

Short Research Communications

A study on coverage and compliance of mass drug administration programme for elimination of filariasis in Udupi district, Karnataka, India

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Lymphatic filariasis (LF) is an important public health problem in India not only due to morbid condition but also due to social stigma, sexual incapacitation and considerable economic loss. About 64% of global population who are at risk of LF infection are living in southeast Asia region. It is estimated that 554.2 million people are at risk of LF infection in 243 districts across 20 states and union territories in India¹. National Health Policy 2002 aims at elimination of transmission and prevention of disability due to LF by the year 2015. The most practical and feasible method of controlling LF is rapid reduction of microfilarial load in the community by annual mass drug administration (MDA) of a single dose of Di-ethyl-carbamazine (DEC). The World Health Organization (WHO) has recently called on member of states to identify the global elimination of LF as a public health priority². The global strategy to interrupt transmission of LF is a single-dose, two-drug regimen to be used by communities at risk with the goal of reaching 80% coverage for 4–6 years³.

In India, 243 districts are identified as endemic districts with 29 million people being parasite carriers and 22 million with chronic disease. Eight districts are identified as endemic in Karnataka and Udupi district is one of them. MDA of single dose DEC once

in a year was started in 2004 and four rounds of MDA programme have been completed in the district. Programme was based on a house-to-house approach involving health department staff, anganwadi workers, self-help groups, youth clubs, medical college staff and students, etc. Prior to each round of drug distribution, orientation and training sessions were conducted in each PHC level for all the participants (other than health and anganwadi staff participation which was purely voluntary). Campaigns through mass media (Television, Radio and Newspapers) and banners, pamphlets, posters, jatha's by schoolchildren and miking were also conducted in most of the areas. Door-to-door distribution of drugs was carried out within three days of time. Factories, schools, institutions and firms were covered providing drugs at their door steps. Drugs were distributed according to the criteria prescribed by the Government of India. Predictions indicate that at least 90% consumption is required to achieve the goal of elimination with five rounds of annual DEC based MDA and 11 rounds are required if the coverage is 60%⁴.

Current approaches to drug delivery are able to achieve only 40–60% of coverage if MDA executed by regular health services⁵. Therefore, the principal challenge before the planners, programme managers

and researchers is to develop effective and sustainable drug delivery strategies and also to find out the shortcomings of recently conducted programme with reference to coverage and compliance and to further improve strategies for future rounds.

Therefore, a community-based cross-sectional study was conducted by faculty, trained medico-social workers and health educators of the Department of Community Medicine, Kasturba Medical College, Manipal, Karnataka within a week following MDA programme during September 2007 in Udupi district of Karnataka state. The objective of the study was to evaluate the coverage and compliance and to assess the reasons for non-coverage and non-compliance of the programme and to examine the drug-related issues such as side-effects, if any. A total of 13 clusters were selected giving representation for urban and rural areas of taluka. From each cluster five random points were identified and at each point four houses were randomly selected. There are 20 wards in Udupi municipality area, taking feasibility into consideration four wards were randomly selected, i.e. one out of every five wards. In rural areas, nine villages were selected—one village with Primary Health Centre (PHC), six villages with sub-centres, and two villages with no health facilities. These clusters covered a total of 260 households with a total population of 1145 persons of which 27 children were <2 yr. Adhering to the criteria of NVBDCP² pregnant women, children less than two years of age and seriously ill people were excluded from the study. Therefore, for compliance and coverage a total population of 1118 people was considered. A pre-tested questionnaire was used to collect the data from the head of the household or responsible member of the family. Data were analyzed using SPSS 11.0 software. Results were summarized as percentages.

The socioeconomic and demographic characteristics of the subjects are shown in Table 1. Majority of them were Hindus (72.3%) and most of them (80.2%) were in the age group of ≥ 15 yr. Around 15.9% (182) of them were housewives. Around 44.8% were males and 55.2% were females. Almost 92% of them were

Table 1. Socio-demographic characteristics of the respondents (n = 1145)

Variables	No.	Percentage
<i>Age</i>		
≤ 23 months	27	2.3
2–4 yr	30	2.6
5–14 yr	171	14.9
≥ 15 yr	917	80.2
<i>Sex</i>		
Male	513	44.8
Female	632	55.2
<i>Religion</i>		
Hindus	828	72.3
Muslims	163	14.2
Christians	154	13.5
<i>Education</i>		
Illiterate	92	8.0
Primary	354	30.9
Secondary	349	30.5
Graduate	297	25.9
Pre-schooler	53	4.7
<i>Occupation</i>		
Unskilled	79	6.9
Skilled	182	15.9
Professionals	187	16.3
Unemployed	268	23.4
Housewives	182	15.9
Students	165	14.4
Others	82	7.2

Table 2. Coverage and reasons for non-compliance of drug administration

Variables	No.	Percentage
Coverage	821	73.4
Non-receipt of drugs	324	28.9
Swallowed drugs	703	62.8
Adequate dose received	775	94.4
Not eligible	15	12.7
Refused to consume (felt not necessary/fear of side-effects)	95	80.6
Failure to deliver medicine	8	6.7

literate. About 247 respondents (95%) heard about filariasis and 230 (88.5%) about the filariasis programme. Only 84.2% of the respondents were aware that this programme was effective to prevent

filariasis. Table 2 shows that out of the total 1118 eligible population 821 (73.4%) received the DEC tablets, therefore, the coverage rate was 73.4%. Among those who received tablets, it was observed that only 775 (94.4%) of the individuals received the adequate dose and only 703 people actually consumed the tablets. Hence, compliance rate was 85.6%. Compliance refers to actual consumption of drug by the community.

Around 324 (28.3%) did not receive the tablets. Failure to deliver the drug was reported by 224 (69.2%) as common reason. In our study people did not perceive filariasis as a serious health problem and felt they will not be affected by the disease as 118 (14.3%) people who received tablets did not consume the tablets. The most common reason for not swallowing the drug was the fear of side-effects 95 (80.6%) while 8 (6.7%) did not consume for the reason of failure to deliver the drugs. Side-effects were seen only among 8 (0.72%) of them.

Massive efforts have been taken by the National and State governments along with WHO, towards elimination of LF in India as a public health problem. In a country like India, annual MDA is an economic option⁶ and with improved strategies the existing health care system is capable of operating the programme. However, studies have shown that the main limitation in this programme is a comparatively poor coverage of drug distribution and consumption^{1,7-10}. The rate of coverage and compliance is the most crucial factor in the success of MDA programme and this is to a large extent dependant on the type of personnel involved in drug distribution. About 86.6% of the respondents in our study said that the person who distributed the drug was known to them though 50.8% of the drug distributors were government health workers and only 16.7% medicine distributors explained about safety or the possible side-effects of medicine. Therefore, there is an urgent need for more effective drug delivery strategies. In spite of high literacy rate among study population the 73.4% coverage observed by us was not satisfactory because under the MDA the target was to ensure effective

coverage of 80% — a product of coverage as well as compliance.

In the present study, 73 (31.7%) respondents came to know about MDA from health personnel, 128 (55.6%) through media (TV, radio and miking) and 42 (18.2%) from NGOs. Mukhopadhyay *et al*¹¹ in their study found that 77.8% respondents came to know about MDA from health personnel and 20.8% through media whereas NGO's had very little involvement (1.2%)¹¹.

The study showed that there is a need to strengthen the MDA programme planning and implementation in terms of creating awareness through appropriate media in the community. This can be achieved by efficient microplans, improved supervision emphasizing more strongly health work force training thereby to improve the coverage and compliance through community participation. As such, side-effects were very few and minor in our study which also need to be addressed as they may constitute cause of future non-compliance. Information about the Rapid Response Team (RRT) must be widely publicized in order to increase the faith of people which will indirectly result in better compliance.

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References

1. Lymphatic filariasis. *WHO Weekly Epidemiol Rec* 2007; 82: 361-80.
2. Operational guidelines on elimination of lymphatic filariasis. Delhi : Directorate of National Vector Borne Disease Control Programme 2005; p. 5-6.
3. Lymphatic filariasis: progress of disability prevention activities. *WHO Weekly Epidemiol Rec* 2004; 79: 417-24.

4. Global program to eliminate lymphatic filariasis. *WHO Wkly Epidemiol Rec* 2006; 81: 221–32.
5. Ramaiah KD, Vijay Kumar KN, Ravi R, Das PK. Situation analysis in large urban area of India, prior to launching programme of mass drug distribution to eliminate lymphatic filariasis. *Ann J Trop Med Parasitol* 2005; 99: 243–5.
6. Krishnamoorthy K, Ramu K, Srividya A, Appavoo NC, Saxena NB, Lal S, Das PK. Cost of annual mass single dose DEC distribution for the large scale control of lymphatic filariasis in Cuddalore district, India. *Indian J Med Res* 2000; 111: 81–9.
7. Lahariya Chandrakant, Mishra A. Strengthening of mass drug administration implementation is required to eliminate lymphatic filariasis from India: an evaluation study. *J Vector Borne Dis* 2008; 45: 313–20.
8. Ramaiah KD, Das PK, Appavoo NC, Ramu K, Augustin DJ, Vijay Kumar KN, Chandrakala AV. A program to eliminate lymphatic filariasis in Tamil Nadu state, India: compliance with annual single dose mass treatment and some related operational aspects. *Trop Med Internatl Health* 2000; 5: 842–7.
9. Babu BV, Kar SK. Coverage, compliance and some operational issues of mass drug administration during the program to eliminate lymphatic filariasis in Orissa, India. *Trop Med Internatl Health* 2004; 9: 702–9.
10. Pradeep K, Prajapati PB, Deepak S, Abhay B, George K. An evaluation of coverage and compliance of mass drug administration 2006 for elimination of lymphatic filariasis in endemic areas of Gujarat. *Indian J Com Med* 2008; 33(1): 38–42.
11. Mukhopadhyay AK, Patnaik SK, Sathya Babu P, Rao KNMB. Knowledge on lymphatic filariasis and mass drug administration programme (MDA) in filaria endemic districts of Andhra Pradesh, India. *J Vector Borne Dis* 2008; 45: 73–5.

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