

Routine white blood cell differential counts as indicators of *Schistosoma mansoni* infection

Background: White blood cell (WBC) and differential counts are routinely collected in regions endemic for *Schistosoma mansoni*, including rural sub-Saharan Africa. While infection is known to be associated with eosinophilia, associations with other WBC differentials are poorly understood, especially when confounded by common co-endemic infections such as HIV, Hepatitis B (HBV) and malaria.

Methods: We analysed associations of WBC and differential counts with intestinal schistosomiasis among 2933 participants from SchistoTrack, a community-based cohort in rural Uganda. Multivariable regression models were employed to determine associations after adjusting for prevalent co-infections (HIV, HBV, and malaria) and other covariates, including sociodemographic factors and treatment with medications. Additional mediation analyses assessed the roles of anaemia and splenomegaly in the association between *S. mansoni* infection and WBC differentials.

Results: Our models demonstrate that total WBC, neutrophil, and eosinophil counts remained significant indicators of *S. mansoni* infection after rigorous adjustment for viral and malarial co-infections. The inclusion of haemoglobin concentration did not alter these associations, suggesting that the observed effects on WBCs are not explained by anaemia alone. In contrast to schistosomiasis, malaria was negatively associated with total WBC counts, an effect that appeared to be mediated by splenomegaly.

Conclusion: Our findings suggest that routine WBC differentials can detect the effects of chronic schistosomiasis, even in the context of long-term mass drug administration and repeated exposure. Replicating these findings in other settings could facilitate the integration of these routine indicators into screening protocols and infection monitoring in resource-limited settings.