COMMUNITY PARTICIPATION IN THE CONTROL OF PARASITIC DISEASES: THE CASE OF UZO-UWANI LOCAL GOVERNMENT AREA

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ABSTRACT

A study on the epidemiology and effects of human onchocerciasis on productivity and social lives of rural communities in Uzo-Uwani Local Government Area of Enugu State was carried out between 1998 and 2000. The objectives of the study were to assess the level of endemicity of onchocerciasis in the 16 communities that make up the local government area and to ascertain the effects of the disease on the pattern of social interactions and the age of marriage of the infected individuals. The work also involved the local disease perception and treatment of the disease in the area and histopathological studies of the Onchocerca nodules. In the course of the studies, interviews were conducted for individuals and various groups in the communities including the Community Directed Distributors (CDDs) of ivermectin in the area. During these interactions, a number of problems that beset the control of onchocerciasis in the area became obvious. This paper reports on the community participation in the control of the disease, the problems encountered by these rural people in their efforts (which include lack of funds, late arrival of drugs, transportation and communication problems) and makes recommendations on how to overcome some of these problems.

Key words: Epidemiology, onchocerciasis, productivity, Community Directed Distributors, Control.

INTRODUCTION

Control of onchocerciasis had depended largely on the control of vectors by means of insecticides. These are used against *Simulium* larvae in the watercourses where they breed. However, reinvasion of the controlled areas by blackflies from neighbouring and adjoining uncontrolled regions usually occurs (Nwoke, 1992). Ideally, such measures should be reinforced with an attack on the parasite in man by means of nodulectomy or chemotherapy (Duke, 1972). Widespread larvicide applications result in a substantial drop in prevalence over most of the control area but the incidence of the infection in children remains high despite the low vector densities brought about by control. This can be attributed to the migratory reinvasion potential of savanna cytospecies of the *S. damnosum* complex (Garms *et al.,* 1979).

In Nigeria, the strategies and goals for control of onchocerciasis include a combination of health education, large-scale chemotherapy with ivermectin in communities where the prevalence of skin microfilariae is 30 % and above. Large-scale treatment with ivermectin has been given priority because of

1. the proven efficacy and safety
2. the small dosage required (a maximum of two tablets once or twice a year),
3. the convenience of its oral administration
4. its ability to bring about a dramatic reduction in the skin microfilarial load and potentially to reduce the morbidity and
5. the additional benefit of expelling many intestinal worms from persons who are treated for onchocerciasis
6. the fact that the donations of the drugs by the manufacturer- Merck, Sharp and Dohme (MSD) are free
7. the ease with which its distribution can be integrated into the existing high priority Primary Health Care (PHC) programme and
8. the commitment that the distribution, coverage and acceptance will be sustained long enough to reduce onchocerciasis to a level at which it is hoped that the disease will no longer be an important public health problem (Edungbola, 1991).

Onchocerciasis has constituted a major public health problem and an obstacle to socio-economic development in the endemic communities. In West Africa, a control programme was initiated in 1974 and is commonly called Onchocerciasis Control Programme (OCP). It is a joint programme sponsored by World Health Organization (WHO), World Bank, United Nations Development Programme (UNDP) and Food and Agricultural Organization (FAO) with WHO as executing agent. The OCP controls the disease in 11 nations in West Africa, which cover a total

area of 1.3 million km^2. The programme is designed to benefit over 15 million rural West Africans (Nwoke, 1992). The disease has been eliminated as a public health problem from the OCP countries through extensive insecticide spraying of the exposed vector breeding sites in the region, mostly from helicopters. Remme *et al.* (1990) reported that after 12-14 years of vector control, the community microfilarial load (CMFL) was close to zero in all villages they surveyed. Today, some 1.5 million people who were once infected no longer have any trace of the disease. About 10 million children born in the operational area since the programme began are now free of any risk of contracting the disease. Dadzie *et al.* (1990) reported a reduction of the incidence of onchocercal blindness by 40% resulting in lack of onchocercal blindness in children below the age of 20 years. To complement vector control activities, the drug ivermectin is distributed free of charge to more than 2.2 million people in the operational area (De Sole and Remme, 1991; WHO, 1996). Since the WHO Onchocerciasis Control Programme was launched in 1974 in West Africa, more than 1.7 million additional years of productive labour have become available as a result of control measures. An additional 25 million hectares of usable land could be made available for agricultural production. This could feed 17 million more people (WHO, 1996).

A programme to eliminate onchocerciasis as a public health problem in the Americas is being coordinated by the Pan American Health Organization with the support of non-governmental development organizations (NGDO) and the Inter-American Development Bank (IADB). Concerted efforts had been made to control the disease in areas where it is endemic through co-ordination of ivermectin distribution activities. However, a conference held in 1991 resulted in the launching of a regional onchocerciasis elimination programme (Onchocerciasis Eradication Programme of the Americas, OEPA) to reduce morbidity through the mass distribution of ivermectin in Brazil, Colombia, Ecuador, Guatemala, Mexico and Venezuela (WHO, 1996; Etya'ale, 1998).

WHO in 1995 launched a new programme - the African Programme for Onchocerciasis Control (APOC) - in close co-operation with the World Bank, the governments of 16 participating countries where the disease exists but which were not covered by the earlier programme, donors and non-governmental development organizations (NGDO) (WHO, 1996; Benton, 1998). This new programme, which became operational in January 1996, aims to control and eventually eliminate the disease as a public health hazard from the entire African continent by the year 2002. APOC will directly benefit more than 15 million people infected with onchocerciasis and nearly 100 million people estimated to be at risk in these 16 participating countries (WHO, 1996). Fortunately, Nigeria is one of the beneficiaries of this programme and Uzo-Uwani Local Government Area happens to be one of the endemic areas benefitting from the programme

MATERIALS AND METHODS

The Study Area and Population: The study area was Uzo-Uwani Local Government Area of Enugu State, Nigeria. It consists of 16 communities divided into four health districts namely:

1. Umulokpa district consisting of Umulokpa (local government headquarters), Nkume, Adaba and Ukpata
2. Nkpologu district made up of Nkpologu, Uvuru and Akpugo
3. Ogboli district consisting of Adani, Asaba, Igga, Ojjor and Ogurugu
4. Nimbo district comprising Nimbo, Abbi, Ugbene-Ajima, and Nrobo.

Uzo-Uwani Local Government Area lies between longitude 6^0 $30^/$ and 7^0 $00^/$ East and between latitude $6^0 55^/$ and 7^0 $15^/$ North. It belongs to the forest-savanna-mosaic vegetation zone of Nigeria (Crosskey, 1981). The vegetation is a mixture of tall grasses and shrubs with few tall trees. This local government area is generally not hilly when compared with the neighbouring Nsukka, Igbo Etiti and Udi Local Government Areas of Enugu State. Uzo-Uwani Local Government Area, like other parts of Enugu State, has in general 7 months of rainy season (April to October) with a break around July/August and 5 months of dry season (November to March) with harmattan occurring sometime within the dry season months. The weather is usually hot during the dry season especially in Ogboli district. Uzo-Uwani Local Government Area is traversed by many rivers and streams. These include River Adada , River Obina, River Duu, River Eshi and Anambra River in addition to many streams. These rivers and streams belong to the Anambra River System, which had been identified by Crosskey (Crosskey, 1981) as part of the breeding sites for *Simulium damnosum* (blackfly) in Eastern Nigeria.

Most of these rivers are clean, rapidly flowing and with resistant rocks in the river beds at some points while others have been dammed at some points for agricultural purposes. These conditions encourage the breeding of *Simulium damnosum* in these rivers. Most of the rivers are perennial and this makes them suitable for *Simulium* breeding all year round.

The communities within Uzo-Uwani Local Government Area are mostly connected by minor roads while the area is joined to neighbouring local government areas by secondary roads. Road transportation is the major transport system within and out of this area. Majority (about 90%) of the communities in this local government area do not have pipe-borne water and electricity. Each community, however, has a health centre and/or health post. The larger communities like Adani, Umulokpa, Nkpologu, Nimbo, have private hospitals in addition.

The inhabitants of all the communities that make up this local government area engage in agriculture as their major economic activity. Most farmers in Ogboli district cultivate mainly rice and the establishment of Adarice Project by the government in this district is an encouragement to rice cultivation. Some people, in addition to farming, engage in fishing and hunting activities.

Methods of Data Collection: The data was collected using two methods namely questionnaire and interview methods. Structured and pre-tested questionnaire was used to collect information from the secondary school students while group interviews using the questionnaire as a guide were conducted for the primary school children and adults members of the different communities.

Methods of Data Analysis: The information obtained using the questionnaires were coded and analysed using percentages. For the interviews, the most popular opinion on any question was taken to represent the opinion of the community.

RESULTS AND DISCUSSION

Out of the 16 communities interacted with; all (100%) agreed that there was a drug distributed in their communities. This knowledge spanned through all the segments of the different communities primary school pupils, secondary school students and adult members. However, they did not know the name of drug and disease for which it was distributed. All the communities, especially the adult members accepted that nodules were common and the common curative measure was removal of the nodules (nodulectomy).

Interviews with the adult members of the communities also showed that some communities refused to take ivermectin due to reasons discussed later. Also, community participation in drug distribution was beset with a number of problems discussed below.

Areas of Community Participation in the Control of Onchocerciasis in the area

1. Drug distribution: At the time of the study, ivermectin distribution was on in Uzo-Uwani Local Government Area. The person in charge of the distribution at the Public Health Care unit of the Ministry of Health reported that the Community Distributors usually came to collect the drugs for their communities from the headquarters. These distributors were supposed to be sponsored by their communities to cover at least their transportation costs because some of the communities were as far as 50 km from the headquarters. In this effort, therefore, the members of the communities were involved in the disease control.

2. Nodulectomy: Nodulectomy was found to be a very common and accepted treatment method in the whole of Uzo-Uwani Local Government Area. Each community had local excisors who removed the nodules from infected individuals. In addition, health centre superintendents also removed nodules. For example, in Ukpata, where nodules were collected for histopathological studies, the researcher sponsored nodulectomy for 34 patients, the excision was done by the superintendent of the health centre (Ubachukwu, 2001a).

Problems Encountered by the Communities in Their Control Efforts

1. Lack of funds: The community directed distributors interviewed in three of the communities (Ukpata, Adaba and Nkpologu) reported that lack of funds hindered them from their duty of drug distribution. According to

them, their communities did not continue to sponsor their transportation to collect drugs from the headquarters and consequently, some of them got discouraged and stopped the collection. Some of them resorted to charging a token amount to anybody that would like to collect the drug. The members of some communities stopped taking the drugs because they could not afford to pay for them.

2. Late arrival of drugs: One of the problems reported at the headquarters was late arrival of ivermectin. This resulted in delays in delivering the drugs to the community distributors.

3. Communication problems: There was no regular means of communication between the community distributors and the headquarters. Consequently, there was need to continue checking the headquarters from time to time until the drug arrived. As a result of the transportation costs, some got frustrated and stopped further efforts.

4. Transportation problems: Many of the communities are far from the local government headquarters and there are no good roads and no regular means of transport. Many transporters ply Umulokpa (the headquarters) only on their market days. Consequently, it was not easy for the distributors to easily check for drugs in the absence of adequate communication.

5. Ignorance: Most people interviewed in all the communities knew that a drug was distributed to them but did not know the disease for which the drug was distributed. They did not also know all the rules guiding the taking of the drug. In two communities, Adaba and Nkpologu, they recorded one and two deaths respectively after taking the drug. This discouraged many from taking the drug. In one community, Uvuru, there was propaganda against the use of the drug. The allegation was that there was an attempt to reduce their population using the drug.

Recommendations on How to Overcome Some of the Problems

Major recommendations to be made from the results of the studies are shown in Figure 1. These include:

1. Strengthening the ivermectin distribution programme: Since 1996, WHO under the African programme for Onchocerciasis Control in collaboration with the Federal Ministry of Health and non-governmental development Organizations (NGDO) has been undertaking free distribution of ivermectin in Uzo-Uwani Local Government Area. There is need to make the distribution more effective by supplying enough drugs to the area and monitoring its distribution to the various communities. Also, a more effective training of the Community Directed Distributors (CDDs) selected from the individual communities for the drug distribution is required. Cost recovery as reported by Amazigo *et al.* (1998) and Hopkins (1998) is one of the ways of sustaining the distribution of Mectizan in the rural areas. This involves payment of a token fee by every family that receives Mectizan treatment. In a report by the WHO/APOC Community Directed Treatment with Ivermectin (CDTI) Project Evaluation Team in Ekiti State (Akogu *et al.*, 2003), they recommended better planning, monitoring and supervision, training, integration of activities, proper funding and provision of transport both at the state and local government levels to ensure effective distribution of ivermectin.

2. Nodulectomy: Nodulectomy (nodule excision) is a common and generally accepted treatment procedure in Uzo-Uwani Local Government Area. From interactions with the people of the area, they are willing to remove the nodules. Their only hindrance is the cost of the removal (Ubachukwu, 2001a). In the health centres and health posts, the personnel to do the removal are available but the materials to use are not readily available. The people with nodules are expected to provide these materials and many of the people cannot afford them. They, therefore, either go to quacks for the removal or leave the nodules. It is recommended that nodulectomy be sponsored in these communities in addition to the on-going drug distribution. The Ministry of Health should provide these materials to the health personnel in the affected communities.

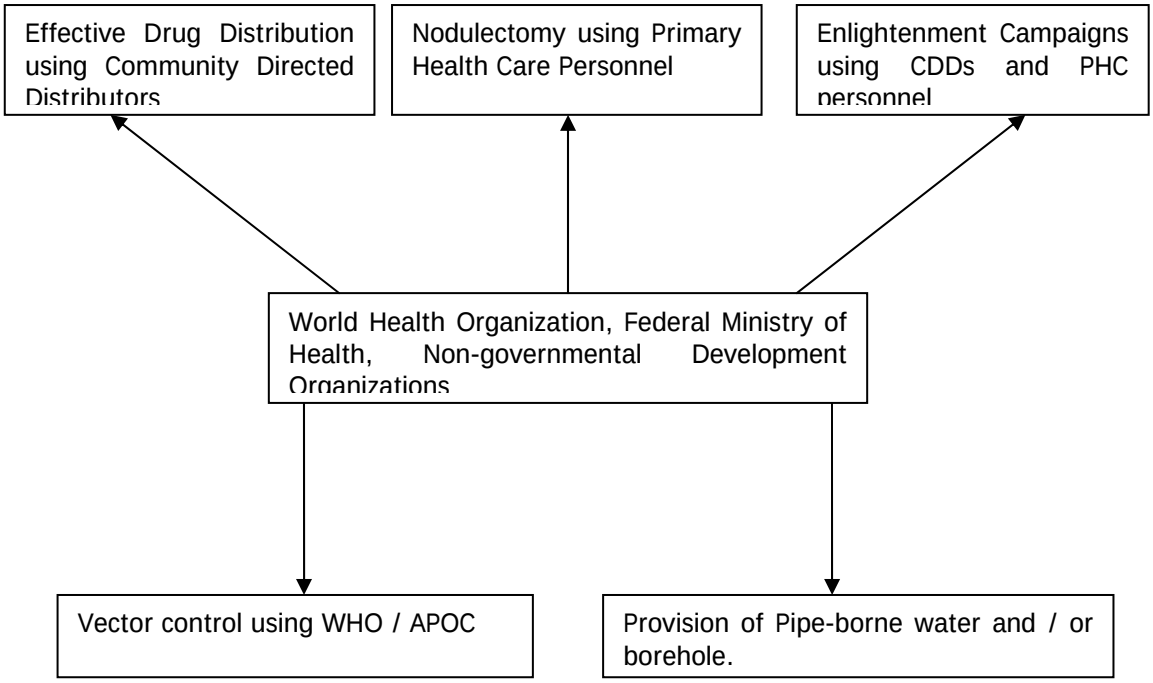

Figure 1: Schematic Representation of Strategies for controlling onchocerciasis in Uzo-Uwani Local Government Area.

3. **Enlightenment campaign:** The people of Uzo-Uwani Local Government Area are largely ignorant of the basic facts concerning the causative agent, vector and common manifestations of onchocerciasis. This ignorance leads to misconceptions of both the cause and symptoms of the disease. One of the misconceptions with serious implications is that oncho-rashes are caused by poor hygiene and are contagious. This belief leads to social discrimination against people with rashes and culminates in the late marriages and limited choice of marriage partners of infected people, especially girls (Ubachukwu, 2001b).

The enlightenment campaign recommended here will make use of the Community Directed Distributors (CDDs) selected from each community for ivermectin distribution in collaboration with the staff of primary health care (PHC) units e.g. health centres and/or health posts in each community. In the existing set up, WHO trains the CDDs on the guidelines for ivermectin treatment. These people go back to their communities to distribute drugs. It is recommended that there should be further enlightenment on the parasite, vector, manifestations and effects of onchocerciasis to enable these community distributors to enlighten their own people. Some of the areas of enlightenment suggested include the aetiology of the disease, onchocerciasis, including what causes it (*Onchocerca volvulus*), the vector (*Simulium damnosum*) and the symptoms (itching, rashes, palpable nodules, visual impairment, leopard skin, lizard skin, hanging groin, scrotal elephantiasis, body pains etc). Also to be included here is where and how they get the infection (mostly near rivers and in farms and through *Simulium* bites), the socio - economic effects of onchocerciasis, the fact that the manifestations, especially rashes, are not contagious. From the little enlightenment carried out during the studies, it is obvious that the communities are willing to learn. Finally, they should be encouraged to try and prevent the bites particularly during the peak biting periods through covering themselves properly while working outdoors, using insect repellents or changing their working habits, taking their break and leave from the farms during the peak biting periods especially the evening peaks (between 5.00 and 6.00 p.m.) which are usually higher (Ubachukwu & Anya, 2001).

Another area of the enlightenment should be on the effective use of the choice drug, ivermectin. The rules guiding the use of the drug and the consequences of not following the guidelines should be stressed to the CDDs during their training before drug distribution. The effect of not taking the drug by the entire community should also be stressed, for example the danger of serious visual impairment and blindness with their long-lasting implications on both the young and old. Again, the rural people have no recorded medical history and this has led to a few tragic cases that discouraged many in the affected communities from taking the drug. It is recommended that the medical

history of each individual be traced and recorded before the administration of the drug. Proper monitoring is also required.

4. Vector control: Boakye (1999) reported some of the successful results of vector control by World Health Organization (WHO) in the Onchocerciasis Control Programme (OCP) areas of West Africa. To be able to eradicate onchocerciasis in Uzo-Uwani Local Government Area, it is recommended that vector control be undertaken in addition to effective distribution of ivermectin drug, nodulectomy and enlightenment campaigns. These strategies, if well co-ordinated will yield the desired result in this area and eliminate onchocerciasis as a public health and socio-economic problem in Uzo-Uwani Local Government Area as has been reported in the OCP areas (WHO, 1996).

5. Use of repellents: There is need to discover an effective repellent that can be used by the people while working outdoors especially at the peak biting periods of the *Simulium* flies.

6. Provision of social amenities: It was observed in the course of this study that all the communities in Uzo-Uwani Local Government Area lack pipe-borne water and therefore depend on streams and rivers as their major source of water supply. Provision of pipe-borne water/ boreholes would help to reduce the man - fly contact arising from going to the river/stream to fetch water for drinking and laundry.

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