PREVALENCE OF URINARY SCHISTOSOMIASIS IN OZUITEM, BENDE LOCAL GOVERNMENT AREA OF ABIA STATE, NIGERIA

ALOZIE, Joy Ihuoma and ANOSIKE, Jude
Department of Zoology, Imo State University, Owerri, Imo State

Corresponding author: ALOZIE, Joy Ihuoma. Department of Zoology, University of Nigeria Nsukka, Enugu State, Nigeria. Email: lozyjoy@yahoo.com

ABSTRACT

Studies on the prevalence of urinary Schistosomiasis were carried out in Ozuitem, Bende LGA between May and September, 1998. Urine collections from villagers were examined using centrifuge and filtration technique. A total of 1173 urine samples were collected and examined, of which 496 (42.3%) were positive for Schistosomiasis. Visible haematuria was their predominant presenting symptom. Of the total, 370 (74.6 %) were excreting under 100 eggs per 10 ml urine sample with 250 (75.0 %) males and 120 (72.6 %) females, while 3(0.6 %) were excreting more than 500 eggs in 10 ml of urine samples with 2(0.6 %) males and 1(0.6 %) females. A chi square analysis showed that intensity of infection and frequency of water contact were significantly higher in persons under 20 years of age than in persons 20 years and above (P < 0.05). Of the 496 infected persons, 333 (67.1 %) were males, while 163 (32.9 %) were females. Overall peak infection (59.4 %) occurred in the 11-20 years age group. Infection varied significantly among different villages, ages and sex in the study area (P < 0.01). Schistosoma intermediate host snails collected in routine malacological survey include Bulinus globosus, B. forskalii, B truncatus, Lymnaea natalensis and Melanoides tuberculata. Only B. globosus was found to shed furcocercous cercariae believed to be human schistosomes.

Keywords: *Schistosoma haematobium*, Urinary schistosomiasis, Urine, Bende

INTRODUCTION

Schistosomiasis is an infection of man caused by a parasitic trematode known as *Schistosoma haematobium,* the disease is characterized by haematuria.

Of all the parasitic helminth infections of man, urinary Schistosomiasis remains the most important health problems in the world, despite efforts made towards its control (WHO, 1985). Record of this disease showed that its health and socioeconomic impact is only outstripped by malaria. Over 200 million people in tropical and subtropical regions are infected by the disease. Seventy four countries in Africa, Middle East, India, South and Central America are endemic for Schistosomiasis (WHO 1985). They reported that over 38 million people are infected in sixteen African countries with Nigeria having a very high endemicity. Consequent on this, the Nigerian Government in September 1987 set up a "National Schistosomiasis control programme" with mandate to free Nigeria of Schistosomiasis by the year 2010. She empowered the health sector of the economy to retarget her health priority to preventive health services such as the Schistosomiasis prevalence survey workshop.

Transmission patterns in Schistosomiasis have been studied using infection in snails as the intermediate host of *S. haematobium* especially the *Bulinus* species (Okafor, 1990, Emejulu *et al.,* 1992).

Various physical and chemical factors collectively have an effect on the abundance of snails under natural conditions. Okafor, (1990) explained how rainfall affects the quality of the habitat making it suitable or unsuitable for the snail with time. According to him, the absence of snails in most flowing water habitat during the heavy rains may be attributed to flooding which increases the volume and speed of water. In addition, Bulinus species in Nigeria exhibit a preference for stagnant or slow moving waters and thus common inhabitants of streams and irrigation systems (Okafor, 1990).

The focus of this research was to determine the epidemiology of this infection within Ozuitem local populat
ion in Bende LGA.

The information so obtained may provide the basis for the developments of cost-

effective control measures of the disease in the study area.

MATERIALS AND METHOD

The Study Area: The study area is a rural town (Ozuitem) in Bende LGA of Abia State. The area is located in the Northern part of the state. Nine villages were used for the study. The area is a rural settlement with farmers and few civil servants. There is no pipe borne water, electricity and good social infrastructures in the area. The main source of water is provided by the streams which are stagnant or slow moving within rice plantations, thus the village have unlimited use of their streams.

Collection of Samples: Labeled specimen bottles were given to participants for urine collection. Prior to the collection, name, age, sex and occupation of each randomly selected sampling individual was recorded. The participants were advised to collect their samples between 9.00 am and 2.00pm on the said day. Okafor (1990) reported urine collection in this time to be rich in ova of *S. haematobium.* Sample bottles were retrieved, taken to the laboratory and examined for ova in urine using the centrifuge and filtration technique (Mott *et al* 1989). Some samples that were not analyzed on that day were preserved in the laboratory refrigerator till the next day. 10ml of the samples is poured each into the test tube and spined in the centrifuge for 5 minutes at 1000 rpm. 5 drops of the sediments were poured onto a microslides covered with coverslides and observed under the electronic microscope for the ova of Schistosoma haematobium. The colour of the urine samples were examined and the mean egg count was calculated.

Malacological Survey: The Ozuitem area has many streams which were jointly used by the different villages in the area. The streams visited and samples were Uhu, Iyintagbo, Iyiagu, Idei, Iyidei, Uchiyi and Idei Uzomba. Snails were searched using long handle rectangular scoop net. The net was lowered into water and then a scoop was taken towards the bank, collecting emergent vegetation for snail search. After the sampling, snails collected were taken to the laboratory where they were washed, sorted out identified and placed according to their source using the format of Okafor (1990). They were checked for cercariae after exposure to bright illumination for 2 hours in specimen tubes. This was repeated for 3 days. After each days exposure, the snails were taken back into a glass aquarium put in the dark and fed with crushed lettuce leaves and the water changed at intervals. Snails which did not shed any human type Schistosome bifid cercariae within the interval of exposure were labeled as not being infected.

RESULTS AND DISCUSSION

During the study on the prevalence of *S. haematobium* infection in Ozuitem, a total of 1173 persons selected randomly from the communities and their primary schools were examined, of these 496% persons were infected giving a prevalence rate of 42.3%. This result is fairly high which corresponds with some studies in some eastern regions of Nigeria. Udonsi (1990) around Igwun River Basin recorded a prevalence rate of 30%, Anigbo and Nworgu (1990) working in Amagunze Enugu state recorded a total prevalence of 48.4% and Emejulu et al (1992) working around Agulu lake area recorded a prevalence rate which ranged from 5.96 % to 54.00 % among towns around the Agulu lake. Some other studies in Northern areas of Nigeria recorded fairly lower prevalence rates. Akogun (1986) recorded 39.05 % in Gamau district in Bauchi state, in Toro LGA of Bauchi State Anosike *et al* (1992) reported 25.4 % prevalence of patent and clinical severe infection with *S. haematobium* and noted that

Table 1: Prevalence of *S. Haematobium* in the various villages in Bende

S/no	Villages	Number examined	Number infected	Percentage infection
1.	**Umuameri**	129	54	41.9
2.	**Ndianya**	72	28	38.9
3.	**Amaeke**	87	41	47.1
4.	**Ofiaru**	60	28	46.7
5.	**Umuokube**	201	90	44.8
6.	**Eluama**	84	32	38.1
7.	**Isiegbu**	342	173	50.6
8.	**Amankwo**	105	29	27.6
9.	**Isiori**	63	21	33.3
	Total	**1173**	**496**	**42.3**

Table 2: Sex and age related intensity of *S. haematobium* infection in Bende

Age group	Males			Females		
	Number examined	Number infected (%)	Mean egg / 10 ml urine	Number examined	Number infected (%)	Mean egg / 10 ml urine
0-10	174	87(50.0)	68.8	111	33 (29.7)	66.0
11-20	270	150(55.5)	94.0	114	78 (68.4)	64.1
21-30	24	9(37.5)	60.0	39	15 (38.5)	60.0
31-40	96	42(43.8)	69.0	33	9 (27.3)	45.0
41-50	105	25(23.8)	30.0	45	12 (26.7)	35.0
51-60	45	15(33.3)	23.5	48	15 (31.3)	30.0
60^+	21	5(23.8)	15.0	48	7 (14.6)	16.0
Total	**735**	**333(45.3)**		**438**	**163 (37.2)**	

visible haematuria was their predominant presenting symptom. Awogun (1990) at Ilorin (western Nigeria) recorded a prevalence of 23 %. A chi-square analysis showed that the prevalence of *S. haematobium* was significantly different among the various villages sampled ($P < 0.05$). Details are shown in Table 1.

The prevalence of urinary Schistosomiasis according to age and gender is shown in table 2. Of the 735 males and 438 females examined 333(35.3 %) males and 163 (37.2 %) females were infected. Although more males than females were infected, there was no significant variation among sexes ($P>0.05$) as was reported by Emejulu *et al* (1992) that sex did not play a significant role in prevalence and intensity of infection rather host age. Prevalence rate was significantly higher in persons within 0 – 20 years than in those 21 years and above ($P > 0.05$). This is because of this age groups frequent contact with water as in swimming. Though it is also fairly high among 21 – 30 age group and 31 – 40 males because this people are mostly the farmers who work more in the rice plantations. The sex-age related intensity analysis in Table 2 showed that intensity of infection was found to be statistically independent of the sex. The mean egg count / 10 ml urine sample increased within 0 – 40 years and decreased within 41 – 60^+ in the males while in females, it decreased as the years increased, Table 2.

Identification of the snails collected from various water bodies showed five snail species; they include *Bulinus globosus, B. forskalii, B. truncatus, Lymnaea natalensis* and *melanoides tuberculata.* On the whole 395 snails were collected, and 327 were identified to be *B. globosus* which were the only species found to be infected. Table 3 shows the distribution of *B. globosus* in different freshwater system in the area. Of the 327 *B. globosus* collected, 69(21.1 %) were infected that is shedded cercariae.

Table 3: Distribution of *B. globosus* in various fresh water systems in Bende

Type of Habitat	Name of Habitat	Number of Snail collected	Number of snail infected	Infection rate
Flowing habitat	Iyintagbo	19	0	0
	Iyiagu	11	0	0
	Idei	4	0	0
Stagnant habitat	Iyidei	108	37	34.3
	Uchiyi	86	14	16.3
	Idei uzomba	99	18	18.2
	Total	**327**	**69**	**21.1**

CONCLUSION

Studies in Bende LGA revealed that persons within 0 – 20 age group are important in the spread of this disease as they perform water related activities such as swimming though age groups within 21 – 40 who work in the farms go to bath in the streams after the days work.

The relative abundance of *Bulinus* species in the stagnant water could be attributed to better adaptability of *Bulinus* species to local ecological factors in the stagnant water. Thus, less use of stagnant water bodies is recommended and Government should install pipe borne water in this area.

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