Prevalence and distribution of urogenital schistosomiasis and Trichomoniasisin Oju LGA, Benue State, Nigeria.

ABSTRACT

A study was conducted among school children in Oju L.G.A. of Benue State to determine the prevalence of urinary schistosomiasis with respect to sex, age and location. A total of 300 samples were collected and examined with the aid of a compound microscope (X10) and (X40) for the presence of *Schistosoma haematobium* eggs. In this research, we aimed to determine the prevalence of urinary schistosomiasis in respect to age, sex and location in Oju, Benue State. Of the 300 children tested, 60 (20%) were infected. The prevalence in males 38 (63%) was significantly higher ($p<0.05$) than that offemales 22 (36.7%). Of the six (6) schools visited, Government Secondary School Amenka-owo had the highest prevalence rates of 18 (30%), $p>0.05$. Among the different age groups, 11-15 years had the highest prevalence of 32 (53.3%), while significantly lower prevalence $p<0.05$ was recorded in those 21 years and above 6 (10%). In addition to *Schistosoma* parasite, *Trichomonasvaginalis* was recorded in children aged 16years and above. Urinary schistosomiasis is a major public health problem affecting children of different age groups and different localities in Oju Local Government Area of Benue State, Nigeria.

Introduction

Schistosomiasis is a parasitic disease caused by digenetic trematodes of the genus *Shistosoma*. 90% of worldwide cases occur in sub-Saharan Africa (World Health Organization [WHO], 2017). The intermediate host for transmission of urinary

schistosomiasis is snails of the genus *Bulinus* which is found in freshwater bodies. Transmission of the parasite takes place in permanent water bodies as well as in seasonal ponds or streams (Omonijo*et al*., 2013). Pereira *et al*., 2010 reported that younger people (school aged children) are most vulnerable to schistosomiasis infection and play an important role in its transmission and therefore suggested that school aged children be a reference group for assessing the need for intervention in communities.Mutapi*et al*., 2003 reported that antibodies against *Schistosoma* infections increased with age *Schistosoma* antibodies were however reported to be high in younger people in high infection areas. Mutapi*et al*., 2003 also found significantly higher *Schistosoma* antibodies in females than in males in Zimbabwe in contrast, among school aged children in Kano, Nigeria,*Schistosoma* prevalence was higher in males than females (Dawaki, 2016).This research aims to determine the difference in prevalence of the parasite between sexes, based on location and age, as this could shed light on how effectively control the parasite as well as reduce morbidities in endemic communities.

Materials and Methods

Study area

The study was conducted in Oju LGA, Benue State, Nigeria. Oju is located in Southern Benue and comprises of 3 Zones (A, B and C).

Sampling site

Six (6) schools consisting of Primary and Secondary Schools were sampled namely;

L.G.E.A Oburu, Government Secondary School Amenka-owo, Solid foundation Nursery/primary School Ega-Okpodom, Government Secondary School Ikachi, L.G.E.A Obusa, and Government Secondary School OdigoUwokwu.

Ethical Clearance

Ethical clearance was obtained from the appropriate authorities before commencement of sampling.

Specimen collection

A total of 300 urine samples were collected between 10:00 am and 2:00 pm (Chessborough, 2009).

Laboratory analysis of samples

Following centrifugation, urine deposits were examined under a light microscope using x10 and x 40 objectives (Chessborough, 2009.

Statistical analysis

Data obtained were analyzed using Chi-Square analysis.

Results

Table 1: Prevalence of Urinary Schistosomiasis among school children in Oju L.G.A., Benue State.

Schools	Samples Examined	Number Positive (%)
L.G.E.A. Oboru	50	12(20)
G.S.S. Amenka-owo	50	18(30)
Solid Foundation Nus/pri	50	4(6.7)
G.S.S. Ikachi	50	5 (8.3)
L.G.E.A. Obusa	50	11(18.3)
G.S.S. Odigo	50	10(16.7)
Total	300	60(20)

$p<0.05$

Table 2: Prevalence of Schistosoma haematobium infection among school children in relation to Age in Oju L.G.A. Benue State.

Age (Years)	Number Examined	Number Positive (%)	Male	Female

5-10	78	12 (20%)	8(13.3%)	4(6.7%)
11-15	80	32 (53.3%)	20 (33.3%)	12(20%)
16-20	73	10 (16.7%)	6.25 (10%)	4 (6.7%)
21 and above	69	6 (10%)	4 (6.7%)	2(3.3%)
Total	300	60(100%)	38(63%)	22(36.7%)

$p<0.05$

Table 3: Organisms found in the urine samples of the participants.

Age Group	Number examined	Pus cell	RBC*T.* (%)	*Vaginalis* (%)	Epithelia cell
5-10	69	-	22(40.7%)	-	-
11-15	68	18 (31%)	24(41.4%)	-	8(13.8%)
16-20	86	16(19.8%)	12(14.8%)	3(3.7%)	14(17.3%)
≥21	77	10(15.4%)	8(12.3%)	6(9.2%)	8(12.3%)
Total	300	44(14.7%)	66(22%)	9(3%)	30(10%)

DISCUSSION

Schistosomiasis remains a major public health problem in Tropical and subtropical countries especially in areas with poor sanitary conditions and among people with limited knowledge of the disease(Houweling, 2016); (King, 2010).

Our results revealed a high prevalence of 20% among school children in Oju Local Government Areas of Benue State. Similarly high prevalence among school children was recorded in Katsina-ala, Benue State (Houmsou*et al*., 2009) and in Munjibir, Kano, Nigeria (Duwa*et al*., 2009).

There was significant difference in prevalence between males and females. In participants aged 21 years and above, prevalence in males was more than double the prevalence in females. This could be because in the Oju LGA, males tend to spend more time in the water bodies than females. These results were in accordance with results by Houmsou*et al*., 2012; Chukwu*et al*., 2013.In addition to higher prevalence in boys, Rudge*et al*., 2008 also reported significantly higher

infection intensity in boys. Significantly higher infection rates were recorded among children aged 11-15 years accounting for more than half of total infections recorded and significantly lower infection rates in those 21 years and above. This could be because at this age, children tend to be very adventurous and spend long periods in water bodies thus increasing the chance of contact with *S. haematobium* cercariae and so, increasing their chances of infection.

The lower prevalence in students aged 21years and above could be becauseas children grow older, they frequent streams for activities and so when the worms within them died naturally as *S. haematobium* adult worms have been reported to live on the average for 3-10 years (Wilkins,1987). Reduced prevalence was observed in age group 21years and above and could be as a result of reduced egg secretion by adult worms with prolonged infection (chronic infection) or other host-parasite dynamics and does not necessarily imply reduced infection rates within that age group. For this reason, drug treatment for adults should be advised especially in cases where adults grew up in highly endemic areas or presented with symptoms like haematuria when they were younger but as they grew older, became asymptomatic and are currently not shedding eggs in their urine, as adult worms can sometimes survive as long as 40 years (Colley *et al*., 2014). From our research, other pathogens were present in the urine samples like pus cells, RBC, *Trichomonasvaginalis*and epithelial cells. Pus cells were significantly higher in those aged 11-15 years than in those aged 21 and above. While RBC were significantly higher in children aged 11-15 years and 5-10 years than in any other age group. Students aged 20 years and above had higher incidence of *T. vaginalis. T. vaginalis* in young adults could be indicative of sexual activities (Sutton *et al*., 2007)

Conclusion

Urinary schistosomiasis is endemic in Oju LGA, Benue State, Nigeria.

Alternative water sources like boreholes and mass drug administration with praziquantel could go a long way in controlling the disease in the area.

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