

## Assessment of knowledge about malaria among patients reported with fever : a hospital-based study

S. Matta\*, A. Khokhar & T.R. Sachdev

*Department of Community Medicine, VMMC & Safdarjang Hospital, New Delhi; shankermatta@yahoo.com*

*Background & objectives* : Knowledge about malaria, attitude and health seeking behaviour of fever patients attending Medicine Out Patient Department at Safdarjang Hospital, New Delhi were studied from June to August 2003.

*Methods* : Cross-sectional survey comprising 200 fever cases was done with prestructured and pretested questionnaire. Data on sociodemographic profile, history of fever, health seeking behaviour, etc were recorded.

*Results* : About 83% of fever cases did not approach the doctor even after three days of onset of fever symptom, 25.5% tried self medication and 20.5% approached chemists for treatment. Knowledge about causes and prevention of malaria was found to be inadequate in the study subjects.

*Interpretation & conclusion* : Knowledge about malaria is poor even in persons residing in urban localities and proper health education is required for successful control of malaria. Information, education and communication activities are indicated to create awareness among the community.

**Key words** Etiology – IEC – KABP – malaria awareness – sociodemographic profile – treatment

Malaria is an ancient disease in the world with 1.5–2.7 million deaths annually, endemic in 91 countries and 40% of the world's population is at risk of malaria<sup>1</sup>. The incidence of malaria worldwide is estimated to be 300–500 million clinical cases every year with about 90% of these occurring in Africa mostly caused by *P. falciparum*<sup>2</sup>. The distribution of malaria positive cases during the year 2000 in India are contributed by different states unevenly. Madhya Pradesh contributed 27% of the positive cases, Maharashtra 4%, Orissa 24%, Rajasthan 2%, Andhra Pradesh 4%, Bihar 6%, Gujarat 2% and others<sup>3</sup> 31% unevenly. While much is known about vector biology and malaria parasites, the importance of human behaviour in malaria transmission has been overlooked. The human behaviour with regard to the etiology, treatment and prevention of

\*Corresponding author

malaria not only fosters the spread of the disease but also results in the transmission of the disease within the community. People seek medical advice depending on the individual perception of ill health so, fever is still not perceived as a serious symptom. Many community-based studies have proved that knowledge about malaria among general population is still poor and there is no promptness in treatment seeking behaviour among fever cases. People still confuse over symptoms of malaria and its preventive measures. Correct assessment of community attitudes, knowledge and behaviour can assist the reformulation of malaria control strategy and can form the basis of appropriate health education messages<sup>4</sup>. The present hospital-based study was carried out in the Out Patient Department of Medicine at Safdarjang Hospital, New Delhi with the aim of assessing the knowledge and

study the treatment seeking behaviour of fever cases attending Medicine OPD.

### Material & Methods

It was a cross-sectional study on a sample of 200 fever cases coming out of Medicine OPD. The interviews were conducted during the month of July–August 2003. Only those patients were interviewed, who were advised peripheral smear for malaria parasite (PSMP) because of transmission season and load of fever cases in the Medicine OPD. Every third fever case, who was advised PSMP was interviewed. A prestructured, pretested questionnaire was used to interview the fever cases covering information pertaining to socio-demographic profile, history of fever, its management, health seeking behaviour, causation and prevention of malaria. Result of PSMP examination was not included in this study.

### Results & Discussion

*Sociodemographic status* : A total of 200 fever cases (Table 1) were interviewed where 91 (45.5%) were females and 109 (54.5%) were males. Overall 51.5% patients were in the age group of 15–45 years.

*Health seeking behaviour of patients* : About 66.5% patients waited for more than three days (Table 2) before consulting a doctor. About 60 (30%) patients did not go to the doctor on the same day of onset of fever, since they had no time, 51(25.5%) patients tried self medication, 21 (41.1%) out of 51 patients said that they had taken antibiotic + antipyretic for fever. When asked about the first thing done in case of fever, 72 (36%) patients said that they went to a doctor, 41(20.5%) patients went to chemist for medication without consulting a doctor. Twenty-eight (68.2%) patients out of 41(100%) (Table 2) had no idea what the chemist had prescribed. A number of studies have shown that people go to non-medicos for treatment<sup>4–7</sup>. The fact that majority of patients went after three days or more of fever for treatment and also that they preferred self medication/chemists as the

first line of management suggests that fever is not perceived as a serious symptom and this has been substantiated by the findings of other workers<sup>4</sup>. In another study by Singh *et al*<sup>7</sup> 2.1% urban males and 1.3% urban females had tried self medication which is quite low as compared to our study. Home remedies and traditional methods of treatment have always found a place in every society and this study also comes out with the same results. For home remedy different

**Table 1. Sociodemographic profile of patients (n = 200)**

Age (yrs)	Male	Female	Total
< 15	39 (35.7)	19 (20.8)	58 (29)
15–45	33 (30.2)	70 (76.9)	103 (51.5)
46–60	30 (27.5)	2 (2.1)	32 (16)
> 60	7 (6.4)	0	7 (3.5)
Total	109 (54.5)	91 (45.5)	200 (100)
Religion (n = 200)	No.	%	–
Hindu	176	88	–
Muslim	12	6	–
Sikh	5	2.5	–
Christian	7	3.5	–
Education of respondents	Males	Females	Total
Illiterate	27 (24.7)	48 (52.7)	75 (37.5)
Primary School	21 (19.2)	14 (15.3)	35 (17.5)
Higher Secondary	18 (16.5)	2 (2.1)	20 (10)
Senior Secondary	11 (10)	4 (4.3)	15 (7.5)
Graduate & above	8 (7.3)	2 (2.1)	10 (5)
Total	109 (54.5)	91 (45.5)	200 (100)
Per capita income as per Gupta's classification <sup>8</sup>			
Income (in Rs)	No. of respondents (n =200)		
>1600	30 (15)		
1000–1599	21(10.5)		
500–999	70(35)		
200–499	10(5)		
< 200	31(15.5)		
No comments	38 (19)		

Figures in parentheses indicate per cent values.

**Table 2. Health seeking behaviour of patients**

Duration of fever before consulting the doctor (n = 200)	No.	%
1 day	34	17
3 days	36	18
4 days	97	48.5
> 4 days	33	16.5
Reasons for not showing to the doctor on the same day		
No time	60	36.1
Home remedy	19	11.4
Cure by itself	29	17.4
Tried self medication	51	30.7
No response	41	20.5
First thing done in case of fever		
Home remedy	21	10.5
Self medication	51	25.5
Went to a doctor	72	36
Went to a chemist for medication	41	20.5
Went to quacks	4	2
No response	11	5.5

methods were followed for symptomatic relief by 21(10.5%) patients like hot milk + haldi + honey, cold lassi, “Kada” for throat and cold sponging. In other studies<sup>4,5</sup> also different types of traditional methods for symptomatic relief have been tried.

**Knowledge about symptoms of malaria :** Majority of patients, 99(49.5%) enumerated two symptoms of malaria (fever/chills) followed by 61(30.5%) patients who could enumerate three symptoms (Table 3). Many studies have shown<sup>6,7,9</sup> that respondents have an idea about 2–3 symptoms of malaria. Three most common symptoms enumerated by patients in our study were fever, chills and bodyache. Another study<sup>4</sup> came out with similar findings. About 116 (58%) pa-

tients had correct knowledge about malaria transmission. In another study done in Nigeria<sup>10–12</sup>, 48% women thought that mosquitoes did not cause malaria. In another study<sup>5</sup> 13% respondents quoted that eating raw vegetables and drinking dirty water were probable causes of malaria and 45% respondents did not answer correctly about causes of malaria whereas in our study 38.5% respondents could not answer correctly. Other studies<sup>4,7</sup> associated malaria with witchcraft, bedbugs and swimming. Regarding knowledge about breeding places of mosquitoes 91(45.5%) pa-

**Table 3. Knowledge about malaria**

Knowledge about symptoms of malaria (n=200)	No.	%
Fever + Chills	99	49.5
Fever + Chills + Bodyache	61	30.5
Fever + Chills + Bodyache + Headache	26	13
All the above symptoms + Vomiting	0	0
No comments	14	7
Knowledge about malaria transmission		
Mosquito bite	116	58
By flies	21	10.5
Contaminated water	56	28
No comments	7	3.5
Knowledge about breeding places of mosquitoes		
Water collection	91	45.5
Garbage	71	35.5
Flower pots	11	5.5
Coolers	10	5
Air	7	3.5
No comments	10	5
Knowledge about diseases transmitted by mosquitoes		
Dengue	109	54.5
Malaria	21	10.5
Dengue + Malaria	19	9.5
Diarrhoea	29	14.5
Typhoid	5	2.5
No idea	10	5
No comments	7	3.5

tients answered correctly. Garbage incorrectly thought to be a breeding place for mosquitoes was answered by 71 (35.5%) patients. In another study<sup>9</sup> 39.2% respondents quoted garbage as the probable breeding place for mosquitoes.

*Knowledge about preventive measures of malaria :* About 40.6% patients enumerated preventive measures of malaria correctly (Table 4). Fifty-one (34%) respondents answered mosquito net as the prime preventive measure for mosquito bite and out of 51, 21 (10.5%) respondents said that they themselves were using mosquito nets. In another study<sup>6</sup> 51.9% respondents answered mosquito net as the prime preventive measure from mosquito bites and 10.2% respondents said that they personally use mosquito net. About 11 (5.5%) respondents (Table 4) who were from rural areas in our study answered burning fire/

burning dry “neem leaves”, smoke as personal protection measures from mosquito bites. In parts of East Africa there is a practice of burning *Lentane Rhodesiensis/Eucalyptus* leaves. A significant finding was that 89 (44.5%) patients enumerated options like checking coolers, tyres, flower pots for mosquito breeding. They confused control measures of dengue those with of malaria. When asked to enumerate diseases transmitted by mosquitoes, 74.5% patients answered correctly and 17% patients gave options like diarrhoea and typhoid. In another study<sup>6</sup> responses to the same question were skin diseases, measles and respiratory tract infections which were enumerated by 97.3% respondents.

From this study it may be concluded that there is a delay of more than three days in treatment seeking behaviour of malaria because of procurement of drugs from chemists/quacks. In the study done by Ettling *et al*<sup>13</sup> the importance of presenting early to a health facility for treatment when ill has already been highlighted. Knowledge of breeding places of mosquitoes is not adequate. People tend to confuse between IEC messages of malaria and dengue and possibly for other diseases also. It is suggested that while making a message for the general public, IEC authorities may consider the following points.

Integrated IEC message; fever as a serious symptom and its early management; treatment from a health facility only and no where else; more stress on breeding places of mosquitoes; and guidelines for not dispensing drugs to patients with the prescription of a doctor may be made available to all chemists.

Various other studies<sup>11–15</sup> have also highlighted that for successful control of malaria, proper health education about the disease and personal protection; and preventive measures should be imparted to the community.

## References

1. Report of the Director General—*World Health Report*. Fighting disease—fostering development. Geneva : WHO 1996; p 96.

**Table 4. Knowledge about preventive measures of malaria**

Knowledge about preventive measures from mosquito bite	No.	%
<i>Options</i>		
Mosquito nets	51	34
Mosquito nets/Use of fans	6	4
All the above + Proper clothing	2	1.3
All the above + Avoid water collection	2	1.3
Check for mosquito breeding in coolers*	10	6.6
Check for mosquito breeding in flower pots*	29	19.3
Last two options* + Check tyres for mosquito breeding	50	33.3
No comments	50	33.3
<i>Self protection from mosquito bites</i>		
Mats	59	29.5
Coils	95	47.5
Bednets	21	10.5
Fans	5	2.5
Others (Fire/Smoke)	11	5.5
No comments	9	4.5

2. Park K. *Textbook of preventive & social medicine*, XV Edn. Jabalpur : Banarsidas Bhanot 2002; p 192.
3. Das BC, Malini S. In : Garg S, Singh MM, editors, I edn. *Textbook of community medicine with recent advances*. New Delhi : Ahuja Book Company 2003; p 109.
4. John Govere, David Durrheim, Kobus la Grange, Aaron Mabuza, Marline Booman. Community knowledge and perception about malaria and practices influencing malaria control in Mpumalanga province South Africa. *South African Med J* 2000; 90 : 611–6.
5. Vundule C, Mhara Kurula S. Knowledge, practices and perception about malaria in rural communities of Zimbabwe: relevance to malaria control. *Bull WHO* 1996; 74(1): 55–60.
6. Ongore D, Kamunvi F, Knight R, Minawa A. Study of knowledge, attitude and practice (KAP) of a rural community on malaria and the mosquito vector. *East African Med J* 1989; 66(2) : 79–89.
7. Singh TG, Singh RKN, Singh EY. A study of knowledge about malaria and treatment seeking behaviour in two tribal communities of Manipur. *Indian J Pub Hlth* 2003; 47(2) : 61–5.
8. Mahajan BK, Gupta MC. *Textbook of PSM, modified scale for determining socio-economic status of urban families*, I edn. Delhi : Jaypee Brothers, Medical Publishers 1991; p 86.
9. Rasania SK, Bhanot A, Sachdev TR. Awareness and practices regarding malaria of catchment population of a primary health center in Delhi. *J Com Dis* 2002; 34(1) : 78–84.
10. Pinikahana J. Socio-cultural factors associated with malaria transmission : a review. *Indian J Malariol* 1992; 29: 121–6.
11. Ogunmekan DA. Control of malaria with special reference to socio-economic factors. *Trop Doctor* 1983; p 185–6.
12. Trent Rd. Knowledge of causation and treatment of malaria among general public in Accra. *Ghana Med J* 1965; 4(5) : 141–5.
13. Ettling M, Steketee WR, Macheso A, Schultz LJ, Nyasulu Y, Chitsulo L. Malaria knowledge attitude and practice in Malawi : survey population characteristics. *Trop Med Parasitol* 1994; 45 : 57–60.
14. Panda R, Kanekhar LJ, Jain DC. KAP towards malaria in rural tribal communities of south Bastar district of Madhya Pradesh. *Community Dis* 2000; 32(3): 222–7.
15. Yadav SP, Tyagi BK, Ramnath T. Knowledge, attitude and practices towards malaria in rural communities of epidemic prone Thai desert northwest India. *Community Dis* 1999; 31(2) : 127–36.