Assessing Coverage of Mass Drug Administration against Lymphatic Filariasis in Gulbarga District, Karnataka

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ABSTRACT

Background: Lymphatic filariasis 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. The Government of India in 2004 began a nationwide mass drug administration (MDA) campaign in all the known Lymphatic filariasis endemic districts with an annual single dose of Diethylcarbamazine citrate with the aim of eliminating it as a public health problem by the year 2015. Inspite of implementing MDA annually for over 5 years yet uncertainty prevails about the coverage and compliance to treatment in order to achieve elimination. **Methods:** The present study was undertaken to evaluate the coverage and compliance to MDA and to assess the reasons for non-coverage and non-compliance. A community based cross-sectional study was conducted in the month of February 2011 for five days independently for the Government of India. A total of 1006 persons were interviewed from three villages and one urban ward. 54.28% were females and 45.72% were males. The coverage rate for DEC plus albendazole tablets were 82.97% and DEC only was 19 (1.96%). The compliance rate for DEC was 73.99%. Failure to drug deliver was reported by 61% of the eligible population and only 9 (1.23%) had side-effects. **Results:** The results suggests for an urgent need for revitalizing the program and to develop more effective drug delivery strategies.

Keywords: Lymphatic filariasis, mass drug administration, compliance, coverage

INTRODUCTION

Lymphatic filariasis (LF), a vector-borne neglected tropical disease, is currently endemic in tropic and sub-tropics of Africa, Asia, western pacific and part of the America.[1] The filarial nematode Wuchereria bancrofti, one of the three causative agents in humans, accounts for 91% of infections throughout the world. Brugia malayi and Brugia timori are responsible for the remaining infections and they are restricted to South and Southeast Asia. The disease is the second leading cause of permanent and long-term disability with over 40 million infected people suffering from clinical disease manifested mainly as lymphoedema, hydrocoeles and elephantiasis.[2] Worldwide, 1254 million people are at risk of LF infection in 83 endemic countries. About 64% of these people are living in Southeast Asia region only.[1]

Filariasis has been a major public health problem in India. The disease was recorded in India as early as 6th century B.C. by the famous Indian physician, Susruta in his book 'Susruta Samhita'.[3] It is estimated that 554.2 million people are at risk of LF infection in 243 districts across 20 states and union territories of India.[1] This disease is a major contributor to poverty, and programmes to eliminate it will reduce suffering and disability, improve the reproductive and sexual health (through reduced male genital morbidity) and will improve child and maternal health and development, through the ancillary benefits arising from their effects on the intestinal parasites.[4]

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LF was targeted for elimination in 1997 when the World Health Assembly called on all endemic countries to 'strengthen efforts towards eliminating' the disease and requested the Director General of WHO to 'mobilize support for global and national elimination activities'. The Global Programme to Eliminate Lymphatic Filariasis (GPELF) was established in 1999 with the objective of interrupting transmission of the parasites in all endemic countries by 2020. The current WHO strategy for GPELF includes the delivery of antifilarial drugs, either alone or in combination (diethylcarbamazine or ivermectin monotherapy, or either drug in combination with albendazole), to as many people as possible at yearly intervals until transmission has been interrupted.[2] Annual single-dose co-administration of two drugs (ivermectin + diethylcarbamazine (DEC) oralbendazole) reduces blood microfilariae by 99% for a full year while a single dose of one drug (ivermectin or DEC) administered annually can result in 90% reduction.[5]

National Filaria Control Programme (NFCP) was launched in the country in 1955 with the objective of delimiting the problem and to undertake control measures in endemic areas. In India annual mass drug administration with single dose of DEC was taken up as a pilot project covering 41 million populations in 1996–97 and extended to 77 million population by 2002. The manifold increase in filariasis during last four decades reflects failure of filariasis control programs.[6] In 1997, the 50th World Health Assembly resolved that LF should be eliminated as a public health problem.[7] NFCP became a part of the National Vector Borne Disease Control Programme (NVBDCP) in 2003 and, aims to eliminate LF by 2015 under National Health Policy 2002.[1] The Government of India in 2004 began a nationwide mass drug administration (MDA) campaign in all the known LF endemic districts with an annual single dose of DEC with the aim of eliminating it as a public health problem by the year 2015.[8]

It is a challenge for the programme plotters, researchers and managers to develop a long term sustainable and effective implementing strategies to achieve a high drug coverage and compliance rates. Eight districts are identified as endemic in Karnataka[9] and Gulbarga district is one of them. Hence, this study was undertaken to evaluate the coverage and compliance to MDA and to assess the reasons for non-coverage and non-compliance.

METHODOLOGY

The MDA Campaign was held on 10th January 2011 in the Gulbarga district, followed by mopping up activities on two successive days. A single dose of DEC plus albendazole tablets was distributed to the households by health workers, anganawadi workers, accredited social health activists and volunteers. Adhering to the criteria of NVBDCP, pregnant women, children less than two years of age and seriously ill persons were excluded from the study.

A community based cross-sectional study was conducted in the month of February 2011 for five days independently for the Government of India. The eligible population for MDA in Gulbarga district was 2387493. Of the seven taluks excluding Gulbarga urban, three were selected for the survey, namely Sedam, Chincholi and Chitapur. One primary health centre (PHC) was selected from each taluk randomly. One subcentre was selected from each PHC area and one village selected from it randomly. Of the health centre areas in the Gulbarga City Corporation limits, one ward was selected randomly called Ward No 47 involving Police Colony I, II & III, Sarvodayanagar, Rajapur I & II and Porangonga Colony. Each of the selected clusters was divided into two manageable areas with approximately the same number of households and one of them was selected at random. Then from the approximate centre of the subunit a random direction of travel was selected. The number of households between the centre and the limit of the subunit was counted and the starting house selected randomly. The data was collected in a predesigned proforma. Parents or care givers answered for young children. Once the data of all the individuals in the selected household was collected, the next nearest household was selected. A total of 1006 subjects i.e., 50 households or 250 subjects were interviewed from each cluster. Data was entered into a spread sheet and analyzed using SPSS version 16.

RESULTS

A total of 1006 population were interviewed. 19 less than two years old and 18 pregnant women were excluded from the study. Out of 969 eligible population 526 (54.28%) were females and 443 (45.72%) were males. The maximum number 745 (76.88%) of the persons belonged to 15–60 years age group [Table 1].

The coverage rate for DEC plus albendazole tablets was 804 (82.97%), and DEC only was 19 (1.96%). 146 (15.06%) had not received the tablets [Table 2]. Only 704 (72.65%) had actually consumed the adequate dosage of DEC plus albendazole tablets, 11 (1.13%) had consumed

Table 1: Age and Sex wise distribution of study population

Age group (years)	Male (n=443)		Female (n=526)		Total (n=969)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
2–5	13	2.93	13	2.47	26	2.68
6–14	69	15.57	70	13.30	139	14.34
15–60	334	75.39	411	78.13	745	76.88
60 and above	27	6.09	32	6.08	59	6.08

Table 2: Distribution of tablets to the study population

Distribution	Frequency (n=969)	Percentage
DEC+Albendazole	804	82.97
DEC	19	1.96
No tablets given	146	15.06

Table 3: Consumption of Tablets by the study population

Tablet consumed	Frequency (n-969)	Percent
DEC + Albendazole (proper dosage)	704	72.65
DEC + Albendazole (improper dosage)	11	1.13
DEC only	13	1.34
Didn't consume tablets	241	24.87

improper dosage of DEC plus albendazole tablets and DEC only was consumed by 13 (1.34%), and 241 (24.87%) did not consume any tablets. The compliance rate for DEC was 73.99%. Compliance refers to actual consumption of drug by the community [Table 3].

Failure to drug deliver was reported by 61% of the eligible population, 23% reported that they didn't consume drugs due to Old age and fearing illness, 7% were absent at their homes during drug distribution, 5% felt they were healthy and didn't consume drugs, 3% didn't consume due to illness and 1% were not aware of the program [Figure 1].

Only 9 (1.23%) reported side-effects, Giddiness in 5 (55.55%), fever and vomiting in 2 (22.22%), 1 (11.11%) with vomiting and 1 (11.11%) with fever [Figure 2].

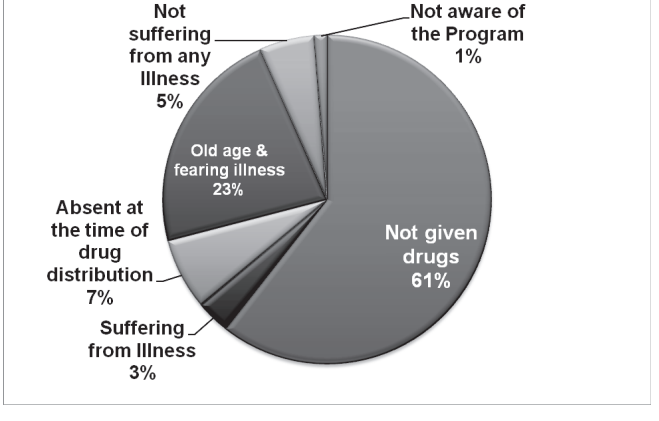

Figure 1. Reasons for not consuming the DEC tablets in MDA campaign.

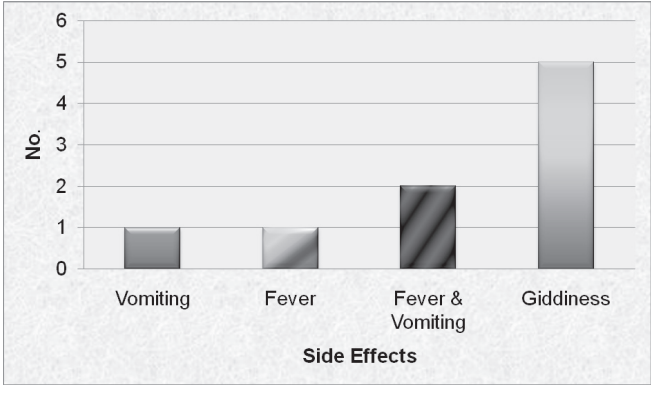

Figure 2. Side Effects reported after consuming DEC tablets.

DISCUSSION

Filariasis has been identified as one of the six diseases (among over hundred considered), which could be targeted for elimination/eradication based on considerations that human beings are the only reservoir of infection. DEC is an effective drug acting on the parasite (without report of resistance in past 5 decades) and mass annual single dose community drug administration with selective vector control could result in the effective elimination of infection by interruption of transmission.

In our study the coverage rate for DEC plus albendazole tablets was 804 (82.97%), DEC only was 19 (1.96%) and 146 (15.06%) did not receive the tablets. Similar observations were made by Sanjay Pattanshetty et al from Dakshina Kannada District, with coverage

rate of 876 (83%) for DEC and 179 (16.9%) not receiving the tablets.[10] Ranganath BG in 2008 at Gulbarga also reported that 85% of the eligible population received the drugs and 90 (14.95%) were deprived of the tablets.[8] Ashwini Kumar et al in 2007 at Udupi reported coverage rate of 73.4% for DEC and around 324 (28.9%) did not receive the tablets.[9] Babu et al in the year 2003, noted in the East Godavari district of Andhra Pradesh, 77% population received DEC in MDA programme.[11] The insufficient coverage can be attributed to the tablets being distributed during the day time, when most of the population go to farms and hence, evening would be ideal time to make it convenient for the community.

The compliance rate for DEC was 73.99% in our study. Similar compliance rate of 76.8% was reported by Sanjay Pattanshetty et al from Dakshina Kannada district[10], 76.06% by Mukhopadhyay et al in 2008 from East Godavari[12] and 64% by Babu et al in 2003 from East Godavari district.[11] However, Ashwini Kumar et al in 2007 at Udupi reported compliance rate of 85.6%.[9] The drug distributors did not ensure that the eligible population consumed the drugs in their presence and instead handed over the tablets to any one member of the family for the whole family thereby reducing the compliance.

Among the reasons for non-compliance Ashwini Kumar et al reported failure to deliver the drug for 224 (69.2%) as common reason similar to our study, 95 (80.6%) did not swallow the drug due to the fear of side-effects and side-effects were reported in 8 (0.72%) similar to our study.[9] A strong and efficient mechanism for side effects and morbidity management as the part of MDA would increase the faith and participation of the locals in the programme.

CONCLUSION

One of the strategies for elimination of LF is to achieve 90% coverage in the MDA campaign which is conducted every year in the endemic districts for four to six years.[10] The major challenge with the currently available drugs is that the interruption of transmission requires very high treatment coverage to achieve elimination. Our study reported the coverage rate of 84.93% and compliance rate of 74.99% for DEC. Hence, there is an urgent need for revitalizing the program and to develop more effective drug delivery strategies.

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