

The changing face of schistosome infection may help explain conflicting outcomes among malaria-schistosome coinfection studies

Malaria and schistosomiasis are two of the most important parasitic diseases and coinfection with their causative parasites is common, particularly in sub-Saharan Africa. These parasites interact with each other via their effects on the host immune system, but studies to date report conflicting results, some suggesting that schistosomes are associated with reduced malaria intensity while others report increased intensity. Schistosomes provoke different immune responses during early vs late infection, which may be a factor in these conflicting results. Using agent-based modelling we explored the effects of schistosomes on blood stage malaria, by simulating the effects of different stages of schistosome infection. We find the intensity and dynamics of malaria infections are greatly influenced by the stage of schistosome infection. Our findings may help to explain the apparent contradictions between studies and will have implications for host health and for the design of parasite control strategies