

Short Communication

Soil-transmitted helminthes infection: A neglected tropical diseases

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ABSTRACT

The term tropical diseases include all diseases that occur in the tropical and sub-tropical regions. Tropical diseases cover all communicable and non-communicable diseases, including disease caused by malnutrition or environmental conditions and genetic disorders which is caused by different microorganisms, parasites, arthropods and sea animals. All of these types of agents are referred as pathogens (organisms that cause disease). In the temperate regions both viral and bacterial diseases are transmit directly from person to person, by airborne routes or by sexual contact. In addition, many diseases are spread by contaminated water and food due to lack of sanitary conditions and clean water. Alternatively, some tropical disease agents are transmitted by intermediate carriers and also called as vectors.

Keywords: Helminthes infection, Neglected tropical diseases, Antiparasitic drugs

DESCRIPTION

The incidence of disease transfer from tropical to non-tropical countries can occur by human exploration of tropical rainforests, deforestation, rising immigration and increased international air travel and other tourisms. We have some of the noted Neglected Tropical Diseases (NTDs) like ascariasis, Chagas disease, Buruli ulcer, dracunculiasis, human African trypanosomiasis, hookworm infection, Leishmaniasis, leprosy, lymphatic filariasis, onchocerciasis, trachoma, schistosomiasis, and trichuriasis. NTDs are found in several countries like Africa, Asia, and Latin America. NTDs are especially common in tropical areas where people do not have clean water or safe ways to dispose of human waste. One of the Neglected Tropical Diseases (NTDs) is Soil-transmitted helminthes. A large part of

the world's population is infected with one or more soil-transmitted helminthes referred as intestinal worm- "helminth" means parasitic worm, infects humans that transmitted through contaminated soil. Parasitic worms namely *Ascaris lumbricoides* "Ascaris", whipworm (*Trichuris trichiura*), and hookworm (*Anclostoma duodenale* and *Necator americanus*). Soil-transmitted helminthiases infections are spread through oral or dermal contact with contaminated human faeces. They are most common in warm and moist climates with poor sanitation. Soil-transmitted helminth infections are treatable with medication prescribed by the health care provider. Soil-transmitted helminthiases is treated with antiparasitic drugs.

Table 1: Infection rate of soil-transmitted helminth.

soil-transmitted helminth	Infection rate
Hookworm	Approximately 576-740 million people in the world are infected with hookworm
<i>Ascaris</i>	Approximately 807-1,221 million people in the world are infected with <i>Ascaris lumbricoides</i>
Whipworm	Approximately 604-795 million people in the world are infected with whipworm

Transmission

Soil-transmitted helminthes transmission occurs by eggs that are passed in the faeces of infected people. Each day, adult worms produce thousands of eggs in the intestine. The poor hygienic condition that transmits the disease like eggs that are attached to vegetables are ingested, when the vegetables are not cleaned properly, cooked, or peeled. Eggs which are ingested from contaminated water sources eggs are ingested

by children while playing in the contaminated soil and then put their hands in their mouths without washing them. In addition, hookworm eggs hatch in the soil, releasing larvae that mature into a form that can actively penetrate into the skin. People become infected with hookworm primarily by walking barefoot on the contaminated soil. There is no direct person-to-person transmission, because eggs passed in faeces need about 3 weeks to mature in the soil before they become infective.

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(a) Hookworm (b) *Ascaris* (c) Whipworm

Figure 1: soil-transmitted helminth (parasitic worms).

A. lumbricoides, *T. trichiura* and hookworms do not multiply in the human host, re-infection occurs only as a result of contact with infective stages in the environment.

Nutritional effects

- These worms feed on host tissues, including blood cause chronic intestinal blood loss that can result in anaemia, which leads to a loss of iron and protein.
- The worms increase malabsorption of nutrients.
- Roundworm may possibly compete for vitamin A in the intestine.
- In particular, *T. trichiura* can cause dysentery and diarrhoea.

Symptoms

Mild soil-transmitted helminth infections usually have no symptoms. Serious infectious conditions leads to several health problems like abdominal pain, diarrhea, blood and protein loss, rectal prolapse, and physical and cognitive growth retardation.

Other approaches to treat soil-transmitted helminths

- Pharmacologic treatment
- Use of clean drinking water, water treatment with water tablets to produce drinking water free of parasites
- Sanitation to prevent parasite transmission
- Development and use of vaccines to enhance disease immunity

CONCLUSION

In addition, hookworm eggs hatch in the soil, releasing larvae that mature into a form that can actively penetrate into the skin. People become infected with hookworm primarily by walking barefoot on the contaminated soil. There is no direct person-to-person transmission, because eggs passed in faeces need about 3 weeks to mature in the soil before they become infective.