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HEALTH AWARENESS ON MALARIA AND ITS RECENT DEVELOPMENTS IN COLLEGE STUDENTS, CHENNAI, SOUTH INDIA

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ABSTRACT

Introduction: Among South-East Asia region, India shares two-thirds of the burden of malaria. In Tamil Nadu, Chennai is endemic for malaria in the past few decades. Health education and awareness of malaria among the community are indispensable. The present study was undertaken to create awareness and to assess the effectiveness of the awareness on malaria among Arts and Science college students in Chennai.

Materials and Methods: This was questionnaire based cross sectional study conducted among college students in Chennai. Each student was given a pair of pre tested semi-structured questionnaire and was instructed to fill the Questionnaire A before and Questionnaire B at the end of the awareness program anonymously. Statistical analysis was done using McNemer's test.

Results: Age of students who participated in the study (501) ranged from 16 to 37 years. With regard to malaria transmitted by blood transfusion, Red Blood cells being commonly affected, availability of vaccines and eligibility for blood donation, the response rose significantly to 87%, 91%, 63% and 91% respectively after the awareness programme (p=0.000).

Conclusion: By educating college students about malaria and its preventive aspects and its recent developments, it is possible to make them as ambassadors to create awareness and spread knowledge among their families, friends, and relatives and in the community. This helps in achieving the main objective of malaria control in reducing malaria cases and deaths by providing access to preventive methods, diagnostic testing and treatment to the entire population at risk.

Key Words: College students, Health awareness, Malaria

INTRODUCTION

Malaria is an entirely preventable and treatable mosquito-borne illness accounting for nearly 85% of infectious disease burden across the world.[1,2] About 36% of the world population is exposed to the risk of contracting malaria. As per reports in the year 2007, India contributed 77% of the total malaria in Southeast Asia.[2] In 2013, 97 countries had ongoing malaria transmission.[1] Among South-East Asia region, India shares two-thirds of the burden (66%) followed by Myanmar (18%) and Indonesia (10%). India, along with six other countries is in the 'control phase' of the malaria elimination programme. In India, around 80% of malaria burden is confined to high risk areas like Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, Maharashtra, Rajasthan and north-eastern states except Sikkim.[3] In Tamil Nadu, Malaria is confined to some of the Urban, Coastal and Riverine areas such as Corporation of Chennai, Ramanathapuram, Paramakudi, Thoothukudi, Kanyakumari, Krishnagiri, Dharmapuri and Thiruvannamalai.[4] Chennai city is endemic for malaria for the past few decades. Nearly 70 percent of the malaria cases recorded in the State of Tamil Nadu occurs in Chennai City alone.[5] In last two decades in Tamil Nadu deaths due to malaria was drastically reduced by its effective systematic campaign of surveillance, prevention and vector control, and aggressive screening and treatment.[6] The National Health Policy (2002) had set the goals of reduction in mortality on account of malaria by 50% by 2010 and efficient control of morbidity. Reduction of malarial morbidity and mortality is also important to meet the overall objectives of reducing poverty and has been included in the Millennium Development Goals. To achieve these targets it is imperative to have active community participation in control of malaria. Community participation in turn depends on people's knowledge

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and attitude towards the disease. There is a need to know existing knowledge and attitudes of population regarding malaria as a disease, its treatment and control.[7] As per National Rural Health Mission (NRHM), Inter-sectoral collaboration for involvement of non-Health Departments/civil society organizations/corporate sector/local self government, Armed & Paramilitary Forces is also a part of strategies for prevention and control of malaria.[8]

In endemic areas, Health education and awareness of malaria among the community is indispensable. Most of this awareness programmes on malaria are focused on the vectors responsible for transmission, signs and symptoms of the disease and vector control measures and mosquito bite prevention methods.

This is one the first such awareness program on malaria conducted among the Arts and Science college students in Chennai.

The present study was undertaken with the aim to create awareness and to assess the effectiveness of the awareness on malaria among Arts and Science college students in Chennai.

MATERIALS AND METHODS

This was questionnaire based cross sectional study conducted from January 2014 to July 2014 by the Department of Experimental Medicine, The Tamil Nadu Dr. MGR Medical University, Chennai, after obtaining approval from the Institute Ethics Review Board.

Chennai is capital of Tamil Nadu, one of the southern states of India, located in the Coromandel Coast of Bay of Bengal with approximately 4.68 million residents.

Prior permission was obtained from the Principals of the Arts and Science Colleges for conducting the awareness program on malaria and to assess the knowledge of students before and after the program. The program was conducted at seven Arts and Science colleges in Chennai. The students who were willing to fill the questionnaire were included in the study.

Each student was given a pair of pre tested semi-structured questionnaire, serially numbered and labeled as 'A' and 'B'. Students were instructed to fill the Questionnaire A before the awareness program and Questionnaire B at the end of the awareness program anonymously. The filled 'A' questionnaire was collected from all students after 10 minutes before the start of the awareness program. The questionnaire was in English and included age, gender and religion. The following aspects were included in the questionnaire- spread of malaria by mosquitoes and Blood transfusion, affects Red Blood Cells (RBCs), availability of vaccines for malaria and eligibility for blood donation after malaria infection. Each question was given three responses 1- Yes, 2- No and 3- do not know. Students were instructed to mark one response accordingly.

The awareness program was given through a power point presentation which included causative agent for malaria, modes of spread, sites of infection, signs and symptoms of malaria, diagnosis and duration of treatment, vector control measures and availability of vaccines.

At the end of the program, the students were asked to fill the Questionnaire 'B' and the same was collected.

All the forms were entered in the excel sheet and analyzed using SPSS software Version 11. Statistical analysis was done using McNemer's test.

RESULTS

A total of 501 students participated in the study from seven colleges. Age of the students ranged from 16 to 37 years with mean of 20.46 years, SD 3.477. Twenty eight percent (28%) were male students and 72% were female students. Seventy five percent (75%) were Hindus, 20% were Christians and 5% were Muslims.

Around 91% of students were already acquainted with the fact that malaria is spread by Mosquitoes as evidenced in their pre awareness response and there is no significant change in the post awareness response. Responses of the students before and after the awareness programme for spread of malaria by Blood transfusion, affects RBCs, availability of vaccines for malaria and eligibility for blood donation after malaria infection is shown in Fig 1. There were a significant rise in the percentage of students who answered correctly in the post awareness questionnaire (p=0.000).

DISCUSSION

There are many studies conducted nationally and internationally among students and community on their knowledge on signs and symptoms of malaria, causative agents and Vectors involved and their control measures.[9-12] To the best of our knowledge, this is the first study reporting on the knowledge of college students on spread of malaria by blood transfusion, RBCs being affected, availability of vaccines and eligibility of blood donation after malarial attack. In the present study, majority of the students were aware that mosquitoes spread malarial infection. Similar results were reported by a study among households in South Africa and in University students from Pakistan.[13,14] High baseline knowledge of mosquito transmitting malaria might be attributed to mosquito control measures taken during season by the Corporation of

Chennai at two levels ie, control of adult mosquito population and source reduction.[15] The World Health Organizations had taken vector borne diseases as the issue for World Health Day 2014 and had set the theme as Small bite; Big threat.[16]

After the awareness, the response to the transmission of Malaria by blood transfusion went up to 87%. In developing countries where malaria is endemic, transfusion-transmitted malaria is emerging as a major problem. The frequency of transfusion-transmitted malaria varies from 0.2 cases per million in non endemic countries to 50 or more cases per million in endemic areas.[17] Transmission of malaria by blood transfusion was one of the first recorded incidents of transfusion-transmitted infection. Globally malaria remains as the most common transfusion transmitted infections.[18] In India; the eligibility age for donating blood is 18 years of age. This is the time they are in first or second year of their college. As India is one the endemic countries for malaria, educating these students about the possibility of malaria transmitted by blood transfusion is absolutely essential, in spite of screening the collected blood units for malaria.

The response to RBCs as the common site of infection has significantly increased to 91% after the awareness. Understanding that RBCs are commonly affected in malaria would help them to realize the need of taking blood smear by the field workers for diagnosing malaria. The timely collection and examination of blood smear is the key element in the National Malarial Control Strategy. Under the National Vector Borne Diseases Control Programme, the active case detection is carried out by multipurpose health workers (male) under primary health care system.[19] Blood smear examination by the field workers helps in early detection of cases and start radical treatment to reduce the risk of transmission of malaria in the community.

After the awareness programme, 63% of students knew that vaccines are not available for malaria. Malaria vaccines are considered amongst the most important modalities for potential prevention of malaria disease and reduction of malaria transmission.[20] The complexity of the malaria parasite makes development of a malaria vaccine a very difficult task. Given this, there is currently no commercially available malaria vaccine, despite many decades of intense research and development effort.[21] Authors from France had reported that 35% of their study population believed that vaccines are available for Malaria.[22] A cross sectional qualitative and quantitative study from Ghana in 2007, where malaria vaccine trials had been carried out, reported 90% of the respondents were of the opinion that malaria can be prevented through vaccination. In the same study, 65.9% of respondents preferred vaccines to drugs for malaria control.[23] Reports from another qualitative study from Kenya states that majority of the participants felt that malaria vaccine could bring added health benefit to the community.[24] Recognizing that vaccines are not available for malaria at present, would make the students realize that vector control measures and early diagnosis and treatments are the only measures available in hand to restrain the spread of malaria.

Ninety percent of the students were aware that persons positive for malaria should not donate blood for three months after the awareness programme. In India, as per Voluntary blood donation programme, an operational guideline, issued by National AIDS Control Organization, a person who is treated for malaria is deferred from donating blood for a period of three months.[25] According to the U.S, Food and Drug Administration (FDA) screening guidelines, a person should wait for three years to donate blood after completing treatment for malaria, most travelers to an area with malaria are deferred from donating blood for 1 year after their return and former residents of areas where malaria is present will be deferred for 3 years.[26] India, being endemic for malaria and deferring voluntary blood donors based on their treatment to malaria for a period of three years would considerably reduce the blood stock available in the blood bank. As most of the blood banks in India depend on college students for voluntary blood donations, it is imperative for these students to know the deferral criteria for blood donation after malaria attack.

CONCLUSION

By educating college students about malaria and its preventive aspects and latest facts about malaria, it is possible to make them as ambassadors to create awareness and spread knowledge among their families, friends, and relatives and in the community. This helps in achieving the main objective of malaria control in reducing malaria cases and deaths by providing access to preventive methods, diagnostic testing and treatment to the entire population at risk.

Ethical Clearance: The study was approved by the Tamil Nadu Dr.M.G.R Medical University Ethics Committee.

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Consent: Only students who were willing to participate were requested to fill the questionnaire. Prior permission

was obtained from the Principals of the colleges. No personnel identifiers were entered in the questionnaire.

Conflict of Interest: Authors declare that no conflict of interest exists.

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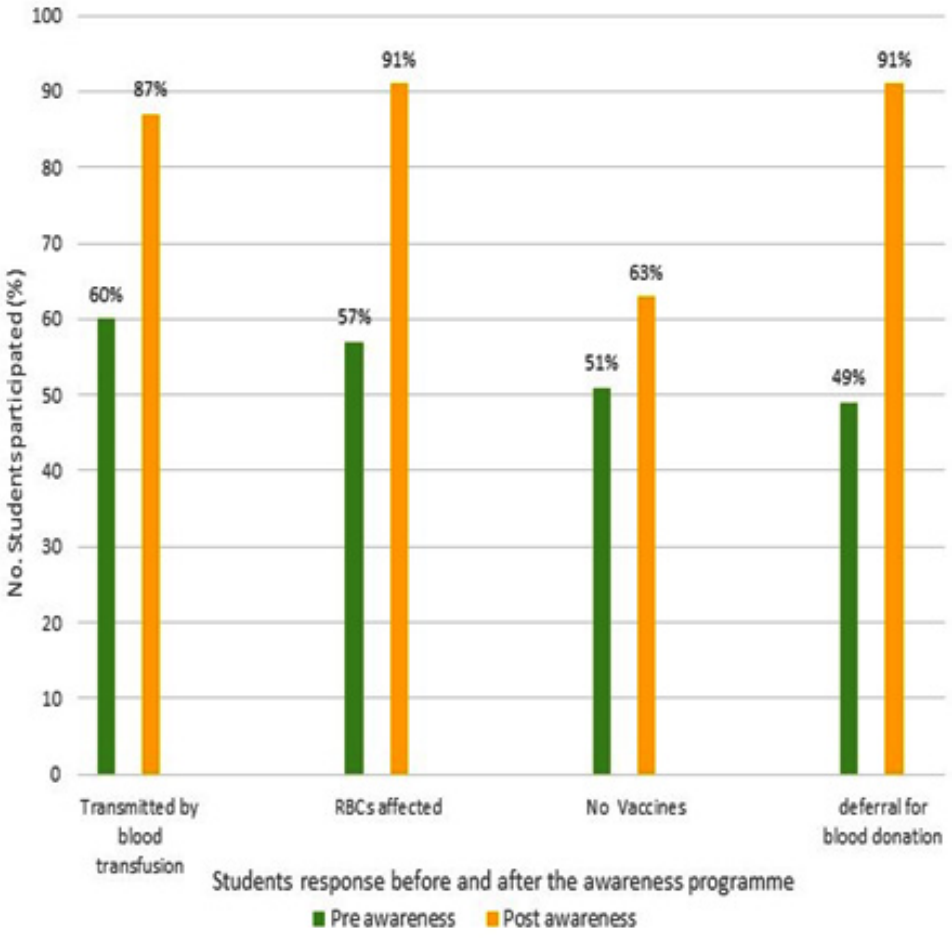
100
90
80
70
60
50
40
30
20
10
0
No. Studentsparticipated (%)
87%
91%
91%
60%
57%
63%
51%
49%
Transmitted by blood transfusion
RBCs affected
No Vaccines
deferral for blood donation
Students response before and after the awareness programme
Pre awareness
Post awareness

Figure 1: