INTRODUCTION

Neglected tropical diseases (NTDs), such as schistosomiasis and geohelminths, incur enormous burdens on public health, mainly affecting impoverished rural communities characterized by poor sanitation and hygiene [3,5].

Schistosomiasis is a tropical disease caused by blood-dwelling fluke worms of the genus Schistosoma. Schistosoma and Soil-transmitted helminth (STH) infections are recognized as a major public health issues in Angola [4].

Regarding geohelminths and schistosomiasis, a recent national survey was conducted to determine the National Neglected Tropical Disease guidelines in terms of mass drug administration (MDA) campaigns. The observed cumulative prevalence of urinary schistosomiasis and geohelminths were 28% and 40%, respectively [4,5]. Despite the fact that these data call for mass treatment of school-aged children against these NTDs (particularly in Northern and Central Angola) current interventions do not obtain the levels of efficacy necessary.

This study aimed to present the effect of massive chemotherapy in reducing Schistosom and STH infestation in school-aged children characterized by community-based intervention.

METHODS

The Kapungo community (Northern Angola) was selected because of the high rates of schistosomiasis prevalence. All 113 schoolchildren (6-15 years) and their household members, from Kapungo community were invited to participate in the study. A single course of praziquantel (40mg/kg) and albendazole (400mg) treatment was given to every participant regardless of infection status and insecticide-treated bed net offered. Social, demographic and behavioral information was obtained using an interviewer administered questionnaire. Urine and stool samples were obtained at baseline and one month after the intervention.

Microhematuria was detected with Combur strips. The intensity of infestation and detection of parasites were carried out in the CIA Laboratory using centrifugation and sedimentation, Parasatrap and Kato-Katz methods. Menem’s and Wilkinson related samples test was used to compare the prevalence and intensity of infections. Reduction prevalence and intensity and cure rate was calculated using the formulae below [1,2].

Reduction prevalence = (%prevalence before treatment × %prevalence 1 month after treatment) / %prevalence before treatment *100.

Reduction intensity = (mean eggs before treatment – mean eggs 1 month after treatment) / (mean eggs before treatment) *100.

Cure rate = (Children became egg-negative after treatment / children positive at the pretreatment) *100.

RESULTS

A single dose of Praziquantel significantly reduced the prevalence of S. haematobium infection by 23.3% (from 82.3% to 63.8%) and the intensity of infection by 83.3% (from 803.22 to 134.2 epg/gram of urine) 1 month after treatment, with cure rate of 52.7%.

The reduction is most notorious for the high infection S. haematobium (> 400 epg) with cure rate of 89.6%.

S. Mansoni and H. nana were completely eliminated in the follow up. A single dose of Albendazole decreased significantly the prevalence and intensity of Ancists lumbricoides by 37.9% and 80.9% respectively.

There was no significant change in the data for Hookworms, strongyloid and Trichiruria trichuria. Increased intensity was observed for T. trichuria. However these parasites had lower levels of infection.

Reduction in intensity is more relevant than the prevalence of infection.

SUPPORT:

Table 1: The parasitological results of Schistosomiasis and STH infection in Kapungo community at baseline and 1 month after treatment.

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Before Treatment</th>
<th>After Treatment</th>
<th>Change in data</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Haematobium</td>
<td>86.3</td>
<td>64.3</td>
<td>22%</td>
</tr>
<tr>
<td>S. Mansoni</td>
<td>6.8</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>N. Nana</td>
<td>14.8</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Strongyloides</td>
<td>5.6</td>
<td>1.4</td>
<td>75%</td>
</tr>
<tr>
<td>Hookworms</td>
<td>6.2</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>

There was no significant difference in the data of children who missed the follow-up to those included in baseline.

Remarks

The sole community-base administration of chemotherapy has limited impact in the control of Schistosomiasis and STHs in endemic communities such as observed in this Angolan study.

New rounds of treatment and evaluation should continue to assess the impact of massive chemotherapy.

Main References


Figure 1: Flow chart and study adherence.

INTRODUCTION

Neglected tropical diseases (NTDs), such as schistosomiasis and geohelminths, incur enormous burdens on public health, mainly affecting impoverished rural communities characterized by poor sanitation and hygiene [3,5].

Schistosomiasis is a tropical disease caused by blood-dwelling fluke worms of the genus Schistosoma. Schistosoma and Soil-transmitted helminth (STH) infections are recognized as a major public health issues in Angola [4].

Regarding geohelminths and schistosomiasis, a recent national survey was conducted to determine the National Neglected Tropical Disease guidelines in terms of mass drug administration (MDA) campaigns. The observed cumulative prevalence of urinary schistosomiasis and geohelminths were 28% and 40%, respectively [4,5]. Despite the fact that these data call for mass treatment of school-aged children against these NTDs (particularly in Northern and Central Angola) current interventions do not obtain the levels of efficacy necessary.

This study aimed to present the effect of massive chemotherapy in reducing Schistosom and STH infestation in school-aged children characterized by community-based intervention.

METHODS

The Kapungo community (Northern Angola) was selected because of the high rates of schistosomiasis prevalence. All 113 schoolchildren (6-15 years) and their household members, from Kapungo community were invited to participate in the study. A single course of praziquantel (40mg/kg) and albendazole (400mg) treatment was given to every participant regardless of infection status and insecticide-treated bed net offered. Social, demographic and behavioral information was obtained using an interviewer administered questionnaire. Urine and stool samples were obtained at baseline and one month after the intervention.

Microhematuria was detected with Combur strips. The intensity of infestation and detection of parasites were carried out in the CIA Laboratory using centrifugation and sedimentation, Parasatrap and Kato-Katz methods. Menem’s and Wilkinson related samples test was used to compare the prevalence and intensity of infections. Reduction prevalence and intensity and cure rate was calculated using the formulae below [1,2].

Reduction prevalence = (%prevalence before treatment × %prevalence 1 month after treatment) / %prevalence before treatment *100.

Reduction intensity = (mean eggs before treatment – mean eggs 1 month after treatment) / (mean eggs before treatment) *100.

Cure rate = (Children became egg-negative after treatment / children positive at the pretreatment) *100.

RESULTS

A single dose of Praziquantel significantly reduced the prevalence of S. haematobium infection by 23.3% (from 82.3% to 63.8%) and the intensity of infection by 83.3% (from 803.22 to 134.2 epg/gram of urine) 1 month after treatment, with cure rate of 52.7%.

The reduction is most notorious for the high infection S. haematobium (> 400 epg) with cure rate of 89.6%.

S. Mansoni and H. nana were completely eliminated in the follow up. A single dose of Albendazole decreased significantly the prevalence and intensity of Ancists lumbricoides by 37.9% and 80.9% respectively.

There was no significant change in the data for Hookworms, strongyloid and Trichiruria trichuria. Increased intensity was observed for T. trichuria. However these parasites had lower levels of infection.

Reduction in intensity is more relevant than the prevalence of infection.

SUPPORT:

Table 1: The parasitological results of Schistosomiasis and STH infection in Kapungo community at baseline and 1 month after treatment.

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Before Treatment</th>
<th>After Treatment</th>
<th>Change in data</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Haematobium</td>
<td>86.3</td>
<td>64.3</td>
<td>22%</td>
</tr>
<tr>
<td>S. Mansoni</td>
<td>6.8</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>N. Nana</td>
<td>14.8</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Strongyloides</td>
<td>5.6</td>
<td>1.4</td>
<td>75%</td>
</tr>
<tr>
<td>Hookworms</td>
<td>6.2</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>

There was no significant difference in the data of children who missed the follow-up to those included in baseline.

Remarks

The sole community-base administration of chemotherapy has limited impact in the control of Schistosomiasis and STHs in endemic communities such as observed in this Angolan study.

New rounds of treatment and evaluation should continue to assess the impact of massive chemotherapy.

Main References


