



Key facts

- Schistosomiasis is an acute and chronic disease caused by parasitic worms.
- At least 249 million people required preventive treatment for schistosomiasis in 2012.
- The number of people reported to have been treated for schistosomiasis in 2012 was 42.1 million.
- People are infected during routine agricultural, domestic, occupational and recreational activities which expose them to infested water.
- Lack of hygiene and certain play habits of school-aged children such as swimming or fishing in infested water make them especially vulnerable to infection.
- Schistosomiasis control focuses on reducing disease through periodic, large-scale population treatment with praziquantel; a more comprehensive approach including potable water, adequate sanitation and snail control would also reduce transmission.

Schistosomiasis is an acute and chronic parasitic disease caused by blood flukes (trematode worms) of the genus *Schistosoma*. At least 249 million people required preventive treatment in 2012. Preventive treatment, which should be repeated over a number of years, will reduce and prevent morbidity.

In the Eastern Mediterranean Region, schistosomiasis transmission has been reported from 3 countries (Somalia, Sudan and Yemen), while Egypt has <1% prevalence. In Yemen, more than 9 million adults and children were treated for schistosomiasis (bilharzia) and soil-transmitted helminthiases (intestinal worms) in two separate 4-day campaigns in March and May 2013. An analysis conducted in selected sentinel districts showed that infection levels among 2000 individuals sampled have fallen by more than half since the beginning of a schistosomiasis control project launched in 2010, from 20% at baseline to 8%, with less than 4% harbouring severe infections.

Schistosomiasis is widely distributed in in Sudan with more than 5 million people, mostly children, requiring treatment. In 2013 Sudan launched a schistosomiasis campaign involving large-scale treatment of school-age children in several of its 18 states.



Transmission

Transmission occurs when people suffering from schistosomiasis contaminate freshwater sources with their excreta containing parasite eggs which hatch in water.

People become infected when larval forms of the parasite – released by freshwater snails – penetrate the skin during contact with infested water.

In the body, the larvae develop into adult schistosomes. Adult worms live in the blood vessels where the females release eggs. Some of the eggs are passed out of the body in the faeces or urine to continue the parasite's life-cycle. Others become trapped in body tissues, causing immune reactions and progressive damage to organs.

Epidemiology

Schistosomiasis is prevalent in tropical and sub-tropical areas, especially in poor communities without access to safe drinking water and adequate sanitation.

There are two major forms of schistosomiasis – intestinal and urogenital – caused by five main species of blood fluke. In countries of the Eastern Mediterranean Region, *Schistosoma mansoni* is responsible for the intestinal form of the disease, while *S. haematobium* is responsible for urogenital schistosomiasis.

Schistosomiasis mostly affects poor and rural communities, particularly agricultural and fishing populations. Women doing domestic chores in infested water, such as washing clothes, are also at risk. Inadequate hygiene and contact with infected water make children especially vulnerable to infection.

Migration to urban areas and population movements are introducing the disease to new areas. Increasing population size and the corresponding needs for power and water often result in development schemes, and environmental modifications facilitate transmission.

With the rise in eco-tourism and travel “off the beaten track”, increasing numbers of tourists are contracting schistosomiasis. At times, tourists present with severe acute infection and unusual problems including paralysis.

Urogenital schistosomiasis is also considered to be a risk factor for HIV infection, especially in women.

Symptoms

Symptoms of schistosomiasis are caused by the body's reaction to the worms' eggs.

Intestinal schistosomiasis can result in abdominal pain, diarrhoea and blood in the stool. Liver enlargement is common in advanced cases, and is frequently associated with an accumulation of fluid in the peritoneal cavity and hypertension of the abdominal blood vessels. In such cases there may also be enlargement of the spleen.

The classic sign of urogenital schistosomiasis is haematuria (blood in urine). Fibrosis of the bladder and ureter, and kidney damage are sometimes diagnosed in advanced cases. Bladder cancer is another possible complication in the later stages. In women, urogenital schistosomiasis may present with genital lesions, vaginal bleeding, pain during sexual intercourse and nodules in the vulva. In men, urogenital schistosomiasis can induce pathology of the seminal vesicles, prostate and other organs. This disease may also have other long-term irreversible consequences, including infertility.

The economic and health effects of schistosomiasis are considerable. In children, schistosomiasis can cause anaemia, stunting and a reduced ability to learn, although the effects are usually reversible with treatment. Chronic schistosomiasis may affect people's ability to work and in some cases can result in death.

Diagnosis

Schistosomiasis is diagnosed through the detection of parasite eggs in stool or urine specimens. Antibodies and/or antigens detected in blood or urine samples are also indications of infection.

For urogenital schistosomiasis, a filtration technique using nylon, paper or polycarbonate filters is the standard diagnostic technique. Children with *S. haematobium* almost always have microscopic blood in their urine and this can be detected by chemical reagent strips.

The eggs of intestinal schistosomiasis can be detected in faecal specimens through a technique using methylene blue-stained cellophane soaked in glycerine or glass slides, known as the Kato-Katz technique.

For people living in non-endemic or low-transmission areas, serological and immunological tests may be useful in showing exposure to infection and the need for thorough examination, treatment and follow-up.

Prevention and control

The control of schistosomiasis is based on large-scale treatment of at-risk population groups, access to safe water, improved sanitation, hygiene education and snail control.

The WHO strategy for schistosomiasis control focuses on reducing disease through periodic, targeted treatment with praziquantel. This involves regular treatment of all people of at-risk groups. In a few countries, where there is low transmission, the elimination of the disease should be aimed for.

Groups targeted for treatment are:

- School-aged children in endemic areas;
- Adults considered to be at risk in endemic areas, and people with occupations involving contact with infested water, such as fishermen, farmers, irrigation workers, and women whose domestic tasks bring them in contact with infested water;
- Entire communities living in highly endemic areas.

The frequency of treatment is determined by the prevalence of infection in school-age children. In high transmission areas, treatment may have to be repeated every year for a number of years. Monitoring is essential to determine the impact of control interventions.

The aim is to reduce disease: periodic treatment of at-risk populations will cure mild symptoms and prevent infected people from developing severe, late-stage chronic disease. However, a major limitation to schistosomiasis control has been the limited availability of praziquantel. Data for 2012 show that 14.4% of people requiring treatment were reached.

Praziquantel is the recommended treatment against all forms of schistosomiasis. It is effective, safe and low-cost. Even though re-infection may occur after treatment, the risk of developing severe disease is diminished and even reversed when treatment is initiated and repeated in childhood.

Schistosomiasis control has been successfully implemented over the past 40 years in several countries, including Egypt and Saudi Arabia. There is evidence that schistosomiasis transmission was interrupted in Morocco. In Yemen, it has been possible to scale up schistosomiasis treatment to the national level and have an impact on the disease in a few years. An assessment of the status of transmission is being made in several countries.

Globally, the number of people who reported having been treated for schistosomiasis increased by 40% between 2011 and 2012, to 42.1 million. This increasing trend in the number of people treated should be sustained.

WHO response

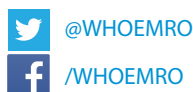
WHO's work on schistosomiasis is part of an integrated approach to the control of neglected tropical diseases. Although medically diverse, neglected tropical diseases share features that allow them to persist in conditions of poverty, where they cluster and frequently overlap.

WHO coordinates the strategy of preventive chemotherapy in consultation with collaborating centres and partners from academic and research institutions, the private sector, nongovernmental organizations, international development agencies and other United Nations organizations. WHO develops technical guidelines and tools for use by national control programmes.

Working with partners and the private sector, WHO has advocated for increased access to praziquantel and resources for implementation. A significant amount of praziquantel, to treat more than 100 million children of the school age per year, has been pledged by the private sector and development partners.

For more information:

www.emro.who.int/whd2014



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