
PREVALENCE OF LYMPHATIC FILARIASIS IN BALANGA AND BILLIRI LOCAL GOVERNMENT AREAS OF GOMBE STATE, NIGERIA.

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Abstract: A survey on the prevalence of one of the neglected tropical disease: lymphatic filariasis was conducted in two Local Government Areas: Balanga and Billiri LGAs in Gombe State aim at encouraging community acceptance of Indoor Residual Spray (IRS) activities in the areas was conducted. A total of 800 blood samples were collected from banocide induced volunteers for identification of microfilariae during IRS advocacy for malaria eradication campaign programme in Gombe State. Thick film Gimsa stain method was used. Out of the above number 280 (35%) were found positive with *Wuchereria banarofti*; males had 143 (37.2%) while females 137 (32.9%). The difference between the males and females infection was not statistically significant ($p>0.05$). In Balanga LGA the prevalence was up to 144 (36%) with males having 80 (39%) while females 64 (32.8%). In Billiri LGA there was a lower prevalence of 136 (34%) in which males also had a higher prevalence of 63 (35.2%) than females 73 (33%). However, the difference in infection in the two Local Government Areas was not statistically significant ($p>0.05$). The result shows that, although the clinical signs of Lymphatic filariasis is rarely seen in these areas, the parasite is still endemic in the Communities hence the advocacy campaign for malaria elimination using IRS should include lymphatic filariasis as another target disease since they have a common vector; this will enhance better community acceptance of the IRS programmes in the state.

Keywords: Prevalence, Lymphatic filariasis, Advocacy Programme, Gombe

INTRODUCTION

Neglected tropical diseases in which Lymphatic filariasis takes the lead is one of the most silently widely distributed diseases, occurring in the tropical and subtropical countries, mainly in Asia, Africa, America and

Australia (WHO, 2002). Lymphatic filariasis and other neglected tropical diseases are collectively responsible for a disease burden equal to twice that caused by Tuberculosis, half of that due to malaria and a third of that resulting from HIV/AIDS as reported by Hotez and Kamath, (2009). They also pointed out that the resources devoted to the diseases control and research is woefully inadequate. It is worthy to note that one can take advantage of controlling one disease to apply to another or range of other diseases if they share a common vector, a situation that is cost effective and may encourage community acceptance during advocacy of the control of mild disease.

Infection with this parasite affects people of all ages and sexes, in both rural and urban areas, but primarily poor populations who live in filariasis-endemic areas of the tropics and sub-tropics are more at risk due to their low quality of houses which is porous to mosquito vectors (Yoriyo, 2014) hence, constituting to a major public health menace in many rural parts of the world (WHO, 1977; Ottesen and Ramachanda, 1995; Moses, 2007; Yoriyo, 2014). The disease is commonly seen among the poor and for many years, has had a low public health rating in the priorities of most countries where it is prevalent because of the mild nature of the disease (WHO, 1997). Infected individuals exhibit a lukewarm attitude towards medication because the disease is benign hence, creating ideal conditions for epidemics, resulting into chronic cases thereby making affected persons unfit to perform their usual daily activities. This keep affected persons in permanent poverty. (WHO, 1977).

Lymphatic filariasis is known to be endemic in many countries but clinical signs are rarely seen. It occurs in over 80 countries and more than 1.1. Billion people worldwide are estimated to be at risk, (WHO, 2002). In Africa 34.0% prevalence was reported by Dunyo *et al.*, (1996) and 40.0% prevalence was reported by WHO, (1994) in rural areas where access to health care facilities is mostly lacking and housing conditions are so porous to allow high influx of mosquitoes in residential homes Yoriyo (2014) create an ideal condition for high Man Biting Rate (MBR) of mosquitos an ideal condition for Lymphatic filariasis transmission.

Nigeria is amongst the most endemic countries in the world with the largest population at risk in Africa and second largest after India worldwide (WHO, 2002). Badaki *et al.*, (1999) reported a prevalence of

19.9% in Bassa local government area in Plateau State of 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 . WHO, (2000) reported 36.8% in Nigeria. 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%; Borno, 4.9%; Sokoto,50%; Zamfara, 26.1%.and Gombe,81.5%; (FMOH, 1997). In another study Yoriyo , (2014) observed a clinical sign of 3.2% in Balanga Gombe, Kaltungo and Yamaltu Deba Local Government Areas of Gombe State.

The world is committed to reducing the number of people living in poverty to half, and poor health is identified as an important factor which keeps people locked in poverty. One good exist route out of poverty identified by WHO,(2002) is the elimination of lymphatic filariasis amongst other parasitic diseases. Unfortunately, intervention programmes on disease control are phased with challenges. One of which is the acceptance of the progamme which is strongly associated with people's perception to the disease in a target community, also, comprehensive epidemiological baseline data are not available in Nigeria to warrant the take up of control measures. These form the basis for this research work.

MATERIALS AND METHODS

Study area

Balanga and Billiri local government areas are two of the four local government areas of the Southern zone of Gombe state Nigeria The state is located between latitude 9° 30¹¹ to 12° 30¹¹ North and longitude 8° 45¹¹ to 11° 45¹¹ East. It has a surface area of 20, 265sq.km.

The two local Governments have streams and rivers, traversing through villages. The villagers are predominantly rural farmers and rely mainly on the streams and rivers for water supply as well as boreholes and water from roof-catch during the rainy season these water sources contribute a lot to mosquito breeding sites.

Advocacy

Before commencement of the study, communities were informed that they should come out en masse for inspection and subsequent identification of some parasitic and infectious diseases these was done through the state Ministry of Health Gombe in one of their malaria elimination intervention advocacy. In some communities, advantage was taken of National Immunization days against hepatitis B to collect blood from volunteers.

On the inspection day, all the volunteers who were up to 10 years or above were informed about the purpose and nature of the study, before examining each of them.

A total of 800 blood samples were collected from the two local government areas, at the health centre of the communities. Age, sex and occupation of each volunteer were obtained and the volunteer was physically examined for the clinical signs that are suggestive of lymphatic filariasis. Each volunteer was given 50mg of banocide tablets to induce the appearance of microfilariae in the peripheral circulation during the day. After about 5-10 minutes post drug administration, the health workers were requested to obtain 5ml of blood using 23 gauge needles and syringes which was stored in an EDTA Bottle.

Blood Examination

Thick films were made, and the blood was streaked linearly for easy counting. The smears were air dried, then stained for one hour with 3% solution of Giemsa stain in buffered water (PH 7.2).

The slides were then air dried, viewed with x10 and x100 objectives. The microfilariae were identified with reference to keys by (Cheesbrough 1999).

RESULTS

The overall result from the two Local Governments Areas shows that, out of the 800 blood samples collected 280(35%) were positive for microfilariae *Wuchereria banerofii* (cobbold, 1877). Males had 143 (37%) while females had 137 (32.9%). The difference however was not statistically significant ($p < 0.05$).

In Balanga local government area, the prevalence was up to (36%) 144, with males having (39.0%) 80 while females with (32.8%) 64.

In Billiri local government area, the prevalence was lower (34%)136 with males having (35%) 63 while females 33.0% (73) as shown in table I and II below.

Table I: Percentage prevalence in relation to Age groups according to local governments

Balanga LGA

AGE GROUP	NO OBSERVED	NO POSITIVE	PERCENTAGE
10-25	120	38	31.7%
26-35	132	51	38.6%
36-45	98	37	37.8%
46-75	50	18	36.0%
<i>Total</i>	<i>400</i>	<i>144</i>	<i>36.0%</i>

Billiri LGA

AGE GROUP	NO OBSERVED	NO POSITIVE	PERCENTAGE
10-25	110	26	23.6%
26-35	140	56	40.0%
36-45	103	44	42.7%
46-75	47	10	22.3%
<i>Total</i>	<i>400</i>	<i>136</i>	<i>34.0%</i>

Table II: Percentage prevalence in relation to sex according to each Local Government Area.

BALANGA	NO OBSERVED	NO POSITIVE	PERCENTAGE POSITIVE
Males	205	80	39.0%
Females	195	64	32.8%
<i>Total</i>	<i>400</i>	<i>144</i>	<i>36.0%</i>

BILLIRI	NO OBSERVED	NO POSITIVE	PERCENTAGE POSITIVE
Males	179	63	35.0%
Females	221	73	33.0%
<i>Total</i>	<i>400</i>	<i>136</i>	<i>34.0%</i>

DISCUSSION

The result of this study indicates that lymphatic filariasis is still endemic and a major problem in Balanga and Billiri local government areas and poses a serious threat to the entire state. The environmental factors like pocket waters, in the communities and the socio-cultural habits of the people of staying out doors late in the night could be responsible for the high incidence of *Wuchereria banerofti* in these communities.

The higher prevalence in males which was also observed by Badaki *et al* (1999), could be linked to the fact that males are mainly exposed to the mosquito vector during their habitual outdoor relaxation with friends after a hard day's work. Also the introduction of free treated mosquito nets to pregnant and nursing mothers who are forced to use it even if is just for the benefits of their babies who have low immunity to infections may be another factor of reducing the prevalence in females as males see it as old fashion and distractive during sleep.

The lower prevalence observed in this study compared to 81.5% (FMOH, 1997) in Gombe State could be due to the fact that communities are now becoming very sensitive and conscious of their health status unlike in the past when people preferred to manage an ailment for fear of expenses and scarcity of medical facilities. Also the presence of close medical facilities has helped a lot in enlightening the public. The introduction of yearly administration of ivermectin to the public in these areas for the past ten years by the federal government might also be one of the factors that helped in breaking transmission.

However, the study agrees with the work of Michael and Bundy (1996), who gave a prevalence of 22% and also WHO (1997) who reported a prevalence of 36.8% in rural areas in Nigeria.

Since the parasite is transmitted by a mosquito vector, emphasis on mosquito control should be emphasized, since it does not only reduce the rate of malaria but also filariasis and other arboviruse diseases.

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