Research article

A study on knowledge, attitude and practices regarding dengue among hospitalized patients from Northern Sri Lanka

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Abstract

Introduction and Objectives: Dengue fever is recognized as one of the major vector borne diseases and causes significant morbidity in tropical countries. Thus, evaluation of knowledge, attitude and practices of the population is of great importance to improve integrated control measures. The aim of the study was to assess the level of knowledge, attitude and practices relating to dengue fever in 200 consecutive inward patients treated as having dengue fever in two medical units of Teaching Hospital, Jaffna.

Methods: A cross-sectional descriptive comparative study was carried out among dengue patients in two medical units of Teaching Hospital, Jaffna from January 2017 to April 2017. Dengue patients were recruited by convenient sampling, interviewed with validated questionnaires to assess their knowledge about dengue fever. Data were analyzed using SPSS (version 21) analytical package.

Results: Awareness that dengue fever is transmitted by mosquitoes was shown by 97% of respondents. The Media was an important tool to gain information about dengue. Among students, schools played a key role in conveying health information. More than 90% of the study population exhibited health seeking behavior and the majority used paracetamol as a home remedy. Practices regarding preventive methods were predominantly for prevention of mosquito bites in the form of using nets (46%) and mosquito coils (34%), rather than elimination of breeding sites.

Conclusions: Significant association was found between knowledge about dengue fever and educational level. Although knowledge regarding mosquito control measures was 80%, this knowledge of preventive measures was not demonstrable in practice. A change in the approach of the health education program should be focused based on these findings for effective prevention.

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Introduction

Dengue fever is recognized as one of the major vector borne diseases and causes significant morbidity in tropical countries.[1] The incidence of dengue fever has grown dramatically around the world in recent decades mainly in tropics and sub tropics. The *Aedes aegypti* mosquito which is highly adapted to human habitations is the primary vector of dengue. Dengue viruses are primarily maintained in a human-to-mosquito-to-human cycle. There is no specific treatment for dengue fever. During the initial 5 months of 2017, 40264 suspected dengue cases have been reported to epidemiology unit from all over Sri Lanka.[2] As there is no treatment for dengue fever, vector control is an important means of combating this disease.

Methods

Study design
A cross-sectional descriptive comparative study.

Study area and setting
Dengue patients admitted to two Medical Units of the Teaching Hospital Jaffna. The Teaching Hospital, Jaffna is the only tertiary care centre in northern Sri Lanka. The majority of patients with dengue fever from the Jaffna Peninsula are admitted to the general medical wards of the Teaching Hospital, Jaffna. The study cohort therefore was representative of the community and would reflect the knowledge, awareness, adherence and life-style practices of the community.

Sample size
200 patients were recruited from the two medical units of the Teaching Hospital in Jaffna.

Sampling method
The eligible respondents were selected by convenient sampling method.

Study period
The study was conducted for a period of 4 months from January 2017 to April 2017.

Diagnosis of dengue fever
Dengue fever was diagnosed among patients with clinical manifestations, complete blood count and dengue IgM antibody which was performed on or after day 5 of the febrile illness.

Inclusion and exclusion criteria
Those who were eligible for inclusion into this descriptive cross-sectional, qualitative phenomenological survey were a cohort of 200 adult male and female patients with dengue fever drawn from the medical units, Teaching Hospital, Jaffna. Patients with dengue fever who were willing to participate in the study were included whereas patients who were below 12 years or unable to give consent (eg: mentally incompetent) were excluded.

Development of Dengue Fact Questionnaire
The Dengue Fact Questionnaire was designed as a tool, using the existing literature, for practicing physicians to assess the knowledge and awareness among the dengue patients. The questionnaire was initially designed in English and then translated into Tamil. The questionnaire consisted of questions to assess the patients' knowledge and awareness on dengue. The patients who met the inclusion criteria were interviewed to assess their knowledge, attitudes and practices related to dengue fever by trained post intern medical officers.

Data analysis
Data were entered in to a Microsoft Excel sheet and analyzed using SPSS (version 21) analytical package. Baseline results were presented as counts and percentages and as mean ± SD for continuous variables. A $P < 0.05$ was considered significant.

Results

Socio demographic characteristics
121 of the 200 study subjects were males of whom 58.5% were in the 12-30 year age group and 32% were in the 31-45 year age group. Most of people belonged to secondary school level (Table 1). 52% of participants were unemployed.

Table 1. Selected demographic pattern among dengue patients

Selected variables	No	Percentage
Gender		
Male	121	60.5
Female	79	39.5
Age (Years)		
12-30	117	58.5
31-45	64	32
46-60	10	5
60-75	5	2.5
>75	4	2
Educational level		
No school	24	12
Primary school level	23	11.5
Secondary school level	103	51.5
Higher education	50	25

Knowledge of the vector
Of the study subjects, 97% were aware that dengue was spread by mosquito bites and 55% were able to name *Aedes* as the vector. The most common breeding places for *Aedes* mosquitoes recognized were water containers (tyres, coconut shell, tins, cans and lids) by 82.5% respondents followed by stagnant water reserves (rivers / ponds). The forest and trees were identified by 17.5% of the respondent as a source of mosquito breeding. 51.5% of respondents identified that *Aedes* mosquito bites during the day.

Knowledge of clinical features
Fever as a symptom of dengue was stated by 76 patients with 49 patients (24.5%) identifying two other classical symptoms and 75 patients could enumerate one other clinical feature of dengue (skin rash, bleeding tendency). Dengue fever was identified as a preventable condition by 76% of the respondents and 75% of respondent perceived that dengue fever is a serious illness. Half the respondents (50.5%) knew that dengue fever could recur.

Knowledge of treatment
Of the 200 patients, 182 had been treated by a doctor during the febrile illness before admission to hospital. Only 13 patients were admitted without being seen by a doctor. Paracetamol was used by 65.5% of the population as a home remedy. Home remedies for dengue fever included the use of paracetamol to control the fever (131 respondents), and 9 patients thought that drinking water was effective to control fever. Both options were used by 25 patients for control of fever.

The majority of respondents (37%) mentioned that they knew about dengue from media (TV, radio and newspapers), while 36% patients obtained knowledge through health personnel and only 23% gained knowledge from relatives and friends.

Knowledge of preventive measures
Water was stored at home by 76 patients, of whom 40% frequently changed the stored water. The most common measures to prevent dengue fever were preventing mosquito bites by using mosquito nets (46%), mosquito coils (34%), insecticides (15.5%) and repellents (4.5%) rather than elimination of breeding sites.

There was a significant association noted between education level and knowledge regarding dengue vector and species identification, biting time, breeding places, treatability and dengue recurrence (P <0.05).

Discussion

Most respondents in the current study knew that dengue fever is transmitted by mosquitoes and the main source of information was the media. Media (TV and radio) emerged as the most important source of health information in this study. It emphasizes the fact that mass media, in particular television, can be used to disseminate more knowledge and awareness regarding a dengue epidemic. A hospital-based study done in the outpatient department (OPD) of Safdarjang hospital in India also showed similar findings in 2003.[3] In addition, school was shown to play a pivotal role in conveying health information to school-going children.

Knowledge about mosquito bites is vital in preventing dengue spread, and 51.5% patients in the current study correctly identified that the biting time was during the day. Arunachchalam *et al.*[4] showed that greater knowledge about dengue and its transmission was associated with lower mosquito breeding and production. Despite this fact, mosquito coils and bed netting which are not very effective in prevention of dengue fever, are widely used only at nights. The most common practice of our study population in preventing mosquito bites was using mosquito coils and bed netting rather than elimination of breeding sites, which is important as it undermines effective dengue preventive strategies.

Fever was recognized as the most common symptom of dengue infection which is on par with another study done among university students in the University of Gujarat in 2015.[5] Most of the study population (91%) in the current study sought treatment from a primary care physician at the early phase of febrile illness. This could be due to the endemic nature of the disease in countries like Sri Lanka. Health seeking behavior (HSB) appears to be satisfactory in contrast to a study done in America which showed that HSB for dengue was around 60%.[6]

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Nearly two third (65.5%) of the population used paracetamol as a home remedy in contrast to some popular studies done in southeast Asian region where most people sought traditional remedies to treat dengue.[7]

Another important fact that could be easily overlooked is the knowledge regarding recurrence of the illness. Victims of dengue have a high chance of recurrence which could have serious consequences. Only half of the study population in the current study thought that dengue could recur. A study done in Bangladesh recently has also found that knowledge regarding dengue recurrence was poor.[8]

We found a significant association between educational level and knowledge regarding dengue fever. In contrast, there was no significant association found between educational level and preventive practices. Similar findings were reported in another study done in Pakse district, Loas in 2006.[9]

The results of the current study highlighted the fact that good knowledge about dengue does not reflect good practices of preventing the illness. Many people knew about preventive measures yet did not practice them. Knowledge therefore does not necessarily lead to effective practice. Prevention and control depend mainly on effective and sustained vector control measures. Schools play a major role in health education, particularly in countries like Sri Lanka which provides mandatory free education and achieved literacy rates comparable to the developed nations. This study showed that students gain significant information through their schools. A series of activities are scheduled to promote enhanced awareness about dengue – an epidemic prone viral disease – and educate children about the need for dengue prevention and control.[10]

Conclusion

Most of the patients treated as dengue had adequate knowledge about the vector, clinical features, treatment and preventive measures. However, they lacked awareness to practice effective preventive measures to control dengue. Based on this study, it is suggested that a focused health education program could be effective in improving the practices regarding dengue prevention.

Conflicts of interest: There are no conflicts of interest declared.

Ethical clearance was obtained from the Ethical Review Committee, Faculty of Medicine, University of Jaffna, Sri Lanka. Informed written consent was obtained from all patients admitted to the study.

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