

Treatment Seeking Behaviour in Rural Areas of Assam, India and Its Impact on Malaria During the Epidemic

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INTRODUCTION

North-eastern region of India annually contributes about 8 to 12 % of malaria positives and 10 to 20 % of *P. falciparum* cases to the national figures, though it shares only 3.7 % population of India (Mohapatra et al., 1998). Two distinct malaria epidemiological situations exist in north-east India, of 'persistent malaria' in hard core areas and of 'expanding malaria', gradually spreading to malaria free/less malarious areas. Malaria in North-east India has been expanding, both in geographical area and intensity, since nineties, which is characterised by repeated and frequent outbreaks, causing high morbidity and mortality (Mohapatra et al., 1998). During 1994-95, a total of 608 malaria deaths were recorded in several epidemics which occurred in different north-eastern states (Khera et al., 1996). Investigations into the genesis of malaria outbreaks, identified population movement from high endemic to non-endemic areas in Primary Health Centre (PHC) Jamuguri of district Sonitpur, Assam, India (Prakash et al., 1997) whereas several operational limitations and unusual climatic conditions were recognised in PHC Tamulpur of Nalbari district and PHC Titabor of Jorhat district, Assam, India (Mohapatra et al., 1995; Prakash et al., 2000) for precipitating those outbreaks. However, these investigations did not focus much on health seeking behavioural aspect of affected communities which may be an important factor in initiating a malaria outbreak or influencing the course of ongoing outbreak. Health seeking behaviour of the communities may also greatly influence the epidemiology of persistent malaria. In view of the importance of the subject and existing lacunae in this field, we carried out a study to find out the treatment seeking behaviour of rural community and its relationship, if any, with increasing malaria endemicity during our investigation of a malaria outbreak in PHC Titabor of Jorhat

district, Assam, India in 1999. The results are presented in this manuscript.

MATERIAL AND METHODS

Study Area and Population: PHC Titabor in Jorhat district of Upper Assam, India experienced a malaria outbreak during April/May 1999 and reported 14 fever deaths suspected due to malaria. This epidemic was investigated in a foot hill village bordering Nagaland state, named Medelujan of Titabor PHC, which has been described elsewhere (Prakash et al., 2000). Population of the study village, Medelujan was 875 in 126 families comprising of mixed group of people belonging to Ahom, Kachari (Assamese Plains tribe), Nepalis, Nagas and Adivasis (ex tea garden labourers migrated several generations ago from Orissa and Bihar states of India) communities. Educational and economical status of Ahoms and Kachari people was relatively better than people of other communities in the village. On the other hand, Adivasis and Nepalis were mostly illiterate, daily wage earners.

Health Facilities: Medelujan, the study village, was located at a distance of 12 km from Titabor PHC, 6 km from Mahimabari government dispensary. In addition to these government health institutions practicing modern system of medicine, a couple of qualified private allopathic medical practitioners (QMP) were also available within the distance of 5 - 7 km from the study village. In the study village, two to three unqualified village level practitioners (UVLP) / quacks were staying and providing treatment to the villagers. These UVLPs did not have any specific line of treatment and combined both allopathic as well as Ayurvedic methods in dispensing medicine. A few traditional healers were also available in the village. Jorhat town was about 30 km from Medelujan village with district level secondary referral hospital, many well equipped private nursing homes and pathology laboratories.

Methodology: A door to door family survey was carried out in the study village during last week of May / first week of June 1999. The information on present fever status, past fever history and clinical presentation during the eight weeks prior to the date of survey, source of treatment and prognosis in respect of every member of the family was obtained by interviewing the available adult members and recorded on a structured pre-tested questionnaire. In addition, blood smears were collected from all willing members of the family regardless of their fever status after obtaining written informed consent from them. All surveyed people were treated presumptively with chloroquine at the time of blood slide collection and those found positive after microscopic examination of blood slides were treated radically as per the National Anti Malaria Programme schedule of Government of India. Thus, during the family survey, a total of 701 persons were interviewed and 544 blood smears were collected. Fever cases treated by whatever source, if were found without any clinical symptoms within last 7 days of the survey, were considered as clinically recovered.

Data Analysis: The data was analysed using EPINFO - 6.0 software. Chi square tests were employed for assessing the statistical significance of differences, wherever needed.

RESULTS

In the survey, 80.1% of the population of the village was interviewed. A total of 311 fever cases (current fever or history of fever during preceding 8 weeks) and 8 fever deaths were found in the village. The deceased belonged to 8-40 years of age and the average duration of illness before death was 6.3 ± 2.5 days. Fever, headache, chill & rigor, drowsiness and unconsciousness were the common symptoms in all death cases; five cases showed acute renal failure characterised by anuria; six developed jaundice before death. Seven of the eight deceased persons were found to be initially treated by UVLPs for 7 to 10 days and later taken to qualified doctors (private or government practitioners) in a deteriorating state.

Symptom complex of the fever cases found

during the study revealed that while fever alone was present in 12.9% cases, fever with headache was the most common symptom (42.1%) followed by fever, headache with chill & rigor (31.2%). Complications similar to that of Pf malaria was found in 4.2 % cases.

From 311 fever cases detected, blood smears from 248 willing members were collected (coverage 79.7%). On examination, sixty persons were found positive for malaria (Slide Positive Rate, SPR, 24.2%) of which 56 were of that of P. falciparum (Slide falciparum Rate, Sfr, 22.6%, Pf% 93.3%). Pf gametocytes were found in six cases (falciparum gametocyte rate, fgR, 2.4%) (Table 1).

Majority of fever cases (63.7%) took initial treatment from UVLPs (including self treatment and traditional healers) and only 25.1% people reported to QMPs (government or private). A small number of people (11.2%) were found without any treatment at the time of survey. Most of the cases in this category were fresh fever cases who were yet to seek treatment from any source. The rate of clinical recovery was highest (82.1%) in the group treated by QMPs, followed by UVLPs (43.3%) and no treatment (10.3%), the difference is statistically significant ($p < 0.001$). Blood slide examination for persistence of parasite or recrudescence from the three category of people, according to the source of treatment, revealed that the number of malaria positivity was highest in those who took treatment from UVLPs (SPR 27.4%, Sfr 26.0%) followed by those without treatment (SPR 21.9%, Sfr 15.6%) and least in those taking treatment from QMPs, (SPR & Sfr 18.6%) (Table 1). There was, however, no difference in falciparum gametocyte rate in people treated by QMPs (fgR 2.9%) or UVLPs (fgR 2.7%). Preference of treatment by people of different ethnic groups in the study village is depicted in figure 1. Among Nagas, none took initial treatment from qualified doctors and majority (88.9%) resorted to UVLPs. Among the four communities Ahom & Kachari were highest users of the sources of qualified doctors ($p < 0.001$). However, within themselves they equally preferred QMPs and UVLPs. The treatment seeking behaviour of Nepalis and Adivasis were more or less similar.

Table 1: Status of fever cases getting treatment from different sources

Source of treatment	Clinical Prognosis	Fever Cases (n)	BSE (n)	POS (n)	Pf (n)	Pfg (n)	SPR	SfR	Pf%	fgR
QMP	NR	12	10	2	2	0	20.0	20.0	100.0	0.0
	R	64	59	11	11	2	18.6	18.6	100.0	3.4
	N	2	1	0	0	0	0.0	0.0	0.0	0.0
	T	78	70	13	13	2	18.6	18.6	100.0	2.9
UVLP	NR	108	78	29	27	2	37.2	34.6	93.1	2.6
	R	84	66	10	10	2	15.2	15.2	100.0	3.0
	N	2	2	1	1	0	50.0	50.0	100.0	0.0
	T	194	146	40	38	4	27.4	26.0	95.0	2.7
NoTreatment	NR	34	27	6	4	0	22.2	14.8	66.7	0.0
	R	4	4	0	0	0	0.0	0.0	0.0	0.0
	N	1	1	1	1	0	100.0	100.0	100.0	0.0
	T	39	32	7	5	0	21.9	15.6	71.4	0.0
Total	NR	154	115	37	33	2	32.2	28.7	89.2	1.7
	R	152	129	21	21	4	16.3	16.3	100.0	3.1
	N	5	4	2	2	0	50.0	50.0	100.0	0.0
	T	311	248	60	56	6	24.2	22.6	93.3	2.4

NR = not recovered, R = Recovered, N = does not remember, T = Total, QMP = Qualified Medical Practitioners, UVLP = Unqualified Village Level Practitioners, BSE = Blood Slide Examined, POS = Malaria Positives, Pf = Plasmodium falciparum, Pfg = Plasmodium falciparum gametocytes, SPR = Slide Positive Rate, SfR = Slide falciparum Rate, Pf% = Plasmodium falciparum percentage, fgR = falciparum gametocyte Rate, n = Number

DISCUSSION

Early detection and prompt treatment (EDPT) is the basic tenet of the WHO revised malaria control strategy (Pattanayak et al.,

1994). EDPT reduces the morbidity and mortality due to malaria. Delay in adequate treatment of malaria, particularly Pf malaria, not only increases the chances of mortality but also enhances the malaria transmission by producing

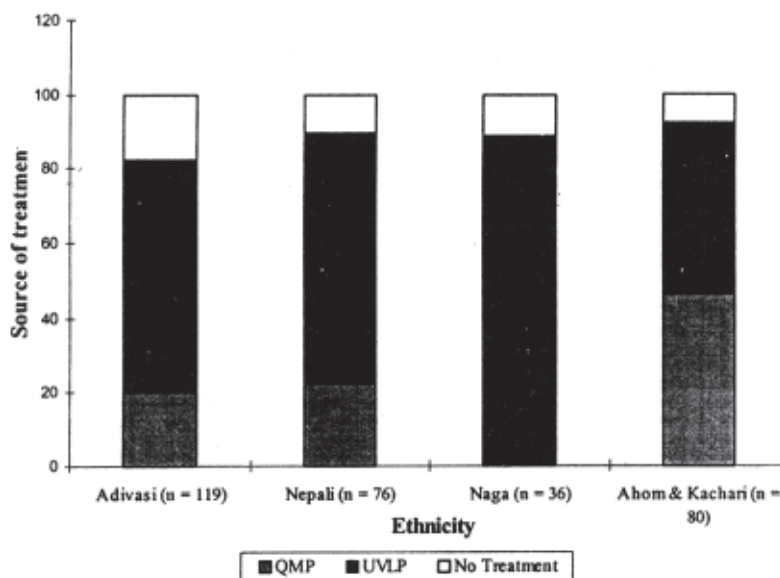


Fig. 1. Preference of Treatment by Different Ethnic Groups in Study Population

more gametocyte carriers in the community. Malaria transmission in any given area is also influenced by the health seeking behaviour of the communities (Donnelly et al., 1997). In the context of malaria, there are three dimensions of health seeking behaviour - one is the gap between onset of clinical symptom and initiation of treatment, second is the preference to the type / source of treatment and third is the compliance of treatment by the patient. All the three dimensions influence the malaria epidemiology in its own ways. Treatment seeking pattern as found in our study was that on suffering from fever, initially people resorted to self medication or to traditional healers, who usually treated fever cases with locally available herbs. When not relieved, people next turned to the available unqualified village level practitioners. Majority of people on getting temporary relief at this stage, felt satisfied and finished the treatment at this level itself. Only if this proved ineffective, people went to qualified doctors either in government institutions or to private practitioners. By the time patient starts getting proper treatment from a qualified doctor, sometime it became quite late and many patients succumbed to the complications of Pf malaria. This type of health seeking behaviour, though prevalent in all communities, was most prominent in Adivasis and Nepalis communities. Out of 8 fever deaths in the study village 4 were Nepalis and 3 were Adivasis. People going straight for treatment to qualified doctors were more in Ahom & Kachari communities and least in Nagas. Compliance of the treatment, though not quantified in the present study, was generally poor in all the communities. Similar type of health seeking behaviour has been reported from western Thailand by Fungladda et al. (1986).

Recovery of people, taking treatment from UVLPs was remarkably low as compared to QMPs showing superiority of quality of treatment of the latter. Generally, UVLPs use unstandardised dose of antimalarial and anti pyretic. This give temporary relief in these fever cases but causes repeated recrudescence and consolidates resistant mutants of Pf because of selection pressure. Absence of primaquine, a gametocytocidal drug, in the treatment schedule of unqualified village level practitioners in-

creases the number of gametocyte carriers resulting in enhanced transmission of malaria in high receptive areas. Present study suggests that the health seeking behaviour viz. delay in initiation of treatment, more reliance on UVLPs, poor compliance by the population, was a contributory factor in the progression of the epidemic wave, in the study area.

This kind of treatment seeking pattern is perhaps more due to the economic compulsions and convenience than the matter of faith. Unqualified village level practitioners, labeled as quacks, are generally available in most of the villages, even in remote and distant areas. People, particularly from low socio-economic stratum of society, have good faith in them because of their easy availability and low cost of treatment as was seen in Tamulpur PHC of Nalbari, Assam (Mohapatra et al., 1995). Another factor which compels the people (even those who prefer treatment from qualified doctors) to seek treatment from unqualified practitioners is generally the availability of qualified doctors at a greater distance from the village as was found in Kenya (Mburu et al., 1987). People were in favour of getting treatment from qualified doctors but were not able to avail the service because of the difficulty in transporting the patient to the PHC. Village level practitioners, though unqualified, are a valuable source for preventing mortality in far flung areas. However, they are also responsible for increasing malaria morbidity due to improper treatment. These people can be exploited for dispensing malaria treatment after proper training under National Anti Malaria Programme which will ultimately be beneficial to the community in early detection and prompt treatment of malaria cases.

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KEY WORDS Health Seeking Behaviour. Malaria Treatment. North-east India. Malaria Epidemic.

ABSTRACT Investigations on treatment seeking behaviour of the affected communities prior to / during malaria outbreak in Jorhat district of Assam, India revealed 63.7% people initially approached to unqualified village level practitioners as compared to only 25.1% reporting to qualified allopathic doctors (government or private medical practitioners) for the treatment of fever. Clinical recovery rate was nearly double (82.1%) in those who took treatment from qualified doctors than the other group (43.3%). The difference being highly significant ($p < 0.001$). In blood smear examination of people, categorised according to source of treatment, up to 8 weeks after initial fever, slide positive rate (SPR) was highest (27.4%) in those who took treatment from unqualified village level practitioners followed by those remaining without any treatment (SPR 21.9%) and least in those seeking treatment from qualified doctors (SPR 18.6%). Treatment seeking pattern of the community, in general, and its implication on epidemic progression has been discussed.

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