



Prevalence of Worm Infestation among Children in Rural Pondicherry in the Backdrop of Yearly Albendazole as a Part of Mass Drug Administration for Filaria Control- a Cross Sectional Study

* R. S Bharatwaj ** K. Vijaya *** P. Rajaram

* Associate Professor, Dept Of Community Medicine, Sri Lakshminarayana Institute Of Medical Sciences, Pondicherry- 605502

** Associate Professor, Dept Of OBG, Sri Lakshminarayana Institute Of Medical Sciences, Pondicherry- 605502

*** Epidemiologist, Dept Of Community Medicine, Sri Lakshminarayana Institute Of Medical Sciences, Pondicherry- 605502

ABSTRACT

Background: Worm infestation is a major public health problem in children of developing countries because of poor socioeconomic conditions and lack of good hygienic living. It causes not only nutritional deficiencies and anemia but can lead to intestinal obstruction in the infested children. On the backdrop of yearly combination mass therapy of DEC and Albendazole, the purpose of this study was to determine the frequency of intestinal infection/ infestation in children of rural Pondicherry

Material & Methods: This cross-sectional community based study was undertaken in rural area of Pondicherry. The study population included all the 131 children of 6 months -5 years age group of both sexes. Stool examination for ova detection was performed at the department of Microbiology. The data was compiled and made into proportion for assessment.

Results: Out of 131 children examined, only 2 were found positive for intestinal infection/infestation of which one was a case of ascaris and the other a case of giardia

Conclusion: .The government health program of yearly Albendazole seems to have a very good impact on controlling the occurrence or persistence of worm infestation in the paediatric under fives in the community.

Keywords : Worm infestation, Pondicherry, DEC, MDA

Introduction

Worm infestation remains one of the main problems of child development. This is especially a greater health hazard in developing countries. It is one of the main causes of childhood malnutrition, anemia, stunted physical and mental growth, psycho-social problems and this along with repeated gastrointestinal and upper respiratory tract infection contributes to high morbidity in children and remains a major cause of high infant and child mortality in our country.

WHO report of 2002 estimates the probability of dying for under five children to be around 91 per 1000.[1] In India the mortality for under five is mainly due to ARI(23%) and diarrhoeal disease(18%) as per WHO report 2002.[1] In India under five constitute about 13% of the total population of India. The strategy of co-administration of DEC + Albendazole was expanded to all the endemic districts instead of DEC alone. The overall coverage of MDA in 16 states/UTs is 88.29% as per the official website of the national vector borne diseases control program[2]. In this backdrop we wanted to study the frequency of intestinal infection/ infestation in children of rural Pondicherry

Materials and methods

All the children in the age group 6 months to 60 months in the village of Komarapalayam in rural Pondicherry were enlisted for the study. Along with collection of some demographic information these 131 children were subjected to an analysis of their stool samples for detection of any protozoan infection/ worm infestation. The collection of samples was done by the mothers or guardians of the children who were trained to do so. An adequate quantity of the stool sample was collected in

a butter paper, wrapped and then put in a match box by the mother/guardian of the child which was further collected by the investigator team and taken to the microbiological laboratory for analysis. This process took a period of 1 week wherein re-collection of samples had to be done for 28 of the children as the first sample was declared unsatisfactory by the lab.

Results

The study covered a total population of 1258 individuals that included 289 families staying in 241 houses. There were a total of 131 children in the age category 6 months to 6 years in this population, who were evaluated. All of them belonged to families of social class 3 as per kuppaswamy classification. The proportion of male children was higher, 58.7% as compared to the female children 41.3%. Majority of the children were aged above 3 years (58%) and only 10.6% were aged below 1 year. In all the age categories the proportion of males was more but this difference was not statistically significant[Table 1] It was interesting to note that all the children had been given the DEC and Albendazole pills during the mass drug administration campaign as per the information obtained from the mother or guardian. Examination of the stool samples showed that out of 131 children examined, only 2 were found positive for intestinal infection/infestation of which one was a case of Ascariasis and the other a case of Giardiasis which was statistically significantly lower when compared to past studies [Table 2]

Discussion:

Annual mass administration (MDA) of single dose anti-filarial drugs to entire endemic communities for the control of transmission of lymphatic filariasis is currently the recommended

strategy for the Global Alliance for the Elimination of Lymphatic Filariasis (GAELF) [3,4]. The World Health Organization (WHO) has set the target for global elimination of lymphatic filariasis by the year 2020 and India, which has roughly 40% of the global burden, has set its target for national elimination by the year 2015 [4]. The strategy of co-administration of DEC + Albendazole was expanded to all the endemic districts instead of DEC alone. To ensure MDA with co-administration, this round was staggered starting since 11th November 2009. Andhra Pradesh, Goa, Kerala, Gujarat, Dadra & Nagar Heveli and Daman & Diu observed MDA on 11th November 2009. Karnataka and Puducherry states observed MDA on 18th December 2009 for the first time and have continued with it.

The complete coverage of all the 131 children could be attributed to the novel technique in Pondicherry where in the partners include different local government departments (social welfare, health & family welfare, state unit of National Filaria Control Program, Dept of information and publicity), Central government departments (All India Radio, Doordarshan), Students (NSS), Mahila sanghs, etc developed as a site specific locally developed strategy for Filariasis MDA.

The fact that only one among the 131 (0.76%) had an intestinal worm infestation is a very positive sign. This is significantly lower when compared to results obtained for intestinal infestation in children from other studies from developing countries wherein the infestation rate was as high as 60 to 80% [5] As also in other studies where of the 246 children attending school in rural Guatemala, 91% carried Ascariasis and 82% carried trichuris trichura [6]. In Madagascar a study revealed prevalence of 93% for Ascariasis, 55% for trichuris trichura and 27% for hookworm infestation [7]. There was a prevalence of 78% for Ascariasis, 38% for Trichuris, 16% for hookworm and 0.4% for Schistosoma mansoni in children in the Madagascar. [8]

Thus the strategy of co-administration of DEC + Albendazole has been proven to be of excellent efficacy in controlling the worm infestation which is one of the major causes of childhood malnutrition and hence its associated consequences in the study area.

Further a past study also supports the fact that there was an improvement in weight in under five children with six monthly ABZ over a period of 1.5 years [9] So this is a further support for a conclusion that co-administration of DEC + Albendazole would in all possibility help in improving the nutritional status of children in our country.

Acknowledgement:

I would like to acknowledge the support and sincere work of Mr Nagarajan, Health Inspector for his contribution towards collection of samples.

Table 1: Distribution of children based on age categories

Age Category	Males	Females	Total
6 Months upto 1 Year	9	5	14
>1 Yr upto 3 Yrs	25	16	41
>3 Yrs upto 6 Yrs	43	33	76
Total	77	54	131

P=0.81

Table 2: Final results of the stool sample analysis of the children and comparison with a past study

	Worm infestation Found	No infestation detected	Total	P value
Current study	1	130	131	<0.001
Peshawar study [5]	132	68	200	

REFERENCES

1. M. B. Sudharsanam, Risk Factors for Sick Children in a Fisherman Community in Pondicherry, Indian Journal of Community Medicine, 2006, 31(4):10-12 | 2. National vector borne diseases control program, Directorate general of health services, Ministry of health and family welfare, [homepage on the Internet]; MDA coverage since 2007; [about 2 screens]. Available from <http://www.nvbdc.gov.in/fil-md.html> | 3. Ottesen EA, Duke BOL, Karam M, Behbehani K: Strategies and tools for the control/elimination of lymphatic filariasis. Bull World Health Organ 1997, 75:491-503. | 4. Das PK, Pani SP: Towards elimination of lymphatic filariasis in India: Problems, challenges, opportunities and new initiatives, J Int Med Sci Acad 2000, 13:18-26. | 5. Ikram Ullah, Ghulam Sarwar, Sabina Aziz, Muhammad Hussain Khan, Intestinal worm infestation in primary school children in rural Peshawar, Gomal journal of medical sciences, July-december 2009; 7(2):132-136 | 6. Watkins WE, Cruz JR, Poll Witt E, The effects of deworming on indicators of school performance in Guatemala, Trans R Soc Trop Med and Hyg, 1996;90(2):156-61 | 7. Kightlinger LK, Seed JR, . Kightlinger MB, Ascaris lumbricoides aggregation in relation to child growth status, delayed cutaneous hypersensitivity and plant anthelmintic use in Madagascar, Journal of parasitology, 1996; 82(1):25-33 | 8. Kightlinger LK, Seed JR, . Kightlinger MB, The epidemiology of ascaris lumbricoides, trichuris trichura and hook worm in children in the Ranomafana rainforest Madagascar, Journal of parasitology 1995; 82(2):159-69 | 9. Awasthi S, Pande VK, Six-monthly de-worming in infants to study effects on growth, Indian J Pediatr. 2001 Sep;68(9):823-7 |