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SCHISTOSOMA HAEMATOBIUM INFECTION AMONG STUDENTS OF SOME SELECTED POST-PRIMARY INSTITUTIONS IN OLOJE-ILORIN KWARA STATE, NIGERIA.

BY

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ABSTRACT

A study of urinary schistosomiasis was undertaken in five primary and post-primary institutions in Oloje a peri- urban settlement in Ilorin. Kwara. The prevalence of Schistosoma haematobium infection among the 560 school children examined ranged between 2.0% - 22.7% in the five institutions. The overall mean prevalence was 8.5%. More males (13.7%) than females (0.89%) were infected in all age groups. Intensity of infection was moderate with more than 50% of those infected excreting ≤ 10 eggs / 5ml urine. High rate of haematuria (77%) was observed among infected individuals. Interviews and malacological studies revealed that infections were acquired from the local stream,Abata-Oloje. Bulinus globosus is implicated as potential intermediate host.

INTRODUCTION

Schistosomiasis caused by trematodes of the genus schistosoma is the second most prevalent tropical disease after malaria and a leading cause of severe morbidity in large areas of the world. Mortality is estimated at over 100,000 per year. The disease affects about 200 million people in 74 developing countries, and between 500-600 million others are exposed to infection (TDR 1996). The clinical disease (due either to intestinal or urinary lesions) varies according to infecting species and the number of adult worm pair harbored in man. Various freshwater snails depending on the species of schistosome and geographical area acts as intermediate host.

In Nigeria both urinary and intestinal schistosomiasis are endemic, however the urinary form caused by schistosoma haematobium is more widespread than the intestinal form caused by Schistosoma mansoni (Cowper 1973).

The disease is commonly found and in some cases endemic to the rural riverine areas (Abayomi et al 1971), however it is now found increasingly in many urban and peri - urban areas where stagnant pools and drainings provide foci for transmission (Bisseriu

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1984). Reports of recent studies from different parts of Nigeria - Arinola (1995), Akufongwe et al (1996), Agi P.I. (1995), Nduka et al (1995), Mafiana and Beyioku (1998), Useh and Ejezie (2000) also indicate that schistosomiasis is increasing its range and distribution than official estimate suggests. This trend underscore the need for more intensive surveillance for the disease particularly in the hitherto unidentified foci. It is against this background that this study was crried out.

Edungbola (1980), studied the pattern of water utilization and its health implication in Ilorin and reported the occurrence of intermediate host of schistosome in water bodies. in different parts of Ilorin. However, review of literature reveals that published reports of detailed study on the epidemiology of the disease in Ilorin are scanty if not nonexistent. This study therefore attempts to fill this gap in order to enrich the needed baseline data on the epidemiology of Schistosoma haematobium infection in Ilorin. Such information will be valuable in formulating an effective schistosomiasis control.

MATERIAL AND METHODS

STUDY AREA.

OLOJE is one of the 19 traditional wards in Ilorin, Kwara State capital. It is a peri- urban community. Oloje has enjoyed rapid socio -economic development since the creation of Kwara State in 1967. There are five post – primary and primary schools located within 100 meter radius of a stream which flows through the community.

COLLECTION OF URINE SAMPLE

All the primary and post primary institutions in the community:

(i) Mount Camel (Z.E.B) primary school
(ii) Mount Camel college
(iii) Government Day Secondary School Alore
(iv) Ansaru Islamic Secondary school Oloje
(v) Government Day Secondary School Okekere.

were visited for the study. Pre-survey visits were made to the schools for necessary protocols.

Urine samples were collected in clean numbered sample vials between 12.00 - 2.00pm each day. Pupils were instructed on how to introduce urine into the sample vials. Terminal urine was emphasized in order to note the terminal haematuria. Choice and standardization of the collection period was based on observation that egg output was

highest and least variable around midday (Onori 1962). Collected urine samples were transported to the laboratory for prompt examination daily. Relevant information such as age, sex, history of haematuria as well as pattern of water contact behaviour were obtained from the pupils and recorded in data sheets with identification number corresponding to that of sample vials given to each pupil.

EXAMINATION OF URINE SAMPLE

Parasitological examination was carried out on the urine samples using the sedimentation - centrifugation method. 5ml of each urine sample was taken and centrifuged at 1000 revolution per minute (r.p.m) for three minutes. The supernatant was discarded and the sediment examined for eggs.

In positive cases, intensity of infection was determined by making egg count. The result obtained was recorded as egg count /5ml of urine.

SNAIL COLLECTION

Snail sampling was carried out along the Abata - Oloje stream to determine the snail species involved in transmission of the disease locally. This involves picking of snail from vegetation and stones using forceps. Scoop nets were used where applicable. Recovered snails were transported to the laboratory for identification. Pattern of human water contact was also studied. Most of the pupils had contact with the water as they go or return from school in the morning and evening respectively.

RESULTS

A total of 560 school children comprising of 335 (59.8%) males and 225 (40.25%) females within the age range of 11 - 22 years were examined for S.haematobium infection. Of the total of 560 individuals examined, 48 (8.5%) were detected to be excreting eggs of S.haematobium in their urine. There was significant difference in prevalence in relation to sex. More males 46(13.7%) than females 2(0.8%) were infected ($p<0.05$). Table 1. Prevalence was highest (22.7%) among students of Ansarul Islam Secondary School while pupils of Mount Camel (Z.E.B) primary School recorded the lowest prevalence of (3.0%). Table 2. Prevalence was highest among the 19-22 years age group. There was significant difference in frequency of infection between males and females in all age groups, (Table 1) Intensity of infection described by the egg count/5ml urine revealed that individuals in the 11-14 years age group recorded the lowest mean egg count (4.2 ± 3.4). Males had significantly higher mean egg count (9.3 ±

15.7) than females (2.0 ± 0) ($p<0.05$). Many of the infected children excreted few eggs in their urine., (Table 1). The highest egg count of 100 eggs/5ml of urine was recorded for a 15 year old pupil. Haematuria was high among the infected individuals (77.1%), (Table 3). No significant difference in prevalence in relation to religion, parental occupation was recorded.

Table 1. Prevalence and intensity of S.haematobium infection by age group and sex.

	MALE			FEMALE			TOTAL		
AGE	No exam	No & % +ve	Mean egg count	No exam	No &% +ev	Mean egg count	No exam	No & % +ve	Mean egg count
11-14	171	14(8.2)	4 ± 3.4	147	1(0.7)	1± 0	318	15(4.7)	4.2±3.4
15-18	157	29 (18.5)	11.7± 19,2	71	1(1.4)	1±0	228	30 (13.2)	11.4±19
19-22	7	3(4.3)	10.3± 5.8	7	0	0	14	3(21.4)	10.3± 5.7
TOTAL	335	46 (13.7)	9.3± 15.7	225	2(0.8)	1±0	560	48(8.6)	9.1± 15.4

Table 2. Prevalence and intensity of S. haematobium by school.

	MALE		FEMALE		TOTAL		
SCHOOL	No exam	No & % +ve	No exam	No & % +ve	No exam	No & % +ve	Mean egg count
Ansarul Islamic Sec. School	73	24(32.9)	37	1(4.2)	110	25(22.7)	6.1±6.2
Mount Camel College	101	5(4.9)	0	0	101	5(4.9)	7.2±8.4
G. D.S.S. Alore	55	4(7.3)	57	0	112	4(3.6)	4.8±4.5
G. D.S.S. Okekere	56	10(17.9)	46	0	102	10(9.8)	29±47.4
Mount Camel ZEB Pri. Sch.	50	3(1.2)	85	1(1.2)	135	4(3.0)	15.4± 12.9
TOTAL	335	46(13.7)	225	2(0.8)	560	48(8.6)	9.1±15.4

Table 3. Relationship between S. haematobium infection and haematuria amongs students in Oloje.

	MALE		FEMALE		TOTAL	
AGE	No infected	No & % with haematuria	No infected	No & % with haematuria	No infected	No & % with haematuria
11 -14	14	8(57.1)	1	1(100)	15	9(60)
15 -18	29	25(86.1)	1	1(100)	30	26(86.7)
19 -22	3	2(66.7)	0	0	3	2(66.7)
TOTAL	41	35(76.1)	2	2(100)	48	37(77.1)

DISCUSSION

The low prevalence of figures of 8.6% obtained in this study is similar to those obtained by other workers. Olusanya et al (1984) obtained a prevalence of 8.6% among school children at Ile-Ife, Nigeria. Chaine and Malek (1983) obtained a prevalence of 10.4% in a community based study in Senegal. Access to pipe borne water which influence frequency of water contact is believed to be responsible for the low prevalence. Significantly higher prevalence as well as intensity of infection among males than females may be due to differences in frequency of their contact with cercaria infested water bodies. The observed insignificant contact with water for domestic purpose further lends credence to this suggestion. Many of the male children visited the stream for recreational purpose and fishing. The age prevalence result reveals the usual trend of low prevalence in early life reaching a peak at adolescence. Study of pattern of man water contact and snail sampling carried out along Abata- Oloje reveal that the stream was the primary source of infection. However, other water bodies in Ilorin could serve as secondary sources of infection since such water bodies have been reported to habour snails intermediate eggs of Schistosomes (Edungbola 1980).

Though the prevalence obtained for this study was low, however the study have provided additional information on the distribution of S.haematobium specifically in Ilorin and in Nigeria generally. This information is useful in formulating control strategy for the disease. In view of the plasticity of the host- parasite - mollusc relationship which has the potential of causing a change in future distribution of schistosomiasis within a given local community, constant surveillance may not be completely overruled.

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