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Clinical Manifestation of Onchocerciasis in Ise - Orun Local Government, Ekiti State, Nigeria

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Abstract: Survey of Onchocerciasis syndrome in Ise - Orun local Government Area of Ekiti State was carried out. Village in Ise - Orun Local Government Area of Ekiti State, Nigeria are at risk of Onchocerciasis parademic of the 4,100 subjects examined, 2008 representing 51.3% of 95% CI 0.49 - 0.53 were found to be suffering from Onchocerciasis infections. The highest infection rate of 50.4% at 95% CI 0.43 - 0.63 was recorded in Temidire and least percentage of 46.7% at 95% CI 0.3 - 0.64 was found in Aba Ada. The people of 56 years of age accounted for the highest prevalence of 50.3% at 95% CI 0.49 - 0.59 and least was found in 25 - 35 age cohort representing 43.3% at 95% CI 0.34 - 0.52 of the 2008 subjects infected, 29.1%, 50.9%, 4.5% and 15.5% were observed to be suffering from leopard skin, crawl - crawl, partial blindness and nodules respectively. The prevalence of Onchocerciasis infection was 48.9% in male, while female has the same 48.9% but with differences in the number of individual infected with onchocerciasis. Also, there was a significant difference ($P < 0.05$) between male and female susceptibility to onchocerciasis infection. The prevalence of onchocerciasis infection varied from village to village.

Key words: Onchocerciasis syndrome, parasitic disease, infection

Introduction

Onchocerciasis or river blindness is a parasitic disease caused by *Onchocerca volvulus*, a nematode worm with a life span of about fourteen years (WHO, 1995). It is the worlds second leading infectious cause of blindness and is reported in thirty African countries, six Latin American countries and the Arabian Peninsula including Yemen (WHO, 1998). Infection is initiated by inoculation with *onchocerca volvulus* Larva during the life of the *Simulium* black fly. Clinical manifestations may develop 3 months to 3 years after, depending on the intensity of the parasite burden. Unpleasant skin symptoms include on evanescent nonspecific maculopapular rash and a distressing pruritus (Kain, 1999 and Nozais *et al.*, 1997). Onchocerciasis is a serious public health problem in large parts of Africa including Nigeria where some 18 million people are affected worldwide, about 120 million people are at risk of infection and 96 of this figure is in Africa, 6 million suffer from itching or dermatitis and 270,000 are blind outside the onchocerciasis control programme (OCP) countries (APOC/WHO, 1997). In Nigeria, there are different estimates about the endemicity of the disease. According to Akogun and Onwuliri (1991) about 7 million Nigerians are estimated to be infected while some 42 million are at risk of infection.

Based on WHO estimates, 3.2 million are of infected with 100,000 being blinded by the disease (WHO, 1995). Statistics have shown that of every three persons infected with onchocerciasis in the world, one resides in Nigeria. Thus Nigeria ranks first as the country with the greatest number of cases of the disease in the world

(Edungbola *et al.*, 1998). The present study was therefore, aimed at investigating the rate of epidemiology and clinical manifestations of onchocerciasis in Ise-Orun Local Government Area of Ekiti State, Nigeria.

Materials and Methods

Study area: The study was carried out in some Onchocerciasis endemic villages in Ise-Orun Local Government Area of Ekiti State. The study area is characterized by the presence of fast flowing river (River Ogbese), Ogbese forest reserve and the vegetation is mainly rainforest. The main source of economy of this area is farming (crop cultivation and fishing). The inhabitant of this area are mostly indigene of the area except the civil servants working as temporary residents. The roads leading to most of these towns and villages are very deplorable thereby making accessibility a little bi difficult.

Data collection: The data were collected with the help of Local Government Onchocerciasis control officer and community health workers in the area, this is to ensure maximum cooperation of the subject studied. The sampling was carried out in company of volunteer village health workers (VVHW), that were distributing mectizan during Onchocerciasis control programme carried out in the area. On physical examination. A maculopapular rash of forearm extended to the shoulder with a fixed painless edema of the arm were shown also on the leg crawl - crawl combine with leopard skin of the knee were noted. The name, gender, occupation, age and signs of onchocerciasis such as leopard skin, partial blindness,

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Table 1: Overall prevalence of onchocerciasis infection in relation to various villages.

Town/Village	Males			Females			Total		
	Subject examined	Subject Infected	Confidence interval (CI)	Subject examined	Subject infected	Confidence interval (CI)	Subject examined	Subject infected	Confidence interval (CI)
Aba Ada	43	20(46.5)	0.32-0.62	32	15(46.9)	0.3-0.64	75	35(46.7)	0.36-0.58
Aba Aji	139	69(49.6)	0.42-0.58	118	57(48.3)	0.39-0.57	257	126(49.0)	0.43-0.55
Aba Akoti	90	44(48.9)	0.39-0.59	56	27(48.2)	0.35-0.61	146	71(48.6)	0.41-0.57
Aba Gara	103	49(47.5)	0.38-0.57	58	27(46.6)	0.34-0.6	161	76(47.2)	0.39-0.55
Aba Ogunlana	118	57(48.3)	0.39-0.57	87	43(48.4)	0.38-0.6	205	100(48.8)	0.42-0.56
Aba Onisu	142	70(49.3)	0.41-0.57	110	53(48.2)	0.39-0.57	252	123(48.8)	0.43-0.55
Aba Paanu	134	65(48.5)	0.41-0.58	78	39(50.0)	0.39-0.61	212	104(49.1)	0.42-0.56
Afolu	173	85(49.1)	0.42-0.56	110	53(48.2)	0.39-0.57	283	138(48.8)	0.43-0.55
Alapoto	152	75(49.3)	0.41-0.57	139	67(48.5)	0.39-0.56	291	142(48.8)	0.43-0.55
Araromi	184	90(48.9)	0.42-0.56	134	65(48.5)	0.41-0.58	318	155(48.7)	0.44-0.55
Bolorunduro	160	79(49.4)	0.45-0.51	128	63(49.2)	0.40-0.58	288	142(49.3)	0.43-0.55
Obada	184	92(50.0)	0.43-0.57	155	75(48.4)	0.40-0.56	339	167(49.3)	0.44-0.54
Ogbese	197	98(49.7)	0.42-0.56	184	90(48.9)	0.42-0.55	381	188(49.3)	0.44-0.54
Olokemeta	145	70(48.3)	0.2-0.56	125	63(50.4)	0.41-0.59	370	133(49.3)	0.43-0.55
Oluoroke	183	89(48.6)	0.42-0.56	159	78(49.1)	0.41-0.57	342	167(48.8)	0.44-0.54
Temidire	178	87(48.9)	0.42-0.56	102	54(52.9)	0.43-0.63	280	141(50.4)	0.44-0.56
Total	2325	113(48.9)	0.47-0.51	1775	869(48.9)	0.47-0.51	4100	2008(48.9)	0.47-0.51

Table 2: Overall prevalence of clinical and dermatological manifestations onchocerciasis

Town/ village	Males					Females					Total				
	Sub. exam.	LS %	ND %	CC %	PB %	Sub. exam.	LS %	ND %	CC %	PB %	Sub. exam.	LS %	ND %	CC %	PB %
Aba Ada	43	20	25	40	15	32	13.3	26.7	46.7	13.3	75	17.13	25.7	42.9	14.3
Aba Aji1	39	36.2	11.6	46.4	5.8	118	26.3	17.5	40.4	15.8	257	31.7	14.3	43.7	10.3
Aba Akoti	90	34.1	0	61.4	4.5	56	22.2	0	66.7	11.1	146	29.6	0	63.4	7
Aba Gara	103	20.4	18.4	57.1	4.1	58	14.8	14.8	55.6	14.8	161	18.4	17.1	56.6	7.9
Aba Ogunlana	118	24.6	17.5	57.9	0	87	16.3	23.3	58.1	2.3	205	21	20	58	1
Aba Onisu	142	32.9	2.9	62.9	1.4	110	33.9	33.9	28.3	3.8	252	33.3	16.3	47.9	2.4
Aba Paanu	134	24.6	15.4	53.8	6.2	78	38.5	0	58.9	2.6	212	29.8	9.6	55.8	4.8
Afolu	173	29.4	16.5	54.1	0	110	22.6	15.1	56.6	5.7	283	26.8	15.9	50.1	2.2
Alapoto	152	21.3	25.3	50.7	2.7	139	29.9	2.9	56.7	10.4	291	25.4	14.8	53.5	6.3
Araromi	184	15.6	22.2	57.8	4.4	134	29.9	26.3	63	0	318	21.3	16.1	60	2.6
Bolorunduro	160	37.9	15.2	46.8	0	128	28.6	12.7	53.9	4.8	288	33.8	14.1	50	2.1
Obada	184	40.2	10.9	46.7	2.2	155	33.3	8	57.3	1.3	339	37.1	9.6	51.5	1.8
Ogbese	197	35.7	10.2	48.9	5.1	184	36.7	18.9	42.2	2.2	381	36.2	14.4	45.7	3.7
Olokemeta	145	21.4	15.7	50	12.9	125	23.8	20.6	47.6	7.9	270	22.6	18	48.9	10.5
Oluoroke	183	29.2	23.6	47.2	0	159	30.8	26.9	38.5	3.8	342	29.9	25.1	43.1	1.8
Temidire	178	34.5	17.2	45.9	2.3	102	29.6	18.5	44.4	7.4	280	32.6	17.7	45.4	4.3
Total	2325	29.4	15.2	51.6	3.5	1775	28.7	15.7	49.9	5.7	4100	29.1	15.5	50.9	4.5

C.C = Craw-craw, L.S = Leopard skin, P.B = Partial blindness. ND = Nodules, Sub. Exam. = Subject examined

Table 3: Overall prevalence of onchocerciasis infection in relation to age groups and sex

Age (years)	Males			Females			Total		
	Subject examined	Subject infected	Confidence interval (CI)	Subject examined	Subject infected	Confidence interval (CI)	Subject examined	Subject infected	Confidence interval (CI)
25 - 35	85	37(43.5)	0.33-0.55	106	46(43.4)	0.34-0.52	191	83(43.4)	0.36-0.5
36 - 45	414	197(47.6)	0.43-0.53	335	180(53.7)	0.49-0.59	749	377(50.3)	0.46-0.54
46 - 55	707	349(49.4)	0.45-0.53	474	238(50.2)	0.45-0.55	1181	587(49.7)	0.47-0.53
56 and above	1119	556(49.7)	0.47-5.3	860	405(47.1)	0.44-0.50	1979	961(48.5)	0.47-0.51
Total	2325	1139(48.9)	0.47-0.51	1775	869(48.9)	0.47-0.51	4100	2008(48.9)	0.47-0.51

nodules and crawl-crawl were recorded on the questionnaire data sheets.

Data analysis: All data on clinical manifestation were stratified according to age, sex and various towns. Data was analysed using standard statistical tests, confident interval (CI) and Analysis of variance (ANOVA).

Results and Discussion

The results of the present studies were recorded as clinical and dermatological manifestation of onchocerciasis on gender basis in relation to different villages and towns in the study area (Table 1). It was noted that out of 4100 people examined in the study (2325 males, 1775 females), 2008 (48.9% at 95% CI 0.47 - 0.51) were found to be suffering of Onchocerciasis

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infection. These included 1139 males (48.9% at 95% CI 0.47 - 0.51) and 869 females (48.9% at 95% CI 0.46 - 0.6). The prevalence of onchocerciasis however varied from one village to another on the study area. The data presented on Table 1 show that Ogbese community has the highest prevalence of onchocerciasis (188 people 49.3% at 95 and CI. 0.42 - 0.56 and the least infection in 35 people 46.7% at 95% CI. 0.36 - 0.58 was recorded in Aba Ada. The prevalence of clinical and dermatological manifestation varied in the study areas shown in Table 2. Out of 4100 people examined, 29.1, 50.9, 4.5 and 15.5% were respectively observed to have leopard skin, crawl-crawl, partial blindness and nodules. Also, the disease manifestations were observed to vary with sex: male had 51.6, 29.4, 3.5 and 15.2% for crawl - crawl, leopard skin, partial blindness and nodules respectively while females had 49.9, 28.7, 5.7 and 15.5% respectively.

The overall prevalence of onchocerciasis infection in relation to age groups and gender is shown in Table 3. The peak prevalence of infection (961 people) was recorded in the age group 56 and above years among male subjects (556 people) while female subject (405 people) and the least prevalence of infection of 83 people was recorded among 25 - 35 years age with 37 males and 46 females. It is interesting to note that several factors are responsible for the variation in infection among the age group (Edungbola, 1982). This could be as a result of duration of stay in this area and the reinfection of the disease due to the persistent bites of the infected vectors. Also dermatological and clinical manifestations of onchocerciasis syndrome in the study area varied with town and village and the gender which might be due differences in the degree of exposure to

the infection as influence by the frequency of vector bites (*Simulium*) and the load capacity of the parasite in the victim (Edungbola *et al.*, 1987).

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