Brief Report: *Schistosoma haematobium* prevalence in school children

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The urine of 209 children was examined for haematuria and the presence of schistosome eggs. Comparing the infection rate of 72.3% with existing data suggests an increase in the prevalence over the last decades. Schistosomiasis lacks the attention it deserves in South Africa.

**Introduction**

Little is known about schistosomiasis in the Eastern Cape Province. Pitchford *et al* (1960) found a prevalence of 14% in school children in the northern part of the coastal area around Port St Johns, with the distribution map showing a steady decline southwards to East London, which had a 1% infection rate. Mqoqi *et al* found 42% of school children to be infected in the Port St Johns area in 1990. Aim and methods

The aim of this study was to measure the prevalence of urinary schistosomiasis among schoolchildren of Hobeni Junior Secondary School in the Mbashe district of the Eastern Cape Province. Ethical clearance was obtained from the Madwaleni Hospital Ethics Committee. Urine samples were collected from 209 children in October 2008. The average age was 9.7 years (range 4 to 14 years). There were 96 girls (45.9%, average age 9.49 years) and 113 boys (54.1%, average age 8.96 years). The urine was analysed by urine dipstix immediately and later by microscopy. The samples were concentrated by gravitation and centrifugation methods. The samples were investigated by a novel method, the "Transkei slide" (Figure 1). A drop of urine is placed on a glass slide and gets sucked under a coverslip. The schistosome eggs accumulate on the edge of the coverslip and are easily visible under the 10x microscope objective (Figure 2). Detection of haematuria is an established diagnostic tool for bilharzia in highly endemic areas. The gold standard for detection of schistosome eggs is the WHO-recommended filtration method, but this was not used because of unavailability of the equipment.

**Results**

Two hundred and nine samples were analysed. In 73.2% of the pupils, *Schistosoma haematobium* eggs were found in the urine. The infection rate of girls was 68.8% and in boys it was 76.9%. In 77.5% of the children, urine dipstix detected haematuria. Macrohaematuria was seen in 32.1%. The results of microscopy and urine dipstix corresponded well with no significant difference between methods (p=0.09, paired chi-square test) (Table 1).

**Discussion**

Hobeni is 100 km south-west of the Port St Johns area. A prevalence of 73.2% in our area is unexpectedly high and we can assume that...
there has been an increase in the prevalence of schistosomiasis in the coastal area of the Transkei since earlier studies. Climate changes, with the correlated distribution of the host snail, and changes in water use behaviour, are possible explanations.

This is a pilot study. There are no data available from this area from previous years. Our study has a small sample size and is of limited geographical scope. Further studies are needed to determine the extent of bilharzia infection in the rural Eastern Cape Province. Hobeni might be only one of a few high prevalence areas, but it is possible that bilharzia has a widespread pattern into the Transkei. It is unacceptable to have a possible very high number of patients suffering from bilharzia and being at risk of losing their kidney function.

It is estimated that during 2000, 70 million people in sub-Saharan Africa experienced haematuria caused by schistosomiasis. This leads to an estimated 150,000 non-functioning kidneys per year, which is a fatal diagnosis in a resource-poor setting. Furthermore, it appears that infected children attend less school and perform worse in school. It is difficult to know how many individuals suffer from dysuria and abdominal pains because of schistosomiasis, but there is an increased risk of bladder cancer. Schistosomiasis increases the likelihood of developing chronic carrier status in typhoid fever and hepatitis B infections.

Schistosomiasis lacks the attention it deserves in South Africa. With almost three in four children being infected in the investigated area, it cannot be ignored. Regular treatment campaigns are needed in high prevalence areas. Praziquantel needs to be available in sufficient amounts at primary healthcare level, to a similar extent as de-worming agents. To develop treatment plans and goals, an assessment of the disease burden is therefore a public health priority.

Table 1: Comparison between dipstix and microscopy for detecting schistosomiasis

<table>
<thead>
<tr>
<th>Schistosome eggs</th>
<th>Present</th>
<th>Absent</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Dipstix blood +</td>
<td>146</td>
<td>16</td>
<td>162</td>
</tr>
<tr>
<td>Dipstix blood -</td>
<td>7</td>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>Total</td>
<td>153</td>
<td>56</td>
<td>209</td>
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References