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Incidence of urinary schistosomiasis among rice farmers in selected villages in Borgu Local Government Area of Niger State, Nigeria

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ABSTRACT: A total of 200 urine sample collected from rice farmer in Koro, Popo-Kere, Yangba and Monnia villages in Borgu local government Area of Niger State was examined microscopically. They were examined to reveal the presence of ova of *Schistosoma haematobium*,

The causative agent of urinary schistosomiasis. 66(33%) of the samples showed the ova of the said fluke, this is quite high. Male farmers showed 36% infection rate, which on the high side when compared to their female counterpart (8%). The prevalence was also very high among farmers within the age range of 25-34 years and 45-64 years respectively. Level of involvement in the farming activities and contamination of water could be considered factors responsible for the differences in the Prevalence level among the villages. Elimination of the intermediate host is one of the ways to reduce the prevalence rate.

Keywords: Schistosomiasis; Rice farmers; Borgu; Niger State; Nigeria.

Introduction

Schistosomiasis is a major parasitic disease caused by the trematodes of genus *schistosoma*. It is second to malaria in terms of public health importance. This parasitic disease is transmitted by fresh water snail and is associated with water contact activities such as swimming, fishing, irrigation and washing. It is also known as bilharzia in some part of the world in honour of Theodore Bilharz, who first identified the agent *Schistosoma haematobium* in Egypt in 1851 (<http://wap.mtnonline.com.2007>).

The main human form of schistosomiasis is caused by five (5) species as follows; *Schistosoma haematobium*, *S. mansoni*, *S. japonicum*, *S. intercalatum* and *S. mekongi* (Mohd, 2004). The adult worm occurs in the mesenteric veins on the outer wall of the intestine or urinary bladder (Cheesbrough, 1992). The worm oviposits in the urine and or stool and is passed by the human host in the urine or stool. The eggs hatch to miracidia that swims in search of intermediate host (fresh water snail). They molt into cercaria (an infective larval stage) that are released to search for human host within 2-3 days if the life cycle is to be completed. In the human host, cercariae develop into adult flukes (Idris and Gana, 2008).

Rice farming and fishing are the major occupation of the people of Borgu Local Government area of Niger State. This occupation exposes them to risk of infection by *schistosoma sp* and other hazards associated with the occupation.

Materials and Methods

Study Area

Borgu Local Government is one of the 25 local government areas of Niger State. It was created in 1991 by General Ibrahim Babangida's led administration with the headquarters in New-Bussa. It is in the guinea savannah belt with the annual rain fall of about 1,500mm. The 2006 census figure of the local government is 171,965. Areas from which samples were collected include Koro, Popokere, Yangba and Monai villages.

Sample Collection

A total of 200 urine samples were collected from selected rice farmers in four villages (25 each) into clean specimen bottles. They were conveyed to the diagnostic laboratory of the pathology department of the General hospital, New-Bussa. The sex, age and location of each farmer were recorded.

Urine Examination

The urine samples were examined physically for colour and turbidity and microscopically after concentrating by centrifuging. Special interest was given to presence of Red Blood cells (RBCs) and Ova of *Schistosoma haematobium*.

Results

The results of the urine examination are presented in the tables below:

Table 1: **General Prevalence**

No. of Samples Tested	No. Infected	% Prevalence
200	66	33

Table 2: **Prevalence with respect to sex**

Sex	No. of sample	No. Infected	% Prevalence
Male	176	64	36
Female	24	2	08
Total	200	66	33

Table 3: **Prevalence with respect to age**

Age (Year)	No. of sample	No. Positive	% Frequency
15-24	40	16	40
25-34	60	24	40
35-44	72	12	17
45-54	20	10	50
55-54	08	04	50
Total	200	66	33

Table 4: **Prevalence with respect to sampling points.**

Sampling Point	No. of sample	No.	% Prevalence
Koro	50	18	36
Popo-Kere	50	14	28
Yangba	50	08	16
Momai	50	26	52
Total	200	66	33

The results of this research work revealed that the incidence of schistosomiasis in the study area is quite high (33%). This is revealed in the table 1 the result. The table 2 however indicates that the prevalence is high in male farmers (36%) than their female counterpart having (08%). Considering the ages of the farmers, 50% each of those within the age ranges 45 – 54 years and 55 – 64 years carry the worm. This is strictly followed by those of ages 15 – 24 years and 25 – 34 years showing 40% prevalence each as shown in (table 3) of the result. The least level of infection occur amongst those within the age range of 35 – 44 years i.e. 17%. As for the sampling points, Monnai village reveals infection levels of 52% followed by Koro (36%) and then Popo-Kere (28%) prevalence. Yangba showed the least prevalence of 16%.

Discussion

Generally speaking, there is high prevalence of schistosomiasis in the study area. 33% prevalence is quite high and also for immediate medical intervention. IARC (1994) report that schistosomiasis corresponds with relative involvement of men and women in Agricultural work. The farmers in question are also associated with the risk of urinary bladder cancer as several studies supported an association between urinary schistosomiasis and urinary bladder cancer since several cancerous urinary bladder specimens were seen to contain eggs of *S. haematobium* (IARC, 1994).

The infection might have been acquired through naked skin contact with contaminated water during farming activities. This agrees with the report of Cheesebrough (1992) which says cercariae of schistosomes infect the definitive host (e.g. man) through skin penetration.

Infection is reported in this study to be high among male farmers than their female counterparts. This can be attributed to different level involvement in farming activity. In some regions men are primarily involve in fishing and in farming than females and thus are expose to more risk associated with these occupations (<http://search.google.com/search>,2004). Looking at the incidence age wise, it is higher among farmers of ages 45 – 54years and 15 – 34 years i.e. 50% and 40% respectively.

This may be due to willing or unwilling involvement in the farming activities. A child is always forced to farm and an adult is always willing to farm and have high yield. As shown in table 4, different sampling points have different levels of prevalence. This could be due to differences in the activities of the inhabitants of the areas. WHO (2007) reported that activities, such as urinating and defeacating into water bodies by infected individual can lead to contamination of the water and consequent infection of any individual that has body contact with the contaminated water. Reduction of such activities can reduce the chances of infection/transmission. Eradication of intermediate host can also serve as a means of controlling the spread of the infection (Cheesbrough, 1992).

Conclusion

The incidence of urinary schistosomiasis is quite significant in the study area. This is due to naked skin contact with contaminated water in the rice farms. Urination and defecation into the water might have led the eggs of the worm into the water. Consequently, presence of fresh water snail facilitated the development of the eggs into infective larval stage. Avoidance of defecation and urination into the water body as well as elimination of the intermediate host (snail) will go a long way in reducing the occurrence.

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