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Original Research Article

Evaluation of coverage, compliance of mass drug administration and assessment of awareness about lymphatic filariasis in Tikamgarh district of Madhya Pradesh: a cross sectional study

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ABSTRACT

Background: Lymphatic filariasis is the second leading cause of disability worldwide accounting for more than 5 million disability adjusted life years annually. It has been a major public health problem in India which leads to irreversible chronic manifestations which are responsible for considerable economic loss and severe physical disability to the affected individuals. Mass drug administration (MDA) means administration of diethylcarbamazine and albendazole tablets to all people (excluding children <2 years, pregnant women, seriously ill persons) in endemic areas once in a year. The objective of the study was to assess coverage, compliance of MDA and awareness about lymphatic filariasis in Tikamgarh district of Madhya Pradesh.
Methods: Cross-sectional study was conducted and total 120 households were surveyed in four randomly selected clusters of Tikamgarh district of Madhya Pradesh.
Results: Out of total 743 persons 678 (91.25%) persons were eligible for MDA. Coverage rate was 86.57% and compliance rate was 74.27%. The main reason for non-compliance was not having the concerned disease (55.78%) followed by fear of side effect (22.31%). Only 40.83% among the surveyed families were aware about MDA and only 45.83% respondents had heard about lymphatic filariasis.
Conclusions: There is coverage and compliance gap and awareness about the lymphatic filariasis and MDA program is limited. Drug compliance need to be improved and awareness need to be raised. MDA program should not be confined to tablet distribution only and due importance should be given to compliance rate.

Keywords: Coverage, Compliance, Mass drug administration, Lymphatic filariasis

INTRODUCTION

Lymphatic filariasis is a vector borne parasitic disease caused by lymphatic dwelling nematode parasite namely *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori*.[1] *Wuchereria bancrofti* is most wide spread parasite therefore disease is also known as Wuchereriasis. The disease is transmitted from person to person by bite of infective female mosquitoes. *Wuchereria bancrofti* is transmitted by *Culex* mosquito, *Brugia malayi* by *Mansonia* mosquito and *Brugia timori* by either *Mansonia* or by *Anopheline* mosquito.[2] Lymphatic filariasis is one of the world's leading causes of permanent and long-term disability with an estimated 5.1 million disability adjusted life years are lost due to this disease.[3] Physical disabilities due to obstructional defects (such as swelling of genitals and legs or chylous ascites) result in loss of man power. There is a social stigma attached to it. The swelling of elephantiasis produce disfiguration resulting in matrimonial handicap and inferiority complex.[4] It is a major social and economic scourage affecting over 73 countries. More than 1.4

billion people live in areas where there is a risk of infection, of whom 120 million are infected including 40 million people with overt disease.[5] About 600 million people are at risk of infection in South-East Asia and 60 million are actually infected in the region. It is a public health problem in India. There are about 553 million people at the risk of infection with 48 million infected with parasite in India. It is prevalent in 250 districts in 20 states and union territories.[6] Madhya Pradesh is one of the worst affected states in the country.[7] Lymphatic filariasis 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'. Following the World Health Assembly resolution on Elimination of lymphatic filariasis, the global program to eliminate lymphatic filariasis was established in 1999 with the objective of interrupting transmission of the parasites in all endemic countries by 2020. The current WHO strategy for global program to eliminate lymphatic filariasis 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.[8] In mass drug administration approach diethylcarbamazine is given to almost everyone in community irrespective of whether they have microfilaraemia, disease manifestation or no signs of infection except children below 2 years, pregnant women and seriously ill patients.[9] The Government of India in 2004 began a nationwide MDA program in all the known lymphatic filariasis endemic districts with the aim of eliminating filariasis as a public health problem by the year 2015.[10] In 2007 India changed its strategy from delivery of DEC alone to delivery of DEC plus albendazole, the number of people treated with combinations has increased steadily.[11] however the reports from field suggested that actual drug consumption was much lower than the reported coverage by district malaria/filarial offices. Therefore, the state government proposed mid-term evaluation of mass drug administration to review the progress of activities of mass drug administration in Madhya Pradesh.[12] With this background present study was undertaken i) to evaluate the coverage, compliance and factors responsible for non-compliance to MDA and ii) to assess the awareness about MDA and lymphatic filariasis in Tikamgarh.

METHODS

A cross-sectional study was conducted in year 2017 for evaluation of mass drug administration through house survey in four randomly selected clusters (three rural and one urban) of Tikamgarh district as per National vector borne disease control program guidelines. For selection of rural clusters, one village was selected from PHCs/CHCs with low coverage i.e. below 50%, one village was selected from CHCs with medium coverage i.e. between 50%-80% and one village was selected from CHCs with high coverage i.e. above 80%. For urban cluster one ward of was selected randomly. Selected CHCs and their representative village - in rural area were– CHC Badagaon: Dundatora village, CHC Jatara: Bamhori Khas village and CHC Nevari: Kuluaa village. In urban area – ward No. 27, Maman darwaza of Tikamgarh municipality was selected. House to house survey was carried out. In each of the selected clusters 30 houses were surveyed. Thus total 120 houses were surveyed. All the eligible population in the study area was included and pregnant and lactating mother, children below 2 years, seriously ill persons, severely debilitated patient and people of extreme age were not eligible thus excluded from study. The predesigned questionnaire (Provided by DHS, State Health Committee and NVBDCP) was used to collect information regarding consumption of DEC and other relevant information. Data was compiled analyzed using percentages and proportions.

RESULTS

Total 120 families were surveyed as per MDA methodology. In surveyed population out of total 743 persons 678 (91.25%) persons were found eligible and 65 (8.74%) were not eligible for drug distribution as per MDA exclusions. The proportion of non-eligible persons for DEC was children <2 years 28 (43.07%), pregnant ladies 17 (26.15%), illness 12 (18.46%), and extreme age 08 (12.30%) respectively. Males constituted 52.8% (358) of total eligible, rest were females (Table 1).

Table 1: Proportion of eligible population.

	No. of eligible person	% of eligible person
Age (in years)		
2-5	72	10.61
6-14	188	27.72
>15	418	61.65
Total	678	100
Sex		
Male	358	52.80
Female	320	47.19
Total	678	100

Table 2: Age and gender wise distribution of coverage rate.

	No. of eligible person	No. of persons received tab	% of persons received tab
Age (in years)			
2-5	72	59	81.94
6-14	188	165	87.76
>15	418	363	86.84
Total	678	587	86.57
Sex			
Male	358	322	89.94
Female	320	265	82.81
Total	678	587	86.57

Table 3: Age and gender wise distribution of compliance rate.

	No. of persons received tab	No. of persons swallowed tablets	% of persons swallowed tablets
Age (years)			
2-5	59	38	64.40
6-14	165	112	67.87
>15	363	286	78.78
Total	587	436	74.27
Sex			
Male	322	245	76.08
Female	265	191	72.07
Total	587	436	74.27

Table 4: Reason for non-compliance to MDA.

Reasons for non-compliance	No. of person	Percentage (%)
Not suffering from concerned disease	135	55.78
Fear of side effects	54	22.31
Forget to take tablets	23	09.50
Not present at home during distribution of drug	18	07.43
Had any minor ailment	02	0.82
Other	10	04.13
Total	242	100

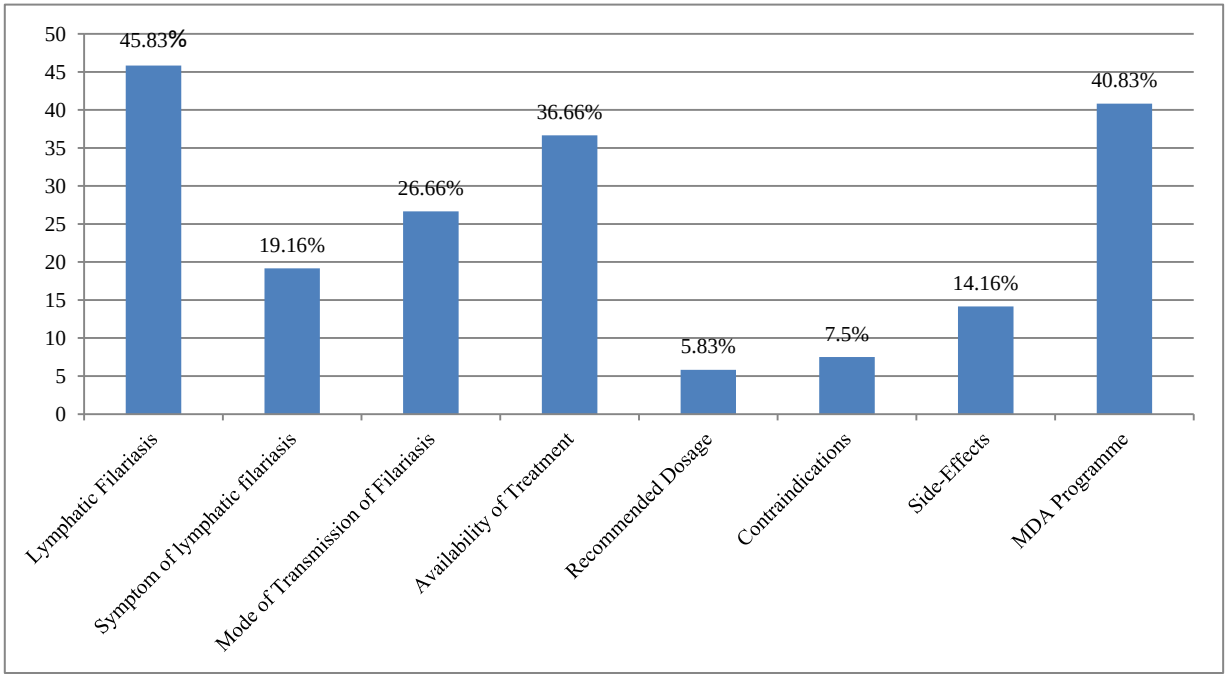

Figure 1: Awareness about lymphatic filariasis and MDA.

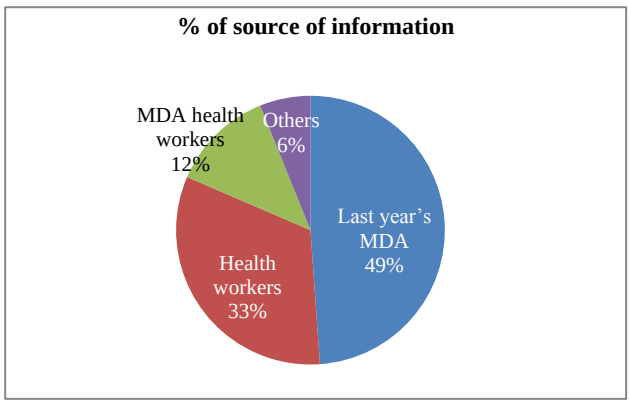

Figure 2: Source of information regarding lymphatic filariasis and MDA.

Among 678 eligible persons 587 (86.5%) received the tablets i.e. the distribution coverage rate was 86.5%. Age group wise coverage was 87.7% in 6-14 years age group and 81.9% in 2-5 years age group, Gender wise coverage was 89.94% in males and 82.81% in females (Table 2). Among 587 persons who received the tablets 436 (74.27%) consumed it i.e. compliance (consumption) rate. Age wise compliance rate was 78.78% in 15 years and above age group and 64.40% in 2-5 years age group. Gender wise compliance was 76.08% in males. Age & gender wise compliance is shown in Table 3. The reasons for non-compliance are as shown in Table 4. The bar chart (Figure 1) shows different aspects of awareness about lymphatic filariasis and MDA. Among the respondents 24 (48.97%) acquired knowledge from last year's MDA, 16 (32.66%) gained knowledge from health

workers. 6 (12.44%) acquired knowledge from MDA drug distributors, 3 (6.12%) acquired knowledge from other sources like TV, Radio, News Paper etc. (Figure 2).

DISCUSSION

The evaluation of mass drug administration of Tikamgarh district was carried out by the department of Community Medicine, Bundelkhand Medical College, Sagar (M.P). The principles behind MDA is to approach every eligible individual in the target community and administer annual single dose of DEC and albendazole which is to be repeated every year for a period of 5 years or more aiming at attaining coverage more than 85% and drug compliance at least 85%.[13] In present study; in surveyed population out of total 743 persons only 678 (91.25%) persons were eligible for MDA. Among eligible population 52.80% were males and 47.19% were females. The most of eligible persons 61.65% belonged to >15 years age group. The main reasons for non-eligibility for MDA was children <2 years 43.07% followed by pregnancy (26.15%) and illness (18.46%). In a similar study carried out by Anil in Gulbarga district Karnataka, revealed that out of 969 eligible populations 54.28% were females and 45.72% were males. 76.88% of the persons belonged to 15–60 years age group. In contrary to study of Anil, we found that eligibility was more in females. Similar reason of non-eligibility was shown in a study carried out by Pankaj et al in Rewa and Chindwara district in Madhya Pradesh that main reasons for non-eligibility for MDA was children <2 years of age followed by pregnancy in both the districts.[12]

Coverage rate of MDA

The International Task Force (WHO) has recommended that in mass treatment, DEC is given to almost everyone in the community irrespective of whether they have microfilaraemia, disease manifestations or signs of infection. In the present study, the coverage rate was 86.5% which is higher as compared to studies by Biradar, Anil, Amarnath, Abhay and lower as compared to studies by Lata and Naveenkumar.[3,8-10,15,17] Coverage rate was highest (87.7%) in 6-14 years age group and lowest (81.9%) in 2-5 years age group. Gender wise coverage was higher (89.94%) in males compared to females (Table 2).

Compliance rate of MDA

In this study compliance rate was 74.27% which is lower than recommended level. Age wise compliance rate was highest (78.78%) in 15 years and above age group and lowest (64.40%) in 2-5 years age group. Gender wise compliance was maximum (76.08%) in males compared to females (Table 3). In various study conducted in different place in India by Anil, Lata et al, Naveenkumar, Kishore, Amarnath, Muralidhar et al and Nirgude et al also found low compliance rate than recommended level.[8-10,14-17] There is gender wise and age group wise differences in compliance rate in present study. A detailed inquiry into the matter might help us determine the cultural and social factors related age and gender which could have played a role in the compliance rate. There is wide coverage and compliance gap which reflects the proportion of people received drugs but not consuming.

Factors responsible for noncompliance to MDA

The main reason for non-compliance to MDA in the present study was not suffering from the concerned disease at the time of drug distribution 135 (55.78%), followed by fear of side effects 54 (22.31%) and which is in sharp contrast to studies by Biradar, Anil, Lata, Kishore and Karmakar where the main reason for noncompliance was fear of side effects of drugs.[3,8,9,14,18] It is very important that people are made aware that although they are not suffering from the concerned disease but are at risk for acquiring concerned disease. People are also to be made aware about side effects of distributed drugs to take proper management and not to have any misconception or fear. Other reasons noted were household were not at home when the drug distributor visited their home, having no faith on distributed drug, forgetting to consume the drug which was given to those family members present in home at the time of drug distribution.

Awareness about lymphatic filariasis and MDA

The awareness about the lymphatic filariasis in the study population was low. Only 45.83% respondents had heard about lymphatic filariasis and 19.16% had knowledge about at least one symptoms of filariasis. 26.66% respondent had knowledge about mode of transmission of filariasis, 36.66% had knowledge about availability of treatment and 40.83% had knowledge about MDA program. Only few respondents were aware of recommended dose, contraindication and side effect of drug given in MDA (Figure 1). Lata in their study revealed that 19.06% people told that they don't know about lymphatic filariasis.[9] Amarnath in his study found that only 60% respondents had heard about lymphatic filariasis and 60% had knowledge about at least one symptoms of disease. Only 17.5% had knowledge about transmission of disease, 46.66% had knowledge about availability of treatment and 55.83% had knowledge about MDA programme.[15] Kulkarni et al in their study found that only 49% of subjects had proper knowledge about the disease.[16] Karmakar observed that only 55.42% interviewed persons have heard about LF. Only 17.36% in rural area and 42.22% in urban area knew at least one correct presenting symptom of LF. Only 13.86% knew the mode of transmission of filariasis correctly, only 8.47% knew about availability of treatment of filariasis and 21.08% were aware about filariasis elimination program.[18]

Source of information acquired about lymphatic filariasis and MDA

In present study, among the respondent 48.97% acquired knowledge from last year's MDA, 32.66% gained knowledge trough health workers. 12.44% acquired knowledge from MDA drug distributers, 6.12% respondent received knowledge from other sources like TV, Radio, News Paper etc (Figure 2). Karmakar observed that important sources of information were anganwadi worker, auxiliary nurse midwife (ANM) and community volunteer.[18]

CONCLUSION

Present study revealed that there is coverage and compliance gap and awareness about the lymphatic filariasis and MDA program is low. Coverage and compliance gap actually reflects the proportion of covered people not consuming the drugs. Drug compliance need to be improved. MDA program should not be confined to tablet distribution only and due importance must be given to compliance rate also and every possible effort should be made by drug distributors to distribute drug when every households are at their home and convince people to consume drug in their presence. This can be done by raising awareness by explaining all about lymphatic filariasis and the benefits of MDA to the people. Issues like not consuming tablet because people are not suffering from concerned disease and fear of side effects should be addressed through updated IEC and effective BCC strategies.

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