The Prevalence Of Urinary Schistosomiasis In Ogbadibo Local Government Area Of Benue State, Nigeria

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Citation

T Mbata, M Orji, V Oguoma. *The Prevalence Of Urinary Schistosomiasis In Ogbadibo Local Government Area Of Benue State, Nigeria*. The Internet Journal of Infectious Diseases. 2008 Volume 7 Number 1.

Abstract

The prevalence of urinary schistosomiasis in Ogbadibo local government area, Benue State, Nigeria was investigated. Out of 657 urine samples examined, 300 (46.6%) showed the presence of Schistosoma haematobium. Of the 300 positive samples, 152 (23.13%) were from males and 148 (22.52%) were from females Owukpa and Eha zones showed higher prevalence 10.8% and 10.35% respectively) than the other three zones. Statistical analysis showed that the prevalence of the disease in the study are is neither sex, nor age dependent. There was a close relationship between haematuria and positive urine samples. The presence of many snail species especially the Bulinus species, and increased contact time with the Schistosoma haematobium infested freshwater habitat were thought to be responsible for the prevalence of the disease in the area.

INTRODUCTION

Schistosomiasis also known as Bilharziasis remains one of the most prevalent parasitic worm infections and has significant economic and public health consequences. It affects many countries and appears to be endemic in many West African countries. It is mostly common in the tropical areas of the globe especially the rural areas where only the surface water bodies are the sources of water supply.

The knowledge of how intestinal parasites pass from person to person is known and variously documented [1,2] . and modern drugs are available, providing powerful weapons against them. Nevertheless, these infections continued to be a widespread problem and although their impact on an individual may seem slight, the global burden of the parasitic worm infections is a major health care challenge [3] . The capacity of man to combat intestinal parasite does not seem to fall down in diagnosis and treatment, rather, it is in the low priority accorded to the control of the parasitic diseases by government of where they are endemic.

The control of schistosomiasis and indeed other intestinal parasitic infections require a combined approach involving health knowledge and awareness of risk factors for transmission.

Incidence of schistosomiasis in Nigeria and surveys reporting the prevalence in some towns and communities has been documented [4,5,6,8,9,10] . The prevalence reported in some of these earlier studies varies from 32% to 98%. Some of the reports indicated that the disease is found mostly among school children and transmission is usually focal [10] . Many studies also point out that a lot of work will still be done to discover new endemic areas and to harness the predictive potential of schistosomiasis indicators to arrive at a cheaper community diagnosis and preventive protocols.

The objective of this study was to determine the prevalence and endemicity of urinary schistosomiasis in Ogbadibo local government area of Benue State, Nigeria.

MATERIALS AND METHODS

The study was conducted in Ogbadibo Local Governemnt Area, Benue State. The local government was divided into five zones for effective coverage. The zones include Aiona, Owukpa, Eha, Ijadoga and Otukpa. Winners hospital Aiona, St, Theresa hospital Owukpa, F.S.P. Clinic, Eha Comprehensive health centre Ijadoya and the General Hospital Otukpa were the health institution used to collect urine samples from patients. The information on age, sex and source of water supplies was obtained from the patients.

A total of 657 urine samples comprising 329 samples from males and 328 samples from females were collected and examined. The urine samples were collected in 250ml universal sample bottles and taken to the laboratory where they were analyzed. The presence of visible haematuria in any sample was noted and recorded. The centrifugations and

sedimentation techniques (WHO, 1991) was employed to analyze the samples. 10ml urine was taken from the deposit of each specimen bottle after allowing to sediment for about I hour and centrifuged for 2mins at 2000rpm. The deposit was thereafter examined microscopically using X10 and X40 objectives for the characteristics schistosoma egg or ova.

The freshwater habitats in all the zones were visited and snail search was conducted in each of them. Snails found were picked and put in wide mouth plastic buckets and taken to the laboratory where they were screened for Cercariae after exposure to sunlight for about 3hours (Emejulu et al 1994).

RESULTS

The prevalence of urinary schistosomiasis in different zones in Ogbadibo local government of Benue State is presented in Table 1. The result shows that of a total of 657 urine samples examined, 300 (45.6%) showed the presence of Schistosoma haematobium eggs. Owukpa and Eha zones showed higher prevalence (10.8% and 10.35% respectively) than other zones. The prevalence of the infection in relation to sex is also shown in Table 1. The result shows that of 329 male urine samples examined, 152 (23.13%) showed the presence of S. haematobium eggs while 148 out of 328 (22.53%) female urine samples examined contained the eggs.

The prevalence rate of the disease with respect to age is shown in Table 2. The result shows that the infection rate uniquely cut across all the age brackets studied although the prevalence appears slightly higher among the age bracket 11-20 years. The survey of freshwater habitat resulted in collection of many snails and many of them yielded Schistosoma cercariae. Many of the snail species were identified as Bulinus species known to be intermediate hosts for Schistosoma haematobium. The analysis of the haematuria samples showed that majority of the urine samples with blood stains contained Schistosoma haematobium eggs.

Figure 1

Table 1: Prevalence of Urinary Schistosomiasis in different zones in Ogbadibo L.G.A. Benue State.

Zones	Number Examined			Number Infected			% Infected		
	M	F	T	M	F	T	M	F	T
Aiona	65	60	125	33	30	63	5.02	456	9.58
Otukpa	72	78	150	25	23	48	3.8	2.5	7.3
Eha	55	50	105	35	33	68	5.32	5.02	10.35
Ijadoga	67	68	135	25	25	50	3.8	3.8	7.6
Owukpa	70	72	142	34	37	71	5.18	5.63	10.8
Total	329	328	657	152	148	300	23.13	22.53	45.66

Key: M=Male F=Female
T = Total for male and female

Figure 2

Table 2: Age Distribution of Schistosomiasis in Ogbadibo L.G.A. of Benue State

Zones	Number examined						Number infected						% infected					
	A	B	C	D	E	T	A	B	C	D	E	T	A	B	C	D	E	T
Aiona	18	30	23	26	28	125	10	17	15	9	12	63	1.52	2.59	2.28	1.36	1.82	9.58
Otukpa	23	28	30	35	34	150	8	9	15	9	7	48	1.21	1.36	2.28	1.36	1.06	7.3
Eha	20	27	19	23	16	105	13	12	14	17	11	67	1.98	1.82	2.13	2.59	1.67	10.19
Ijadoga	24	31	24	29	27	135	11	9	7	8	15	50	1.67	1.36	1.06	1.21	2.28	7.61
Owukpa	33	35	25	23	26	142	19	16	10	14	12	72	2.89	2.43	1.52	2.13	1.82	10.96
Total	118	151	121	136	131	657	61	64	61	57	57	300	9.27	9.56	9.27	8.65	8.65	45.6

Key: A=0-10yrs B=11-20yrs C=21-30yrs D=31-40yrs
E=40 above T=total

DISCUSSION

The global problem of tropical diseases has continued to grow over the years against wide spread optimism that prevailed in the 1950s among those working in the field of public health that tropical diseases including schistosomiasis would soon be things of the past. The result of this study showed a relatively high prevalence of urinary schistosomiasis (45.68%) in Ogbadibo local government area of Benue State. This prevalence is however lower than 66.4% and 76.2% reported by Adewumi [[[l2]]] in three contiguous communities in South West Nigeria. Adeyeba and Ojeaga, [10] reported a close infection rate of 57.5% among school children in Ibadan, Nigeria. Edungbola et al, [9] recorded similar infection rate among school children in Babana district, Kwara State, Nigeria.

The result of this study unlike the result of some earlier studies shows that the prevalence of the disease is not age dependent even though there was a slight increase in the prevalence rate among the age bracket of 11-20 yrs (Table 2). The statistical analysis (log linear model) showed that neither sex nor age had significant influence in the prevalence of the disease in the area. There was no sharp difference between the rate of the infection between the males 923.13%) and the females (22.53%) (Table 1). This is presumably due to equal exposure to the risk factor as there were no restrictions on movement and contact with the

freshwater habitat in terms of culture, religion, sex or age. The people were seen engaged in activities that necessitate more contact times with the streams and snail intermediate vectors. Every segment of the inhabitants of the communities were observed to be making use of the streams, either for washing, fetching water, swimming, fishing, bathing or hunting for snails by the edges and fringes of the streams. The villagers eat and sell the caught snails at the village markets to even people from other parts of the country, especially those from the eastern part. The availability of various species of snails especially the Bulimus species highlights the endemicity of the disease in the area. The fact that increased contact time with Schistosoma haematobium infested habitat increases the rate and endemicity of schistosomiasis has variously been reported, [13,14,2,8,15] . The slightly higher prevalence rate (9.56%) observed among the age bracket 11-20 years is expected as that is the age that appears to be more adventurous in terms of hunting for snails, and fishing.

The sub-urban settlement of Otukpa and Ijadoga within the local government headquarters have little advantage over other zones because they have government water works that supply them pipe borne water even though the supply is grossly inadequate. They still depend on streams, hand dug wells and springs for supplemental supply. This may explain why the two zones have lesser prevalence (7.3% and 7.6% respectively) than the rest of the zones (Table 1). The communities within the Owukpa and Eha zones are more remote with streams and hand dug wells as their sole source of water supply. The inhabitants have higher contact times with the schistosoma infested habitats. This can explain the higher prevalence rate (10.8% and 10.35% respectively) recorded in the two zones (Table 1).

The observation in this study that many of the urine samples with blood stains contained Schistosoma haematobium eggs is in line with observations of Emejulu et al [8,10]. Emejulu [8] however noted that the result of analysis of visible haematuria shows that it is highly sensitive as a diagnostic tool but has a very low positive predictive value because of its low specificity in many of the studied areas.

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References

1. Scott, D. Senker, K. and England, E. C. (1982). Epidemiology of Human Schistosoma haematobium infection around valta lake, Ghana (1973-75). Bulletin of the World Health Organization
60: 89-100.
2. Udonsi, J.K. (1990). Human Community Ecology of Urinary Schistosomiasis in relation to snail vector bionmics in the Igwun River Basin of Nigeria. Tropemedizinunal Parasitologic
41: 131-135.
3. WHO (1987). Prevention and Control of Intestinal Parasitic Infections. Report of a WHO expert committee, Geneva, WHO Technical Report series.
4. Cowpear, S. G. (1973). Schistosomiasis in Nigeria. Annals of Tropical Medicine and Parasitology
57: 307-322.
5. Ozumba, N.A.; Christensen, N.O.; Nwosu, AB.C. and Nwaorgu, O.C. (1989). Endemicity, Focality and Seasonality of Transmission of Human Schistosomiasis in Amagunze village eastern Nigeria. J. Helminthology
63: 206-212.
6. Adewumi, C. O., Furu, P. Christensen, N.O., Marquis, B.B. and Fagbola, M. (1990). Endemicity and Seasonality of Transmission of Human Scistosomiasis in Ile-Ife, Southwestern Nigeria. Tropical Medicine and Parasitology
41: 443-444.
7. Bello, A. B. and Edungbola, L.D. (1992). Common Parasitic Disease in Childhood in Nigeria: Incidence and Intensity of Infection. Acta Paediat 1(8) 601-604.
8. Emejulu, A. C. Alabaronye, F. F.; Ezenwaje, H.M.G and Okafor, F. C. (1994). Investigation into the Prevalence of Urinary Schistosomiasis in the Agulu Lake Area of Anambra State, Nigeria. J. Helminthology
68: 119-123.
9. Edungbola, L.D. Asolu, S. O. Omonisi, M.K. and Ayedun, R.A. (1998). Schistosoma haematobium Infection among school children in the Babana district Kwara State. African J. Medicine
, 17: 187-193.
10. Adeyeba, O.A. and Ojeaga, S.G. (2002). Urinary Schistosomiasis and Concomitant urinary tract pathogens among school children in Ibadan, Nigeria. African Journal of Biomedical Research
5:103-107.
11. WHO (1991). Sedimentation Method. IN Basic Laboratory Methods in Medical Parasitology, World Health Organization Geneva. Pp. 33-35.
12. Adewumi, C. O.; Furu,P. Christensen, N.O. and Olorunmola, F. (1991). Endemicity, Seasonality and Focality of Transmission of Human Schistosomiasis in Three Communities in South-Western Nigeria. Tropical Medical Parasitology, 42, (4):332-334.
13. Ilyde, C. (1984). Epidemeology and Control of Schistosomiasis. Journal of Prevention Diagnosis and Treatment 6: 75-82.
14. Chandiwana, S. K. (1987). Community Water Contact Patterns and the Transmission of Schistosoma haematobium in the highyield region of Zimbabwe. Social Science and Medicine, 25: 495-505
15. Nagi, M.A.N.; Kumar, A.; Mubara, J.S and Mashmoos, S.A. (1999). Epidemology, Clinical and Haematological Profile of Schistosomiasis in Vemen. Journal of the American Medical Association 5: 177-181.

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