

Disease Fact Sheet: Schistosomiasis

The disease and how it affects people

Schistosomiasis is a water-based disease which is considered the second most important parasitic infection after malaria in terms of public health and economic impact. The signs following infection are rashes or itchy skin. Two months after infection, fever, chills, cough and muscle aches may occur, as the parasites mature. Untreated infections can result in blood in urine and stools, and enlarged liver and spleen. In children there is a negative impact in terms of growth, nutritional status and cognitive development. Chronic infection leads to diseases of the liver, kidneys and bladder. Occasionally, the nervous system is affected causing seizures, paralysis or spinal cord inflammation.

The cause

Schistosomiasis infection in humans, the definitive hosts, is caused by three main species of flatworm, namely *Schistosoma haematobium*, *S. japonicum*, and *S. mansoni*. In Asia, cattle and water buffalo can be important reservoir hosts. Infection occurs when free-swimming larvae penetrate human skin. The larvae develop in fresh-water snails. Humans are infected when they enter larvae-infested water for domestic, occupational and recreational purposes. After skin penetration, the larvae transform and are carried by the blood to the veins draining the intestines or the bladder where they mature, mate and produce eggs. Eggs cause damage to various tissues, particularly the bladder and liver. The reaction to the eggs in tissues causes inflammation and disease. When infected humans excrete parasite eggs with feces or urine into water, the eggs hatch releasing larvae that in turn infect aquatic snails. In the snail the parasite transforms and divides into second-generation larvae which are released into fresh water ready to infect humans. Those who work in irrigation or fishing are at increased risk for schistosomiasis. With the increase in wilderness or “off-track” tourism, more tourists are becoming infected.

Distribution

Schistosomiasis is endemic in 76 countries, most of which are in Africa. Other regions affected are: the Americas (Brazil, Suriname and Venezuela, as well as several Caribbean islands); the Eastern Mediterranean (Islamic Republic of Iran, Iraq, Saudi Arabia, Syrian Arab Republic and Yemen); and eastern Asia (Cambodia, China, Indonesia, Japan, Lao People's Democratic Republic and the Philippines).

Scope of the Problem

At least 600 million people are at risk of infection and 200 million are infected with schistosomiasis. Of these 20 million have severe disease and 120 million have symptoms. An estimated 80% of transmission takes place in sub-Saharan Africa. Water resource schemes for power generation and irrigation have resulted in a tremendous increase in the transmission and outbreaks of schistosomiasis in several African countries. In northern Senegal, an area without intestinal schistosomiasis before the building of the Diama dam in 1986, virtually the whole population had become infected by 1994.

Interventions

Improved sanitation and potable water minimizes contamination of and reduces contact with fresh water, thus limiting transmission. Environmental modification preventing snail vectors and limiting human water contact offers long-term control of schistosomiasis. Health education is a fundamental component that ensures community participation in control interventions. In areas of high prevalence and intensity of infection, chemotherapy with praziquantel, targeted at school-age children and high-risk groups, offers the most efficient way to achieve the recommended strategy for morbidity control. Proper health impact assessment of new irrigation schemes and other water resources projects will provide a solid basis for the incorporation of health safeguards at design and construction plans.

Prepared for World Water Day 2001. Reviewed by staff and experts from the cluster on Communicable Diseases (CDS), and Water, Sanitation and Health unit (WSH), World Health Organization (WHO).