

KNOWLEDGE, ATTITUDE AND PERCEPTIONS OF ONCHOCERCIASIS IN A HYPER-ENDEMIC COMMUNITY OF EDO STATE, NIGERIA

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An evaluation of the knowledge, attitude and perception of Ekpan, a rural community in Edo State of Nigeria towards onchocerciasis after 3 years of ivermectin distribution was undertaken. The structured questionnaire administered to the respondents focused on specific aspects of knowledge, attitude and perception related to the disease, its mode of transmission and control activities in the village. Results from the survey showed that 133 (68.6%) had fair knowledge of the disease. All subjects knew the bite of the blackflies was followed by itching but none knew that bites were accompanied by *Onchocerca volvulus* transmission. Level of education influenced knowledge of the disease and the relationship was statistically significant ($P < 0.05$). Knowledge of the clinical manifestation was however poor. Majority of the respondents (83.0%) perceived the disease to be due to other causes other than *Onchocerca volvulus*. Knowledge of the side effects of ivermectin treatment was good while knowledge of those excluded from treatment was generally fair. Their attitude to ivermectin distribution was strongly influenced by adverse reactions to the drug, leading either to outright rejection or discontinuation of the treatment after initial acceptance. The most prevalent reactions were swelling of leg/feet (22.2%), followed by itching (17.5%) and weakness (9.8%). The respondents perceived the different clinical manifestation of onchocerciasis to be specific disease entities. Onchocercal nodules were believed to be blood clots; leopard skin was thought to be healed scars of wounds and cuts accidentally acquired in the course of farming while hanging groin was regarded as hernia. In conclusion, ignorance of the cause of the disease negatively influenced their attitude and perception. Therefore, for maximum impact on morbidity and transmission to be achieved with ivermectin treatment, knowledge of the disease and control activities should be imparted to the residents. Such health education should of necessity take into consideration community attitude and culture, which promote health-seeking behaviour.

Key words: Knowledge, attitudes, perception, onchocerciasis, ivermectin

INTRODUCTION

Onchocerciasis is still a public health problem where it occurs in high intensity and endemicity (1, 2). Eighteen million people are infected world-wide and half the infected live in the rainforest zones where the non-blinding form, onchocercal skin disease (OSD) is prevalent (3, 4, 5). Seven million of the world's infected are Nigerians, of which about 114,000 are already blind and a high proportion are suffering untold hardship as a result of the OSD (3, 4, 6, 7). The disease, which is acquired through the bite of infected *Simulium spp*, has posed a serious threat to the health of the inhabitants and impediment to socio-economic development of those living in endemic communities (1, 7).

Ignorance of the cause and mode of transmission of onchocerciasis has hampered the control of the disease in endemic communities. Various authors have reported the lack of knowledge about the vector, parasite and afflictions (5, 8, 9), which could affect attitude towards the disease and its control efforts. Since lack of knowledge perpetuate disease, appropriate health education strategy will be necessary to improve the situation. This could be achieved through the Primary Health Care (PHC) system to encourage participation and acceptance of control programmes aimed at improving the health status of the affected communities.

METHODS

Study area

The study was undertaken in Ekpan Village, a farming community in Uhunmwode Local Government Area of Edo State, Nigeria from 1998-2000. The village is located between longitude 5°56.660'E and latitude 6°43.210'N and at an altitude of 279m ASL. The community lacks social amenities such as electricity, potable water supply and health facility. The only source of water supply for the community is the Ekpan River, which is fast flowing and provides ideal breeding environment for *Simulium* flies. The vegetation of the area is typical tropical rainforest, characterized by tall trees with thick undergrowth.

Advocacy and mobilization

Advocacy visits were paid to the community head, seeking consent for the survey. Consent to undertake the survey was granted after the objectives of the survey were highlighted. Mobilization of the community for the survey was undertaken by the Community Based Distributor of Ivermectin (CBDI) on the directives of the village head and the elders' council.

Sampling method

There were 529 individuals enumerated in the 84 houses in Ekpan village, which constitute the entire population. A sample size of 264 was derived from a microfilaria prevalence of 77.5% (10). The mean number of residents per house was 6. Using a systematic sampling method and a sampling ratio of 1:2, 40 houses were selected for the survey. All residents 15 years and above who have been domicile in the community for upwards of 5 years were eligible to participate in the study. Although a total of 202 eligible individuals were

resident in the selected houses, only 194 of them who were available participated in the survey. The structured questionnaire administered to the respondents by trained interviewers focused on specific aspects of knowledge, attitude and perception, related to onchocerciasis mode of transmission and control activities in the community. The duration of interview varied, depending on the educational level of the respondents, but the mean interview time was 25 min.

Knowledge of the respondents was assessed on; (i.) Vector of onchocerciasis, (ii.) Recognition of the clinical manifestation of the disease, (iii.) Drug used for onchocerciasis control and its source, (iv.) Mode of distribution of the drug, (v.) Population excluded from treatment, (vi.) Reaction to ivermectin, (vii.) Attitude to ivermectin treatment, (viii.) Perception of onchocerciasis. Knowledge was classified as either poor, fair or good. There were 5 sets of questions on knowledge, 2 sets of 5 each and 3 sets of 7. All questions asked were correct and scored as follows: < 3 = poor, 3 = fair and > 3 = good for the 2sets of 5 while the 3sets of 7 were scored as follows; < 4 = poor, 4-5 = fair and > 5 = good.

Data collected were analyzed using EPI INFO 6 statistical package. Test of significance was determined by the Chi-square test at 95% confidence limit.

RESULTS

Knowledge

Of the 194 persons interviewed, 106 (54.6%) were males while 88 (45.4%) were females. Knowledge of the disease was generally fair as shown in Table 1. All the subjects knew that the bites of the blackflies were followed by itching but none knew that bites were accompanied by *Onchocerca*

volvulus transmission. They knew that ivermectin was given free of charge but none knew the source of the drug. The level of education was however found to influence knowledge of the disease and this relationship was found to be statistically significant ($X^2 = P < 0.05$). The knowledge of the symptoms of onchocerciasis was poor. Majority (83.0%) perceived the disease to be due to other causes other than *Onchocerca volvulus* (Table 1). In fact, no specific name was ascribed to the disease in the community. Table 2 showed that 102 (52.5%) of the subjects had good knowledge of the side effects of ivermectin. Knowledge of the population excluded from taking ivermectin was generally fair as 54 (27.8%) of respondents had good knowledge while 44 (22.6%) had fair knowledge.

Attitude

Of the 194 respondents eligible to take ivermectin in the survey, a total of 176 (90.7%) actually took the drug at various times of the distribution. According to them, they accepted ivermectin because it improved their health. However, a few (28.3%) rejected the drug for fear of adverse reactions. Others (1.5%), after initial acceptance of the drug, refused further treatment, when it failed in their case to expel intestinal worms as reported by other treated residents. Another group (18.0%) claimed they failed to take drug because they were absent from home at the time of distribution. About 17% of the respondents could not advance any specific reason for not taking the drug. Only 3.1% claimed they

did not take the drug because they were pregnant at the time of administration.

Among those who took the drug, 104 (53.6%) claimed to have had reactions to the drug after the first dose while 90 (46.4%) did not experience any side effects. Table 3 shows that among those who had reactions, 86 (44.3%) experienced swelling of different parts of the body. The predominant reaction was swollen leg/feet (22.2%) followed by itching (17.5%) and weakness (9.8%). On the other hand, some respondents expressed satisfaction with ivermectin treatment. Among this group, 163 (84.0%) were pleased with the treatment because it improved their health and vigour. Interestingly, 10 (5.2%) of the respondents claimed they experienced improved visual acuity following treatment. Others (5.2%) cited pain relief as their ground for satisfaction with the treatment while 11 (5.7%) experienced intestinal worm expulsion.

Perception

In Ekpan community, onchocercal nodules were perceived to be blood clots resulting from falls. Among them, leopard skin was believed to be part of the aging process peculiar to certain families. Others thought them to be healed scars of cuts and wounds accidentally acquired in the course of their occupation as farmers. Hanging groin was perceived as hernia in the community.

Table1. Knowledge of onchocerciasis and symptoms of the disease by educational level

Level of education	% Frequency of knowledge of the disease			% Frequency of knowledge of the symptoms			
	Good	Fair	Poor	Good	Fair	Poor	Total
No formal Education	3(1.5)	26(13.4)	16(8.2)	2(1.0)	3(1.5)	40(20.6)	45(23.1)
Primary	10(5.2)	83(42.8)	19(9.8)	6(3.1)	12(6.2)	94(48.5)	112(57.8)
Secondary	6(3.1)	24(12.4)	7(3.6)	3(1.5)	7(3.6)	27(13.9)	37(19.0)
Total	19(9.8)	133(68.6)	42(21.6)	11(5.6)	22(11.3)	161(83.0)	194(100)

Table2: Knowledge of those ineligible to take ivermectin and reaction to the drug among the respondents by educational level

Level of education	% Frequency of knowledge of the disease			% Frequency of knowledge of reactions to ivermectin			
	Good	Fair	Poor	Good	Fair	Poor	Total
No formal Education	9(4.6)	8(1.4)	28(14.4)	21(10.8)	4(2.1)	20(10.3)	45(23.2)
Primary	30(15.5)	29(14.9)	3(27.3)	59(30.4)	8(4.1)	45(23.2)	112(57.7)
Secondary	15(7.7)	7(3.6)	15(7.7)	22(11.3)	5(2.6)	10(5.2)	37(19.1)
Total	54(27.8)	44(22.6)	96(49.4)	102(52.5)	17(18.8)	75(38.7)	194(100)

Table 3: Different types of reactions experienced by respondents

Types of reactions	% Frequency of reactions
Swollen leg/feet	43 (22.2)
Swollen hand	13 (6.7)
Swollen body	23 (11.8)
Swollen face	7 (3.6)
Itching	34 (17.5)
Weakness	19 (9.8)
Dizziness	7 (3.6)
Sleepiness	2 (1.0)
Heavy/legs	2 (1.0)
Fever	1 (0.5)
Eye redness	1 (0.5)
Excessive eating	1 (0.5)
Intestinal worm expulsion	2 (1.0)

DISCUSSION

This survey revealed that majority of the respondents lacked adequate knowledge about onchocerciasis. This finding is similar to reports from other studies (6, 9, 11, 12, 13). Although they knew that blackflies constituted a great biting nuisance, the bite was not associated with disease transmission. This inability to associate onchocerciasis transmission with *Simulium* bites is not peculiar to Ekpan village because other investigators have similarly observed this problem in other locations (5, 8, 14, 15). As have been previously reported by other investigators (8, 9), ignorance of the disease and its mode of transmission could be the reason why no specific name was ascribed to onchocerciasis in the community. In contrast, the vector, *Simulium damnosum* is well-known and is called 'Isikpor' in the village and the surrounding communities.

The fact that none of the respondents knew the source of the drug reveals that community participation in the procurement and distribution of ivermectin

as recommended under the African Programme for Onchocerciasis Control (APOC) is not yet in place or at best in the rudimentary stage in the community. According to Katarawa and Mutabazi (16), it is cheaper to train the community to achieve a sustainable control programme. At the moment, only the CBDI is trained and empowered for onchocerciasis control in Ekpan village.

According to WHO (2), those excluded from ivermectin intake include children under 5 years, the sick, pregnant and nursing mothers. The subjects were knowledgeable in this aspect as they may have been repeatedly informed by the CBDI. Although ivermectin coverage in Ekpan village was high (85.7%), a number of the inhabitants did not participate in or discontinued treatment with ivermectin for various reasons, prominent among these being the development of drug-related adverse reactions, after the first dose of the drug. Investigators including Abanobi (15), Richard-Lenoble *et al*, (17) and Oparaocha *et al*, (18) found similar reactions to ivermectin in the first dose recipients in their investigations. These adverse effects following the first dose of ivermectin in Ekpan village, as observed also by the other authors (19, 20) decreased and gradually stabilized with successive treatments. In Ekpan village, one other factor that contributed to a section of the community not participating in the treatment programme was the disagreement on who holds the position of CBDI. The aggrieved section of the community felt the position of the CBDI should be held by the first son of the reigning village head even though he had

no training for the job. When the community-directed mode of ivermectin distribution as adopted by APOC takes root in the community, such wrangling will be overcome as the entire community and a not few individuals will decide how ivermectin is procured and distributed in the village.

Ekpan village residents perceived the different clinical manifestations of onchocerciasis as distinct disease entities, which is indicative of ignorance of the disease. This observation is in agreement with the reports of Johnston *et al*, (8) in Malawi and Abanobi (15) in Imo State, Nigeria. Above all, onchocerciasis was not perceived as a health problem, since the affected persons could engage in their normal socio-economic pursuits with minimal incapacitation.

In conclusion, it is obvious from the results of this survey that ignorance of onchocerciasis has influenced the community perception and attitude towards the disease. Therefore, for the ivermectin treatment programme to have the desired impact on morbidity and transmission, appropriate education on the subject should be undertaken. Such health education should take into consideration community attitudes and culture which promote health seeking behaviour.

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