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Comparison of school and community-based mass drug administration delivery strategies for control of Schistosoma mansoni infections in western Kenya in areas with >25% prevalence

Submission date
13/12/2015

Recruitment status
No longer recruiting

Registration date
14/12/2015

Overall study status
Completed

Last Edited
04/01/2023

Condition category
Infections and Infestations

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

Plain English summary of protocol

Background and study aims
Schistosomiasis is a chronic (long term) infection caused by parasites that live in fresh water (for example, rivers and lakes) in tropical and subtropical countries. Symptoms of the disease vary widely and can be fairly mild (fever, skin rash, coughing) or more serious (passing blood in diarrhoea or urine, vomiting blood, stomach pains, paralysis of the legs). Over 90% of cases occur in Africa. The World Health Organisation wants to treat 75% of the population at risk of schistosomiasis infection by 2020 and preventive treatment (chemotherapy) will increase massively as a result. In Kenya, where both S. mansoni and S. haematobium are endemic and many people suffer from intestinal or urogenital schistosomiasis (schistosomiasis affecting the urinary and genital organs), no large-scale preventive chemotherapy programme had been set up before the start of this study. We want to investigate which combination of annual praziquantel treatments (given in schools or in communities) and 'drug holidays' (when no treatment is given) is the most successful for the lowest cost.

Who can participate?
Schoolchildren aged 9-12 years and first-year students in years 1 and 5 attending the selected schools.

What does the study involve?
Participating schools are randomly allocated into one of six groups.
Group 1: School-age children and adults are treated with praziquantel once a year for the 4 years of the study
Group 2: School-age children and adults are treated for the first two years of the study and only school-age children are treated for the last two years
Group 3: School-age children and adults are treated for the first two years of the study and receive no treatment in the last two years
Group 4: School-age children are treated every year
Group 5: School-age children are treated for the first two years

Group 6: School-age children are treated for the first year and the third year
Any changes in the prevalence and intensity (severity of infection) of S. mansoni infection are measured over the 4 years of the study.

What are the possible benefits and risks of participating?
Not provided at time of registration

Where is the study run from?
Kenya Medical Research Institute

When is the study starting and how long is it expected to run for?
December 2010 to December 2016

Who is funding the study?
Bill and Melinda Gates Foundation (USA)

Who is the main contact?
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Contact information

Type(s)
Public

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Study information

Scientific Title
Comparison of school and community-based mass drug administration delivery strategies for control of Schistosoma mansoni infections in western Kenya in areas with >25% prevalence: a multi-centre randomized intervention trial

Acronym
Sm2

Study objectives

The implementation of preventive chemotherapy with the anti-schistosomal drug praziquantel in school-aged children (exclusion of children <5 years), and in adults randomized to study arms either receiving treatment every year, or alternating with drug holidays in years 2 and 4 or drug holidays in years 3 and 4, will more cost-effectively gain the control of prevalence and morbidity due to Schistosoma mansoni infection in areas with high endemicity (prevalence: >25%) in Kenya than the implementation of four yearly rounds of annual chemotherapy in school-aged children.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Kenya Medical Research Institute, 01/09/2010, ref: KEMRI/RES/7/3/1

Primary study design
Interventional

Study design
Multi-centre randomized intervention trial

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Schistosomiasis

Interventions
In the first step, in-depth parasitological surveys are carried out to identify 150 schools where the prevalence of S. mansoni (i.e., number of infections) amongst schoolchildren is greater than 24%. Prevalence during this eligibility step is measured using Kato-Katz thick smears from 50 children aged 13-14 years per locality.

Each school is then randomly allocated into one of six groups.
Group 1: School-age children and adults are treated with praziquantel once a year for the 4 years of the study
Group 2: School-age children and adults are treated for the first two years of the study and only school-age children are treated for the last two years
Group 3: School-age children and adults are treated for the first two years of the study and receive no treatment in the last two years
Group 4: School-age children are treated every year
Group 5: School-age children are treated for the first two years
Group 6: School-age children are treated for the first year and the third year

Three days of consecutive parasitological surveys are carried out before each treatment to assess any changes to the prevalence and intensity (severity of infection) of S. mansoni infection over time. The praziquantel is administered by trained teachers to all children aged 5-15 years in schools and by drug distributors in the community MDA venues.

Intervention Type
Drug

Phase

Not Applicable

Drug/device/biological/vaccine name(s)
Praziquantel

Primary outcome(s)
Identification of the most cost-effective strategy that is able to reduce S. mansoni infection from high prevalence levels, measured by change in prevalence and intensity of Schistosoma mansoni infection in 9- to 12-year-old children over the four years of intervention.

Key secondary outcome(s)
1. Prevalence and intensity of S. mansoni infections in 9- to-12- year-old schoolchildren, using Kato-Katz thick smears
2. Prevalence and intensity of S. mansoni infections in first-year schoolchildren, using Kato-Katz thick smears
3. Control of morbidity due to S. mansoni (reduction of the prevalence to <10%) in the 150 schools
4. Identification of S. mansoni risk factors
5. Mapping and prediction of the distribution of S. mansoni in Western Kenya

Measured by changes in force of transmission, as assessed by infection prevalence and intensity of S. mansoni in first-year students and adults.

Completion date
31/12/2016

Eligibility

Key inclusion criteria
1. Schoolchildren, either male or female, aged 9-12 years, attending the selected schools (in each study year)
2. First-year students, either male or female, attending the selected schools (in years 1 and 5)
3. Written informed consent signed by parents or legal guardians of the schoolchildren
4. Oral assent from schoolchildren
5. At least one stool sample provided over three consecutive days from 9- to 12- year-old children each study year
6. At least one stool sample provided from first-year students and adults in years 1 and 5

Healthy volunteers allowed
No

Age group
Mixed

Sex
All

Key exclusion criteria
1. Children not aged 9-12 years (in years 2, 3 and 4)
2. Adults in Years 2, 3 and 4

2. Children under 9 in Years 2, 3, 4
3. No written informed consent by parents or legal guardians of schoolchildren
4. No oral assent given by schoolchildren
5. No stool sample provided (for 9- to 12-year-old children in each study year; for first-year students and adults in years 1 and 5)

Date of first enrolment
01/12/2010

Date of final enrolment
31/12/2016

Locations

Countries of recruitment
Kenya

Study participating centre
Kenya Medical Research Institute
PO Box 1578
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Sponsor information

Organisation
University of Georgia Research Foundation / SCORE (USA)

ROR
https://ror.org/00te3t702

Funder(s)

Funder type
Charity

Funder Name
Bill and Melinda Gates Foundation

Alternative Name(s)

Bill & Melinda Gates Foundation, Gates Foundation, Gates Learning Foundation, William H. Gates Foundation, BMGF, B&MGF, GF

Funding Body Type
Government organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
United States of America

Results and Publications

Individual participant data (IPD) sharing plan
Not provided at time of registration

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/07/2020	11/02/2021	Yes	No
Protocol article	protocol and baseline data	26/05/2016		Yes	No
Protocol article	Protocol and baseline data for a multi-year cohort study	29/09/2017	04/01/2023	Yes	No
Dataset			04/01/2023	No	No
Interim results article	pilot study results	26/07/2017	04/01/2023	Yes	No
Other publications	Challenges in Protocol Development and Interpretation	12/05/2020	04/01/2023	Yes	No