Annual antifilarial mass drug administration programme: knowledge and compliance among selected grade 12 school children

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Abstract

Objective: To assess the knowledge about and the compliance with annual anti-filarial chemoprophylaxis programme among grade 12 school children in a selected school.

Methods: A descriptive cross sectional study was carried out at Lumbini College, Colombo 5. Data was collected from a randomly selected sample of 120 grade 12 students present in the school on 10th of August 2006 using a pre-tested self administered questionnaire. Among them, 25(20.83%), 51(42.5%) and 44(36.67%) were in science, commerce and arts streams respectively. The number of male respondents was 81(67.5%).

Results: All students had heard about lymphatic filariasis and 11(9.16%), 86(71.66%) and 23(19.16%) students had good, average and poor knowledge respectively. There difference between males and females was not significant (P=>0.10). The difference in knowledge between the streams was statistically significant (P=<0.02). The main source of information was television (70%).

107(89.16%) students had received treatment with 69(64.48%) taking the drugs from a public place. 97(90.65%) of those who had received treatment had consumed the drugs.

None of the students had good knowledge about the drugs. Only 8(6.67%) had an average knowledge and 112(93.33%) students had poor knowledge. There was no statistically significant difference between males and females (P=>0.10) or between the streams (P=>0.5).

Among participants 76(63.33%) knew that the number of patients with lymphatic filariasis had decreased due to previous mass drug administration (MDA) programmes.

Conclusions: It is important to improve the existing awareness programmes on lymphatic filariasis and MDA among school children. Delivering drugs to the community during annual MDA by making them available at public places is effective.

Introduction

Lymphatic filariasis is endemic in Sri Lanka. It is a major cause of world-wide clinical morbidity influencing socio-economic development and the world's second leading cause of permanent and long term disability. Currently over 120 million people are already infected, with more than 40 million incapacitated or disfigured by the disease (1). The South Asian region harbors nearly half the world's lymphatic filariasis burden.

In 1997, the World Health Organization and its member States recognized lymphatic filariasis (LF) as a major problem, and made a commitment to eliminate it world-wide (2). This plan, officially launched by the World Health Assembly in Geneva, states that filariasis is one of six diseases that is potentially eradicable. The target year to achieve this goal at a global level has been set for the year 2020.

Mass chemotherapy has been identified as one of the two main general control strategies (3). Repeated annual or semi-annual distribution of a single dose of diethylcarbamazine (DEC) significantly reduces microfilaraemia leading to interruption of transmission of the parasite by mosquitoes (3, 4). Albendazole is one of

the most widely used anti-parasitic drugs for curing intestinal worm infestations of children, and when co-administered as a single treatment with the anti-filarial drug DEC (6mg/kg), it also enhances the ability of these drugs to stop the spread of filarial infection. They have few side-effects and a low cost of delivery and therefore suitable for a country like Sri Lanka. However, the cost effectiveness of such a programme depends on the rate of compliance of the target population (5).

No public health programme has ever expanded as quickly as the Global Programme to Eliminate LF. Annual treatment rates have rapidly progressed, up from 25 million in 12 countries in the year 2000 to 122 million in 36 countries in 2003 to over 250 million in 39 countries in 2004. The rapid expansion could be attributed to several factors, including generous drug donations. Annual treatments have also shown dramatic and persistent reduction in hookworm and roundworm infections, improving children's growth and nutrition (1).

In Sri Lanka, 9.8 million of the total population of 18.9 million are at risk. A formidable 50,000 strong volunteer force has been able to target its entire endemic population during the past few years with a reported coverage of over 80% in the MDAs in 2002 and 2003. An independent assessment of coverage carried out on 4,000 individuals in all implementation units revealed that 79% of the targeted population received the drugs but only 71% had taken them. Compliance was thus about 10% less than the reported figures (1).

A previous study done in Sri Lanka (6), has shown that the MDA program was known to 44.8% people in Unawatuna and 35.6% in Baddegama.

In the wake of the killer waves of the Tsunami that struck in late December 2004, neglected diseases like lymphatic filariasis (LF) face more intense challenges than ever before.

This study was conducted to assess the knowledge about lymphatic filariasis and annual MDA and also compliance with the treatment among grade 12 school children in a selected school.

Methodology

A descriptive cross sectional study was conducted in the Lumbini College, Colombo 05 on 10th August 2006. The study sample consisted of 120 students in grade 12, and included those who attended school on the date of the study. Those who refused to participate were excluded from the study. We selected a sample of 120 students out of 350 students in A/L classes by simple random sampling. We divided the sample according to the student ratio among Science, Commerce and Arts streams. We expected a 90% response rate.

The study instrument used to collect data was a self administered questionnaire and it consisted of four parts.

1. Socio-demographic data
2. Knowledge about the disease
3. Knowledge about the Annual Mass Drug Administration program
4. Knowledge about the antifilarial drugs and compliance with the treatment

The questionnaire was pre-tested by selecting a group of grade 12 students (n=20) in a different school. Depending on the results of the pre-test no modifications were done. The average time spent for answering the questionnaire was about 15 minutes.

All authors were present when distributing the questionnaires and this enabled the participant to clarify any doubts.

The collected data were analyzed as follows;

- Knowledge about the disease was assessed by giving marks out of 12 for selected questions of the questionnaire.
  Results are categorized as follows;
  8 – 12 – Good
  4 – 7 – Average
  0 – 3 – Poor

- We compared the results among gender and each streams.

- Knowledge about the mass drug treatment was assessed by giving marks out of 20 for

selected questions. Marks are categorized as follows;
15 – 20 – Good
9 – 14 – Average
0 – 8 – Poor

- We compared the results among gender and each streams.

Ethical issues

We considered the following ethical issues during the study.

1. Breach of confidentiality; Use of anonymous questionnaires to prevent breech of confidentiality.
2. Disruption to work; Use of the minimum time during interval, causing a minimum disruption to school work.
3. Consent; Obtaining of consent from the principal and the class teachers and exclusion of those who refused to participate.
4. Benefit; Distribution of an educational leaflet on annual antifilarial chemoprophylaxis at the end of the session.

Results

Number of questionnaires analyzed according to each stream was 25, 51, and 44 for science, commerce and arts respectively. Eighty one male students and 39 female students participated in our study. All the participants had heard about lymphatic filariasis.

Table 1 represents the knowledge about the disease and knowledge about the drugs used in the MDA according to gender.

Table 2 represents the knowledge about the disease and knowledge about the drugs used in the MDA according to streams.

Table 1: Knowledge about the disease and knowledge about the drugs according to gender

		Male	**Female**	**Total**	
Knowledge about the disease	*Good*	10	01	11 (9.16%)	Chi square value = 4.0121325 Degree of freedom (df) = 2 (P = >0.10) No statistically significant difference
	Average	58	28	86 (71.66%)	
	Poor	13	10	23 (19.16%)	
Knowledge about the drugs	*Good*	0	0	0 (0%)	Chi square value =1.197 df = 2 (P = >0.10) No statistically significant difference
	Average	04	04	08 (6.67%)	
	Poor	77	35	112(93.33%)	

Table 2: Knowledge about the disease and knowledge about the drugs according to streams

		Science	**Commerce**	**Arts**	**Total**	
Knowledge about the disease	*Good*	01	6	04	**11**	Chi square value = 12.67654 df = 4 (P = <0.02) There was a statistically significant difference
	Average	24	36	26	**86**	
	Poor	0	09	14	**23**	
Knowledge about the drugs	*Good*	0	0	0	**0**	Chi square value = 1.51236 df = 4 (P = >0.5) No statistically significant difference.
	Average	03	03	02	**08**	
	Poor	22	48	42	**112**	

One hundred and twelve (93.33%) students had heard about the MDA and 8(6.66%) students had not heard about it. 84(70%) students had heard about the MDA by television and only 1 (0.833%) student had received information from the internet. Table 3 displays the source of information about MDA.

Table 3: Source of information about MDA

Information source	No of students
Television	84
School	38
From Public health inspector	38
News papers	37
Radio	22
Rumors	22
Posters and banners	5
Leaflets	2
From internet	1

The two objectives of the MDA for lymphatic filariasis are Eradication of lymphatic filariasis from Sri Lanka and Prevention of infection with lymphatic filariasis of children.

From the participants only 26 students knew the first objective. But none of them knew the second objective. Only one student knew the year in which the MDA for lymphatic filariasis commenced in Sri Lanka. In the year 2006 MDA program, out of 120 students, 107 (89.16%) had received drugs and 13 (10.83%) had not received drugs. From those who received the drugs, 69 (64.48%) received drugs from a public place, 32 (29.9%) from volunteers who distributed the drugs and 6 (5.6%) from village clinics.

Reasons for not obtaining drugs, and the number of students included in this category are shown in table 4.

Table 4: Reason for not taking drugs

Reason for not taking drugs	Number
Difficulties to take drugs	03
Forget to take drugs	05
Considered that drugs are useless	02
Lack of knowledge about drugs	01
Lack of time	02

When considering the compliance of the treatment, from those who received the drugs, 97 (90.65%) students consumed the drugs and 10 (9.34%) students had not consumed. Reasons for non-compliance with the MDA are listed in table 5.

Table 5: Reasons for non-compliance with the MDA

Reasons for not taking drugs	Number
Lack of symptoms of the disease	02
Due to side effects of drugs	03
Lack of knowledge about drugs	01
Forgot to take drugs	07
Dislike taking drugs	02

From those who consumed the drugs, 02 (2.06%) students had taken drugs in the morning, 06 (6.18%) students in the afternoon and 89 (91.75%) students in the night. 13 (13.40%) students had taken drugs before meals and 84 (86.59%) students after meals. Difficulties faced in day to day work as a result of side effects of the drugs are listed in table 6.

Table 6: Difficulties faced in day to day work as a result of the side effects of the drugs

Difficulty	No of students
Sleepiness	62
Difficulties in studying	10
Difficulties in attending school	08
Others	
Sleeplessness	1
Body weakness	2

Drugs can be crushed and given to small children with or without syrup. This method was known only to 71 (59.16%) students and 49 (40.83%) students were not aware of that.

76 (63.33%) students were aware that previous MDAs resulted in a decrease in the number of filariasis cases and 40 (33.33%) students were not aware of it.

Discussion

Lymphatic filariasis is endemic in Sri Lanka. It is a major cause of morbidity and disability. Therefore the Sri Lankan government has launched a mass drug administration program which is conducted by the anti-filariasis campaign with the hope of eradication of filariasis. Therefore it is important that the people in endemic areas be knowledgeable, and to comply with the treatment.

This study was carried out to assess the knowledge on lymphatic filariasis, the mass drug administration program and compliance to treatment. For our study, we selected a school in Colombo district as it in an endemic area.

All the students had heard about lymphatic filariasis. Out of 120 students 11(9.16%) students had a good knowledge, 86 (71.66%) students had an average knowledge and 23 (19.16%) students had a poor knowledge. There was no statistically significant difference (P = >0.10) between males and females, but there was a statistically significant difference (P = <0.02) between each stream.

Out of 120 students 112 (93.33%) students had heard about the MDA for lymphatic filariasis.

Out of 120 students, none had a good knowledge about the drugs. Only 08 (6.67%) students had an average knowledge and 112 (93.33%) students had a poor knowledge about the drugs. There was no statistically significant difference between males and females (P = >0.10) and no statistically significant difference (P = >0.5) between each stream.

Among participants, 76 (63.33%) were aware that the number of patients with lymphatic filariasis had decreased due to previous MDA while 44 (36.66%) were not.

The main source of information was television (70%). Other sources were from school (31.6%) and from PHI (31.6%). Only one student received information from the internet. But a previous study done in Sri Lanka (6) has shown that the MDA program was known to 44.8% people in Unawatuna and 35.6% in Baddegama. Among them 25% from Unawatuna and 29% from Baddegama learnt about it from health personnel, 25.2% & 26.2% from television and radio respectively.

One hundred and seven (89.16%) students had received the treatment. Most of them [69 (64.48%)] had taken the drugs from a public place. Out of the students who had received the treatment, 97 (90.65%) had consumed the drugs. All their family members too consumed the drugs. The main reason for not complying with the MDA was forgetfulness. Only one student did not comply with the treatment due to lack of knowledge.

According to a previous study which was done in Sri Lanka, 293 (76.9%) residents of the Unawatuna community and 210 (89.0%) residents of Baddegama received the drugs (p<0.0001). Of them 269 (91.6%) from Unawatuna and 202 (96.2%) from Baddegama consumed the drugs. 88 (23.1%) in Unawatuna and 26 (11%) in Baddegama did not receive the drugs (6).

Our results could have been influenced by the fact that we collected data only from a selected school. The results would have been more representative of the population if it was done in several schools in endemic areas. On the other hand the Lumbini College is a mixed school and there are students from different areas of the Colombo district and also those representing various socio-economic backgrounds.

We used a pre-tested questionnaire and all 3 authors were there to clarify students' doubts during data collection. Hence we were able to minimize the errors.

Conclusion

1. Knowledge about lymphatic filariasis is average.

2. Most of them are not aware of the objectives of the MDA. But most of them knew that MDA is effective in reducing the prevalence of filariasis.

3. Their knowledge about the drugs is poor.

4. The main source of information about MDA is television. Followed by from school, from PHI and news papers. Other identified sources include radio, rumours, posters and banners, leaflets and from the internet.

5. Compliance of students with treatment is good. Identified main reasons for poor compliance are forgetfulness, side effects of drugs and lack of symptoms of the disease and dislike to take drugs.

Recommendations

1. To improve the existing awareness programs in order to improve knowledge about lymphatic filariasis and mass drug administration among school children. Those programs should emphasize the following points.
   i. All the family members should consume drugs at a particular time to prevent transmission of disease from one member to another by mosquito bites.
   ii. It is better to consume drugs after dinner to reduce adverse effects.
   iii. The drugs must be given to small children after crushing with or without syrup to prevent aspiration since there were two reported deaths following a previous MDA program.
   iv. There is a reduction of prevalence of lymphatic filariasis in Sri Lanka following several MDA programs. That should be mentioned to give the general public more confidence about the program.
2. This can be done most effectively via television programs.

3. Since this is a significant issue in Sri Lanka, this knowledge should be incorporated to school curriculum especially at G.C.E.O/L (General certificate of education – Ordinary level) to have the access to majority.

4. The most effective method of delivering the drugs to the community during annual MDA is by making them available from public places.

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