

Strengthening of mass drug administration implementation is required to eliminate lymphatic filariasis from India: an evaluation study

Chandrakant Lahariya^{a,b} & Ashok Mishra^a

^aDepartment of Community Medicine, Gajra Raja Medical College and Associated Hospitals, Gwalior; ^bWrite Health Society for Community Health Actions, Gwalior, India

Abstract

Background & objectives: The mass drug administration (MDA) is one of the strategies to eliminate lymphatic filariasis in India. Eleven districts are endemic for the disease in Madhya Pradesh state of India, which conduct MDA activities annually. A mid-term evaluation was conducted with the objectives to review the progress of the single dose of di-ethyl-carbamazine (DEC) administration, and to understand the functioning of the programme to recommend mid-term amendments.

Methods: A qualitative cross-sectional study was conducted in three endemic districts of Madhya Pradesh between July and October 2007. The teams of faculty members from medical college visited the study districts and collected data by desk review, indepth interviews, on site observations, and from the community.

Results: The filaria units in these districts were understaffed. There were no night clinics in two out of the three districts. The sufficient number of trainings for MDA were conducted without any mechanism for quality assurance. There was erratic and inadequate supply of DEC tablets, leading to the postponement of MDA activity, twice. The evaluated coverage with DEC tablets was much lower than that reported by the district officials. The tablet intake was not ensured by the distributors and the compliance rate was in the range of 60–70%. The IEC activities were conducted in limited areas, and there were prevailing myths and misconceptions, contributing to low compliance rate. There was no proper recording of the data on filariasis with gross mismatch at district headquarters and peripheral health facilities. A proportion of community members developed side effects following DEC tablet intake and had to visit private health facilities for treatment.

Interpretation & conclusion: This evaluation study noted that MDA is restricted to tablet distribution only and the major issues of implementation in compliance, health education, side effect and morbidity management, and the logistics were not being given due attention. The implementation should be strengthened immediately in the MDA programme in India to achieve the goal of LF elimination by 2015.

Key words Elimination – India – lymphatic filariasis – mass drug administration – neglected tropical diseases

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. 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. It is estimated that 554.2 million people are at risk of LF infection in 243 districts across 20 states

and union territories of India¹. Andhra Pradesh, Bihar, Jharkhand and Madhya Pradesh are amongst the worst affected states in the country². National Health Policy 2002 aims at elimination of transmission of disease and prevention of disability due to LF by the year 2015³.

India launched National Filariasis Control Programme (NFCP) in 1955. Initially, the programme was limited to urban population and later in 1994, was extended to cover rural areas also. However, the success in controlling LF has been limited during these years. The programme became a part of the National Vector Borne Disease Control Programme (NVBDCP) in 2003 and, aims to eliminate lymphatic filariasis by 2015 under National Health Policy 2002³. The mass drug administration (MDA) is the part of the strategy to eliminate LF from India².

Annual mass drug administration (MDA) with single dose of di-ethyl-carbamazine (DEC) tablets has been a strategy adopted by 43 countries in the world¹. India piloted MDA in 1996–97 with continuous expansion till 2004, when approximately 400 million people were covered under the DEC distribution efforts². The MDA has to be continued for minimum further five years or more in the target population, in the endemic areas to effectively interrupt the transmission².

Out of 48 districts of Madhya Pradesh state of India, LF is endemic in eleven districts. The state had adopted MDA approach for elimination of LF in 2004. The first round of MDA in Madhya Pradesh was carried out on 5 June 2004 with a plan for annual MDA days in the state. This round was followed by another round in 2005. However, the scheduled MDA activities for 2006 could be conducted on 16 March 2007. The unofficial reports from the field suggested that the actual drug consumption was much lower than the reported coverage by district malaria/filaria offices. Similarly, it was observed that although the drug should be consumed by the eligible

population in the presence of drug distributors, but on many occasions, the drug was handed over to the family members for consumption later on. Therefore, the state government proposed a mid-term evaluation of MDA activities with the objectives to review the progress of activities of single dose of DEC mass administration in Madhya Pradesh; and to understand the functioning of the programme so as to recommend mid-course amendment and suggest necessary steps for further course of action.

Material & Methods

Study areas: Three districts (namely: Chhatarpur, Datia and Tikamgarh) of Madhya Pradesh were selected for this study. These districts have always been endemic and have functioning filaria units. The MDA activities had been conducted in three rounds in each of these districts. The districts have a total population of more than four million with majority of the population being rural and tribal. The study districts have been described as District A, B and C without any specific order or any reference to the actual name of the district in this paper.

Study period: July–October 2007.

Study teams: The study team constituted of a faculty member and a postgraduate trainee for each of the three districts.

Sample size: The study was conducted as per the standard guidelines prepared by the National Vector Borne Disease Control Programme⁴. In every district, four clusters (three rural and one urban) of 30 households each were selected. It was ensured that at least 600 people are covered in a single district for MDA evaluation. For selection of rural sites, on the basis of reported MDA coverage in the last round, all Primary Health Centers (PHCs) in a district were stratified into three groups: (i) PHC with coverage <50%; (ii) PHC with coverage between 50 and 80%; and (iii) PHC with coverage >80%.

Thereafter, one PHC from each category was selected for MDA evaluation. In case, no PHC is falling in a particular category, two PHCs from the next higher category were selected. Afterwards, from each of the selected PHC, a complete list of the names of the villages, prepared for census data was taken. One village was selected randomly, using currency note for random number generation. The household survey in each selected village was conducted covering 30 households, using standard questionnaire developed for MDA evaluation⁴.

In urban areas, the list of the wards was used for selection of the cluster. Thereafter, one ward was selected randomly for the evaluation of the programme, using currency note for random number generation. In the next step, in the selected ward in the urban area, 30 households were covered.

Study tool: The desk review, observation of the functioning of filaria unit staff at district headquarters and PHCs, and indepth interviews of the key persons and the community members were used as study tools. A pre-tested semi-structured interview schedule (standardised by NVBDCP, Delhi)⁴ was also used for quantitative data collection.

Results

The teams, each comprising of one faculty member and a postgraduate trainee, visited three districts. The teams reviewed the records available at the filaria units at the respective district headquarters and assessed the functioning of the staff in these units. The teams also checked and verified the drug store, and the other relevant records. The nodal officers in-charge of filaria/MDA activities were interviewed in-depth, along with the filaria inspectors and the insect collectors on the relevant issues. The record was well-kept in Districts A and C while it was grossly missing from the District B.

Inter- and intra-sectoral coordination: The district

action plan committee meetings were being organised at District Collector offices and the nodal persons from various departments had attended these meetings in all the three districts. However, the involvement of different sectors in MDA activity on the scheduled day was variable. While the inter- and intra-sectoral coordination in Districts A and C was good and it was poor in the third district.

Innovations: There were some reported innovative approaches used in the MDA activities in District A where community volunteers were involved for the drug distribution. The school children were involved in awareness generation campaigns about drug distribution in District B.

Trainings: The trainings were being organised at all the levels, without any mechanism for quality control. Besides, the workers involved in MDA, supposed to be trained just prior to the round of MDA, were trained in December 2006 for the round on 16 March 2007. No fresh training was given to these health workers, in spite of the fact that three months had elapsed since the training imparted.

Action plans: The action plan in District A was detailed, well prepared and maintained and, available at every PHC. The action plan had good micro-plans with detailed information on how to proceed for an activity and could easily serve as a model for the programme, while no such plan were available in District B, where, the work was coordinated from PHC level, without much input from district malaria/filaria office and without proper planning. The action plan for District C was also available but was not detailed properly.

The baseline data: The baseline data on filarial endemicity was collected in all the three districts. The two districts (A and C) had collected the data in September 2006 with properly maintained record. No such data was available for third district, where the microfilaria rate of zero per cent was being reported

(without any documentary evidence) and in spite of the regular occurrence of the cases in the area.

Morbidity surveys: A special drive for active case search of *lymphoedema* and hydrocele was carried out in all the three districts in the month of November and December 2006. The line listing of all these cases was maintained.

The scheduled day for MDA: The MDA day was postponed twice, due to non-availability/supply of the DEC tablets, before it could finally be held on 16 March 2007. The second time, the date was postponed just four days prior to the scheduled date. All the health education campaigns were conducted at that time and training sessions had already been completed. Even the final date of 16 March 2007 was not suitable for the locals as it was during the period of Hindu religious fasting festival, when people did not consume anything including medicines.

The drug supply: The DEC distribution is a main activity in MDA programme. Ensuring the availability of the drugs is a significant and integral activity under MDA. The main reason behind the postponement of MDA programme in December 2006 was the undue delay in the dispatch of the drugs from state headquarters. The round was postponed only four days prior to the scheduled date in December 2006. They had received information from the state medical store that the DEC tablets were not available in sufficient quantity.

Even on the MDA day, the supply was erratic. The drugs reached to the district headquarters, only 12 h prior to the MDA day. The dispatch of the drug to the field area was done on the same day and in some cases, the tablets could be distributed a day later—17 March 2007.

Some PHCs reported to have less quantity of the drugs than required. The reshuffling of the drugs between various health centres was also done, which

further added to the logistic confusion. The record of the drug was proper in Districts A and C and matched with the record at the district office. There was no record available at nodal office in district B. The left over and returned DEC tablets were lying in a damp store room in this district and were not usable for next round. Some sort of record was maintained in CHCs. It was also noticed that there was gross mismatch in the stocks at various PHCs in this district.

Impact assessment: The impact assessment is done, after every round of MDA, by the local authorities to understand the effect of the MDA. Indicators like Mf rate *etc.* are used to see the earlier and later conditions. However, no such data were collected in any of the three districts about the impact of MDA.

Health education: The health education is instrumental for the awareness generation and active participation of the community and forms an integral part of the elimination strategy. All the three district offices reported to have spent money on preparation and printing of health education material. The records showed that pamphlets, posters, banners were printed and distributed and wall paintings were done. Nevertheless, the district authorities complained of the shortage of funds for the health education activities.

However, at the time of field visits for verification by the monitoring teams, no member of the community was reported to have seen any such promotional IEC activities in any of the area. There were few wall paintings at PHCs in Districts A and C and none in the third district. The newspaper clippings/promotional advertisements were also provided by the health authorities/filaria units to the monitoring teams. These were printed in Hindi.

Almost 50% of the money allocated for IEC was spent on the newspaper advertisements. (Though, the majority of the target population stay in rural areas, with limited access to the newspapers and having low literacy rate).

Coverage and compliance: The actual drug compliance is determined by interviewing about 120 households in each district following the sampling technique given earlier. The information on DEC tablet distribution and compliance were collected and given in Table 1.

Side effect management: Only a small proportion of population was told about the side effects. The proportion of people who had ingested the drug in the presence of the distributor was <5%. The side effects were properly recorded only in limited number of cases. The District A counted few who were given proper management for the side effects. The record about the incidences of side effect was maintained in only one district. The mechanism for side effects management was grossly missing in the majority of the areas in all the three districts. The people had to go to private practitioners for the management of side effects. Some people had severe side effects, which led to the hospitalisation and out of the pocket expenditure as they were not referred to PHC or other government facility by the health functionaries. The news/rumors of side effects in the previous rounds and in other areas during the same round, after the ingestion of DEC tablets, deterred many people from consuming the tablets in this round. No efforts were made to counterpoint any such rumor.

Morbidity management: The home-based management of a case of LF is the part of the strategy to

eliminate LF³. However, the level of awareness about the morbidity management in the community was low. Very few subjects with LF, who were interviewed, could answer the proper method of care. The training on morbidity management was given to only a small proportion of the identified cases.

There was a special drive conducted in all the filarial endemic districts including in the districts evaluated, for the hydrocele operations. This drive was very successful in all the three districts with District A conducting the highest number of such operations in the whole state.

Community participation: The evaluation team noted that neither the staff of the filaria units had any understanding of what community leaders can contribute to the programme, nor the community leaders believe that these units are doing anything to control LF in the districts concerned. This scenario of mistrust from both the sides was common in Districts A and C where the endemicity of LF was high. While in District B, mostly the community people were not aware, if the LF is a health problem in the area and they did not hear any effort of MDA either. These two things had restricted the participation of the community in the programme and, the programme was running almost in isolation. In none of these study districts, the local authorities sought the active help or cooperation of the community members for the implementation of MDA activities.

Table 1. Coverage and compliance observed by the evaluation teams

District	Total population surveyed	DEC tablets distributed	Percent coverage in the evaluation	Percent coverage reported by district authorities	Compliance* (percentage)
District A	677	195	28.8	85.2	151 (77.4)
District B	780	476	61.0	NA	292 (61.3)
District C	716	486	67.9	77.5	361 (74.2)

*The percentage for compliance was calculated after taking total number of people who had received DEC tablets as denominator (Compliance in percentage = No. of people who had ingested sufficient dose of DEC tablets/Total people who had received the DEC tablets × 100); NA: No data on the coverage was available at District HQ.

Discussion

The study noted that overall planning for MDA activity was good in two out of three districts. The trainings were regularly being conducted. The inter- and intra-sectoral coordination was good in two districts. The efforts were made to develop microplans in two out of three districts.

However, the major focus of the staff was on the paper work. The implementation was very poor in a district, where the paper work was the best. The health education activities were not being done satisfactorily. There was limited knowledge and awareness about LF and MDA amongst the community members. Similar findings have been reported from other studies in India⁵⁻⁷. The local modes of awareness generation were almost missing. The authorities had used TV and newspapers for IEC activities, which had limited penetration in the rural population.

The DEC tablets lead to some common and well-recorded side effects in 5–10% of the people who consume tablets⁸. Therefore, it is imperative that people are made aware about these side effects to take proper management and not to have any misconception or fear. 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. Not getting any care, if side effects occur, as happened in many cases, gets adverse publicity and deter many more from consuming the DEC tablets. The MDA programme should have a special mechanism to provide treatment for any such event. Some community members suggested that a local volunteer should be given required training and drugs to manage any such adverse event. The report of deaths after DEC intake in the area was also found. These reported deaths were not investigated, allowing the rumors to continue.

The reported coverage in MDA by the district authorities was much higher than evaluated by the study

teams. The probable reason was that district authorities calculated coverage by deducting the amount of DEC tablets returned from the field, out of the tablets sent. However, in reality, the tablets were either lying at the peripheral health facilities or not being distributed or were not returned by the distributors. Besides, the drug distributors handed over the tablets to any one member of the family for the whole family and did not ensure that the person concerned consumes the tablets in front of them, further reducing the compliance.

The dates of MDA were not properly thought about. A number of times, the MDA was rescheduled. Finally, the activities were carried out on a day, celebrated by fasting for religious reason and the actual ingestion was low. The tablets were distributed during the day time, when most of the population goes to farms, leading to the insufficient coverage. Therefore, in future, the dates should be finalised after due deliberations and with input from the community. The timing for the tablet distribution should also be in the evening to make it convenient for the community. There is definitive need to ensure that drug distributor meets the person. They may go to the area in evening time or may have to pay one more visit at the time convenient for the locals.

The awareness about the LF in the population studied is limited to the presence of the disease in the community and the surrounding areas. Most of the knowledge was due to the cases in their neighbourhood and in the community. There was no scientific knowledge about the disease amongst the population affected. There is need of intensive health education campaigns to make the community aware about LF and, increase their participation in the programme. The rationale for annual distribution of DEC tablets should also be the part of these campaigns.

Whatever health education activities were carried out, there was very limited information to make community aware of the possible side effects and why these

side effects occur? Had this been done, there could have been more compliance of the community for drug ingestion. Similarly, out of health education sub heading a lot of money was spent on newspaper advertisements. The rural population has limited access to newspapers and the message could not reach to them. The health education focus should be on locally appropriate media—*Dhol Nagada, Nukkad Natak* and announcements by loudspeakers, *etc.*

The training component of MDA should be supervised and monitored appropriately by the external teams. The training to the workers was given three months before the actual MDA day. Besides, there was no mechanism to ensure the quality of the training. The counseling on, why each member of the family should consume tablets, should be the part of this training.

A wider section of the people involved in the programme suggested that external agencies for monitoring the MDA activities should be available at both the district HQ and in the field to ensure that field team works properly. The field teams also reported that one of the reasons for low coverage is the high rate of migration of labourers. This group is often missed during MDA activities. The study from other part of India has also reported a similar problem⁹. A mechanism needs to be devised to catch this population and to ensure that LF is not endemic in any subgroup of the population.

The filaria activities in these districts were done by the staff involved in the control of malaria. This staff often felt it as an extra burden. There was very limited dedicated staff for filaria. Therefore, MDA and other related efforts were not being given due priority at district level, and were done on ad-hoc basis. In two districts, there was no night clinic for blood collection. These observations underscore that a lot needs to be done to effectively implement MDA programme in these districts.

Finally, LF is an area where limited research is being

done in India and other endemic countries. There is an urgent need for operational research to find out the solutions for existing problems in the efforts towards the elimination of LF.

Conclusion

The MDA activities in the study districts are going through the stage of planning and implementation and appears to be weak. In the absence of focus upon the implementation, the performance of the district with good planning was not any better than other districts with weak planning. There appears an immediate need to strengthen the MDA planning and implementation in these districts. This evaluation is a starking example showing that even a well-thought, well-funded and well-planned programme may not succeed, if the implementation is poor. The efforts to eliminate LF in India need strengthening in terms of logistics, health education efforts, side effects and morbidity management, and to increase community participation. The lessons from this evaluation should be used to derive the solutions for the MDA programme in other parts of the country also as the ground situation in different parts is almost similar, wherever LF is endemic. The time has come to strengthen the programme implementation in MDA to eliminate LF from India.

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Corresponding author: Dr Chandrakant Lahariya, 395/396, Darpan Colony, Thatipur, RK Puri P.O., Gwalior–474 011, India.
E-mail: ck1800@rediffmail.com; ck1800@gmail.com

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