



**PREVALENCE OF LYMPHATIC FILARIASIS AMONG  
ADULTS IN OFUMBONGHA COMMUNITIES IN OBUBRA  
LOCAL GOVERNMENT AREA OF CROSS RIVER STATE,  
NIGERIA**

**K. K. Ngele<sup>1\*</sup> and U. E. Osonwa<sup>2</sup>**

<sup>1</sup>*Dept. of Science Laboratory Technology, Akanu Ibiam Federal  
Polytechnic, Unwana Afikpo, Ebonyi State*

<sup>2</sup>*Dept of Pharmaceutics/ Pharmaceutical Technology, Faculty of Pharmacy,  
University of Uyo, Uyo, Nigeria*

Email: [kayong73@yahoo.com](mailto:kayong73@yahoo.com); mobile: +2348066316115

---

**Abstract**

This work assesses the prevalence of lymphatic filariasis in the rural Ofumbongha communities (I-IV), in Obubra Local Government Area of Cross River State, Nigeria. The study population consisted of both sexes 16 years of age and above. Blood sampling was from the thumb. Giemsa Staining Technique was employed in the assessment of the microfilarial load. Of the 1700 people tested, 880 were positive for microfilaria and of these 880 people, 801 had microfilaraemia above 100 mf/ml which was very high. This shows that there is high endemicity of lymphatic filariasis in the Ofumbongha communities.

**Key Words:** lymphatic filariasis, Ofombungha, prevalence, adults

---

**INTRODUCTION**

Lymphatic filariasis which results from infection with the lymphatic-dwelling roundworms, *Wuchereria bancrofti* and *Brugia malayi* is one of the major vector-borne diseases in tropical Africa (Meyrowitsch, *et al.*, 1996). The mosquito is the vector of this disease, affecting over 120 million people in over 80 countries within the tropical and sub-tropical regions (WHO, 2001). Thus, more than one third of the affected individuals are in the West African sub-region (Michael *et al.*, 1997). A prevalence of up to 50% has been documented in the humid, swampy, farming rural communities of

Lymphatic filariasis is rarely fatal, but its recurrent acute febrile attacks of adenolymphangitis, debilitating and disfiguring chronic manifestations of lymphoedema, elephantiasis and hydrocoele are scourges and a tragedy to the affected individuals and communities as a whole (WHO, 2003). Other disabling and discomforting chronic manifestations of filariasis in endemic areas include skin damages leading to secondary bacterial infection as well as haematuria, chyuria and

---

\*Corresponding author  
ISSN 0189-8434 © 2010 NAPA

chylocele (Jinadu, 2002). These awful impacts of the disease made the World Health Organizations at its fiftieth assembly, in 1997 to call for the elimination of *Lymphatic filariasis* globally as a public health problem.

## MATERIALS AND METHODS

### The study area

This work was carried out in the Obubra Local Government Area of Cross River State of Nigeria over a period of 12 months between 2004 and 2005. Four rural communities were used viz- Ofumbongha I, Ofumbongha II, Ofumbongha III and Ofumbongha IV. The area is a virgin forest zone (Braide *et al.*, 2003).

### Subjects

The estimated total population of the communities is about 2400 out of which 1700 were examined. Every household was visited to enumerate its members. The criteria for selection included;

- (1) Those that have lived in the communities for one year and above;
- (2) Those that were 16 years old and above as these were considered the productive group. The subjects examined were those that voluntarily gave their consent. The work was carried out under the close supervision of 3 medical doctors working with the Onchocerciasis Control Unit, Calabar. The Control Unit, Calabar, also obtained clinical ethical clearance for the study.

### Advocacy

Letters were sent to the clan head of each of the four communities a week before sampling. The letters vividly explained the aims and objectives of the research work, and the date of sampling. The letters were sent through contact persons who were well known in the community. On each day of sampling, the people were made to

gather in their village squares during the day.

### Clinical examinations

The subjects were physically examined for the presence of lymphoedema, hydrocoele and elephantiasis in males as well as enlarged breasts in females. Private apartments were made available where the examinations took place. A female doctor was used to examine female subjects to avoid misunderstanding that may arise from the subjects and for optimum co-operation. Lactating and pregnant mothers were not included.

### Parasitological examinations / microscopy

Between 22.00 hrs and 24.00 hrs of each sampling day, 20  $\mu$ l (0.02 ml) of pre-treatment capillary blood was collected from the thumb of each subject, after sterilizing with cotton wool soaked with methylated spirit. Giemsa Staining Technique was used as described by Cheesbrough (2002). The entire preparation was examined microscopically for the presence of microfilaria using x10 objective, with the condenser iris closed sufficiently to give a good contrast. For clearer view of the sheaths of the pathogenic microfilaria, x40 objective was used. The number of microfilariae in the entire smear was counted and multiplied by 50 to give an approximate number of microfilariae per milliliter of blood (Cheesbrough, 2002).

### Analysis of data

Data collected were analyzed using the Microsoft Excel<sup>®</sup>. Means and percentages were calculated.

## RESULTS/ DISCUSSION

### Overall prevalence and microfilarial load for each community

Of the 1700 persons examined, 880 (51.8%) were positive for microfilariae

in their blood field. Ofumbongha III had the highest total prevalence rate (58.3%), followed by Ofumbongha IV (54.5%), while Ofumbongha I had the least (40.0%) (Table 1). The percentage of males infected (52.5%) was slightly more than that of the females (50.7%). The total

Ofumbongha communities of Obubra Local Government Area of Cross River State, Nigeria and this calls for a radical intervention.

**Table 1: Overall prevalence and microfilarial load of each community**

Community	No. Examined			No. Positive		Community Mf Load/mm	
	M	F	T	M	F	T	
<b>Ofumbongha I</b>	170	130	300	75 (44.1%)	45 (34.6%)	120 (40.0%)	14, 350
<b>Ofumbongha II</b>	150	100	250	67 (44.7%)	43 (43.0%)	110(44.0%)	12, 950
<b>Ofumbongha III</b>	370	230	600	200 (54.1%)	150 (65.2%)	350(58.3%)	35, 400
<b>Ofumbongha IV</b>	250	550	800	178 (59.3%)	122 (48.8%)	300 (54.5%)	30, 850
<b>Total</b>	<b>990</b>	<b>710</b>	<b>1700</b>	<b>520 (52.5%)</b>	<b>360 (50.7%)</b>	<b>880 (51.8%)</b>	<b>93, 550</b>

*NB. Mf= Microfilarial; M = Males; F= females; T = Total*

Number of microfilarial load is calculated by multiplying average number of microfilaria in the field by 50 (Cheesbrough, 2002).

microfilarial load for the four communities was very high (93,550). Ofumbongha III had the highest (35,400), followed by Ofumbongha IV (30,850), while Ofumbongha II had the least (12,950). Braide *et al.*, (2003) reported a high prevalence rate in some other areas of Cross River State, Nigeria. These observations are most likely as a result of the high breeding rate of mosquitoes in this area. Efforts should therefore be made to eradicate mosquitoes in these areas to stop the spread. There will also be need for radical treatment intervention as the infection can affect productivity.

## CONCLUSION

The results obtained indicate that lymphatic filariasis is endemic in

## REFERENCES

- Braide, EI.; Ikpeme, B; Edet, E; Atting, I; Ekpo, U. F.; Esu, B. and Kale, O.O (2003); Preliminary Observations on the Occurance of Lymphatic filariasis in Cross River State, Nigeria. *Nig. J. of Parasitol.* 24, 9 – 16.
- Cheesbrough Monica (2002); *District Laboratory Practice in Tropical Countries, Part I.* Published by Cambridge University Press, United Kingdom, p.453.
- Jinadu, M. Y. (2002); Management of lymphoedema and adenolymphangitis. Research seminar presented at the Nigerian Institute of Medical Laboratory Research, Lagos, Nigeria.
- Meyrowitsch, D.W.; Simonsen, P.E. and Makunde, W. H. (1996); Mass Diethylcarbamazine citrate chemotherapy for the control of

bancroftian filariasis:  
comparative efficacy of standard  
treatment and two semi-annual single  
dose treatments. *Transactions of  
The Royal Soc. Trp. Med. and*

*Hygiene.* 90, 69–73.

Michael, E.; Bundy, D. A. P. and Grenfell B.  
T. (1997); Reassessing the global  
imbalance and distribution of  
lymphatic filariasis. *Parasitology  
Today.* 112, 409 – 428

World Health Organization (2000);  
Community Directed Treatment of  
Lymphatic filariasis in Africa.  
Document TDR/DE/RP/CDT/00.2  
Geneva: *WHO*

World Health Organization (2001); Learner's  
Guide. *Training module on community  
home -based prevention of disability  
due to Lymphatic filariasis WHO,  
Geneva*

World Health Organization (2003); The  
Elimination of lymphatic filariasis. An

interactive guide for  
programme managers. WHO, Geneva.

World Health Organization, (1995); Guidelines  
for good clinical practice (GCP) for  
trials on pharmaceutical products.  
*WHO Technical Report Series, No.  
850, Annex 3, 1–*  
35 ([http://www.who.int/medicineslibra  
ry/par/ggcp/GCPGuide](http://www.who.int/medicineslibrary/par/ggcp/GCPGuide)) Pharmatrials.  
Pdf

World Health Organization (1997); The  
biomedical criteria for resettlement in  
the Volta Basin.  
*Onchocerciasis control Programme  
(OCP) area Report of a scientific  
Advisory Panel Working  
Group.* Geneva: World Health  
Organization Monograph  
OCP/SAP/77.1.