Short Communication

Impact of school health programme on urinary schistosomiasis control in schoolchildren in Kilosa, Tanzania

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Urinary schistosomiasis is more prevalent in school-aged children than in adults (Hussein *et al.,* 1996). Thus interventions aimed at school-aged children focusing on delivery through schools are strongly encouraged (WHO, 1993). School-based programmes provide an infrastructure for delivering treatment against geohelminths and schistosomiasis (PCD, 1999). Such programmes have been shown to improve health and well-being of schoolchildren in Tanzania (Guyatt *et al.,* 2001), and the acceptability of such programmes among teachers and parents is acceptably high (PCD 2001).

Kilosa School Health Programme (KSHP) which started in 1997 aimed to strengthen district capacity to plan, implement and evaluate a school health programme in Kilosa district of Tanzania, focusing on control of schistosomiasis and geohelminths. The establishment of this programme was a priority in this area because intestinal helminths and schistosomiasis were the leading health problems in school-aged children in the district (Lengeler *et al.,* 1991). During the programme schoolchildren were given praziquantel drugs after screening for the infection. Since, biomedical evaluation of school-based health interventions in schistosomiasis control is vital for advocating health policy change this study was carried out to assess the impact of the programme on reducing urinary schistosomiasis among schoolchildren in Kilosa district.

Thirty eighty schools with a total of 8726 children participated in this programme. Of these, 971 children participated in baseline survey in 1997 and 733 children in post-intervention survey in 2000.

Five primary schools were selected randomly from the 38 primary schools under the programme. Two repeated cross-sectional biomedical surveys were conducted at each school to assess egg excretion of *Schistosoma haematobium* as primary outcome before and after the intervention. Infections of *S. haematobium* were diagnosed by microscopic examination of urine using the filtration technique (WHO, 1991).

Delivery of mass treatment for urinary schistosomiasis using praziquantel drugs was done by school teachers and health workers in 38 schools. Routine health education was also given to schoolchildren on how schistosomiasis is transmitted and how it can be prevented.

All data were double entered using Fox Pro software and consistency checking performed. Reduction in prevalence was assessed by z-test using STATA 8.0 software (Olson, 1987). The impact of the programme was estimated by calculating the mean eggs count of all children before and after the intervention, the difference between the means was expressed as percentage of mean egg count before intervention as recommended (WHO, 1998).

All children who were found with schistosome eggs microscopically were treated with a standard dose of 40mg of praziquantel/kg body weight after initial examination and annually during the study period. The descriptive statistics of the study population is summarised in Table 1. During the pre-intervention survey *S. haematobium* eggs were

$$\% \text{ mean egg/10ml} = \frac{(\text{mean egg/10ml before treatment} - \text{mean egg/10ml after treatment})}{\text{mean egg/10ml before treatment}} \times 100$$

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Table 1: Descriptive statistics of the study participants

	First survey	Second survey
Number of schools	5	5
Number of children	971	733
Mean Age (years)	11.37	12.03
Median age	12	12
Age range	5 -20	5 -19
Mean egg count	31.02/10ml	3.29/10ml

detected in 57.9% (562/971). The intensity of infection was 13.9% (135/971) showing ≥ 50 eggs/10 ml of urine. The mean eggs count in infected individuals was 31.02/10 ml of urine. The overall prevalence of the infection after intervention was 20.9% (153/733). The intensity of infection (≥ 50 eggs/10 ml of urine) was found to be 0.95% (7/733). The mean eggs count was 3.29/10 ml of urine (Table 2).

These results show that the KHSP significantly reduced the infection burden associated with urinary

implementing strategies for wide community coverage. Furthermore, development of strategies for sustainable control and surveillance in different endemic regions, including improvement in communication means is crucial in order to move from control to elimination of urinary schistosomiasis in Tanzania.

Table 2: Prevalence and Intensity of infection before and after intervention

	Before Intervention (1997)	After Intervention (2000)	z-statistics (p-value)
Overall prevalence	57.9% (562/971)	20.9% (153/733)	15.33 (<0.0001)
Overall intensity	13.9% (135/971)	0.95% (7/733)	5.35 (<0.0001)

schistosomiasis in school-aged children. The programme enabled the community to shift its burden of disease from category I (prevalence of infection ≥ 50%), where universal treatment is recommended to category II (prevalence of infection 20-50%), where targeted treatment is recommended (WHO, 1991), indicating a reduction in transmission of urinary schistosomiasis in the community.

Over 80% of egg output was reduced within 3 years. Similar results have been reported in Zimbabwe (Chimbari & Ndela, 2001) and Tanga, Tanzania (Magnussen *et al.,* 2001). The results confirm further that implementing school-based control programmes can significantly control urinary schistosomiasis in the community. However, there are limitations for school-based programmes in that they do not reach those children not attending schools. There is need therefore for developing and

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