

Evaluation of Mass Drug Administration (A Cross Sectional Study in Sanggu Village, South Barito, Central Kalimantan, Indonesia)

Vipi Nurpila¹, Lintang Dian Saraswati², Martini Martini³, Praba Ginandjar⁴

¹Jaraga Sasameh Hospital, Buntok, South Barito, Central Kalimantan, ²Epidemiology and Tropical Diseases, Faculty of Public Health, ³Master Program of Epidemiology, School of Postgraduate Studies, ⁴Department Epidemiology and Tropical Diseases, Faculty of Public Health, Diponegoro University, Semarang, Indonesia

Abstract

Barito Selatan was one of the endemic areas of filariasis with Mf rate of 1.34% in 2004. MDA filariasis has been carried out in 2005-2013 gradually. Transmission assessment survey in 2014 obtained Mf rate of 1.7% with most cases in the village Sanggu. As a result, South Barito must add MDA Filariasis for 2 years. MDA filariasis 2015 was done. The purpose of this study was to evaluate the filariasis mass treatment, indicated with Mf rate and type of microfilariae, in the village Sanggu South Barito regency in Central Kalimantan. This research was a descriptive with *cross sectional* design. The sample was part of filariasis MDA target in 2015 aged > 2 years in the village of Sanggu. The sampling technique using *a simple random sampling*. The minimum sample size as many as 102 people. The inclusion criteria were willing to become subject and age < 15 years accompanied by a parent. We excluded subjects who moved from Sanggu village, pregnant, and children aged < 5 years of marasmus. The results showed that the rate Mf Sanggu Village at 2.9% with type *B. malayi* microfilariae. Characteristics of subjects were average age of 36.24 years, 52.9% were female, 25.5% were students, 35.3% had finished high school, 67.1% had poor knowledge, 55.9% were taking the medication from MDA program and 59.8% did not receive support from implementer elimination (TPE). Suggested to do follow up study for variables that may be associated with filariasis mass treatment such as the degree of endemicity, gender, education, knowledge, practice taking medication, the support of implementer elimination, selective treatment of old patients and monitoring the implementation of filariasis mass treatment.

Keywords: Evaluation, filariasis, mass drug administration.

Introduction

Filariasis is a tropical disease caused by infection of filarial worm *Wuchereria bancrofti*, *Brugia malayi* and *B. timori* which are transmitted through mosquito bites.^{1,2} Filariasis rarely causes death, but it may cause permanent disability.³ The data from WHO in 2016 show that there are 1.103 million populations at risk of filariasis in 73 countries and 632 million (57%) of countries in

Southeast Asia, including Indonesia, as the endemic countries.⁴ Based on the data from the Directorate General of Disease Control and Environmental Health, Ministry of Health of the Republic of Indonesia, the number of filariasis clinical cases from 2000 to 2014 have increased from 6,233 cases to 14,932 cases, with more than 102 million people (43%) of Indonesian's population at risk of filariasis.^{5,6}

South Barito is an endemic district in Central Kalimantan. Finger blood surveys were first conducted in 2004 with MF rate of 1.34%.⁷ According to the policy from the Ministry of Health of the Republic of Indonesia, if an area has Mf rate of > 1%, it belongs to the category of filariasis endemic area. To eliminate the filariasis, Mass Drug Administration (MDA) for Filariasis is conducted. There are two mass treatment

Corresponding Author:

Lintang Dian Saraswati

Department Epidemiology and Tropical Diseases,
Public Health Faculty, Diponegoro University, Jl. Prof.
Sudarto, SH, Tembalang, Semarang, 50275
e-mail: lintang.saraswati@live.undip.ac.id

strategies that are carried out doing MDA once a year for 5 consecutive years in endemic areas and clinical management for chronic filariasis patients.⁸ In South Barito regency, MDA for Filariasis was implemented from 2005-2013 gradually. Mass treatment was not done simultaneously due to limited budget. However, until 2014 Mf rate of 1.7% was still obtained with the type of microfilaria *B. malayi*.⁹ Consequently, South Barito should implement MDA for Filariasis again for 2 consecutive years. The sixth round of MDA for filariasis were conducted simultaneously in all sub-districts in South Barito in October 2015.

Research in Papua New Guinea showed that there was a decrease of Mf rate after mass treatment was conducted.¹⁰ Research in Egypt showed similar result in the decrease of Mf rate which ranged between 0.2%-2.7% after mass treatment was conducted.¹¹

In the implementation of mass treatment, the Health Office is assisted by the Elimination Executors (TPE) of Filariasis due to the wide area of treatment target.⁶ Each elimination executor is responsible for 20-30 families. The elimination executor is in charge of distributing drugs, administering medical cards, reporting side effects and assisting in counseling.¹²

Based on the explanation above, the research on Evaluation of Mass Treatment Admission for Filariasis in Sanggu village South Barito regency, Central Kalimantan is conducted.

Method

This research is descriptive research using cross sectional design by observing the independent variables and dependent variable. The independent variables in this study are age, sex, occupation, education, knowledge, practice of medicine intake, Elimination Executor's support, endemicity level and microfilaria species. While the dependent variable is evaluation of mass treatment admission for filariasis.

The research was conducted in Sanggu village, South Barito regency, Central Kalimantan on April 4 to April 29, 2016. The population of the research is all the target of filariasis mass treatment in 2015 aged > 2 years in Sanggu village. While the study sample is part of the entire target of filariasis mass treatment in 2015 aged > 2 years in Sanggu village. The inclusion criteria consist of willingness to be respondent and aged <15 years accompanied by parents while the exclusion

criteria consist of moved out respondents, pregnant and children aged <5 years with marasmus. The sample was taken using simple random sampling technique. The sample size is determined through the calculation using the proportion estimation formula of 102 respondents.

The research uses primary data taken by conducting direct interviews to the respondents' house with structured questionnaires and finger blood examination which then continued by conducting in-depth interviews. The study uses univariate analysis which aims to get the idea of frequency distribution result on each variable.

Results and Discussions

Finger blood test from 102 respondents in Sanggu village resulted in 3 positive blood preparations containing microfilariae. It resulted in Mf rate in Sanggu village to be 2.9% with *Brugia malayi* microfilaria type and infection from another microfilaria type is found to be none.

The previous study conducted in Ghana, found that the microfilaria rate was 4.6%.¹³ While in study conducted by Upadhyaya et al in Karimnagar district, India found the mf rate range from 0,0%-10,5%, and in Chittoor district ranged from 0,0%-7,0%.¹⁴

Table.1 Characteristic of the respondents based on sex, education and jobs (n=102)

No.	Characteristics (n=102)	f	%
1.	Sex		
	• Male	48	47.1
	• Female	54	52.9
2.	Educations		
	• Do not attend school	2	2
	• Kindergarten	2	2
	• Elementary School	17	16.7
	• Do not graduate Elementary School	6	5.9
	• Elementary School graduates	19	18.6
	• Junior High School graduate	11	10.8
	• Senior High School graduates	36	35.3
	• College graduates	5	4.9
	• University graduates	4	3.9
3.	Jobs		
	• Unemployed	4	3.9
	• Housewives	18	17.6
	• Students	26	25.5
	• Farmers	15	14.7
	• Rubber Tappers	7	6.9
	• Wood Collectors	2	2.0
	• Merchants	3	2.9
	• Private Employees	10	9.8
	• Civil Servants/Armies/Polices	11	10.8
	• Others	6	5.9

From the table 1 we know the average respondent aged 36.24 years old with the youngest aged 5 years old and the oldest aged 90 years old. Table 1. shows that more than half of the respondents are female (52.9%). A quarter of the respondents are students (25.5%) and one third of the respondents are high school graduates (35.3%). While study in Tanzania reported the median age of the respondents was 16.6 years, and more than half of them were female (51,0%).¹⁵. Another study in Kuwait also reported that respondents aged 29,2 range between 14-61 years old, more than half of them were male (57,4%), working as migrant workers.¹⁶. The result of this study revealed that more than thirty of the respondents have poor knowledge about filariasis (32.9%). The previous study Ghana, Malaysia and Indonesia also reported that the knowledge of the community toward filariasis still poor.¹⁷⁻¹⁹. Most respondents are wrong about the arguments of filariasis cannot be healed (78.4%), what causes it (95,1%), each patients drink 2 kinds of medicines (85,3%), the drug is meant only for filariasis patient 64.7%), medicines are taken by all aged > 15 years (67.6%), 2 year-old patients may take the medicine (85.3%) and side effects arise as a result of the death of microfilariae (75.5%). This results were in line with the study conducted by Amaechi et al who found that most of the respondents (82,1%) had not heard about filariasis, and several of the said filariasis caused by charms (77,9%), nearly a quarter of them don't know what the symptom of filariasis (24,2).²⁰. Another study also reported that most of the community don't know the cause of filariasis and the disease transmission.²¹

Table 2. The knowledge level of filariasis (n=82)

Knowledge	f	%
Good	55	67.1
Poor	27	32.9

Table 3 revealed that more than half of the respondents do not take medication (55.9%) during mass drug administration for filariasis in 2015. For the previous years, from 2010-2014, there were no respondents who took filariasis drugs. We know that the compliance of the respondents in taking medication were still low in this study. The previous study also reported the compliance of the community still low in India.^{12,22} In contrary with the study conducted by Elaziz et al in Egypt who found the compliance of the respondents in Giza village was 85,7%, and in the Delta village was (84,8%).²³.

The results found that most of the reasons the respondents do not take the medication are due to the fear of side effects (45.6%) and the parents do not give the children a chance to take filariasis medication (35.1%). (Table 5) The previous study conducted by Hussain et al also found that 77,0% of the non-compliance of MDA because fear the side effect.¹²

Table 3. The medication practices (n=102)

Medication practice	f	%
Do not take drugs	57	55.9
Take drugs	45	44.1

Table 4. The knowledge of filariasis prevention (n=57)

Reason of not taking drugs	f	%
Scared of side effects	26	45.6
Do not have filariasis	1	1.8
Parents do not give the children a chance to take filariasis drug	20	35.1
Do not receive filariasis drug	2	3.5
Lazy	7	12.3
Too old	1	1.8

Table 5. Distribution of Respondents Based on Examination Executors' Support (n=82)

Examination Executors' Support	f	%
Supporting	33	40.2
Not Supporting	49	59.8

More than half of the respondents do not get support from Elimination Executors (59.8%). The role of Elimination Executors were not optimal, they do not inform anyone about who should take the medication (59.8%), the benefit of mass drug administration (54.9%), the side effects (68.3%), do not monitor drug intake directly (86.6 %), and do not ask for possible treatment reactions (92.7%). The study conducted by Ginandjar et al in Pekalongan District reported that obtained socialization about MDA and obtain information from elimination officer was associated with the knowledge level of the community about MDA. Knowledge was predisposing factor for the MDA compliance, so the adequate information about MDA may increase the compliance of the community in taking filariasis medication during MDA.¹⁹ The study conducted by Babu et al reported the reason why most of the respondents do not take the medication because they fear the side effect of the drugs. And results of qualitative

study participants said that the elimination officer just gave the drugs without giving any further information.²⁴. The role elimination officers have an important role to play in the community's compliance with the MDA in terms of providing additional information such as informing the public of the side effects of drugs and what they should do if that happens. So that will reduce people's fear of the side effects of drugs, and perhaps it would increase the community compliance of taking filariasis medication during MDA.

Conclusions

The rate of microfilaria in Sanggu village after the 6th round of mass drug administration for filariasis has been done in 2016 is 2.9%. It means that mass drug administration for filariasis in Sanggu village has not reached WHO target. Factors that may be associated with the drug administration for filariasis are the level of endemicity, sex, education, knowledge, medication practice, Examination Executors' support and long-term selective treatment and monitoring of the implementation of mass drug administration for filariasis.

Conflict of Interest: The author reports no conflicts of interest in this work.

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