

EVALUATION OF COVERAGE AND COMPLIANCE OF MASS DRUG ADMINISTRATION PROGRAMME 2011 FOR ELIMINATION OF LYMPHATIC FILARIASIS IN NALGONDA DISTRICT OF ANDHRA PRADESH, INDIA

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ABSTRACT

Background and Objectives: Lymphatic Filariasis has been a major public health problem in India next only to malaria. Government of India during 2004 initiated Mass Drug Administration (MDA) with annual single dose of DEC tablets to all the population living at the risk of Filariasis. Mass Drug Administration of Diethyl Carbamazine (DEC) & Albendazole (ALB) was undertaken in 16 districts of Andhra Pradesh on 9th, 10th and 11th December 2011. Present study aimed to evaluate coverage and compliance rate of Mass Drug Administration for lymphatic Filariasis in Nalgonda district of Andhra Pradesh.

Methods: Community Based cross-section study was undertaken among four selected clusters of Nalgonda district as per National Vector Borne Disease Control Programme (NVBDCP) guidelines. Information pertaining to coverage and compliance of MDA was gathered from 120 families from 4 clusters by interview technique using structured questionnaire.

Results: The average family size was 4.21 and majority of the respondents were males and of more than 15 years of age. The eligibility, coverage and compliance rates were 96.2%, 79.7% and 43.04% respectively. On the spot consumption of tablets was reported by only 22.9% respondents. Most common cause for non-compliance was fear of side effects (47.5%). IEC activity was reported to be seen by only 21.7% respondents.

Conclusion: Improving the community compliance in DEC consumption is the major challenge. There is an urgent need for effective MDA strategy with emphasis on Advocacy, social mobilization and monitoring.

Key Words: Lymphatic Filariasis, Coverage Rate, Compliance Rate, Mass Drug Administration.

INTRODUCTION

Lymphatic Filariasis, commonly known as elephantiasis, is a neglected tropical disease and a major public health problem in India next only to malaria. The disease was recorded in India as early as 6th century BC by the famous Indian physician, Susruta in his book 'Susruta Samhita'.¹

WHO estimates that currently, more than 1.3 billion people in 81 countries are at risk. Approximately 65% of those infected live in the WHO South-East Asia Region. Since the

prevalence and intensity of infection are linked to poverty, its elimination can contribute to achieving the United Nations Millennium Development Goal².

In 2000, WHO established the Global Programme to Eliminate Lymphatic Filariasis (GPELF) to assist Member States in achieving this goal by 2020. The global programme includes 2 main components: First interrupting transmission of the parasite that causes lymphatic Filariasis by using mass drug administration to deliver annual treatment to all

people living in endemic areas that are at risk of the disease; and second managing morbidity and preventing disability among people who have already been affected by the disease.²

The National Health Policy 2002 aims at Elimination of Lymphatic Filariasis by 2015. The strategy for achieving the goal of elimination is by Annual Mass Drug Administration of DEC for 5 years or more to the population excluding children below two years, pregnant women and seriously ill persons in affected areas to interrupt transmission of disease³. Mass Drug Administration of Diethyl Carbamazine & Albendazole was undertaken in 16 districts of Andhra Pradesh on 9th, 10th and 11th December 2011.

It has been observed in the past that actual drug consumption was lower than the reported coverage^{4,6}. The present study was undertaken to evaluate coverage & Compliance of MDA in Nalgonda district of Andhra Pradesh, India.

METHODOLOGY

Mass Drug Administration was undertaken on 9th, 10th and 11th December 2011 in Nalgonda district of Andhra Pradesh. This is one of the 16th district endemic for Lymphatic Filariasis in Andhra Pradesh. As part of MDA activity House to House visits were made by drug distributors (DD) and Diethyl Carbamazine (DEC) & Albendazole (ALB) was administered to the eligible population. Children under 2 years, pregnant women and severely ill persons were excluded from the MDA programme. The DD have been instructed to persuade the eligible population to consume tablets on the spot and avoid taking tablet empty stomach^{7, 8}. Evaluation of MDA was carried out by the authors with the help of post-graduates of Community Medicine department of our college within three weeks duration after the MDA activity. Ethical approval was obtained from college ethical committee.

Evaluation of Mass Drug Administration in elimination of LF was conducted by undertaking Household Survey in four selected clusters of Nalgonda District of Andhra Pradesh as per NVBDCP guidelines⁷.

Selection of the Survey area:

Four clusters (one from urban and three from rural areas) were selected for the survey. The survey was done two weeks after the MDA, and

coverage reported by the health system was used to select the clusters. Selection of clusters was as per following criteria:

1. One PHC with >80% coverage.
2. One PHC with 50-80% coverage.
3. One PHC with up to 50% coverage.
4. One ward from urban area

Since no PHC was falling in up to 50% coverage the third PHC was selected from 50-80% coverage category. Three PHC's namely Kanagal, Chivemula, Vemulapally and Bhongir town as one urban area was selected. From these selected clusters one village/ward was selected by simple random method. Accordingly Pagadimarri village from Kanagal, Kashipet from Chivemula, Settipleem from Vemulapally and Urban colony area from Bhongir Urban were selected for coverage evaluation.

A total of 30 households in each cluster were selected as suggested by NVBDCP for evaluation⁷. All data were collected by using pre-designed and structured questionnaire. One individual from each house, preferably head of the family was interviewed after obtaining informed consent. Data was compiled and analysed and various rates of eligible population, coverage, compliance were calculated for each study cluster and for entire district.

RESULTS

A total of 4 clusters were studied. These 4 clusters covered a total of 120 households (90 rural and 30 urban) and yielded a population of 506 (392 rural and 114 urban). As shown in Table no 1 majority of the population were male (51.9%) and were in more than 15 years of age group (77.8%) and mean family size is 4.21. In the studied population of 506, 487 (96.24%) were eligible for MDA. [Table2].

Out of the 120 households surveyed 96 were visited by DD. The Household coverage rate found to be 80% (96/120). Total of 388 individuals out of 487 eligible for MDA had received DEC & ALB tablets from Drug Distributor. The coverage rate for MDA is 79.7% (388/487). Maximum coverage was observed in Chivemula PHC (96.8%) and lowest in Kanagal PHC (71.8%). In Bhongir (Urban) it was found to be 75.9%. [Table 3].

Out of the total 388 individuals who are eligible for MDA and received tablets from DD, only 167

actually consumed the tablets. The overall compliance rate was found to be 43.04%. Highest i.e. 64.22% was observed in Chivemula PHC and lowest in Bhongir Urban colony (12.94%). [Table 3].

Fear of side effects (47.51%) was found to be the most common reason given for not consuming tablet. Significantly 19% told that they forgot to take tablet after meals as it was advised by DD. On some other medication (17.65%) and not at home (7.69%) when DD visited were also reported as reasons for non-compliance. Some families (4.98%) expressed their difficulty in giving tablet to children in 2-5 year category. Other reasons (3.17%) include old age, previous surgery and not at risk. [Table 4].

Out of the 96 households visited by DD only 22.9% reported that the DD ensured swallowing of tablet in her/his presence. Persuasion by DD to swallow tablet was reported by 31.25% participants. Majority i.e. 83.33% participants (80/96) told that DD has explained regarding MDA, LF and benefits of DEC and ALB including their side effects. DD has asked to take tablet after meals was reported as most common cause of not consuming tablet on the spot. A total of 186 ALB & 436 DEC tablets were recovered from 221 individuals who have not consumed tablets given by DD. Out of the total 120 participants interviewed 27.1% (26/120) told that Booth activity is better for MDA and 72.9% (94/120) preferred House to House over Booth day activity.

Table 1: Age group and Gender wise distribution of study population (N=506)

| Age Group (years) | Male | Female | Total |
|-------------------|-------------|------------|-----------|
| < 2 | 06 (1.2) | 04 (0.8) | 10 (2) |
| 2-5 | 16 (3.2) | 19 (3.8) | 35 (6.9) |
| 6-14 | 38 (7.5) | 29 (5.7) | 67 (13.2) |
| >15 | 203 (40.11) | 191 (37.7) | 394(77.9) |
| Total | 263 (52) | 243 (48) | 506 (100) |

Information Education Communication activities regarding MDA were observed by only 21.66% (26/120) participants. When asked about type of IEC read or seen 69.23% i.e. 18 out of 26 reported that they have seen poster/banner. Majority of the participants i.e. 61.66% (74/120) preferred drum beating/mike announcement as IEC activity for MDA. All 167

participants who had consumed DEC and ALB have not reported any adverse drug reaction.

Table 2:- Distribution of Study Population as per Eligibility (N= 506)

| Name of the Cluster | Population Covered | Population Eligible for MDA (Eligibility Rate %) |
|---------------------|--------------------|--|
| Kanagal | 142 | 135 (95.1) |
| Chivemula | 131 | 127 (96.9) |
| Vemulapally | 119 | 113 (94.9) |
| Bhovengir (Urban) | 114 | 112 (98.2) |
| Total | 506 | 487 (96.2) |

Table 3: Drug Coverage and Compliance rate among eligible study subjects. (N= 487)

| Name of the Cluster | Coverage (Coverage rate %) | Number Consumed (Compliance rate %) |
|---------------------|----------------------------|-------------------------------------|
| Kanaga | 197 (71.8) | 37 (38.14) |
| Chivemula | 123 (96.8) | 79 (64.22) |
| Vemulapally | 83(73.5) | 40 (48.20) |
| Bhovengir (Urban) | 85 (75.9) | 11 (12.94) |
| Total | 388 (79.7) | 167 (43.04) |

Table 4: Reasons for Non-compliance to DEC among Eligible population Covered by DD (N=221)

| Reasons | Number (%) |
|---|------------------|
| Fear of side effects | 105 (47.51) |
| Forgot to take tablet after food as advised by DD | 42 (19.00) |
| On some other medication | 39 (17.65) |
| Not at home | 17 (7.69) |
| Difficulty in giving tablet to children 2-5 years | 11 (4.98) |
| Other | 07 (3.17) |
| Total | 221 (100) |

DISCUSSION

Coverage of MDA

The concept of MDA is to approach every eligible individual in the target community and administer annual single dose of anti-filarial drugs (DEC+Albendazole). This annual dose is to be repeated every year for a period of 5 years or more aiming at minimum 85 % actual drug compliance. A high coverage (> 85%) is essential to achieve the interruption of transmission and elimination of disease in India⁷. In the present evaluation the coverage rate in Chivemula

cluster (rural) was highest i.e. 96.8% and other two rural areas it was 71.8% & 73.5%. Bhongir urban was 75.9% and the overall coverage rate was 79.7%. Reported coverage of MDA in Andhra Pradesh from 2007 to 2010 was 2007 (89.13%), 2008 (91.96%), 2009 (91.85%) and 2010 (92.50%) respectively⁹. In present evaluation i.e. 2011 the coverage has improved (79.7%) as compared to coverage in 2010 MDA activity (46.2%)¹⁰. But improved coverage with poor compliance will be of little use. The assessed coverage of distribution as per ICMR study was significantly higher in rural areas (65-73%) of Tamil Nadu compared to urban areas (40-45%)¹¹. In Kerala these figures were 72-82% in rural areas and 67-85% in urban areas respectively¹¹. Present study the coverage in rural area was 71.8-96.8% and 75.9% in urban area. Kumar P et al observed that the coverage and compliance were marginally better in rural areas⁵. Karmakar P Ray et al also reported higher coverage and compliance rate (72.87% & 70.47%) in rural area as compared to urban areas (14.22% & 56.25%)⁶. Preparation of good quality village/ward level micro-plan and ensuring that each DD will not cover more than 50 families a day will improve help to improve the coverage⁷. Also supportive supervision of the work of DD by supervisors (MO, PHC/Health Assistants) and independent external monitors during the house to house and booth day activity should be undertaken. In the surveyed district (Nalgonda) all three days only house to house activity was undertaken. In present study 27.1% participants preferred booth day activity over House to House. Booth day activity on Sunday followed by two days house to house activity help to improve coverage and compliance. There is an urgent need for more effective drug delivery strategies tailor made as per local needs in consultation with community leaders, school teachers and under close supervision by medical officer of concerned PHC.

Compliance to MDA:

The compliance rate was poor i.e. only 12.94% in Bhongir and highest in Chivemula PHC (64.22%) the overall compliance rate was 43.04%. Reasons for Non-compliance are not different from that reported in rural clusters. Though the overall coverage was 79.7% but the compliance was only 43.04% in our study. Similar observations were made by KS Ravish et al⁴. There is need to emphasize the importance of co-administration of albendazole with DEC and highlight the perceived benefits of deworming

to improve the community compliance as suggested by ICMR¹¹. T R Mani et al found that combination therapy resulted in enhanced efficacy of broad-spectrum activity against geohelminthiases, especially against *Ascaris* and Hookworms. Also greater proportion of school children i.e. 53.5% against 20.9% under the combination drug therapy of Dec+ALB perceived the benefits of deworming¹². Most common cause of non compliance to DEC in present study was fear of side effects among the beneficiaries (47.51%). As such the side effects are very few and minor however our study none of the participant has experienced or reported any adverse drug reactions. This information of the report must be widely publicized in local news papers and cable TV channels in order to alleviate fear of side effects among beneficiaries. Karmakar P Roy et al found that the most frequent cause was fear of side effects (36.84%) followed by inadequate counseling (27.82%)⁶. KS Ravish et al reported lack of adequate information as main reason for non-compliance⁴. Other causes of non compliance were trivial such as forgot to take (19%), on some other medication (17.65%) and not at home (7.69%). It seems that LF is not perceived as serious public health problem and people think that they will not be affected by this disease. Reasons such as forgot to take after meals emphasizes need to ensure on spot consumption of DEC. The argument put by the participants was that DD has asked to consume the tablets after meals. Our study in only 22.91% families the drug distributor (DD) ensured on spot swallowing of tablets and 31.25% families DD made attempts to persuade them to swallow the tablets in his/her presence. Kumar P et al reported that the DD hardly insisted on supervised "on the spot" administration of drug⁵. Similarly Karmakar P Roy et al found that the drug was distributed with the advice to take in the night after dinner⁶. To overcome this difficulty the DD should carry small packed tiffin to ensure compliance. S. Sabesan et al after review of the lymphatic Filariasis in India suggested that the programme managers should be encouraged to adopt the principals of 'Directly observed Treatment'¹³. Some families (4.98%) expressed their difficulty in giving tablet to children in 2-5 year category. DEC and ALB liquid formulations should be made available. Reasons such as old age and on some other medication were given by the respondents in present study. The DD has not made any efforts to persuade these individuals. Kumar P et al observed that

one of the reason of non-compliance was misclassification of eligible individual (elderly 11.7%, children 1.2% and sick 9.6%)⁴.It shows that the eligibility criteria for DEC was misunderstood by the DD and training sessions conducted for paramedical workers should address this problem of wrong perception about eligibility criteria.Compliance to MDA largely depends on the approach of the drug distributor in implementation of MDA as per guidelines⁷.Half time review of lymphatic Filariasis elimination in the 6thMeeting of the Global Alliance to Eliminate Lymphatic Filariasis, 2010 emphasized the need for an integrated approach to the three key areas: preventive chemotherapy, disability management and vector control¹⁴.

Information Education Communication:

Information Education Communication activity helps to bridge the knowledge gap and it is an important and very cost-effective tool to improve both coverage and compliance of MDA. Present study reveals that IEC activities were seen by only 21.66% respondents. In Kanagal PHC, only 3 respondents (10%) had seen any IEC activity. Majority of the participants i.e. 61.66% (74/120) preferred drum beating/mike announcement as IEC activity for MDA. Intensive IEC activities need to be planned in advance to address the challenges in effective coverage and compliance to DEC. IEC from all possible channels such as involvement of community leaders, school teacher and students, electronic and print media preferably in local languages, appeal from religious leaders should be undertaken to motivate people to participate in the programme and consume DEC tablets.In the study done by KS Ravish et al it was observed that 41.4% populations were aware & 58.6% were unaware of MDA activity. Major source of information was either Health staff or Anganawadi worker. Mass media such as TV, radio, news papers, miking, local cable network and local folk media has not been used effectively in this process⁴.Number of studies highlighted the need for an intense information education communication and advocacy activities for improved coverage and compliance of Mass Drug Administration with DEC and ALB^{5, 6, 13, 14}.

CONCLUSIONS

The present evaluation concludes that in 2001 the coverage and compliance has improved as compared to 2010 MDA activity. But these rates are far less than the goals set for elimination of lymphatic Filariasis in India. There is an urgent need for improved social mobilization and supervision to increase compliance with MDA.

RECOMMENDATIONS

1. Improve social mobilization by Involvement of community leaders, school teachers, local mahila mandals and ensure effective Information Education communication activities by all possible means.
2. Monitoring and supportive supervision by medical officer of concerned PHC/CHC and male and female health assistant of MDA activities should be done to ensure complete coverage.
3. Most of the participants refused to consume tablets on spot because they were empty stomach. To overcome this difficulty the DD should carry small packed tiffin to ensure compliance with on spot consumption.
4. Timings of house to house visits by DD should be modified as per availability of most of the beneficiaries at home as 7.69% reported that they were not at home when DD visited hence could not understand.
5. Training programme for medical officers and health workers (DD) involved in MDA should emphasize more on how to address the fear of side effects among beneficiaries and measures to ensure "On Spot Swallowing" of tablets.
6. Findings of the evaluation report should be shared with the beneficiaries as none of the individuals who have consumed DEC & ALB reported/experienced any side effects.
7. DEC & ALB should be made available in liquid formulations for children between 2-5 years to improve compliance.

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