Original Research Article

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Awareness, knowledge and practices about mosquito borne diseases in patients of tertiary care hospital in Navi Mumbai

Sumit Wasnik¹*, Arjun Mehta²

¹Department of Community Medicine, Dr D.Y. Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India ²Dr D.Y. Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India

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*Correspondence: Dr. Sumit Wasnik,

E-mail: sumitwasnik9@gmail.com

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ABSTRACT

Background: Mosquito borne diseases are a serious public health concern in India. The incidence of Mosquito borne diseases is linked with economic and social development of the community. The objectives of the study were to assess the awareness, knowledge and practices about mosquito borne diseases in study population and explore the various myths about mosquito borne diseases among them.

Methods: It is a hospital based cross-sectional study and the study participants will be patients getting admitted for any reason and having fever, in the general medicine male and female ward. This study period was 3 month (January to March 2017).

Results: Total 150 patients admitted in male and female medicine ward were included in the study out of them 84 were male and 66 were female patients. It was observed that educated participants had more knowledge about mosquitoes borne diseases.

Conclusions: Most of the participants didn't know that clean water could be a source of breeding of mosquitoes. Many myths are prevalent in the study population about mosquitoes borne diseases.

Keywords: Malaria, Mosquitoes borne diseases, Hospital

INTRODUCTION

Vector borne diseases (VBDs) account for 17% of the estimated global burden of all infectious diseases. Malaria, the most deadly VBD, caused an estimated 627,000 deaths in 2012. Though several measures for their prevention and control are followed, yet the problem density is too high with 300–500 million cases and 1.1–2.7 million deaths due to malaria alone globally per year. Out of six vector borne diseases, malaria, filariasis, Japanese encephalitis, dengue and chickengunya are transmitted by different kind of vector mosquitoes, while kala azar is transmitted by sand flies. The prevention and control of vector borne diseases is complex; as their

transmission depends on interaction of numerous ecological, biological, social and economic factors including migration.³

According to the report, there were 212 million new cases of malaria worldwide in 2015. The WHO African Region accounted for most global cases of malaria (90%), followed by the South-East Asia Region (7%) and the Eastern Mediterranean Region (2%). Mosquito borne diseases is serious public health concern in India. The incidence of Mosquito borne diseases is linked with economic and social development of the community. Many of these, particularly dengue fever, Japanese encephalitis and malaria cause considerable morbidity and mortality.

During 2011, the malaria incidence was around 1.31 million cases and deaths were 754. About 91% of malaria cases and 99% of deaths due to malaria are reported from high disease burden states including Maharashtra. During 2014 (till October), 0.85 million cases and 316 deaths have been reported. In case of dengue, highest number of deaths were reported by Maharashtra (48) followed by Kerala (29) and Punjab (25) in 2013. During 2014 (till November), 33320 cases and 86 deaths have been reported in India.

Since it is evident that the prevalence of vector borne diseases is high; many studies have been done to determine the knowledge and practice on prevention of vector borne diseases among adults. The aim of this study is to explore the general awareness and provide health education about mosquito borne diseases to patients getting admitted in general medicine ward.

Objectives

- To assess the awareness, knowledge and practices about mosquito borne diseases of the study population.
- To explore the various myths about mosquito borne diseases among them.
- To provide health education about mosquito borne diseases to them.

METHODS

It is a hospital based cross-sectional study to explore the awareness and myths about various diseases caused by mosquitoes. The hospital selected for study is a tertiary care hospital in Navi Mumbai. The study participants in this project were patients getting admitted for any reason having fever, in the general medicine male and female ward in this hospital.

Sample size was calculated with the formula 4pq/d², where allowable error (d) was 10% of prevalence. Pilot study was conducted to know the prevalence of true knowledge of mosquitoes borne diseases in admitted patients which came to be 40%. To get a sufficient sample size 150 participants were included, of which 84 and 66 were males and females respectively, were included in the study. Systematic random sampling was used for collection of sample in which every second (even number) patient getting admitted with the history of fever in the medicine ward included in the study.

Exclusion criteria

Those who didn't had history of fever, seriously ill patients and didn't give consent to participate in the study were excluded from the study.

Duration of study was 3 month (January 2017 to March 2017) in which data was collected with the help of pre

designed and pre-tested proforma. The study was initiated after obtaining permission of institutional ethical committee. Data collected was entered in MS office excel and analyzed using SPSS version 20.0.

RESULTS

Age, sex, religion, education, occupation and socioeconomic classification of participants

Out of 150 participants, 84 were male and 66 were female patients. 81 were more than 45 years of age whereas 9 participants between 15-25 years of age group.

Table 1: Age, sex, religion, education, occupation and socioeconomic status of participants.

Male Female Total (%) Age 15-25 3 6 9 (6) 26-35 13 6 19 (12.6) 36-45 26 15 41 (27.3) >45 42 39 81 (54) Total 84 66 150 Religion Hindu 50 42 92 (61) Muslim 26 11 37 (24) Buddhist 8 10 18 (12) Christian 1 2 3 (2) Total 84 66 150 Educational status of study participants Illiterate 13 8 21 (14) Primary education 21 19 40 (26)						
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Primary education 21 19 40 (26)						
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Secondary education 41 36 77 (51.3)						
Tertiary education 9 3 12 (8)						
Total 84 66 150						
Occupation						
Housewife 0 44 44						
Service 38 4 44						
Labor 19 18 37						
Student 3 0 3						
Shop worker 5 0 5						
Not working 21 0 21						
Socioeconomic status of participants						
Class II 6 5 11 (7)						
Class III 21 21 42 (28)						
Class IV 46 33 79 (52.6)						
Class V 11 7 18 (12)						

Majority of study participants were Hindu by religion followed by Muslim, Buddhist and then Christian. 21 participants were illiterate whereas 12 were literate up to tertiary education. Majority i.e. 121 participants were under class III and class IV socioeconomic status (Table 1).

Knowledge of breeding places of mosquitoes and clinical symptoms of malaria

15 participants didn't know the breeding places of mosquitoes, 52 patients know that only fever present in the malaria and 17 participants didn't know any diseases transmitted by mosquitoes (Table 2).

Knowledge about methods of protection from bite of mosquitoes and myths or misconception about mosquitoes borne diseases.

53 participants didn't use any means of protective measures from bite of mosquitoes. More than 50%

participants had one or other type of myth regarding malaria; most common found was mosquito's larva breed only in dirty water (Table 3).

Mosquito larva seen in any water collection and what can be done to prevent breeding of mosquito larva?

104 participants didn't see the larva of mosquitoes in any breeding places; more than 50% of the participants didn't know what action can be taken when they found any breeding places of mosquitoes.

Table 2: Knowledge of breeding places, diseases transmitted by mosquitoes and clinical feature of malaria.

Breeding place	Total number (%)	Diseases transmitted by mosquitoes	Total number (%)	Clinical symptoms	Total number (%)
Stagnant water	85 (56.6)	Malaria	45 (30)	Fever	52 (34.6)
Water, cooler/ac	9 (6)	Malaria, Dengue	55 (36.6)	Fever with chills	19 (12.6)
Water, tyres, flower pots, old water drums	6 (4)	Malaria, Dengue, Chikengunya	24 (16)	Fever, body pain	33 (22)
All	35 (23.3)	Malaria, Typhoid	9 (6)	Fever, pain in abdomen	28 (16.6)
Don't know	15 (10)	Don't know	17 (11.3)	Fever, body pain, vomiting	18 (12)
Total	150	Total	150	Total	150

Table 3: Precaution takes and myths present in participants.

Precaution take for protection	Participants (%)	Myths or Misconception about mosquitoes borne diseases*	N (%)
Coil/liquid	61 (40)	Mosquitoes bite only in night	45 (30)
Net	12 (8)	Mosquitoes larva breed only in dirty water	87 (58)
Coil and net	19 (12.6)	Mosquitoes die after feeding	25(16.6)
Repellant, coil/liquid	5 (3)	Once you will get malaria, you will never get it again	43(28.6)
No	53 (35.3)	*Multiple answer	
Total	150		

Table 4: Larva seen and action can be taken to prevent breeding of mosquito larva.

	N (%)
Larva seen in collected water source	
Yes	46 (30.2)
No	104 (69.3)
Action can be taken to prevent breeding of mosquitoes	
Don't know	96 (64)
Call municipal worker for fogging	30 (20)
Leveling the ground	15 (10)
Change water from cooler/AC regularly	9 (6)
Total	150

DISCUSSION

Total 150 patients admitted in male and female medicine ward were included in the study out of them 84 were male and 66 were female patients. 54% of the study population was more than 45 years of age whereas 27.3% were in the age group of 36 to 45 years of age (Table 1).

21 (14%) participants in the study were illiterate, 40 (26%) had completed their education up to primary level, 77 (51.3%) educated up to secondary and 12 (8%) were educated up to tertiary level of education. There was a statistically significant association between knowledge about breeding places and educational level of participants (Chi square value=68.16, df=15, p=0.000) but not significant with occupation of participants (Table 1). This result can be compared with the study conducted by Parajuli, Ghimire in Epidemiology of malaria in two Eastern districts of Nepal which shows that 41% respondents have some knowledge on malarial transmission and it was significantly associated with occupation and education.⁷

Majority of participants were socioeconomically class III and class IV but no patients in the study was in class I. (Table 1).

It was observed that, 124 (82.6%) participants answered that mosquitoes can transmit malaria, dengue and chikengunya. 9 (6%) participants said that typhoid is transmitted by mosquitoes along with malaria. 17 (11.3%) participants didn't know the answer. When we compare this result with education of participants, we found chi square is 70.02 with df-15 and p<0.000 which is highly significant (Table 2).

When asked about the breeding places of mosquitoes, 56.6% said that only water can be the source for breeding places of mosquitoes whereas 50 (33.33%) said that along with water, cooler or AC, tyre, flower pots etc. can be source of water where breeding can take place. 15 participants don't know the answer for this asked question. This is also highly significant when compared with the education. (Chi square- 68.16, df-15, p<0.000) (Table 2)

Study conducted by Boratne et al shows more than half respondents (60.69%) stated stagnant water as commonest breeding place followed by ditches and ponds. 2

Similar results were seen in study done by Joshi and Banjara in which 59.8% respondent said the breeding place of mosquitoes is stagnant water.⁸

All participants knows that fever was present in malaria. 12.6% said that fever with chills present in malaria, 33 (22%) said that there was fever and body pain, 18 (12%) participants said that along with fever & body pain there was vomiting also. 28 (16.6%) said that there can be pain

in abdomen along with fever. 34.6% said that only fever present in mosquitoes borne diseases (Table 2). This results could be compared with study conducted by Parajuli, Ghimire show that 69.7% had some knowledge of malaria, among which fever was the most common symptom mentioned by 68.3%.⁷

This results can also be compared with study of Rasania, Bhanot, Sachdev in which more than half (51.0%) of the respondents attributed high fever with chills and rigor as the most important symptom of malaria, but some of the respondents also mentioned only high fever (18.9%) or high fever with diarrhea (21.2%) as main symptom of malaria.

Out of total participants, 97 (64.6%) said that they used regularly one or other method for protection from bite of mosquitoes, 61 (40%) used coil/liquid formulation, 12 (8%) used net, 19 (12.6%) used both coil and net and 5 (3%) used repellants along with coil or liquid formulation available in market. 53 (35.5%) didn't use any method for protection from mosquitoes bite (Table 3).

Study conducted by Joshi and Banjara shows, 90.1% households are using bed net as preventive measure. Among households having bednets in the house, all members are using bednets in 93.9% households.⁸

When we talk about myths, 30% of the participants said that mosquitoes bite only in day time, 58% said that mosquitoes breeds only in dirty water. 16.6% participants said that mosquitoes die after feeding. 28.6% said that once you will get malaria, you will never get it again (Table 3).

69.3% participants never saw the larva of mosquitoes and only 30.2% participants had seen the larva in collected source of water (Table 4).

64% of the participants didn't know what to do when they see larva in and around their locality. 20% said that they will call municipality worker for fogging activity. 10% said that leveling of ground can reduce water logging and thereby will prevent breeding of mosquitoes. 6% said that by changing water in the cooler and or air conditioner can prevent development of larva in these places (Table 4).

Study done in northwest Ethiopia by Tilaye and Deressa shows that most respondents practiced draining stagnant water (46.3%) and clearing vegetation (43.3%) for malaria prevention.¹⁰

CONCLUSION

It was observed in the present study that educated participants had more knowledge about mosquitoes borne diseases. So, health education can play a vital role in reducing the spread of mosquitoes borne diseases. Most of the participants don't know that clean water can be a

source of breeding of mosquitoes. Many myths were prevalent in the study population about mosquitoes borne diseases.

Recommendation

Health education should be given in the hospital premises with the help of medical and paramedical staff to the population who are coming to the hospital for various ailments. It will help patient to gain knowledge on breeding sources and prevention from mosquitoes bite.

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Institutional Ethics Committee

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