Infection with two species of schistosome does not affect treatment efficacy

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The parasitic disease schistosomiasis is caused by a trematode flatworm, different species of which can affect either the intestine or the urinary tract. Mixed species (co-) infections are common, and research is needed to understand exactly how infection by both urinary and intestinal parasites affects the course of infection and response to treatment.

In this study, researchers examined data from three West African countries: Senegal, Niger and Mali. In Senegal and Niger they used datasets from villages where the impact of treatment in children with either single or mixed species infections was tracked over time, while the Mali data was from the Mali National Schistosomiasis Control Program, where changes in schistosomiasis over three years were monitored in children from 29 schools.

The researchers explored whether having a mixed species infection altered the effect of the drug used to treat the infection (Praziquantel). Encouragingly, they found that two measures of drug efficacy, the rate of parasite egg reduction and the rate of infection cure, were not associated with co-infection, but did vary among countries

Patterns of re-infection after treatment also varied strongly among countries and sites within countries. However, data from Senegal showed that co-infection also predicted patterns of re-infection: children who had intestinal schistosomiasis when treated with praziquantel were less heavily re-infected with urinary schistosomiasis six months later. The researchers suggest this may be due to a competitive interaction between

the two species. In Mali, changes in infection rates over the course of the control programme did not provide evidence for this negative association between the species, however this may be due to incomplete treatment coverage within schools.

Overall, this research provides an encouraging sign that treatment with praziquantel is effective for clearing both single and mixed species schistosome infections. It also suggests that further research is needed to understand the mechanisms of schistosome species interactions, and how these may shape the outcome of control programmes.

More information: *PLOS Neglected Tropical Diseases*, dx.plos.org/10.1371/journal.pntd.0004019

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