

ACCEPTANCE OF SHORT COURSE ARTESUNATE PLUS MEFLOQUINE DRUG COMBINATION BY MALARIA PATIENTS IN RURAL MYANMAR

Le Le Win¹, Tin Shwe¹, Myint Lwin¹, Soe Aung², Aung Kyaw Zaw¹ and Kyi Kyi Mar¹

¹Department of Medical Research, Ministry of Health, Myanmar;

²Department of Health, Ministry of Health, Myanmar

Abstract. A cross sectional study was carried out in a rural area of Myanmar to identify malaria patients' acceptance of artesunate plus mefloquine drug combination and to determine the cost borne by patients. The majority (88.5%) preferred this new regimen rather than the other ones they had used before; conviction of drug efficacy was the reason given for the preference by most of them. Traveling on foot to rural health centers or a health assistant's residence for getting the drugs was found to be the main route. Average cost incurred by a patient to get the drug was found to be 274.22 Kyats. Among the cost items, drug cost was the highest item that they had used.

INTRODUCTION

Malaria is one of the top priority diseases in Myanmar, and occupies first position in the National Health Plan (1996 - 2001). (National Health Plan, 1996) It is also the dominant public health problem for the rural areas and remote areas. Although various preventive and curative measures have been launched throughout the country, morbidity was not much decreased till 1993: 18.4% of total inpatients in 1984, 20.6% in 1989 and 18.7% in 1993. A similar situation was found for the mortality rate per 100,000 population: 9.5 in 1984, 12.3 in 1989 and 9.8 in 1993 respectively (Annual Report, 1993). One study done in Myanmar showed that, although artesunate had a high recrudescence rate, most patients (75%) failed to complete the 7-day regimen of artemisinin. Another study found that cure rates were increased to 84% and 89.5% if the same compound is utilized for 3 days or 5 days respectively. At the same time, emergence of resistance to mefloquine - which is the third line drug in most of Myanmar and as well the first line drug in the Thai-Myanmar border areas has been reported (Tin Shwe *et al*, 1997). Thus, it is time to identify the effective and well-accepted drug by the community (*ie*, low recrudescence rate and high compliance rate), which can be used in future.

The objectives are: (i) to identify the malaria patients' acceptance of short course artesunate plus mefloquine drug combination and (ii) to calculate the cost borne by patient for drug combination.

MATERIALS AND METHODS

This study is a part of a drug compliance study on the utilization of artesunate and mefloquine (in a specially prepared packet) at a township in Myanmar, which is a community based intervention study to determine the compliance rate of this drug combination. This combination was packaged as a 5-day regimen of oral artesunate (600 mg) and mefloquine (750 mg on day 2). The packets, which included simple written instructions on the regimen and daily dose, were sold at community cost sharing (CCS) shops of rural health centers (RHCs). For the component of "acceptance of artesunate plus mefloquine drug combination by malaria patients", cross sectional study design was used. The study was carried out during 1996, at 2 RHCs of Hlegu township, namely Intagaw and Gyogone RHCs respectively. The study areas are within 100 km of Yangon, with a population of over 300,000 and with a high prevalence of malaria. They were similar in transmission pattern in terms of malaria and socio-economic status.

All adult patients with uncomplicated *Plasmodium falciparum*, who bought and were treated with the new drug regimen during the study period of 3 months were included. All eligible patients were interviewed by trained interviewers with a pretested questionnaire, involving the following information: socio-demographic characteristics, cost incurred for antimalarial drugs and their preference of drug. With regards to the cost to the patient for antimalarial drug treatment, costs for drug, transportation and food, consultation fee given to health personnel for malaria-related treatment (if necessary), and time cost (loss of income through travel time for buying

Correspondence: Miss Le Le Win, Health Systems Research Division, Department of Medical Research, No. 5, Ziwaka Road, Yangon 11191, Myanmar.

Table 1
Mode of transportation by distance from patient's home to RHC or HA's home.

Mode of transportation	Distance (in km)						Total	%
	≤ 1	1-5	6-8	9-15	UK*			
By tri-shaw	14	11	0	0	0	25	17.9	
By cart	1	1	13	0	0	15	10.8	
By bus	3	4	5	0	0	12	8.6	
By other paid vehicle	0	3	0	1	0	4	2.9	
On foot	43	12	1	0	0	56	40.3	
By bi-cycle	0	3	0	0	0	3	2.2	
By other free transport	0	9	10	1	0	20	14.4	
No respond	0	0	0	0	4	4	2.9	
Total	61	43	29	2	4	139		

* unknown

Table 2
Mode of transportation by duration from patient's home to RHC or HA's home.

Mode of transportation	Duration (in hours)					Total	%
	< 1	1-2	2-4	4-6	UK*		
By tri-shaw	8	17	0	0	0	25	17.9
By cart	0	2	11	2	0	15	10.7
By bus	7	5	0	0	0	12	8.6
By other paid vehicle	0	1	2	1	0	4	2.9
On foot	40	7	9	0	0	56	40.3
By bi-cycle	0	1	2	0	0	3	2.2
By other free transport	0	0	19	1	0	20	14.4
No respond	0	0	0	0	4	4	2.9
Total	55	33	43	4	4	139	

* unknown

antimalarial drug, based on minimum daily wage) were obtained.

RESULTS

Altogether 139 adult patients with uncomplicated *Plasmodium falciparum* were included during the 3 month study period. Mean age of the patients was 28.9 years, ranging from 13 to 70 years and males were the dominant group (69.1%). About 45% had lower school level education, 28.1% could read and write, and 19.4% were of middle school level education. With regards to occupation, most were skilled laborers (30.9%), followed by farmers (20.1%) and dependents (20.1%).

Most of the patients (43.9%) lived within a short radius from the RHC or the health assistant's (HA) home. Mean distance from their home to RHC or HA's home was 2.5 km with the range of 200 m to 15 km. Mean time to get to RHC or HA's home was 1.9 hours (range 5 minutes to 6 hours). In order

to get the medicine, nearly 45% bought it at the RHC, whereas 52.5% did so at HA's home and only 2.9% got it at his/her own residence.

Mode of transportation

Regarding with the mode of transportation from the patient's home to RHC or HA's home, travel on foot was found to be the main route of transportation (40.3%), followed by using chargeable vehicles like tri-shaw (17.9%), cart (10.8%) and bus (8.6%). It was observed that, although many had only to travel a short distance and short duration from the patient's home to RHC or HA's home, the majority used chargeable vehicles (Tables 1, 2).

Acceptability of drug combination

When asking about their preferred drug between this new drug combination and the other drugs they had used before, 123 patients (88.5%) liked this new regimen of artesunate plus mefloquine, whereas 16 patients (12%) had no idea. Among those 16 patients who did not express their preferences, 12 patients had never suffered from malaria before

Table 3

Reasons given for preferring the new drug combination among patients who had suffered from malaria before.

Reasons	No. (n=123)*	%
It was convincing drug	59	47.9
Disease is cured	35	28.5
Easy to take medicine	24	19.5
No need for daily visit	22	17.9
Good compliance on drug	18	14.6
No need for injection	15	12.2
No feverish attack again	11	8.9
Need oral drug only	3	2.4
Drug cost is cheap	1	0.8

* Responses include more than one for some patients

Table 4

Total cost incurred by patients (n=139).

Cost item	Cost	%
Drug	25,020	65.6
Time cost	6,449	16.9
Consultation fee	3,710	9.7
Transportation	1,940	5.1
Food	997	2.6
Total cost	38,116	
Mean cost	274.22	

this attack.

The reasons for preferring this new drug combination given by those 123 patients who had suffered from malaria and who preferred this new regimen are shown in Table 3. About 48% said it was a convincing drug, that the disease will be cured after taking this medicine, 28.5% liked it because the disease was cured and believed that they will not suffer again from malaria, 19.5% claimed it was easy to take and nearly 18% said there was no need for daily visits to health center.

After one month of taking this drug combination, it was found that there were 138 slide-confirmed cured patients (99.3%). But, when asked their self-opinion on cure of disease, 132 patients (94.9%) thought they were cured and only 2 (1.4%) claimed they were not cured.

Cost incurred by patient

The average cost incurred by a patient was found to be 274.22 Kyats. Among the cost items for all patients (*ie*, 139 patients), drug cost contributed the highest proportion item (65.6%) and time cost was in second rank (16.9%). Transportation and food costs were found to be the least (5.1% and 2.6%

respectively), which could be due to the fact that the majority resided not far away from the RHC or HA's home (Table 4).

DISCUSSION

Although this was a small-scale survey, the findings revealed that the majority of the patients accepted the new drug combination and they had more confidence in the drug than in others they have used before. Average cost incurred by a patient was a little higher which could be due to the high cost of the drug, especially for mefloquine. Similar findings were also reported in a study on cost and performance of malaria surveillance done in Thailand (Kaewsonthi and Harding, 1986). Since most of the patients resided near to either the RHC or the HA's home, there was no transport problem for them. But for those who lived far beyond the source of drug, although there were no barriers, availability of drugs at a more convenient place should be taken into consideration, like a sub-center, which will encourage them to use it. It also indicated that this new drug combination could be utilized as another choice in malaria endemic areas with multi-drug resistant falciparum malaria.

ACKNOWLEDGEMENTS

We would like to thank all the responsible persons for co-operation in the field survey. This study was a side project of "Drug compliance study on the utilization of artesunate and mefloquine (in a specially prepared packet) at a township in Myanmar", funded by WHO/TDR.

We would like to thank all the responsible persons for funding and co-operation in the field survey.

REFERENCES

- Annual Report, Ministry of Health, Myanmar. Vector Borne Disease Control Annual Report 1993.
- Kaewsonthi S, Harding AG. Cost and performance of malaria surveillance: the patients' perspectives. *Southeast Asian J Trop Med Public Health* 1986; 17: 406-10.
- National Health Plan 1996-2001, Department of Planning and Statistics, Ministry of Health, Myanmar, 1996.
- Tin Shwe, Myint Lwin, Soe Aung. Efficacy of Artesunate and Mefloquine over Artesunate alone in community based treatment of non-severe *P. falciparum* malaria in Myanmar. Ministry of Health, Myanmar, 1997.