International Journal of Community Medicine and Public Health
Patel JM. Int J Community Med Public Health. 2017 Jun;4(6):1982-1986
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20172161

Original Research Article

Situation analysis of malaria in Surat: a hospital based study

Jitendra M. Patel*

Department of Community Medicine, GMERS Medical College, Himmatnagar, Gujarat, India

Received: 03 April 2017
Accepted: 06 May 2017

***Correspondence:**
Dr. Jitendra M. Patel,
E-mail: prajapatibipinj@yahoo.com

ABSTRACT

Background: Recent challenges in dealing with prevention of malaria are urbanization and migration, construction activity, insecticide resistance, inadequate health and sanitation infrastructure, poor community participation and public private partnership. Surat city experienced the worst phase of malaria between 1987 to 1992.
Methods: Cross-sectional study was carried out from December 2006 to March 2007 in malaria clinic in New Civil Hospital, Surat. On an average daily 8-10 patients for whom blood was collected were asked to come again after one week to collect the report of malaria. Study was included 500 participants in which 287 male and 213 female.
Results: Most of male participants were student (24.4%), labor (23.7%) and factory worker (20.2) and most of female participants were house wife (50.7%), student (21.1%) and labor (7.5%). Almost 50.5% male participants got information regarding Malaria from poster, handball, hoarding and 50.2% female participants from TV, cinema slide, radio.
Conclusions: Changing staff, including resident doctors and other staff needs to be oriented with the national guidelines regarding control of malaria and especially anti-malarial prescription. Malaria clinic can be an important place to educate the people regarding malaria control. Educating patients can go a long way for malaria control in urban area.

Keywords: Urban malaria, Occupation, Malarial treatment, Illness

INTRODUCTION

Urban malaria as a specific problem in India was first recognized in 1969 when an in depth review of malaria situation in India was undertaken by Madhok Committee.[1] Modified Plan of Operation(MPO) was launched in 1977 and it was decided to initiate anti-larval and anti-parasitic measures to abate the malaria transmission in urban areas. Recent challenges in dealing with prevention of malaria are urbanization and migration, construction activity, insecticide resistance, inadequate health and sanitation infrastructure, poor community participation and public private partnership.[2] Surat city experienced the worst phase of malaria between 1987 to 1992. Socio demography and climate of Surat city is conducive to vector borne diseases. Between 2000 to 2005 slide positivity rate (SPR) have ranged between 1.22-1.56, slide falciparum positivity rate (SFR) have ranged between 0.44-0.55% and Pf % have ranged between 38.8%-51.0%.[5] August 2005 and August 2006 SPR was 1.13-1.89, SFR was 0.32-0.72 and Pf % was 22.06-38.48 respectively.[3] Passive surveillance is the regular or periodic collection of data from case reports or registers in health care facilities at which patients seek care at their discretion.[5]

So the study was conducted with the objectives of to study the symptomatology in cases of fever and its relationship with laboratory diagnosis of malaria, to study the malaria positivity and prescribing practices in relation to cases of fever attending malaria clinic New Civil Hospital, Surat.

METHODS

Cross-sectional study was carried out from December 2006 to March 2007 in malaria clinic in New Civil Hospital, Surat after taking permission from ethical committee of institute and informed consent from participants. The clinic is run by the department of Community Medicine, Government Medical College, Surat. A pre-tested performa was used. Questions were asked to the patients. Answers of all the questions, given by patients were noted in performa. Single set of performa was used for individual patient. All patients attending malaria clinic were interviewed daily between 10 am to 1 pm once during above mentioned period. On an average daily 8-10 patients for whom blood was collected were asked to come again after one week to collect the report of malaria. A patient who came for second visit and was positive had given tablet primaquine as per recommendation from malaria clinic only.

Statistical analysis

Statistical test data was collected and entered in Microsoft Excel Sheet and analyzed by Epi.info version 7. For continuous variables range, mean and standard deviation has been calculated and for categorical variables proportion and percentage has been obtained. To know the association between dependent and independent variable chi-square has been applied accordingly. P value less than 0.05 will be considered as statistically significant.

RESULTS

Table 1 shows that 41.6% male participant and 43.7% female participant belonged to 15 to 30 years age group which was highest in both groups. Regarding occupation, most of male participants were student (24.4%), labor (23.7%) and factory worker (20.2%) and most of female participants were house wife (50.7%), student (21.1%) and labor (7.5%). Almost 50.5% male participants got information regarding Malaria from poster, handball, hoarding and 50.2% female participants from TV, cinema slide, radio. Almost 48.8% male participants believed that malaria cause fever with rigor and 42.5% believed that malaria transmitted by mosquito. Almost 54.5% female participants believed that malaria transmitted by mosquito and 36.6% female participants believed that malaria cause fever with rigor. Fever with rigor was present in highest participants (69.6%). Almost 31.8% male and 34.2% female participants were fully satisfied with hospital service and treatment.

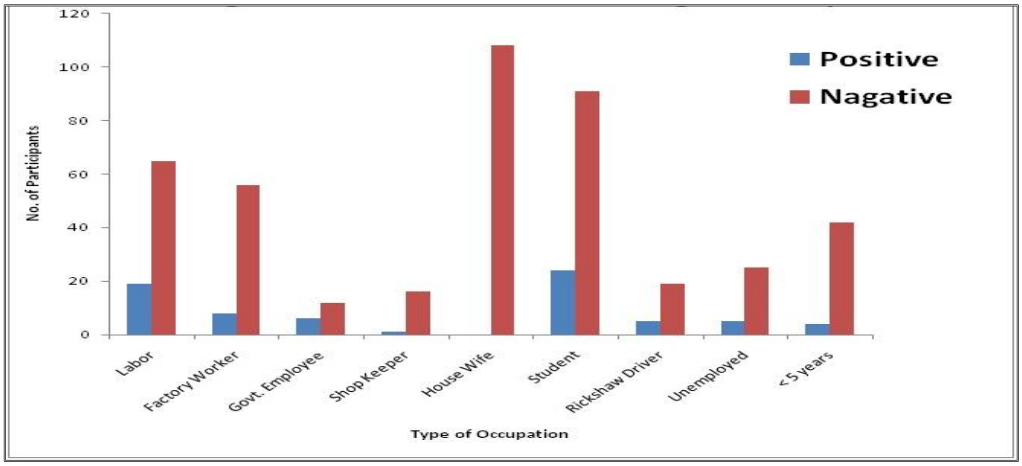

Figure 1: Distribution of blood smear examination (BSE) according to occupation of participants.

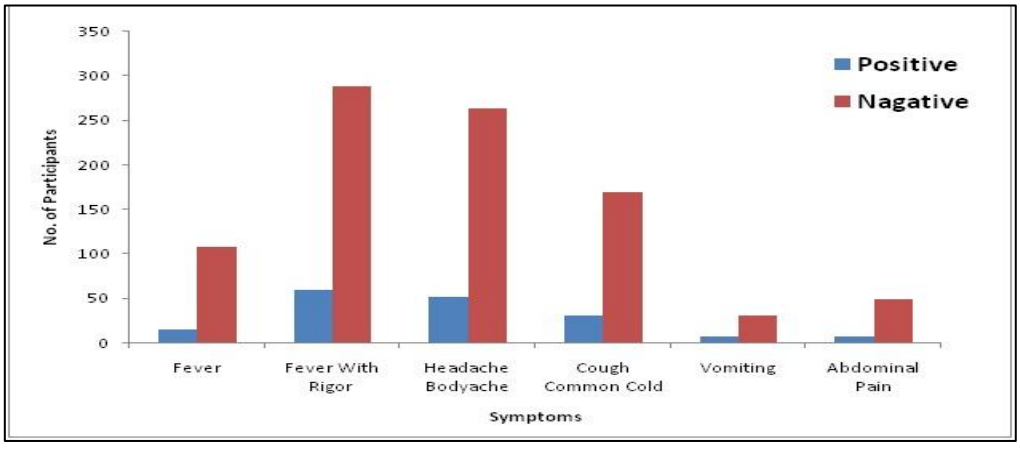

Figure 2: Distribution of result of BSE according to symptoms of participants.

Table 1: Socio-demographic and clinical parameters of participants (N=500).

Variable	Male [n= 287] (%)	Female ([n = 213] (%)
Age (Years) (Mean ± SD = 24.96 ± 14.53)		
1 to 15	89 (31.1)	52 (24.4)
15 to 30	119 (41.6)	93 (43.7)
30 to 45	56 (19.2)	47 (22.1)
45 to 60	21 (7.3)	19 (8.9)
≥ 60	2 (0.7)	2 (0.9)
Occupation		
Labor	68 (23.7)	16 (7.5)
Factory Worker	58 (20.2)	6 (2.8)
Government Employee	13 (4.5)	5 (2.3)
Shop-Keeper etc.	13 (4.5)	3 (1.4)
House Wife	NA	108 (50.7)
Student	70 (24.4)	45 (21.1)
Rickshaw Driver etc.	17 (6.0)	2 (0.9)
Unemployed	18 (6.3)	12 (5.6)
NA (<5 Years)	30 (10.5)	16 (7.5)
Source of Information regarding Malaria		
T.V., Cinema slide, Radio	113 (39.4)	107 (50.2)
Poster, Handbill, Hoarding	145 (50.5)	49 (23.0)
From Doctor or Malaria worker	29 (10.1)	57 (26.8)
Knowledge regarding Malaria		
Transmitted by Mosquito Bite	122 (42.5)	116 (54.5)
Causes fever with rigor	140 (48.8)	78 (36.6)
Occurs due to dirty water collection	21 (7.3)	13 (6.1)
Don't know	4 (1.4)	6 (2.8)
Distribution of Symptoms		
Fever	63 (22.0)	59 (27.7)
Fever with rigor	189 (65.9)	159 (74.6)
Headache, Bodyache	173 (60.3)	141 (66.2)
Cough, Common Cold	103 (35.9)	96 (45.1)
Vomiting	12 (4.2)	25 (11.7)
Pain in Abdomen	26 (9.1)	29 (13.6)
Duration of Illness (Days)		
1 to 3	110 (38.3)	66 (31.0)
4 to 7	87 (28.6)	63 (29.6)
8 to 15	69 (22.3)	55 (25.8)
16 to 90	29 (9.7)	26 (12.2)
≥ 90	3 (1.1)	3 (1.4)
History of similar illness (month)		
≥ 15 days	13 (4.5)	9 (4.2)
16 days to 1	26 (9.1)	22 (10.3)
1 to 2	14 (4.9)	18 (8.5)
2 to 3	12 (4.2)	16 (7.5)
4 to 6	57 (19.9)	34(16.0)
6 to 12	28 (9.8)	19 (8.9)
No past history	129 (44.9)	103 (48.4)
Degree of Satisfaction regarding treatment		
Very Poor	3 (1.5%)	4 (1.4)
Poor	7 (3.5)	14 (5.0)
Good	47 (23.7)	56 (19.9)
Very good	78 (39.4)	111 (39.5)
Excellent	63 (31.8)	96 (34.2)

Table 2: Practice of anti-malarial treatment (N=500).

Variable		Result of Blood Smear Examination		P value*
		Positive	Negative	
Antibiotics	Given	2	18	0.66
	Not Given	78	402	
Chloroquine	Given	70	342	0.25
	Not Given	10	78	
Quinine	Given	0	3	0.97
	Not Given	80	417	

* Chi-square test

Table 2 shows that chloroquine was prescribed in most of participants who have positive BSE but association was not significant (p>0.05).

DISCUSSION

A large number of people have immigrated from many parts of the country. This group of the people is slum-dwellers and use government health centers for their medical care. This work force usually stays in the slum or slum like houses and visit either to a private practitioner or to government or corporation health centers.[5] Study observed that 41.6% male participant and 43.7% female participant belonged to 15 to 30 years age group which was highest in both groups. Almost Similar results were observed by study done by Ramesh et al were 31.5% participants were below 18 years age and 25.8% in study done by Puran et al.[6,7] Study included 57.6% male and 42.4% female participants where study done by Ramesh et al included 53.0% and 47.0% male & female participants respectively and 54.5% and 45.5% in study done by Puran et al.[6,7]

Wasnik et al had observed Fever with or without rigor is the commonest symptoms in their study at medical college hospital, Nagpur which is quite similar of this study.[8] Study found that 97.5% positive BSE cases were not treated by antibiotics. Similar findings were found by study done by Matta et al had shown that they showed 28.5% error in reporting negative slide.[9] More than one fifth patients slide negative patients were treated with anti-malaria treatment. This observation shows that malaria is commonly over diagnosed among patients with febrile illness. In one study of complicated malaria, Hugh Reyburn et al has observed in their study that among 2375 people who were slide negative, 1571 (66.1%) were not treated with antibiotics.[10]

CONCLUSION

Patients attending malaria clinic should receive the treatment as suggested by guidelines from NVBDCP. Changing staff, including resident doctors and other staff needs to be oriented with the national guidelines regarding control of malaria and especially anti-malarial prescription. This clinic can also be linked with other department like pathology, microbiology and medicine. It will facilitate undertaking different clinical research like development and testing of clinical algorithm, chloroquine and other anti-malarial resistance and different anthropological and management studies related to malaria in India. Malaria clinic can be an important place to educate the people regarding malaria control. Patients can be educated when they are in queue for consultation, for giving blood for PSMP or while drug dispensing. Educating patients can go a long way for malaria control in urban area.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. NMEP Dtc. Delhi. Madhok Committee. Report of the special committee to review the working of the National Malaria Eradication Programme and to recommend measure for improvement, 1970.
2. Harrison's principles of Internal Medicine, 15th edition, Volume-1, p 1203.
3. Desai VK. Treating Malaria in Surat City – Post flood 2006. MediVision. 2006;1:16-21
4. Malaria situation in India 2016. National Vector Borne Disease Control Programme (NVBDCP). Available at: http://nvbdcp.gov.in/malaria-new.html. Accessed on 29 August 2016.
5. Patel JM, Godara N. Clinico-epidemiological profile of patients with febrile illness attending malaria clinic at medical college hospital of Surat, Gujarat, India. Int J Med Sci Public Health. 2014;3(6):686-8.
6. Ramesh H, Kishor SG, Pravin K, Koradhanyamath DM. Situation analysis of National Anti-Malaria Programme in a district of Karnataka. Sch Acad J Biosci. 2014;2(10):704-8.
7. Puran KS, Ramakrishnan R, Yvan JH, Raju S, Mohan DG. A malaria outbreak in Naxalbari, Darjeeling district, West Bengal, India, 2005: weaknesses in disease control, important risk factors. Malaria J. 2009;8:288.
8. Wasnik PN, Manohar TP, Humaney NR, Salkar HR. Study of clinical profile of falciparum malaria in a tertiary referral centre in Central India. J Assoc Physicians India. 2012;60:33-6.

9. Matta S, Kantharia SL, Desai VK.Malaria diagnosis in private laboratories of Surat city: a laboratory based study. J Vector Borne Dis. 2004;41(3-4):76-9.
10. Reyburn H, Mbatia R, Drakeley C, Carneiro I, Mwakasungula E, Mwerinde O,et al.Overdiagnosis of malaria in patients with severe febrile illness in Tanzania: a prospective study. British Med J. 2004;20;329-33.

Cite this article as: Patel JM. Situation analysis of malaria in Surat: a hospital based study. Int J Community Med Public Health 2017;4:1982-6.