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Effect of mass drug administration programme on microfilaria carriers in East Godavari district of Andhra Pradesh

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Lymphatic filariasis (LF) or elephantiasis is a major public health problem not only due to morbid condition but also due to social stigma, sexual incapacitation and considerable economic loss. National Health Policy 2002, aims at elimination of transmission and the prevention of disability due to LF by the year 2015, through mass drug administration (MDA) programme with annual single dose of diethyl-carbamizine citrate (DEC) tablets[1].

East Godavari is one of the worst LF affected districts in Andhra Pradesh. Since 1999 to 2005 a total of six rounds of MDA programmes were organised covering five million population[2]. Recently, in a study during 2004–05, microfilaria (mf) rate in LF endemic areas of the district was noted as 4.43%. All the mf carriers were found apparently without any clinical symptom[3]. A study was therefore, initiated between third week of October and second week of December 2006 to note the effect of seventh round of MDA programme on mf carriers in selected filarial endemic areas of East Godavari district of Andhra Pradesh.

Land surface of LF affected areas of East Godavari district is more or less plain with high sub soil water, situated in the eastern bank of the River Godavari. Nine villages, namely Dowlaswaram, Namavaram, Dwarapudi, Veravaram, Vemagiri, Ippanapadu, Gokavaram, Tatikonda, Korukonda and parts of Rajahmundry town were selected for the study. The villages surrounding Rajahmundry town are within 25 km in radius are highly endemic for LF. The sanitary conditions of the areas are very poor, with open drainage system and haphazard constructions which lead to mosquitogenic conditions.

In order to note the effect of MDA programme on microfilaria carriers, first phase of night blood survey was conducted in nine villages and part of Rajahmundry town between 20 October and 10 November 2006 as pre-MDA survey. Government of Andhra Pradesh observed MDA programme in the study area on 11 November 2006. Second phase of night blood survey was again conducted among the persons reported positive for mf in blood in first phase of blood survey in the same study area from 27 November to 9 December 2006. This was done in order to note the effect of MDA programme on microfilaria carriers. The surveys were conducted between 2030 and 2300 hrs, 20 mm^3 of peripheral blood was drawn on clear glass slides randomly from each individual by finger prick method randomly. Slides were brought to laboratory, numbered, dried, de-haemoglobinised, fixed and stained in Giemsa stain. The stained slides were examined under microscope for the presence of microfilaria. The species of the parasite were identified and number of microfilaria were counted[4]. A total of 2585 night blood samples were collected from the

Table 1. Effect of seventh round of MDA programme on microfilaria carriers in East Godavari district of Andhra Pradesh during 2006

S. No.	Name of village/ town	Pre-MDA survey report			Post- MDA survey report							
							DEC consumption-wise mf positivity report					
		No. of slides examined	Slides positive for mf	Mf rate (%)	No. of slides examined	Slides positive for mf	No. consumed DEC	No. found positive for mf	Received DEC but not consumed	No. positive for mf	No. not received DEC	No. positive for mf
1.	Dowlaswaram	249	6	2.4	6	4	0	0	1	0	5	4
2.	Namavaram	140	9	6.4	9	4	7	3	1	0	1	1
3.	Dwarapudi	223	11	4.9	11	10	1	1	5	4	5	5
4.	Veravaram	257	9	3.5	9	5	4	3	5	2	0	0
5.	Vemagiri	155	8	5.16	6	5	0	0	1	1	5	4
6.	Ippanapadu	317	6	1.89	5	3	0	0	5	3	0	0
7.	Gokavaram	234	10	4.27	9	7	2	1	3	2	4	4
8.	Tatikonda	250	15	6.0	14	11	3	2	5	5	6	4
9.	Korukonda	228	12	5.2	10	8	2	1	2	1	6	6
10.	Rajahmundry town	532	4	0.73	2	2	1	1	0	0	1	1
	Total	2585	90	3.48	81	59	20	12	28	18	33	29

study area of which 90 persons were found positive for mf belonging to species *Wuchereria bancrofti*. Microfilaria rate was noted as 3.48%. Average mf density was noted as 5.2/ 20 mm^3 of peripheral blood. All the 90 mf carriers were apparently without any clinical symptoms. In a study during 2004–05[3] mf rate and mf density in East Godavari district was noted respectively as 4.43% and 9.99/20 mm^3 of blood. In our present study mf rate (3.48%) and mf density (5.2/20 mm^3) showed a decreasing trend after MDA programme in 2005 (Table 1). Simultaneously, it was also noted that on both the occasions mf carriers were reluctant to consume DEC tablets during MDA programme. The data were collected before seventh round of MDA programme scheduled on 11 November 2006 in order to assess the pre-MDA microfilaria rate.

Fifteen days after seventh round of MDA programme held on 11 November 2006, attempts were made to collect blood samples from 90 persons between 27 November and 9 December 2006, recorded mf in blood during first phase of study. Out of 90 targeted persons blood could be collected from 81 (90%) persons. Nine of them could not be traced as they left the place due to various reasons. Out of 81 microfilaraemia patients, 61(75.3%) did not consume DEC tablets during MDA programme. About 33 (54.1%) of them did not receive DEC, and 28 (45.9%) patients had received DEC but did not consume due to lack of motivation and also due to fear of side-effects of the medicine. Out of 81 persons examined, 59 (72.84%) again found positive for mf in blood, rest 22, i.e. 27.16% found negative. Out of 59 mf positive patients, DEC were consumed by only 20 persons during the seventh MDA programme of which 12 were again found positive for mf in blood. Ten of them consumed full single time dose, i.e. three tablets of 100 mg DEC and two consumed one 100 mg tablet. Average mf density of the ten persons was found to be significantly reduced. Presence of mf in 12 persons, 15 days after consumption of DEC tablets is a matter of concern. Similarly, Das *et al*[5] reported 48% reduction in microfilaraemia after four-cycle treatment with DEC.

Therefore, it may be mentioned that after seven rounds of MDA programme 59 out of 2585 persons were still found to be asymptomatic mf carriers in the study villages. Majority of them were reluctant to consume DEC tablets due to lack of knowledge and fear of side effects. In 12 cases parasitaemia found to be persistent after 15 days of consumption of DEC.

Poor drug compliance in these 81 asymptomatic mf carriers is due to lack of proper knowledge and motivation in the community. In view of the poor compliance of DEC consumption, intensive IEC activities should be carried out in the community. Before and during MDA programme, peripheral health workers should pass on the message repeatedly explaining the importance of mass consumption of DEC tablets irrespective of any symptoms. More importance should be given on compliance of medicine in front of health personnel. Repeated mopping up the programme under strict supervision is also highly essential.

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