FACTORS THAT INFLUENCE COMPLIANCE WITH ANNUAL IVERMECTIN TREATMENT AND WILLINGNESS OF INDIVIDUALS TO CONTINUE WITH THE TREATMENT IN ABIA STATE, NIGERIA

Abstract

This study was conducted to document the factors that influence individuals to annual ivermectin treatment and peoples' willingness to continue taking ivermectin, as an important predictor of sustained compliance with long-term ivermectin treatment. The survey which lasted from April to September 2011, captured the two Local Government Areas of Abia State that were assessed hyper-endemic for onchocerciasis. A study questionnaire was designed and distributed to 558 individuals. Out of 558 interviewed on factors that positively influence compliance to annual ivermectin treatment, 94.2% said they have heard/seen benefits of treatment. 64.1% claimed that the factor that influenced them positively was "to avoid blindness". However, such factors like "lack of information" (86.7%) and "side reactions to drug" (53.3%) were detrimental to compliance. On their willingness to continue with the drug, 483 (86.6%) claimed that most people take the drug, 495 (88.7%) affirmed that most people will continue with the drug while 555 (99.5%) indicated that they are personally willing to continue with the drug if made available. This is confirmed by the Chi-square (χ^2) analysis at 0.05 level of significance that people are personally willing to continue with the drug if available (χ^2_{cal} =0.0159 < χ^2_{tab} = 3.84146). Suggestions on ways to improve compliance to annual and long-term ivermectin treatment showed that health education/enlightenment ranked very high (78.3%). This is followed by "awareness through church/school" (77.5%). It is imperative that the existing

health education materials be reviewed by taking into cognizance such factors that will improve annual and long-term compliance.

Introduction

. With the mandate of APOC to establish within a period of 12 to 15 years, effective and self-sustainable community- directed treatment with ivermectin throughout the endemic areas, within the geographical scope of the programme (APOC/WHO, 2005), a clear understanding of the long-term compliance process is required in order to guide countries towards sustainability. According to projections by epidemiologists, it is believed that onchocerciasis could be controlled in endemic communities if 100% of eligible populations take their treatment regularly over a period of 10 to 15 years or more (Edungbola, 1991; Boussinesq *et al*., 1997). With annual dose of ivermectin, it is estimated that 70% of target population would have to be treated, for the long-term project of elimination of the disease to be a reality (Dadzie, 1997).

The current mainstay of onchocerciasis control is chemotherapy, using Ivermectin alone or, in small and isolated foci, combined with vector elimination. Most tablets of ivermectin are now distributed in an approach known as community – directed treatment with ivermectin (CDTI), which was adopted by the African Programme for Onchocerciasis Control (APOC) in 1995. Its goal was to put in place a sustainable drug distribution system and maintain a maximum of 65% annual population coverage with Mectizan in endemic communities for at least 15 years, required for effective control of onchocerciasis (Plaisier *et al*., 1997; Borsboom *et al*., 2003; Tielsch and Beeche, 2004; Amazigo and Boatin, 2006). Currently, CDTI is on-going in over 95,000 communities where over 98 million ivermectin tablets are distributed annually to treat over 33 million people (Amazigo *et al*., 2007). In CDTI, community ownership of the Ivermectin – treatment programme is emphasized, with

endemic communities themselves involved in the planning, implementation, coordination and monitoring of all treatment activities (Etya' ale, 2001). As an annual dose of ivermectin does not interrupt transmission of the parasite that cause onchocerciasis, distribution of the drug will probably have to be repeated for many years, even if high treatment coverage are achieved and sustained (Hopkins *et al*., 2005). Compliance with annual ivermectin treatment has become a major challenge for APOC as the original 25 projects which started in 1997/1998 have been operating for over a decade. Annual compliance studies have become possible and extremely desirable, since researchers are now pushing back the timeframe for annual ivermectin dosing from 15 to 25 or more years (Winnen *et al.,* 2002), and the coverage rate from 65% to 80% (RSISCI, 2007; APOC/WHO, 2009). To date, published reports of CDTI intervention have focused on coverage. While reports of population coverage are encouraging (Amazigo *et al*., 2007), only few studies have centered on compliance to annual ivermectin treatment. Coverage rates in a community may not give the full picture of the programme success because there may be individuals or groups who systematically do not comply over the years and thus provide a continued focus for the disease transmission. Such low compliance group needs to be properly informed on the need to comply with annual ivermectic treatment necessary for total elimination of the disease. This study highlights the factors that necessitate high compliance and suggests ways to improve annual and long-term ivermectin treatment

Results

Of the 558 individual interviewed on the factors that positively influence individual compliance to annual ivermectin treatment (Figure 1), in order of priority were "have heard/ seen benefits" (93.2%), "to avoid blindness" (64.1%), "awareness has been created" (35.0%), "to be healthy" (22.2%). However the factors that were detrimental

to compliance were "lack of information" (86.7%), "side reactions" (53.3%), "non-availability of drug" (33.3%) and "late arrival of drug" (26.7%).

Table 1: Factors influencing Compliance

Factors influencing compliance	Percentage (N=487)	Factors detrimental to compliance	Percentage (N=71)
Have heard/seen benefits	94.2	Lack of information	86.7
To avoid itching	19.4	Late arrival of drug	26.7
Awareness has been created	35.0	Non -availability of drug	33.3
To avoid blindness	64.1	Side reactions	53.3
To be healthy	28.2		
It gives energy	22.3		

On the willingness to continue with ivermectin treatment by most individuals, 483 (86.6%) out of 558 indicated that most people take the drug; 495 (88.7%) affirmed that most people will continue with the drug while 555 (99.5%) said that they are personally willing to continue with the drug if made available. This is confirmed by Chi-square (χ^2) analysis at 0.05 level of significance that people are personally willing to continue with the drug ($\chi^2_{cal} = 0.0159 < \chi^2_{tab} = 3.84146$).

Table 2: Willingness to Continue Ivermectin Treatment among Individuals

WILLINGNESS TO TAKE	RESPONSES	NUMBER (N=558)	PERCENTAGE RESPONSE	YATES CORR. X^2 VALUE
Most people take	Yes	483	86.6	0.00228 < 5.99147
	No	49	8.8	
	Don't know	26	4.7	
Most people will continue	Yes	495	88.7	0.00005189 < 3.84146
	No	-	-	
	Don't know	63	11.3	
Personally willing to continue	Yes	555	99.5	0.0159 < 3.84146
	No	-	-	
	Don't know	03	0.5	

Testing at 95% significant level; $\alpha = 0.05$

Suggestions on the ways to improve compliance to annual ivermectin treatment in order of priority is shown in Figure 1. They are "health education/ enlightenment" (78.3%), "awareness through church/school" (77.5%), "house-to-house distribution" (65%) and supp distribution" (65%) and support CDDs (63.3%).

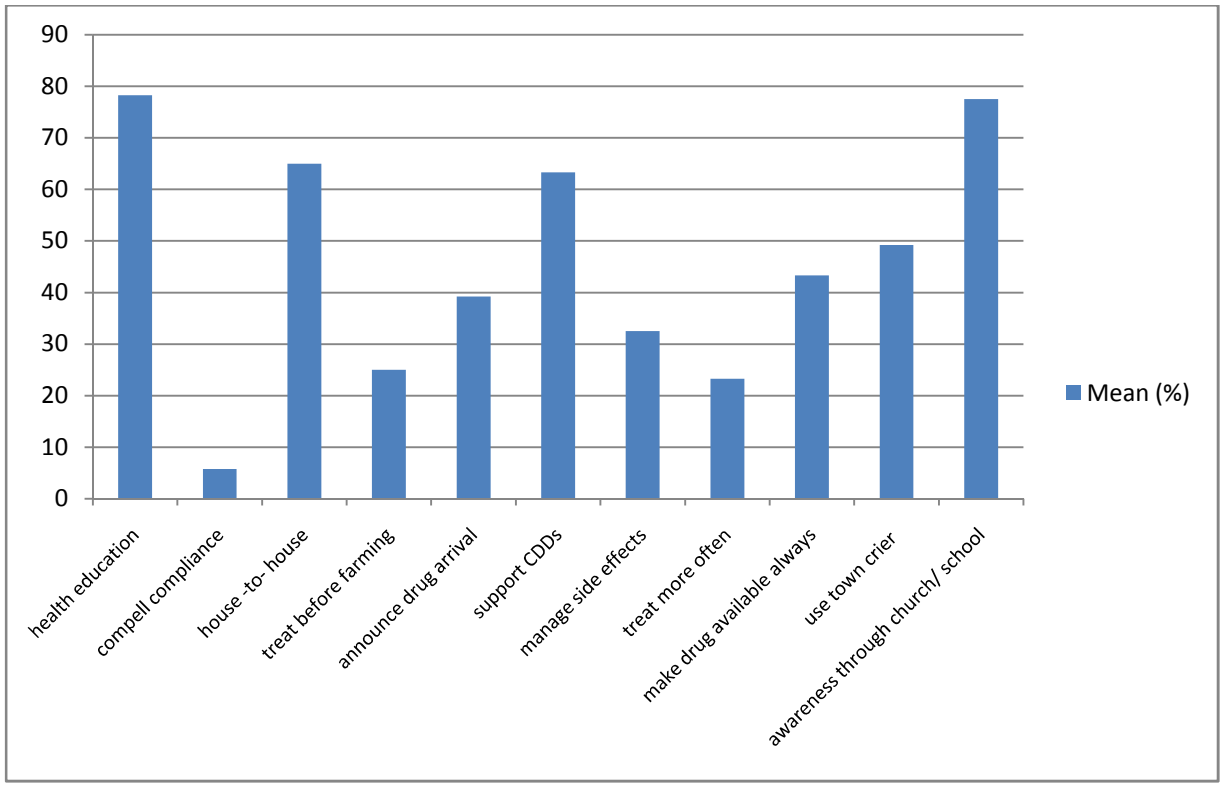

Fig. 1: Suggested Ways to Improve Compliance to Annual and Long Term Ivermectin Treatment

Discussion

From the result, the factors that influence compliance include "have heard or seen benefits" (94.2%), "to avoid blindness" (63.1%) and "awareness had been created" (35.0%) while "lack of information" (86.7%) and "side reactions to drug" (53.3%) were detrimental to annual compliance. Lack of information resulting from poor mobilization and ignorance is a major factor contributing to low treatment compliance. Lack of information on the availability of Mectizan to the community members was also cited as a major reason for low compliance by Miri (1998) and Mutabazi and Duke (1998). Acceptance of Mectizan by individuals depends on the awareness of the individual on the availability of the drug, its effectiveness and benefits accruable to the individual. Therefore, there is the need for people to be aware, get involve and participate in the control programmes. Compliance rate is high in

communities where members have reasonable knowledge about *Onchocerciasis* control (The Carter Center, 2002).

The study also revealed that most people have the knowledge of the drug, hence most of the respondents indicated that "most people take the drug" and are willing to continue. More people are willing to take the tablet than before because the community distributors are part of the community and understand their people better. It is important that government ensures that the drug is available and procured early for distribution. Almost every person interviewed (99.5% of the respondents) said that they are personally willing to continue with the drug as long as the drug is available. It is important that these individuals who are personally willing to take the drug maintain the annual treatment if they desire complete eradication of the disease.

Suggestions were made on how to improve annual and long-term compliance by respondents. From the findings, "health education/enlightenment" ranked very high (78.3%). This is followed by "awareness through church/school" (77.5%), "house-to-house distribution" (65%) and "support CDDs" (63.3%). Nuwaha *et al* (2004) also recommended health education as one of the main strategies towards improving treatment. It becomes imperative that the existing health education materials should be reviewed by taking into cognizance those factors associated with low compliance as well as perceptual factors like benefits of treatments and seriousness of the problem of *Onchocerciasis*. Efforts should also be made to address the issue of CDD attrition by providing some motivational incentives. It is believed that the implementation of these suggestions will not only improve annual compliance to ivermectin treatment but also boost the long-term compliance that will eventually eradicate onchocerciasis in Abia State.

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