis cases during corresponding observational intervals within regional medical institutions. Enterobiasis represented the overwhelming majority of identified infections because approximately 8,750 confirmed cases occurred exclusively among children younger than fourteen years old.

Preventive measures against helminthic diseases

Preventive strategies against helminthic diseases include systematic hand hygiene, careful washing of vegetables and fruits, consumption of purified drinking water, proper thermal processing of meat products, and regular veterinary supervision regarding domestic animals.

Educational institutions require periodic sanitary inspections and organized epidemiological screenings permitting early identification of infected individuals before widespread collective transmission develops. Health professionals strongly recommend immediate medical consultation whenever persistent abdominal discomfort, nocturnal itching, unexplained fatigue, or digestive disturbances appear among children or adults.

Conclusion

Helminthic diseases continue representing important epidemiological and medical problems throughout Uzbekistan despite implementation of numerous preventive healthcare measures during recent decades. Enterobiasis, ascariasis, echinococcosis, hymenolepiasis, teniarhynchosis, and fascioliasis remain widely distributed throughout several administrative territories because environmental conditions strongly facilitate parasitic survival and transmission.

Improvement of sanitary culture, strengthening hygienic education, regular epidemiological monitoring, veterinary supervision, and early diagnostic screening programs remain essential components for reducing nationwide prevalence of

helminthic infestations and protecting vulnerable population groups from chronic parasitic diseases

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