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RESEARCH ARTICLE

A DESCRIPTIVE STUDY ON DENGUE FEVER REPORTED IN DISTRICT HOSPITAL KATHUA, J&K.

***[1]Dr. Konika Razdan [2]Dr. Jamwal, V.S. and [3]Pathania, S.S.**

[1]Research Scientist I, VRDL, Dept of Microbiology, GMC Jammu
[2]Consultant Physician, District hospital, Kathua
[3]Supervisor, Lab Tech. District hospital, Kathua

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Corresponding author:

ABSTRACT

Background: Dengue fever is a serious public health problem in terms of its morbidity and mortality as it is reported from almost all countries and is endemic in the tropical countries. The present study is a hospital – based retrospective study in a district hospital which aims to describe the frequency, distribution of dengue fever based on the variables such as age, sex and year. Out of 350 reported cases of dengue, 72% were males and 28% were females. In both males and females, the high proportion of cases were reported in adult age groups (>20 years). **Conclusion:** More cases of dengue fever were reported in the adult age group (20 years and above) and in males compared to low age groups (<20 years) and Females. It highlights the involvement of work component in the occurrence of disease. Community-based action program is required for source reduction activities in the outdoor area for arresting the breeding and multiplication of Aedes mosquitoes and thereby to reduce the morbidity and mortality of dengue fever.

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INTRODUCTION

Dengue a vector-borne disease, is a major public health threat globally. It is caused by the dengue virus (DENV 1–4 serotypes), which is one of the most important arboviruses in tropical and subtropical regions other being Japanese encephalitis, West Nile virus, chikungunya fever, Crimean-Congo hemorrhagic fever and Kyasanur forest disease (Mutheneni *et al.,* 2017). Dengue virus belong to family Flaviviridae and there are four serotypes of the virus referred to as DV-1, DV-2, DV-3 and DV-4 is a positive stranded encapsulated RNA virus and is composed of three structural protein genes, which encode the nucleocapsid or core (C) protein, a membrane associated (M) protein, an enveloped (E) glycoprotein an seven non structural(NS) proteins. It is transmitted mainly by *Aedes aegypti* mosquito and also by *Aedes albopitus* (WHO, 2012). Dengue is the most common and widespread arboviral infection in the world today. It is an increasingly prevalent tropical arbovirus infection with significant morbidity and mortality (Rahman *et al.,* 2002). Dengue infection has been known to be endemic in India for over two centuries as a benign and self limiting disease. In recent years the disease has changed its course manifesting in the severe form as DHF and with increasing frequency of outbreaks (Smith *et al.,* 2005). The expansion of dengue in India has been related to unplanned urbanization, changes in environmental factors, host–pathogen interactions and population immunological factors. Inadequate vector control measures have also created favorable conditions for dengue virus transmission and its mosquito vectors. Both *Aedes aegypti*and *Aedes albopictus* are the main competent vectors for dengue virus in India (Gubler, 1998). Surveillance for dengue fever in India is conducted through a network of more than 600 sentinel hospitals under the National Vector Borne Disease Control Program (NVBDCP) (http:// nvbdcp.gov.in/DENGU1.html), Integrated Disease Surveillance Program (IDSP) (http://www. idsp.nic.in/ showfile.php?lid=3923) and a network of 52 Virus Research and Diagnostic Laboratories (VRDL) established by Department of Health Research (http://dhr.gov.in/ schemes/establishment- networklaboratories- managing-epidemics- and-natural-calamities). In 2010, an estimated 33 million cases had occurred in the country (Bhatt *et al.,* 2013). During 2016, the NVBDCP reported more than 100,000 Systematic review and meta-analysis of dengue fever in India laboratory confirmed cases of dengue. It is therefore possible that dengue disease burden is grossly underestimated in India (Ganeshkumar *et al.,* 2018). The control measures of dengue fever include source reduction activities and also the personal prophylaxis measures. This present study aimed for finding out the frequency and distribution of dengue fever and its case fatality based on the variable such as age and sex during a time period of two years.

MATERIALS AND METHODS

The study was carried out in District hospital, Kathua Jammu. J&K. Clinically suspected patients of dengue fever along with presence of headache, myalgia, retro orbital pain, rash and hemorrhagic manifestations presenting to the emergency, outpatient and indoor services of our institute. Written and informed consent was taken from the patients and approval of ethical committee was taken. The data retrieved from the medical records were analyzed using Microsoft excel.

Inclusion criteria: Patients suffering from continuous high fever along with headache , myalgia, retro orbital pain, rash and hemorrhagic manifestations in acute phase of their illness (1-6 days) were included.

Exclusion Criteria: Patients suffering from Malaria, Enteric fever, Pharyngitis, Tonsillitis, Influenza and positive serology for other arboviral infections except dengue fever were excluded from the study.

Clinical data: Demographic details i.e Patient's name, age, sex, occupation, address, date of admission, OPD/IPD no. and clinical examination details i.e fever (°C), duration of fever, day of onset of fever, presence of petechiae, epistaxis, haematemesis/melena, blood pressure (mmHg), pulse (/min), platelet count, hematocrit, treatment received, travel history were recorded in the proforma attached.

Sample collection: 5 ml of blood sample collected aseptically by venipuncture in a plain vacutainer from clinically suspected dengue fever patients in acute phase of illness (1- 6days) and allowed to clot at room temperature and then centrifuged at 2000 rpm for 10 mins. The sera separated after centrifugation was aliquoted into 3 sterile 1.5ml storage vials for serology and molecular tests.

Qualitative elisa for dengue ns1 antigen detection: Blood samples from patients with fever upto 5 days was tested for NS1 antigen using Dengue NS1 Capture ELISA (Make: Panbio) according to manufacturer's instructions. .

Qualitative Elisa for Dengue Igm Antibody Detection: Qualitative detection of dengue IgM antibodies in serum samples of patients with duration of fever more than 5 days were done using Dengue IgM capture ELISA kit as per manufacturer's instructions.

RESULTS

In the present study a total of 50 dengue cases were reported in the period of two years i.e from August 2016 to July 2017 among 386 patients screened (Fig 1). Among 50 positive dengue cases 21 were IgM positive while as 29 were NS1 positive (Fig 2) while as 36 among the 50 positive were males (72%) and 14 were females (Fig 3) (28%). The maximum number of positive patients i.e. 17 were observed in the age group 21-30 and 31-40; followed by 6 each in 11-20 and 41-50 years of group. 2 patients were reported from 51-60 years and 1 patient each was reported from 0-10 amd 61 & above group (Fig 4).

DISCUSSION

In the present studies dengue fever was reported more in adult age group (>20 years) compared to the low age group (<20

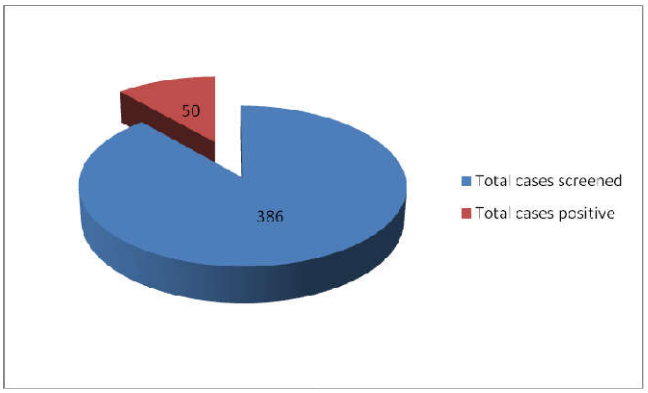

Fig. 1. Depicting the total number of positive patients among the screened patients

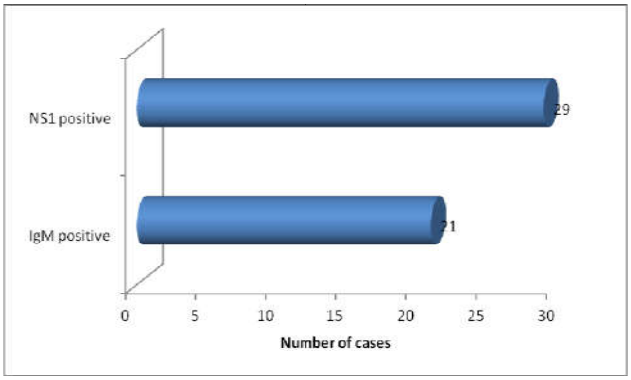

Fig. 2. Depicting the total number of NSI and IgM positive patients

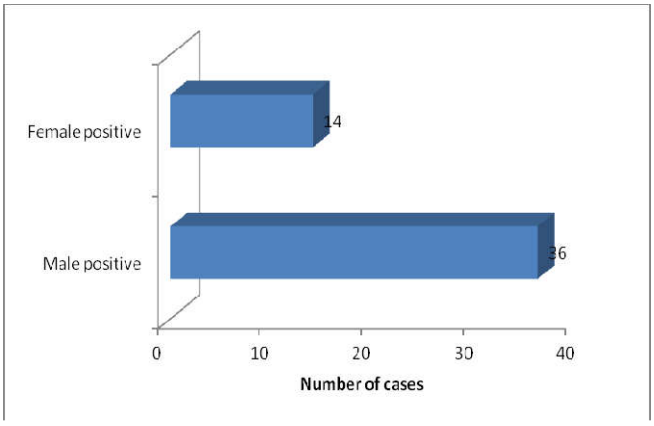

Fig. 3. Gender wise distribution among the positive patients

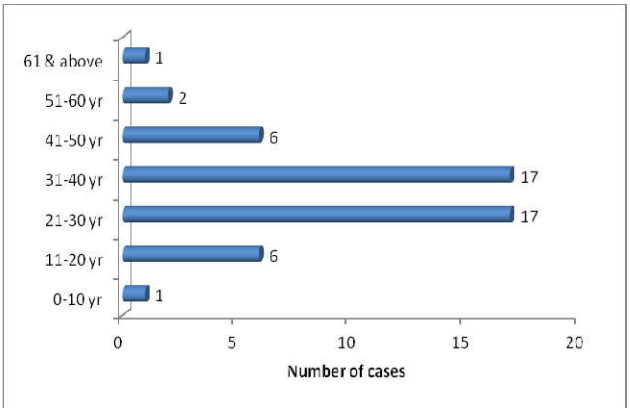

Fig. 4. Depicting the age wise distribution among the positive patients

years) in both males and females. Studies conducted by Lin *et al.,* (2012) in Taiwan, Guilarde *et al.*,(2008) in Brazil, Ooi *et al.,* (2006) and Yew *et al.,* (2009), Anker *et al*., (2011) also reveals that adult age group shows the predominance in dengue fever. Study reports from England, Wales and Northern Island (Antony and Celine,2014) also support this fact in their studies as dengue fever reports higher in the adult population (>20 years). This predominance of adults may be due to involvement of adult groups in outdoor works compared to low age group as they have the more chances of exposing infected mosquitoes than the low age groups.In the present study, the proportion of male cases is higher than the female cases. In males, it is 60.70% and in females it is 39.29% of total dengue fever cases. Studies conducted by Eong (2001), Ruel Perez (2011) in Singapore supports that proportion of males was higher than females in their study. On the contrary, in a study by Kaplan *et al*., (1980) in his study reported more cases were in females compared to males. Study reports from Asian countries such as Cambodia, Malaysia, Sri Lanka, Singapore and Philippines (Anker *et al*., 2011) and Aggarwal *et al*., (1999) revealed the high preponderance of males in dengue fever and pointing out the fact that it may be due to the outdoor work habit of men compared to females.

A majority of the studies points out the fact that males have more outdoor work habits compared to females. They are more exposed to the mosquito bite during their day time work or while travelling to the work site in the early morning or returning from the work site in the late evening. Various other studies have also uniformly support that the male preponderance in the dengue fever and contributed it mainly due to the outdoor work nature of males compared to females. So the high number of infected dengue cases in adult age groups and in males is strongly indicating the involvement of work component in this infection because children and women are spending much time in indoors and less exposed to the vectors of dengue infection possibility of occupational exposure of the dengue infection. While dengue fever vectors show much outdoor habitats, the people work in the outdoors are high risk groups and much emphasize to be given for personal prophylaxis and also for source reduction activities to control the breeding and multiplication of Aedes mosquitoes.

Conclusion

As the prevention of dengue fever lacks proper vaccine, the main preventive strategy is the awareness building in the community regarding the source reduction process by emptying the man made containers or dispose those in a systematic or in a proper way. Much efforts to be taken to promote the participation of the community in the action program for eliminating vector-breeding sites.

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