A review on schistosomiasis control and prevention.

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Abstract

When it comes to causing human misery in the tropics and subtropics, schistosomiasis is the second most common neglected tropical illness after malaria. Over 240 million people are currently infected worldwide by the five species that are known to infect humans. Mass drug administration of praziquantel 40 mg/kg has been the cornerstone of control up to this point, although there are issues with this strategy. The development of vaccinations for humans and cattle is at various stages. Only integrated control, which focuses on the entire life cycle, can ensure sustainability and eventual eradication.

Keywords: Schistosomiais, Morbidity, Treatment and control, Mass drug administration, Malaria.

Introduction

Through urine or faeces, the human host excretes schistosoma eggs into a freshwater environment. A hatching egg that has come into touch with fresh water releases a miracidium, a free-living, ciliated form that is infectious for 6–12 hours. The intermediary host snail serves as the miracidium's swimming path when it enters its soft tissue. For *S. mansoni*, *S. haematobium*, and *S. japonicum*, respectively, Biomphalaria, Bulinus, and Oncomelania act as the intermediate hosts that transmit the *Schistosoma* species [1].

The miracidium that entered the snail loses its cilia and transforms into a mother sporocyst. This mother sporocyst then multiplies asexually to give birth to daughter sporocysts. These move to the snail's hepatic and gonadal tissue, where they grow. These daughter sporocysts change into cercariae in 2-4 weeks. Numerous free-swimming, fork-tailed cercariae depart the intermediate host snail in response to light stimulation. In the case of *S. japonicum*, they swim through the water until they come into contact with human skin or the skin of other animal hosts. More than 40 mammals that potentially act as reservoir hosts for *S. japonicum* are susceptible to infection. The skin is penetrated by cercariae both mechanically and by proteolytic enzymes [2,3].

Treatment

Praziquantel has a high level of efficacy, is simple to administer, is generally safe, and only causes mild to severe adverse effects include nausea, dizziness, rash, pruritus, headache, sleepiness, and abdominal discomfort. However, praziquantel therapy can occasionally fail, and this might be because of potential medication resistance. Praziquantel treatment of infected cases in the *S. mansoni* outbreak in Northern Senegal led to extremely poor cure rates of 18%-36%. 1.6% of S. mansoni patients in Egypt are still untreated even after receiving three doses of praziquantel, the third of which is 60 mg/kg. Laboratory-maintained *S. mansoni* isolates displayed a range of praziquantel sensitivity, according to studies conducted in Italy, Egypt, and the UK. 52 nations and territories out of the 78 where *Schistosomiasis* is endemic needed extensive treatment for the illness in 2012, treating almost 250 million individuals. The World Health Organization (WHO) recommends using praziquantel, a pyrazinosoquinolone derivative that targets a variety of parasite illnesses, for population-based mass chemotherapy. In the beginning, it was designed for usage in animals until its anthelminthic activity was identified in 1972. It has since been demonstrated to be effective against all the different *Schistosome* species known to infect people as well as against cestodes, and humans tolerate it well. The gastrointestinal tract quickly absorbs about 80% of the medication. It is broken down by the liver and eliminated through the faeces and urine [4,5].

Prevention

The basic means of preventing *Schistosoma* infection is avoiding contact with fresh water infested with *Schistosome* parasites. Swimming, wading, or any other aquatic activities in these bodies of water exposes the skin to possible penetration by the cercariae. In cases when there is brief accidental contact with infected water, vigorous towel drying is advised to help prevent the cercariae from penetrating the skin. In using water from these fresh water sources for drinking or bathing, water must be brought to the boil for at least 1 minute to kill the parasite that may be present in the water. Allowing the water to stand for 24 hours or more before using it may also help in preventing infection. Fine-mesh filters may also be used to filter the

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cercariae possibly contained in the water. Insect repellants such as DEET (N,N-Diethyl-meta-toluamide) may be applied topically to prevent cercariae from penetrating the skin, but this is not a very reliable measure.

Conclusion

Although the strategies used in *Schistosomiasis* management efforts have significantly reduced the burden of infection, these strategies have drawbacks. The major management technique, mass drug delivery, does not stop reinfection, and infection rates typically return to baseline levels 24 months following chemotherapy. As a result, the frequency of repetition of this technique must be determined by the community's endemic risk level. As a result, efforts must be made to find integrated control methods that have longer-lasting effects.

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