

Study on Clinical Profile of Dengue Fever in a Tertiary Care Centre of Bihar

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Abstract

Introduction: Dengue is a common acute febrile illness caused by flavivirus and transmitted by the bite of female Aedes mosquito. The disease presents with myriad of clinical signs and symptoms. Symptoms of dengue range from mild fever to incapacitating high fever with severe headache, pain behind the eyes, muscle and joint pain, rash, nausea/vomiting, pain abdomen, bleeding, shock, breathlessness, cough, thrombocytopenia, leukopenia, liver dysfunction, and renal failure.

Purpose: This study was done to find out spectrum of clinical signs and symptoms of dengue fever.

Methods: The prospective observational study was undertaken among 96 confirmed dengue cases. The disease was analyzed for clinical profile.

Results: Among 96 dengue patients, majority were male (63.54%), fever (100%) was universal symptom, followed by headache (93.75%), myalgia (89.58%), and itching (83.33%). Less common symptoms were joint pain (32.29%), skin rash (29.16%), abdominal pain (14.58%), nausea/vomiting (14.58%), cough (8.33%), chest pain (5.3%), edema (5.2%), and breathlessness (3.12%). 14 (14.58%) patients developed warning signs, but only 3 (3.12%) patients developed severe dengue. Mortality was nil.

Conclusions: Dengue is a mild acute febrile illness; most of the patients do not develop complications and recover completely. Commonly patients present with fever, headache, and myalgia.

Key words: Clinical profile, Dengue, Fever, Rash, Severe Dengue, Thrombocytopenia.

INTRODUCTION

Dengue is an acute febrile illness caused by flavivirus and transmitted by the bite of female Aedes mosquito infected with one of the four dengue viruses. Symptoms of dengue range from mild fever to incapacitating high fever with severe headache, pain behind the eyes, muscle and joint pain, and rash. Severe dengue (also known as dengue hemorrhagic fever [DHF] or dengue shock syndrome) is characterized by abdominal pain, persistent vomiting, shock, bleeding, thrombocytopenia, and breathing difficulty.

Early diagnosis and careful management increase the survival of patients, so clinical suspicion of dengue is important which depends on the recognition of its signs and symptoms among patients of acute febrile illness. Recent studies indicated that the clinical presentation and epidemiology of dengue are changing.

Atypical manifestations of dengue fever (DF) are more common than that reported in the past, and neurological, cardiac, and other manifestations are being reported more frequent.^[1,2] It can have varied and multisystemic manifestations which can go unrecognized, so high index of suspicion required for atypical manifestations.^[3]

DF especially severe form typically acknowledged to be a disease of young adult and childhood. There is, however, evidence of increasing incidence of DHF among older age groups.^[5] Furthermore, a variation in disease severity from DF to DHF/dengue shock syndrome was noted over the years.^[6]

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The first evidence of DF in the country was reported during 1956 from Vellore district in Tamil Nadu. Since 1956 recurrent outbreaks of dengue fever have been reported from different States of India

Currently, the disease is endemic in India and a cause of great concern to public health. Based on the data of National Vector Borne Disease Control Programme (NVBDCP), the number of cases reported in 2013 was about 74,454 for dengue with 167 deaths, and in 2007, it only about 6000 cases was reported.^[7] Hence, the number of dengue case has shown a steady rise in recent year.

Dengue encroached into the Bihar state of India in 2010, but there was no any study on clinical profile of the disease in this region. Therefore, this study was done to get accurate data regarding the clinical spectrum of disease.

Aim and Objective of the Study

This study was done to find out spectrum of clinical manifestation.

MATERIALS AND METHODS

After the Institutional Ethical Committee approval, this prospective observational study was carried out in IGIMS, Patna, Bihar, India, from January 1, 2017, to December 31, 2017. A total of 96 confirmed cases of DF were included in the study. Dengue cases were confirmed by NS1 antigen and IgM antibody.

Then following observation were done at presentation and during the course of illness. Age and sex of patients, clinical sign and symptoms, development of complications (shock, bleeding, adult respiratory distress syndrome, renal failure), total leucocyte count, differential leucocyte count, Haemoglobin, hematocrit, liver function test, blood urea nitrogen, serum creatinine, chest X-ray posteroanterior view, electrocardiography, Ultrasonography of whole abdomen.

After the first data collection, patients were monitored periodically (clinical as well as laboratory and radiological investigation) as and when required till recovery of patients.

RESULTS

Of total 96 patients selected for the study in 2017 from January to December, 61 (63.54%) were male and 35 (36.45%) were female. Maximum patients were in middle age group, of 96 patients, 59 (61.45%) were in the age group of 31–60 years, only 7 (7.29%) patients were <60 years of age [Table 1].

Fever was present in all 96 patients (100%), followed by headache (90%) and myalgia (86%), cough (8.33%), chest pain (5.2%), shortness of breath (3.12%), leg swelling (edema) (5.2%), and arthralgia (32.29%). Itching (83.33%) was common symptom during recovery phase of disease [Table 2].

Different warning signs and symptoms were present in 14 (14.58%) patients, and 3 (3.12%) of them developed severe dengue in the form of bleeding, shock, and renal failure. All 96 patients were recovered and death was nil. None of 96 patients develop any features of adult respiratory distress syndrome, neurological complications, or any features of myocarditis [Table 3].

A total of 90 patients had thrombocytopenia, but only 14 (14.58%) patients had severe thrombocytopenia (<20,000), leukopenia was found in 90 (93.75%) patients, liver enzyme was raised in 51 (53.12%) patients, and raised hematocrit level was noted in 20 (20.83%) patients [Table 4].

DISCUSSION

In our study, male patients were more common than female. Other similar studies by Deshwal *et al.*^[4] and Karoli *et al.*^[3] also support our finding.

About 61.45% of patients in our study were in the middle age group (31–60), elderly patients were only 7 (7.29%). Hence, our study result contradicts the earlier evidence of increasing incidence of dengue among older age groups.^[5]

The common symptom was fever, headache, and myalgia, other symptoms and signs were less common. Jassirali *et al.*^[8] reported the similar observations in their study. A study by Deshwal *et al.*^[4] also supports our finding.

Table 1: Age and sex characteristics

Age range (in years)	Number of cases (male)	Number of cases (female)	Number of cases (total%)
14–30	19	11	30 (31.25)
31–45	24	14	38 (39.58)
46–60	13	08	21 (21.87)
61–75	05	02	7 (7.29)
More than 75	00	00	0 (0)
Total cases	61 (63.54%)	35 (36.45%)	96

Table 2: Clinical features (signs and symptoms) of dengue fever at any point of time during the course of illness (total cases - 96)

Symptoms/signs	Number of cases (%)
Fever	96 (100)
Headache/retro-orbital pain	90 (93.75)
Myalgia	86 (89.58)
Joint pain	31 (32.29)
Abdominal pain	14 (14.58)
Nausea/vomiting	14 (14.58)
Skin rash	28 (29.16)
Edema	5 (5.2)
Shortness of breath	3 (3.12)
Cough	8 (8.33)
Chest pain	5 (5.2)
Seizure/delirium/other neurological symptoms	Nil
Itching	80 (83.33)
Hepatomegaly	10 (10.41)

Table 3: Complications developed during the course of illness (total patients - 96)

Complications	Number of patients (%)
Shock	3 (3.12)
Bleeding (nose/GI/hematuria/vaginal)	6 (6.25)
Renal failure	3 (3.12)
Pleural effusion	8 (8.33)
Ascites	8 (8.33)
ARDS	Nil
ECG changes for myocarditis	Nil
Any neurological complications	Nil
Death	Nil

ECG: Electrocardiography, ARDS: Adult respiratory distress syndrome, GI: Gastrointestinal

Table 4: Laboratory parameters

Parameters	Number of patients (%)
Thrombocytopenia <100,000/cumm	90 (93.75)
Thrombocytopenia <50,000/cumm	60 (62.5)
Thrombocytopenia <20,000/cumm	14 (14.58)
Leukopenia <4000/cumm	90 (93.75)
Raised AST/ALT (>45/50)	51 (53.12)
Raised hematocrit >45%	20 (20.83)
Raised BUN/serum creatinine	3 (3.12)

ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, BUN: Blood urea nitrogen

However, Pawaria *et al.*^[1] have documented in their study that atypical manifestation of dengue was common, which is contrary to our finding, this could be due to pediatric patients selected by Pawaria in their study. Karoli *et al.*^[3] also showed high percentage (14%) of atypical manifestation in their study. Another similar study by Mandal SK *et al.* found high percentage of different atypical presentation of dengue fever.^[10]

Warning signs and symptoms were presents in 14 (14.58%) patients and only 3 (3.12%) patients developed severe dengue in the form of bleeding, shock, and renal failure, but all patients recovered; therefore, our study showed that most of the DF were mild and complication rate was very low. All who develop severe dengue were in the age range of 31–45 years. Guha *et al.* stated that there is increased incidence of DHF among older age groups, which is against our finding.^[5]

Neurological, cardiac, and pulmonary complications were not shown in any patients. Murthy stated that neurological manifestations are more frequent,^[2] which is against our observation.

Bleeding was shown in only 6 (6.25%) patients, but thrombocytopenia (<100,000/cumm) was shown in 90 patients (93.75%). Although thrombocytopenia was a common finding, there was poor correlation between thrombocytopenia and bleeding tendencies. A similar observation was found in a study by Maimoona *et al.*^[6]

Severe dengue was shown only in 3 (3.12%) patients. Mortality was nil in our study. In a similar study conducted by Barik *et al.* found nil mortality.^[12] Deshwal *et al.* have also documented low mortality in their patients.^[4] However, Karoli *et al.* in their study concluded that overall mortality was 6% (6.25%), and all fatal cases were due to multiorgan failure.^[3] In a similar study by Mohan *et al.* showed a high mortality and complication in their study.^[9] Severe dengue was shown in 75% of patients in the study conducted by Arti *et al.*^[1] In all these studies, only admitted patients were taken that could be the reason of high percentage of severe dengue and high mortality.

Higher mortality rate was observed by Kuo *et al.* in dengue patients who had develop renal failure.^[13] This finding is against our observation as all three cases who develop renal failure recovered completely.

Raised liver enzyme was shown in significant proportion of cases; this finding is supported by similar study conducted by Ooi *et al.*^[14] However Rachel D *et al.* in similar study found 83.9% of dengue had raised liver enzyme^[11].

CONCLUSIONS

Most cases of DF are mild and recover completely without any complications. Patients when present with fever, headache, myalgia, raised liver enzyme, thrombocytopenia, and leukopenia should prompt a clinician on the possibility of dengue infection. Early diagnosis and careful monitoring for the development of warning sign and complication are essential as proper management reduces the mortality.

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