

## Research Article

### **A Study of Clinical Profile of Dengue Fever in a Tertiary Care Teaching Hospital**

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**Abstract:** Dengue is a major international health concern that is prevalent in tropical and sub-tropical countries. The total burden of febrile illnesses that is presented to primary health facilities due to dengue in parts of North Karnataka is largely unknown. Objective of the present study is to study the clinical manifestations, trend and outcome of all confirmed dengue cases admitted in a tertiary care hospital. Prospective study conducted in a tertiary care hospital of north Karnataka. Required data from all the laboratory confirmed cases from May 2012 to April 2013 was collected. Study included 100 patients. Majority were males, 54(54%) and in the age group of 16-40 years 61%. The most common presentation was fever 100 (100%), followed by headache (90%), myalgia (81%), vomiting (56%) and abdominal pain (48%). The most common hemorrhagic manifestation was petechiae 21%. 22% had dengue hemorrhagic fever with 16% had dengue shock syndrome. Complications seen were hepatic dysfunction 34%, renal failure 26%, multi organ failure 18%, encephalopathy 13% and ARDS in 12%. Deaths reported were 11%. Community awareness, early diagnosis and management and vector control measures need to be strengthened in order to reduce the increasing number of dengue cases.

**Keywords:** Dengue, dengue hemorrhagic fever, dengue shock syndrome, North Karnataka

#### **INTRODUCTION**

Dengue infection is a major health problem in our country. Globally the incidence of dengue has increased in the recent years. The WHO estimates that presently about two fifths of the world population is at risk for this viral infection [1]. Dengue was first reported in 1780, when Benjamin Rush described this condition as "break bone fever". It is a mosquito borne viral infection with four serotypes causing dengue fever (DF), dengue hemorrhagic fever (DHF), and dengue shock syndrome (DSS) [2]. It is estimated that worldwide nearly 2.5 billion people continue to live at risk of contracting the infection while 50 million cases and 24,000 deaths tend to occur in 100 endemic countries. Risk of mortality in treated cases of DHF/DSS is 1% while mortality rate among untreated cases escalates to 20% [3].

India is one of the seven countries in the South-East Asia region regularly reporting incidence of DF/DHF outbreaks due to its high incidence which constantly threatens the health care system. The first confirmed report of dengue infection in India dates back to 1940s, and since then more and more new states have been reporting the disease which mostly strikes in epidemic proportions often inflicting heavy morbidity and mortality [4]. Several fatal forms of the disease i.e., DHF, DSS have been reported in India from time to time in Kolkata, Delhi, and Chennai [5-8]. All the four serotypes of the virus have been in circulation and documented in Tamil Nadu [9]. During all these epidemics infection occurred in active adults in the age group of 16-60 years [10, 11]. The common signs and

symptoms observed were fever, headache, myalgia, arthralgia and bleeding manifestations have also been observed.

The exact clinical profile is important for patient management and thus crucial for saving life. The present study is an attempt to describe the salient clinical as well as laboratory findings of serologically confirmed hospitalized cases of dengue fever during the study period. The study group represented the adult population.

#### **Materials and Methods**

The study was undertaken as a hospital-based descriptive study with prospective data collection. The information was collected using a questionnaire developed and based on a review of literature. Hundred patients with confirmed dengue fever admitted to tertiary care hospital during a one year period from March 2012 to February 2013 were selected for this study. NS1 antigen and IgM dengue antibody-positive cases were included. These patients were admitted with fever, myalgia, headache, vomiting, abdominal pain or bleeding manifestations. NS1 antigen and IgM dengue antibody was estimated using capture ELISA. The diagnosis of dengue fever, dengue hemorrhagic fever and dengue shock syndrome was based on the WHO criteria [3].

Only those patients were included in the study with classical features of dengue – fever with chills, body ache, headache, rash, bleeding manifestations and thrombocytopenia and had a positive ELISA test.

Patients who had malaria and enteric fever were excluded from the study. Detailed history and clinical examinations were done. A complete blood count, liver function tests, renal function tests, chest X-ray and USG abdomen were also done.

## RESULTS

A total of 100 cases admitted to the hospital in May 2012 to April 2013 were statistically analyzed. Most of dengue cases occurred during the month of June to September depicts the role of rainy season on clustering of cases. Majority of the cases, 54% were males and 46% were females. Maximum number of cases 61% was in the age group of 15–40 years as seen in Table 1. Average duration of stay in hospital was 7–12 days. As seen in Table 2 fever was present in all cases and is the most common symptom followed by headache (90%), myalgia (81%), vomiting (56%), abdominal pain (48%), breathlessness 25%, skin rash (21%), and altered sensorium (13%). Hemorrhagic manifestations (21%) included petechiae, ecchymosis, gum bleeding, hematuria, melena, hematemesis and epistaxis. In the study, 52 patients had complications of which most common were hepatic dysfunction 34%, renal failure 26%, multi organ failure 18%, encephalopathy 13% and ARDS in 12%. Deaths reported were 11%.

**Table 1: Age characteristics of patients with Dengue fever**

Age (Years)	Male (N=54)	Female (N=46)	Total (100)
16-20	10	7	17
21-30	16	9	25
31-40	9	10	19
41-50	8	8	16
51-60	6	9	15
>60	5	3	8

**Table 2: Symptoms and complications of dengue fever**

Symptoms	Patients (N=100)
Fever	100
Headache	90
Myalgia	81
Vomiting	56
Abdomen pain	48
Breathlessness	25
Skin rash	20
Bleeding tendency	18
Complications	
Hepatic dysfunction	34
Renal failure	27
Multi organ failure	14
Encephalopathy	13
ARDS	12

## DISCUSSION

This study describes the clinical profile, laboratory features and outcome of DF/DHF/DSS in adult patients. Dengue is an important emerging disease of the tropical and sub-tropical regions. Since the first confirmed case of dengue in India, during the 1940s, intermittent reports from Delhi [12,13], Ludhiana [14], Mangalore [15], Vellore [16] and from other states have been published. The identification is by clinical features but they can present with varied manifestation [11-13].

There is a steady increase in the number of dengue patients over the past few years was noted. This is due to the rapid urbanization with unplanned construction activities and poor sanitation facilities contributing fertile breeding grounds for mosquitoes. Due to an increase in the alertness among medical fraternity following the initial epidemic and the availability of diagnostic tools in the hospital have contributed to the increased detection of cases [17].

A gradual increase in cases was noticed from June with a peak in September, during all the seven years of the study. Pre-monsoon increase in the number of cases was noted in the months of March and April due to the stagnation of water, after a few bouts of pre-monsoon rainfall which facilitate vector breeding. These findings highlight that preventive measures against dengue infection should be taken during water stagnation periods after the initial bouts of rainfall and at the end of monsoon.

The male to female ratio in this study was 1.2:1 respectively. Congruent pattern was also seen in the retrospective analysis of the 2006 North Indian Dengue outbreak [18]. The study revealed that majority of the cases were in the age group of 15–40 years. The clinical profile of dengue revealed that fever was the most common presenting symptom (100%). Similar studies in and around India have also substantiated fever as being the most common presenting symptom. Abdominal pain and vomiting were due to the liver injury caused by the dengue virus. Other infections that cause fever and gastrointestinal symptoms such as typhoid, leptospirosis, and enteroviral infections are common in India and may often lead to a delay in the diagnosis of dengue.

An exclusive study on dengue shock syndrome conducted in Mumbai in 2003 reported hepatomegaly (97.4%), altered sensorium (58%), diarrhoea (50%), rash (42%), and cough (38%) in a significant number of cases. Headache was also seen less frequently compared to other studies. This has also been documented in our study. Retro-orbital pain as a cardinal feature of dengue fever was seen in few of our patients. Most of the patients presented with dengue fever while dengue hemorrhagic fever and dengue shock syndrome were a minority group. Similar findings have also been reported from rural Maharashtra.

Hemorrhagic manifestations (21%) included petechiae, ecchymosis, gum bleeding, hematuria, malena, hematemesis and epistaxis. In the study, 52 patients had complications of which most common were hepatic dysfunction 34%, renal failure 26%, multi organ failure 18%, encephalopathy 13% and ARDS in 12%. Deaths reported were 11%.

## CONCLUSION

Dengue is one of the major causes of undifferentiated fever. It presents as a highly unspecific illness and is hardly recognized as a clinical entity by primary health care physicians. This study support further studies on applying intervention measures to improve the diagnostic accuracy and precision at the primary healthcare level in dengue endemic regions. This study highlights the clinician the importance of dengue fever to clinicians in the areas of epidemiology, manifestations, complications and outcome of the disease.

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