Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20173818

Progress towards elimination of lymphatic filariasis in two districts of Maharashtra: scenario of last five years

Sanjeev M. Chaudhary¹*, Sanjay S. Kubde², Mohan B. Khamgaonkar³

Department of Community Medicine, ¹Government Medical College, Gondia, ²Government Medical College, Chandrapur, ³Indira Gandhi Government Medical College, Nagpur, Maharashtra, India

Received: 31 March 2017 Revised: 30 April 2017 Accepted: 02 May 2017

*Correspondence:

Dr. Sanjeev M. Chaudhary,

E-mail: dr_sanjeev_1805@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Filaria was identified as one of the diseases to be eliminated globally and its global elimination by the year 2020 has been envisaged by World Health Organization (WHO). A large coverage- compliance gap has been found in many MDA programmes in India. Togo is the first sub-Saharan country to have stopped MDAs after prevalence data suggested that LF transmission had been interrupted. The successful Togo program demonstrates that LF elimination can be achieved in countries with limited resources. This study was undertaken to assess the situation of MDA coverage and compliance in two districts of Maharashtra.

Methods: This is a community- based cross sectional study carried out in four selected clusters each in Nagpur and Bhandara districts of Maharashtra. Stratified random sampling is adopted for selection of households. In each district, 120 households are surveyed for the purpose of MDA evaluation every year. The coverage calculated in this article is programme coverage.

Results: The coverage found in the year 2011 in Nagpur district was 63%, after which it was consistently rising every year. Similarly in Bhandara district, the coverage found was 70% in the year 2010, after which there was a rise every year. But the actual consumption rate was far less when compared to the coverage reported by the drug distributor, or the medical officer (more than 90% compliance is reported every year). Commonest reason for not consuming the drug was fear of side effects of the drug, which they must have experienced in the previous years activity, or seen other persons having side effects.

Conclusions: Gradual increase in compliance of drug consumption over the period of five years in both the districts shows good progress towards the path of elimination.

Keywords: Lymphatic filariasis, Mass drug administration, Coverage, Maharashtra, Nagpur district

INTRODUCTION

Lymphatic filariasis caused by filarial parasites is transmitted to humans by the bite of infected mosquito. The disease can lead to permanent disability from lymphedema of limbs and breasts, hydrocoele and swollen limbs with thickened and hardened skin i.e. elephantiasis. Those with severe symptoms of the disease are often unable to work and suffer significant social

stigma as a result of their disfigurement. Many are ostracized of even shunned by those in their communities. Integrated preventive chemotherapy using mass drug administration to treat entire populations at risk of the disease, with a combination of albendazole plus ivermectin or albendazole plus diethylcarbamazine administered as a single dose once a year for at least 5 years will interrupt the transmission of the disease.¹

Filaria was identified as one of the diseases to be eliminated globally and its global elimination by the year 2020 has been envisaged by World Health Organization (WHO). The Government of India is a signatory to the World Health Assembly Resolution 1997 for global elimination of this disease.² Government of India launched National Filaria Control. Programme (NFCP) in 1955 which was initially limited to urban population. After 1994 the programme was extended to include rural population also. From 2003-04, the programme became a part of national vector borne disease control programme (NVBDCP) and it aimed to eliminate lymphatic filariasis by 2015 under National Health Policy 2002.³ In 1998, the WHO had targeted the elimination of this disease and formulated a global programme on elimination of lymphatic filariasis (GPELF), under which a national filaria day (NFD) is being observed in which a single dose of antifilarial and antihelmenthic drug is distributed to the population.4 In pursuit to achieve the goals, GoI launched nationwide mass drug administration (MDA) in 2004 in endemic areas as well as home based morbidity management, scaling up hydrocelectomies in CHCs and PHCs. The programme covers all 250 endemic districts, but compliance with treatment is not adequate for the programme to succeed in eradicating this neglected tropical disease. Overall MDA coverage rates vary between 48.8% and 98.8%, while compliance rates ranges from 20.8% to 93.7%. The coverage-compliance gap is large in many MDA programmes. The effective level of compliance, ≥65%, is reported in only 10 of a total of 31 MDAs (5 of 20 MDAs in rural areas and 2 of 12 MDAs in urban areas) reviewed. The review has identified a gap between coverage and compliance, and potentially correctable causes of this gap.⁵ These causes need to be addressed if the Indian programme is to advance towards elimination of lymphatic filariasis. If we take an example of African region, Togo is the first sub-Saharan country to have stopped MDAs after prevalence data suggested that LF transmission had been interrupted. The successful Togo program demonstrates that LF elimination can be achieved in countries with limited resources.6

With this scenario in mind, the present study was undertaken to assess the situation of MDA coverage and compliance in two districts of Maharashtra, and to see the progress of such indicators in the past five years, so that we could recommend mid-course corrections and suggest necessary steps for further course of action while we are heading towards achieving elimination of this disease within a stipulated time period. Our assessment was based on both quantitative (through household MDA coverage survey) and qualitative data (through semi-structured interviews of informants) collected after MDA.

METHODS

This is a community- based cross sectional study carried out in four selected clusters each in Nagpur and Bhandara districts of Maharashtra. The survey was conducted in December, every year for five consecutive years from 2010 to 2014. MDA activity is conducted in Maharashtra generally in the month of November every year, but at times due to other programmes like pulse polio immunization in the same month, MDA activity is postponed by about 1 to 2 months. On the day of MDA activity, the health worker is supposed to visit each and every house and give DEC tablets to the beneficiaries. Children less than two years of age, pregnant women and old people suffering from chronic ailments are not the beneficiaries of MDA. The dose of DEC tablet (100 mg) is as follows: one tablet for 2-5 years; two tablets for 5-14 years, and three tablets for people over 14 years of age. Along with DEC, one tablet of albendazole 400 mg is also given to the beneficiaries. Health worker is expected to first give brief idea to the people about MDA activity and details about DEC tablets, and then to make the people consume the tablets in front of him/her, to ensure compliance. The tablets are not to be taken on empty stomach.

Within a period of three weeks after this activity is undertaken, a team of external monitors from Department of Community Medicine visits the two districts for three consecutive days every year. First, the baseline data of the district and coverage rate of MDA distribution and compliance rate is collected from the District Malaria Office. Stratified random sampling technique is adopted for selection of households. The PHCs are stratified into 3 groups depending upon MDA coverage: those with coverage below 50%, between 50-80%, and those with coverage above 80%. In each category of the PHC, one PHC is selected randomly. In case there is no PHC in a particular category, two PHCs from the next category are selected. From each of the selected PHC, one village is selected randomly for household survey. In each village 30 households are covered. Similarly, in urban areas, one ward is selected randomly and 30 households are covered in the selected ward. In this way, in each district, 120 households are surveyed for the purpose of MDA evaluation every year. The subjects available at the time of interview are inquired for the details regarding drug distributor's visit, consumption of tablets, adverse events if any, and awareness about the disease and MDA activity. Drug coverage is defined as the proportion of individuals in a defined population who swallowed a drug or, as is the case in preventive chemotherapy, a combination of drugs. The defined population can be (a) a target group for treatment, e.g. school-age children, (b) the people in a geographical region, administrative area or communities highly endemic for specific diseases or (c) the people in an entire country. These three types of coverage are referred to as programme coverage, geographical coverage, and national coverage respectively. The coverage calculated in this article is programme coverage.

The results of the survey are summarized below in terms of percentages. Consumption rates for each district are calculated for all the five years and compared to the reported rates by district authorities.

RESULTS

Table 1 shows year-wise population covered in the survey and DEC consumption rate of both the districts in the last five years. The table also highlights the reasons of non-compliance by the population. Most of the people were having fear of side effects of the drug, which they must have experienced in the previous year's activity, or seen other persons having side effects. Other major chunk of people thought that they are not suffering from lymphatic filariasis, and therefore there was no need of

consuming DEC tablets. Many houses were missed by the drug distributor which might be due to the working hours of the people when most of the rural people go to their farms. There were many other reasons quoted by the people for not consuming DEC, like they forgot to take the medicine at night after meals, or it was their fast on that day. Some said that they were not having knowledge about DEC and MDA, and the drug distributor also didn't explain them the necessary details. Many parents complained that their children don't like to consume medicines and they spit the tablets if given forcefully.

Table 1: Consumption of DEC tablets and reasons for non-consumption in the two districts.

	Nagpu	r district				Bhand	ara distr	ict		
No. of beneficiaries	2010- 11	2011- 12	2012- 13	2013- 14	2014- 15	2010- 11	2011- 12	2012- 13	2013- 14	2014- 15
Total beneficiaries in selected houses	546	514	479	544	499	501	479	556	561	497
No. of beneficiaries who consumed tablets	439	324	379	421	389	351	341	396	410	405
Reasons for non- consumption										
Distributor didn't come	38	25	25	45	47	40	48	22	18	12
Fear of side effects	13	45	22	28	14	35	33	23	18	14
Not suffering from L.F., so no need of DEC	20	55	18	20	17	48	26	45	25	33
Other reasons	34	65	35	30	32	27	31	70	90	33
No. of beneficiaries having side effects	10	4	4	1	19	20	11	5	7	4

Table 2: Comparison of reported coverage and actual coverage found in evaluation.

Year	Nagpur district		Bhandara district			
	Reported coverage (%)	Coverage found (%)	Reported coverage (%)	Coverage found (%)		
2010-11	89	80.3	90	70		
2011-12	90	63	91.9	71.2		
2012-13	91.92	79	95	71		
2013-14	91.15	79	94	73		
2014-15	96.58	77	95	82		

It can be seen from the table that the number of people having side effects of DEC is far less. The most common side effects noted were dizziness, fever, drowsiness, headache, nausea and vomiting.

Table 2 shows that there is consistent progress in the consumption rate in both the districts. But the actual consumption rate was far less when compared to the coverage reported by the drug distributor, or the medical officer (more than 90% compliance is reported every year).

DISCUSSION

Though the actual consumption is less than the reported compliance, the steady increase in compliance rate every year is showing good progress towards elimination of lymphatic filariasis in the two districts. In our study, the actual consumption rate was far less when compared to the consumption rate reported by the drug distributor. This is because the drug distributor is expected to make the people consume medicine in his/her presence, but since the people are empty stomach when the distributor visits their home, or they are not at home at that time, the distributor gives the medicine to the person present at home instructing them to consume tablets after meals. Later the people forget to consume the tablets leading to lowered consumption. What the distributor reports as consumption rate is actually the drug distribution rate, and actual consumption of medicine is far less.

Compliance rate found in our population is high as compared to Ranganathan et al, who found coverage rate of 78% and compliance rate of 68% in Karnataka.⁴ Shende et al reported compliance rate of 80.5% in the studied population.⁶ Babu et al in their review of 36 papers reported compliance rates ranging from 20.8% to 93.7%.⁵ Within this wide range, the compliance of our

population is fairly good. Side effects of DEC are very less, which shows it is tolerated well by the population, which makes it a safe drug to be continued for MDA. Our finding is similar to that reported by Ranganatahn et al and Shende et al, who reported few, minor side effects of DEC. ^{4,8}

The challenge towards achievement of elimination of filariasis is that the interruption of transmission requires >85% treatment coverage of the total population. We are fairly near the target, and progressing towards achieving it. The non-compliances can be reduced by reorienting the drug distributor, and convincing the people by giving adequate information about the disease and the drug. Inter-sectoral coordination and community participation involving NGOs, local leaders and self-help groups could be of help in raising awareness and increase in compliance.

CONCLUSION

Gradual increase in compliance of drug consumption over the period of five years in both the districts shows good progress towards the path of elimination. Still, improving the compliance further to reach 85%, and sustain it over and above 85%, by effective IEC and by tapping all the available resources is the need of the hour. Our goal is to eliminate this disease completely from our country and make future generations live healthy and happy life, free from lymphatic filariasis.

ACKNOWLEDGEMENTS

We are thankful to the public health department of our state for giving us opportunity to carry out the evaluation and monitoring work.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

1. Provisional strategy for interrupting lymphatic filariasis transmission in Loiasis- endemic countries.

- Report of the meeting on lymphatic filariasis, malaria and integrated vector management. WHO 2012. Available at: http://apps.who.int/iris/bitstream/10665/75139/3/WHO_HTM_NTD_PCT_ 2012.6_eng.pdf. Accessed on 7 March 2017.
- National Filaria Day Launch of Mass Drug Administration for Elimination of Lymphatic Filariasis. Available at: http://pib.nic.in/newsite/ erelease.aspx?relid=32649 Accessed on 12 March 2017.
- 3. Mishra A, Bhadoriya RS. An epidemiological study of Filariasis in a village of District Datia, MP. Indian J Community Med. 2009;34:202-5.
- 4. Ranganath TS, Reddy NR. Elimination of Lymphatic Filariasis: Mass Drug Administration in Endemic Areas of (Bidar District) Karnataka-2008 Indian J Community Med. 2012;37:219-22.
- 5. Babu BV, Babu GR. Coverage of, and compliance with, mass drug administration under the programme to eliminate lymphatic filariasis in India: a systematic review. Trans R Soc Trop Med Hyg. 2014;108(9):538-49.
- Progress toward elimination of lymphatic filariasis-Togo, 2000-2009. Morbidity and mortality Weekly report (MMWR) 2011. CDC Home. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm 6029a4.htm. Accessed on 7 March 2017.
- 7. Monitoring drug coverage for preventive chemotherapy. WHO 2010. Available from http://apps.who.int/iris/bitstream/10665/44400/1/97 89241599993_eng.pdf Accessed on 12 March 2017.
- 8. Shende M, Saraf Y, Joshi A. Mid term assessment of mass drug administration in lymphatic filariasis endemic area of Damoh and Sagar district of Madhya Pradesh. J Evol Med Dent Sci. 2015;4:121-7.

Cite this article as: Chaudhary SM, Kubde SS, Khamgaonkar MB. Progress towards elimination of lymphatic filariasis in two districts of Maharashtra: scenario of last five years. Int J Community Med Public Health 2017;4:3230-3.