Bima Journal of Science and Technology Vol. 2 No. 2 June, 2018 ISSN 25366041

CLINICAL SIGN OF *Lymphatic filariasis* IN FOUR LOCAL GOVERNMENT AREAS OF GOMBE STATE

[*1]Yoriyo, K.P.,[2] Alo E. B., [2] Napthali R. S., [3] Kela, S.L

1. Department of Biological Science Gombe State University Gombe.
2. Department of Biological Science Federal University of Technology Yola
3. Department of Biological Science Federal University Kashere

*Corresponding authors e-mail
kennedypoloma@gmail.com
Telephone: +2348024265633

Abstract

A survey on the clinical signs of a neglected tropical disease: Lymphatic filariasis was conducted in four Local Government Areas (LGA) Balanga, Gombe, Kaltungo and Yamaltu Deba LGAs of Gombe State during advocacy campaign on malaria eradication aim at determining the prevalence of the disease so as to encourage community acceptance of Indoor Residual Spray (IRS) activities in Gombe State. The overall clinical sign of Lymphatic filariasis in all the 3,145 people inspected in 200 houses of the four local governments was (3.2%). Kaltungo LGAs had the highest recorded cases of (5.2%) out of the 538 people inspected, followed by Balanga LGA with (4.3%) out of the 650 people inspected and Yamaltu/Deba with (3.1%) out of the 1,081 people inspected with the least in Gombe LGA with (1.6%) out of the 976 people inspected. Clinical sign by age group shows that: Age 15-30 group had the least infection of (13.7%) and the highest was observed in Age 46 and above with (46.1%). Males were more infected (60.7%) than females (39.2%) the difference however, was not statistically significant at 95% level of confidence limit. The presence of clinical signs of the disease caused by the mosquito vector will give a better community acceptance of the intervention in question during advocacy campaign.

Key Words: Lymphatic filariasis, clinical sign, Gombe State

Introduction

Lymphatic filariasis caused by *Wuchereria bancrofti* is a major public health disease globally especially in the tropical and subtropical countries including Nigeria (Awolola *et al* 2004). The real burden of the disease in most endemic regions remains unknown. The nocturnal periodicity of the parasite which requires parasitological examination to be done at night makes it quite cumbersome. The disease is common among the poorest people and for many years has a very low public health rating in many countries (WHO, 1994). Delay in prompt medical attention probably because of the benign nature of the diseases couple with poverty has greatly helped in the spread of the The global distribution of cases of lymphatic filariasis shows that bancroftian

filariasis in Asia and South America appears to have lower prevalence than those in the sub Saharan African and Pacific Island regions (http://submit.bwho.org).

In Asia, the prevalence range from 0.07% in Laos to 5.4% in India and in South America, they range from 0.03%in Brazil to 7.3% in Guyana.

In contrast 50% or 17/34 positive countries in Africa show lymphatic filariasis prevalence of over 10% with four countries: Guinea Bissau 37%, Comoros 27%, Sechelles 24% and Nigeria 22% having prevalence of over 20%. The highest regional prevalence of 29% occurs in the Pacific region, with the three highest prevalence rates in the world apparently occurring in Tonga (48%) Papua New Guinea (39%) and the Cook Island (39%) http://submit.bwho.org.

The estimated global health burden cause by filariasis for the 120 million people infected is 27,000,000 cases for hydrocoele, 15million cases for swollen limbs and 16.2 million cases for lymphoedema (FMOH, 1997). Out of the 120 million cases, worldwide 40million (34%) are from Africa all with *Wuchereria bancrofti*.

In Nigeria report by Micheal and Bundy,(1997) place the prevalence rate at 22% while Awolola *et al,* (2004) using key informants observed a prevalence of 26% in Akinyele Local Government Area of Oyo state while WHO, (2000) reported it at 36.8%. The Nigerian Lymphatic Filariasis Elimination Programme (NLFEP) in the result of the Rapid Epidemiological Mapping (REM) report of Lymphatic Filariasis of some states in the country reported the following prevalence : Bauchi State 77.1%; Adamawa 71.4%; Katsina ,12.9%; Nasarawa,60%; Kano, Ogun and Jigawa States ,0%; Imo 16.7%;Edo,10%;Akwa Ibom,73.7%;Taraba 48%;Kwara,28.6%; Kebbi, 32.3%;Gombe,81.5%; Borno, 4.9%; Sokoto,50%; and Zamfara, 26.1% (FMOH, 1997).

The disease is common among the poorest people who lack means of treatment which in turn affect their daily activities, hence getting poorer. In adults, sign and symptoms may not be obvious until microfilaria appear in the blood then the signs becomes more obvious as the diseases takes its course (Fontenille and Didier, 2004).

Initially, acute inflammation of the Lymphatic system occurs, accompanied by headache, high fever, nausea, and eosinophilia that are also a feature of so many helminthes infections. Later chronic lymphangitis (inflammation of the lymphatics), lymphadentis (inflammation of the lymph nodes), and lymphedema (swelling cause by the accumulation of fluid) appear. Chyluria (lymph in urine), hydrocoele (fluid in the scrotal sac), and impaired lymph flow may be observed. Eventually lymphoedema leads to the hard swollen limbs characteristics of elephantiasis and the genitalia, breast, and arms may become irreversible, swollen and hardened (Moses and Bockarie, 2007). The spectrum of lymphatic filariasis ranges from periodic reoccurring attack of localized inflammation, tenderness and pain, often

accompanied by fever, nausea and even vomiting, known as acute adenolymphangitis (ADL) to chronic symptoms including Lymphaedema, hydrocoele and elephantiasis; lung diseases, chyluria or abnormalities of the renal function may also occur (WHO,1992; WHO,1997;Ottesen *et al* ;1990; Ramajah, *et al;* 2000). The disease is the second leading cause of permanent and long term disability worldwide and one of the most neglected tropical disease because of its benign nature hence encouraging the endemic nature and continues spread of the disease. To this end this study is meant to take advantage of controlling two diseases with one intervention program so as to encourage community acceptance of those deadly but fearless disease like malaria.

Methodology

Study Area

The study was conducted in Four Local Government Areas of Gombe State. The selection of the specific sites was done so as to have a fair representation of all the three Senatorial Zones of Gombe State taking note of common boundaries in each case. Balanga and Yamaltu Deba are two Local Governments Areas with high irrigation activities because of the presences of dams in these areas. Gombe and Kaltungo LGAs on the other hand are areas with no such activities but they are Urban in nature. Gombe Local Government is the state capital of Gombe State. The occupation of the most of people is mainly farming some are fisher men, as well as cattle rearing. Others are business men with some as civil servants. Gombe and Kaltungo Local Government Areas have a lot of gutters which contribute major breeding sites for culicines mosquitoes .The irrigation activities are in Balanga and Yamaltu Deba LGAs and they constitute most of the breeding grounds for both Anopheline and culicine mosquitoes. In each of the four selected Local Government Areas, 5 communities one from each of the four cardinal points, North, South, East, West and the Centre were randomly identified and marked. In each of the five communities identified, ten houses were randomly selected and labeled as Entomology (ENT) 1-10 making a total of fifty (50) houses per local government. The inhabitants of these houses form our sampling population.

Before commencement of the study, communities in the areas were informed through advocacy team formed by the Malaria Control Booster Project of Gombe State, comprising of, the Project Manager, the Principal Investigator of Malaria Control Programme of the state, the Social Mobilization Officer and the Vector Control Officer. The cooperation of the communities through the advocacy was sort through their village heads, religious leaders and community elders, on visits by the entomologist to collect adult mosquitoes and to inspect them on clinical signs of lymphatic filariasis.

Clinical Signs Survey of Lymphatic Filariasis

The entomological teams who are also health workers inspected clinical signs of lymphatic filariasis in each of the houses sampled for Pyrethrum Spray Collection. Clinical signs such as lymph oedema, elephantiasis of the leg, hand, breast or hydrocele were recorded along with the age, sex and occupation of the subject for the different houses sampled in the four LGAs.

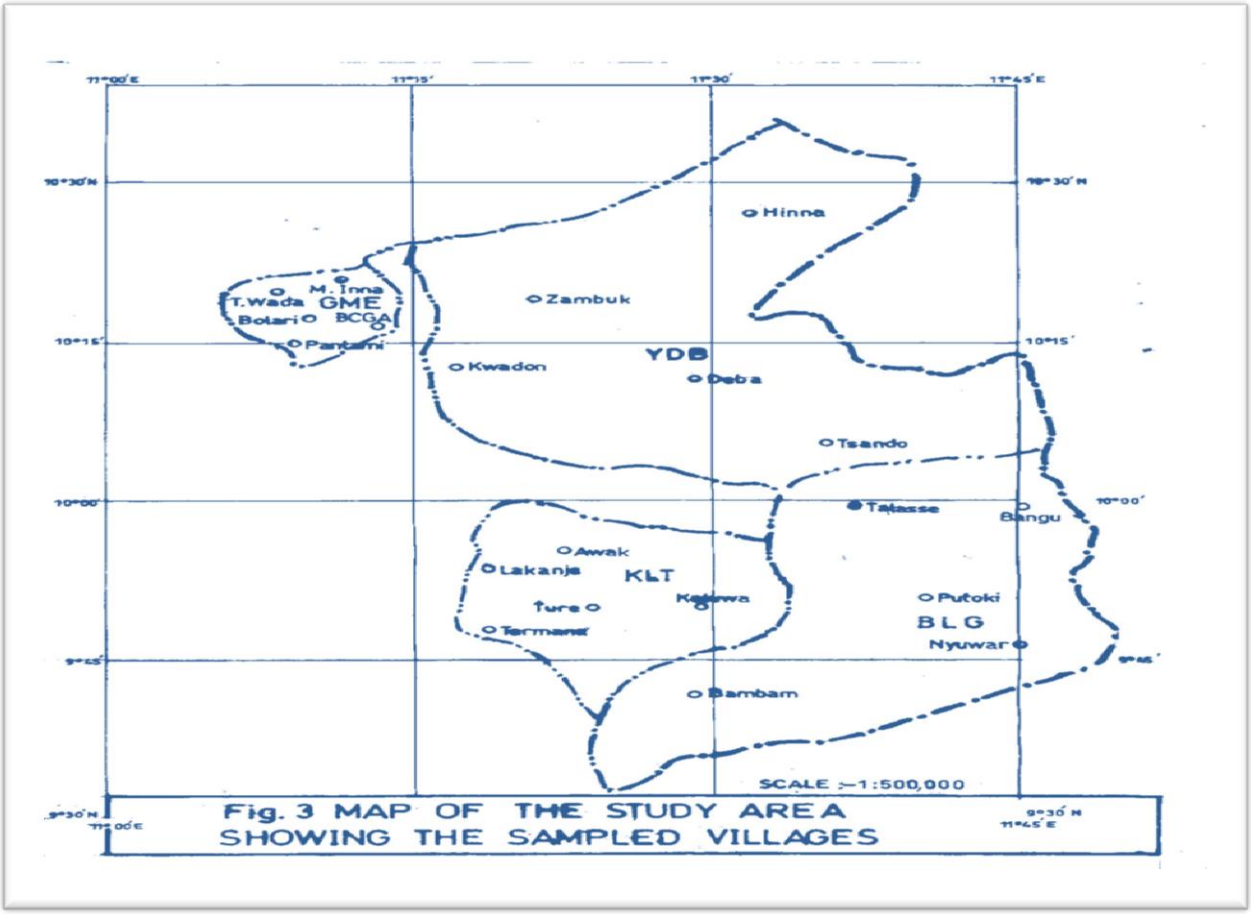

Fig. 3 MAP OF THE STUDY AREA SHOWING THE SAMPLED VILLAGES

Result

The overall clinical sign of Lymphatic filariasis in all the 200 houses comprising 3,145 people was 102 (3.2%). Kaltungo LGAs had the highest recorded cases of 28 (5.2%) out of the 538 people inspected followed by Balanga LGA with 28 (4.3%) out of the 650 people inspected and Yamaltu/Deba with 30 (3.1%) out of the 1,081 people inspected with the least in Gombe LGA with 16 (1.6%) out of the 976 people inspected as in Table 1. Clinical sign by age group shows that: Age 15-30 group

had the least infection of 14(13.7%) and the highest was observed in Age 46 and above as in Table 2. More infections were recorded in Y/Deba LGA than Kaltungo LGA and Balanga LGA with 28(27.5%) than Gombe LGA 16(15.6). out of the 102 people infected, males were more infected 62 (60.7%) than females 40 (39.2%) the difference were not statistically significant at 95% level of confidence limit. The clinical signs by age group of individual shows that age 15-30 recorded 14(13.7%) while 31-45 had 42(41.2%) and the highest was in age group 46 and above with 47 (46.1%) as shown in Table 2 bellow.

Table 1: Clinical signs by site of infections of lymphatic filariasis

Areas	Male inspected	Female Inspected	Swelling of leg M	Swelling of the scrotum	Swelling of leg F	Swelling of breast	Total
Balanga	302	348	6 (2.0)	13 (4.3)	8 (2.3)	1 (0.3)	28(4.3)
Gombe	427	549	3 (0.7)	7 (1.6)	4 (0.7)	2 (0.4)	16(1.6)
Kaltungo	258	280	7 (2.7)	10 (3.9)	11 (3.9)	0 (0.0)	28(5.2)
Y/Deba	479	502	4 (0.8)	12 (2.5)	13 (2.6)	1 (0.2)	30(3.1)
Total	1466	1679	20 (1.4)	42 (2.9)	36 (2.1)	4 (0.2)	102(3.2

Figures in parenthesis () are percentages of the different categories

Table 2: Clinical sign by age group of individuals

Age group	Balanga		Gombe		Kaltungo		Y/Deba		Total		G Total
Sex	M	F	M	F	M	F	M	F	M	F	ALL
15-30	3	1	0	0	3	0	5	2	11	3	14(13.7)
31-45	8	3	5	3	5	7	5	6	23	19	42(41.2)
46<	8	5	5	3	9	5	6	6	28	19	47(46.1)
Total	19	9	10	6	17	11	16	14	62(60.7)	40(39.2)	102
GT	28(27.5%)		16(15.6%)		28(27.5%)		30(29.4%)				

Figures in parenthesis () are percentages of the different categories

Discussion

The overall low clinical signs of 3.2% may be due to the mechanism of transmission of the diseases, which include, slow multiplication of microfilaria in the host and vector .The size of the microfilaria which makes it more difficult to penetrate the punctured skin by the mosquito proboscis may also be another factor. Awolola *et al*, (2004) using key informants observed a prevalence of 26% did not agree with the present study this could be due to the method of sampling where by information was the key factor considered in Awololas case hence the high prevalence while in this study particular houses were used as the sample population hence the low prevalence. Also Yoriyo *et al*, (2013) observe a higher prevalence of 36% in Balanga and Biliri LGAs of Gombe State in Banocide induce patient. The higher difference could be attributed to the method of identification of the parasite which is more precise in Yoriyos case of parasitological examination than the mere occurrence of clinical sign which may miss most of the new cases as the clinical signs may manifest after a long period of infection of up 10 years or more. This study also did not agree with that of (FMOH, 1997) who reported prevalence of, 81.5%; in Gombe State in a Rapid Epidemiological Assesment of LF in the state. The low prevalence could be attributed to the fact that the distribution of Banocide tablets in the previous years could have helped in reducing the spread of the disease. Also the low Man Biting Rate of (0.8%) of mosquitoes as reported by Yoriyo (2014) could be another factor that leads to the low prevalence; Chusak (2000) postulated a bite of up to 200 bites with infected mosquito for infection to be established.

The higher infections in males (60.7%) than female (39.2%) could not be far from the fact that males were more prone to mosquito bite because of the time they spend far into the night charting with friends and their look warm attitude in the use of mosquito nets. Also, because they do not sleep with little children that may force them to use net could be another factor. On the other hand, women most a time go to bed early and use nets because of the children they always sleep with. The presence of the clinical sign of the disease in the state will provide a good bases for community acceptance of IRS intervention in the state since two diseases will be on the target of IRS programme.

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