The epidemiology of periportal fibrosis

Seun Anjorin[1], Betty Nabatte[2], Simon Mpooya [2], Christopher K. Opio[3], Narcis B. Kabatereine[2], Goylette F. Chami[1]

Affiliations

1. Big Data Institute, Nuffield Department of Population Health, University of Oxford, Oxford, UK
2. Division of Vector Borne Diseases and Neglected Tropical Diseases, Uganda Ministry of Health, Kampala, UG
3. Department of Medicine, College of Health Sciences, Makerere University, Kampala Uganda

*__Presenter:__ seun.anjorin@ndph.ox.ac.uk

Background

Intestinal schistosomiasis can cause periportal fibrosis (PPF). If left untreated, it could result in portal hypertension and ultimately death. However, the epidemiology of PPF is poorly understood, especially in settings endemic to *Schistosoma mansoni.*

Methods

A cross-sectional study was conducted within the Oxford-Uganda Collaboration and SchistoTrack Prospective Cohort. During baseline assessments in 2022, a total of 1460 households, nested within 38 villages in three rural districts in Uganda, were randomly selected and surveyed. Demographic, socioeconomic, and medical history information were obtained from each member of the households. One child (5-17 years) and an adult (18-90 years) were randomly selected from each household and invited for the clinical surveys. One stool and urine sample was collected from 2836 participants, they were assessed for *S. mansoni* infection using Kato-Katz (KK) microscopy and point-of-care circulating cathodic antigen (POC-CCA). Following the Niamey Protocol, PPF was defined by the highest liver pattern gradings, patterns A and B were coded as normal while patterns C- F were coded as PPF. Multivariable logistic regressions with standard errors clustered at the household level were used with schistosome infection as a key exposure, controlled for demographic, socioeconomic, biomedical covariates.

Findings

PPF prevalence was 12.1% (343/2836) across all study participants, ranging from 4.8% to 18.9% across the three districts. *S. mansoni* was over 43% in all participants, as measured by KK. Adults and male participants had a higher prevalence of PPF across the districts when compared to children and female participants, respectively. Infection indicators, as measured by KK or POC-CCA diagnostics showed no significant relationship with PPF. Each one-year increase in age was found to be associated with a 15.2% increase in likelihood of PPF. Female participants were 31% less likely to have PPF when compared to male participants. Being a fisherman was significantly associated with the likelihood of PPF (87.2% more likely than individuals who were not fishermen). A history of liver diseases, HIV and hepatitis B diagnoses were found to be significantly associated with a higher likelihood of PPF.

Conclusion

These findings suggest that current schistosome infection should not be used as a proxy indicator for severe morbidities associated with schistosomiasis such as PPF. Future research should investigate the contribution of comorbidities and coinfections to PPF development.

Funding and conflicts of interest: Funding from the Nuffield Department of Population Health Pump Priming Fund, Wellcome Trust Institutional Strategic Support Fund (204826/Z/16/Z), and John Fell Fund as part of the SchistoTrack Project; Robertson Foundation Fellowship and UKRI EPSRC Award (EP/X021793/1) all to G.F. Chami.