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Relationship between native riverine prawns, intermediate host snails and schistosomiasis prevalence in two river systems in Côte d'Ivoire

Submission date
20/12/2017

Recruitment status
No longer recruiting

Registration date
18/01/2018

Overall study status
Completed

Last Edited
11/02/2022

Condition category
Infections and Infestations

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Schistosomiasis is an infection caused by a parasitic worm that lives in fresh water in tropical and subtropical areas. The parasite can infect both humans and fresh water snails. In Côte d'Ivoire, schistosomiasis is endemic (regularly found) and the national control strategy emphasizes preventive chemotherapy (medication). However, this strategy does not protect patients from being infected again and so additional control measures are needed. The aim of this study is to explore the association between the snails that carry schistosomiasis, freshwater prawns that might act as their natural predators, and schistosomiasis among school-aged children and adults.

Who can participate?
Children aged 9–12 and adults aged 20–55 who live in participating villages in Côte d'Ivoire

What does the study involve?
All human-water contact points are visited four times over a 14-month period once every season in each of the 24 villages, in order to collect samples of snails and prawns. Participants give stool and urine samples which are checked for schistosomiasis parasite eggs.

What are the possible benefits and risks of participating?
Participants who are found to be infected are treated with the drug praziquantel. Villages where the prevalence of schistosomiasis is over 20% are all treated with praziquantel by the national schistosomiasis control programme. Praziquantel has few adverse events (e.g. mild abdominal pain and headache).

Where is the study run from?
1. Swiss Tropical and Public Health Institute (Switzerland)
2. Université Félix Houphouët-Boigny (Côte d'Ivoire)

When is the study starting and how long is it expected to run for?
May 2015 to December 2016

Who is funding the study?
The Bill & Melinda Gates Foundation through the Schistosomiasis Consortium for Operational Research and Evaluation (SCORE) based at the University of Georgia

Who is the main contact?
Prof. Juerg Utzinger

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title
Relationship between native riverine prawns, intermediate host snails and schistosomiasis prevalence in two river systems in Côte d'Ivoire

Study objectives
Native riverine prawns (Macrobrachium) act as natural predators of schistosomiasis intermediate host snails (Bulinus sp and Biomphalaria), and hence influence the transmission of schistosomiasis.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Comité National d'Éthique et de la Recherche, Ministère de la Santé et de Lutte contre le SIDA, 22/01/2015, ref: 114/MSLS/CNER-dkn

Study design

Ecological study, including a single cross-sectional parasitological survey in humans and four cross-sectional surveys pertaining to prawns and snails

Primary study design
Observational

Study type(s)
Other

Health condition(s) or problem(s) studied
Schistosoma mansoni infection, Schistosoma haematobium infection

Interventions
Twenty-four villages located in two hydrological systems of Côte d'Ivoire will be the selected for the current study. The villages will be situated within a 3 km radius from the main river in the two hydrological system. The villages will be separated from each other by at least 5 km. All human-water contact points will be visited four times over a 14 months study period, once every season in each of the 24 localities. Intermediate host snails will be sampled by two experienced malacologists during 15 min using kitchen sieves and forceps. Prawns will be collected using an electric fishing device. A total of 150 individuals (100 pupils aged 9–12 years and 50 adults aged 20–55 years) will be invited to give stool and urine samples during a single cross sectional survey. Stool samples will be subjected to duplicate Kato-Katz thick smear, and slides quantitatively examined under microscope for Schistosoma mansoni eggs and urine filtration method for to determine Schistosoma haematobium eggs.

Intervention Type
Other

Primary outcome(s)
Schistosoma mansoni and S. haematobium infection status, assessed with the Kato-Katz and urine filtration methods, respectively, in a cross-sectional survey conducted from 21/01/2016 to 29/01/2016

Key secondary outcome(s))
1. The presence and number of riverine prawns, collected using an electric fishing device, determined in four surveys once every season:
01/10/2015-12/10/2015
07/04/2016-19/04/2016
19/07/2016-31/07/2016
04/12/2016-15/12/2016
2. The presence and number of intermediate host snails, sampled using kitchen sieves and forceps, determined in four surveys once every season:
01/10/2015-12/10/2015
07/04/2016-19/04/2016
19/07/2016-31/07/2016
04/12/2016-15/12/2016

Completion date
15/12/2016

Eligibility

Key inclusion criteria
1. Written informed consent signed by adults (aged 20-55 years) and parents/guardian of children (aged 9-12 years) and oral assent by children
2. Able and willing to provide a single urine sample at the baseline cross-sectional survey
3. No known allergy to study medication (i.e. praziquantel)

Participant type(s)
Mixed

Healthy volunteers allowed
No

Age group
Mixed

Sex
All

Total final enrolment
3600

Key exclusion criteria
1. No written informed consent by adults and parents/guardian on behalf of their children
2. Recent use of anthelminthic drug (within past 4 weeks)

Date of first enrolment
21/01/2016

Date of final enrolment
29/01/2016

Locations

Countries of recruitment
Côte d'Ivoire

Switzerland

Study participating centre
Swiss Tropical and Public Health Institute
Socinstrasse 57
Basel
Switzerland
4051

Study participating centre
Université Félix Houphouët-Boigny
Unité de Formation et de Recherche Biosciences
22 BP 770
Abidjan
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22

Sponsor information

Organisation
Swiss Tropical and Public Health Institute

ROR
https://ror.org/03adhka07

Funder(s)

Funder type
Charity

Funder Name
The Bill & Melinda Gates Foundation through the Schistosomiasis Consortium for Operational Research and Evaluation (SCORE) based at the University of Georgia (sub-awards no. RR374-053 /4787986)

Results and Publications

Individual participant data (IPD) sharing plan
The data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		01/11/2018	11/02/2022	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes