

Clinical profile of patient with dengue fever in a tertiary care teaching hospital

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Abstract

Background: Dengue fever is still evolving with involvement of newer areas, newer populations and is increasing in magnitude, epidemic after epidemic. Dengue viral infection still remains challenge for the treating physician.

Objective: To study the clinical profile of patient with dengue fever in a tertiary care teaching hospital.

Materials and Methods: A retrospective, observational, single centre study was carried out on patients of dengue fever attended to medicine ward of the period of 4 months (August–November 2015). The data of all the patients who came for the treatment of dengue fever to the hospital in year 2015 was included for the analysis.

Result: Total 151 patients diagnosed as dengue fever based on detection of dengue non-structural protein 1 (NS1), anti-dengue IgM in the blood samples. Majority of the patients were males (99, 65.56%). Maximum patients were in 18–30 years' age group (70.86%). All the patient of dengue fever had fever as one of the presenting symptoms. Headache was also found as presenting symptom in majority of patients (94.70%). It was found that thrombocytopenia (platelet count <50,000/cumm) at presentation in 68 (45.03%) patients.

Conclusion: Dengue fever can have different clinical manifestations. Continuous sero-epidemiological surveillance and timely interventions are needed to identify the cases, so that its complications, outbreak and mortality can be minimized.

KEYWORDS: Dengue fever, clinical profile, epidemiological surveillance

Introduction

Dengue fever (DF) is a vector borne viral disease which occurs in tropical countries in urban and semi - urban areas.^[1] Dengue fever is a major international public health problem.^[2] It is caused by the 4 serotypes of the dengue virus belonging to arboviruses of the genus flaviviruses.^[3] The vector for the disease is the mosquito *Aedes aegypti*.^[3] A majority of region of India is endemic for dengue fever.^[1] The most affected

states are Delhi, West Bengal, Kerala, Tamil Nadu, Karnataka, Maharashtra, Rajasthan, Gujarat, and Haryana.^[4]

The disease spectrum may vary with asymptomatic illness to life threatening diseases like dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS).^[1] The patients with dengue fever typically present with the sudden onset of fever, frontal headache, retroorbital pain, and back pain along with severe myalgias—break-bone fever.^[5] Additional signs and symptoms including anorexia, nausea or vomiting, and cutaneous hypersensitivity may appear in illness.^[5] Epistaxis and scattered petechiae are often noted in uncomplicated dengue.^[5]

The characteristic laboratory finding for the disease is leucopenia.^[6] Other laboratory findings include thrombocytopenia, elevations of serum aminotransferase concentrations. The diagnosis can be made by IgM ELISA or paired serology during recovery or by antigen-detection ELISA or RT-PCR during the acute phase.^[6] There are no specific therapy management of dengue, besides supportive care.^[6] The principle of management of disease include fluids, rest, and antipyretics.^[6] Platelet transfusions should be considered for severe thrombocytopenia

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(less than 10,000/cmm) or when there is evidence of bleeding in case of DF/DHF. Volume replacement by immediate administration of intravenous fluids to expand plasma volume is essential in DSS.

Dengue fever still evolving with involvement of newer areas, newer populations and is increasing in magnitude, epidemic after epidemic. Dengue viral infection still remains challenge for the treating physician. So this study was planned to study the clinical profile of disease in our hospital set-up.

Materials and Methods

A retrospective, observational, single centre study was carried out on patients of dengue fever attended to medicine ward at Civil Hospital, Gandhinagar, a tertiary care teaching hospital in western India during August–November 2015. The research protocol was presented to the institutional ethics committee (IEC) and approval was taken before commencement of the study. Permission from medical superintendent was obtained before conducting the study.

Inclusion and Exclusion Criteria

All the patients of all age group and of either gender came for screening at medicine department of dengue during August–November 2015 period was included in the study. The patients with concomitant malaria, typhoid, leptospirosis etc. were excluded from the study.

Study Procedure

The data of all the patients who came for the treatment of dengue fever was included for the analysis. First, all the details from the pathology department about cases of dengue fever came for investigation was gathered as they were maintaining separate record for dengue fever patients. Then those case files were collected from the medical record section for gathering detailed information. All necessary information like demographic data (age, gender, socioeconomic status etc.), clinical data (history of illness, symptoms and signs, duration of stay), and drug treatment (dosage regimen) was collected by reviewing the hospital case file and was recorded in the structured case record form. All the gathered data was analyzed for demographic parameters, clinical presentation, and laboratory parameters.

Statistical Analysis

The data thus collected was subjected to statistical analysis using Microsoft excel. Data was expressed in actual frequencies, percentage, mean, standard deviation as appropriate. The difference in proportions was measured by chi-square test and *p* value less than 0.05 was considered significant.

Result

Based on this symptomatology, total 700 patients were screened in the medicine department during the period of August–November 2015. Out of this 700, total 151 patients

diagnosed as dengue fever based on detection of dengue non-structural protein 1 (NS1), anti-dengue IgM in the blood samples.

Out of 151 patients with dengue fever, majority of the patients were males (99, 65.56%). Females formed 34.44% of the cohort. Maximum patients were in 18–30 years' age group (70.86%) with mean age of 27.55 ± 10.00 years (Table 1).

All the patient of dengue fever had fever as one of the presenting symptoms. Headache was also found as presenting symptom in majority of patients (94.70%) followed by myalgia (88.74%) and conjunctival suffusion (39.74%) (Table 2). On clinical examination, hepatomegaly and splenomegaly was noted in 12 (7.95%) and 18 (11.92%) patients, respectively.

On laboratory investigations, it was found that thrombocytopenia (platelet count $<50,000/\text{cumm}$) at presentation in 68 (45.03%) patients. It kept on falling in some of the patients further during hospitalization with minimum platelet count found was $9,000/\text{cumm}$. Raised serum SGPT and SGOT was found in 36 (23.84%) and 40 (26.49%) patients, respectively. S. total bilirubin more than 2 mg/dL was found in 8 patients but clinical jaundice was found in only 3 patients. Leucopenia was noticed in 15.23% of cases (Table 3).

Table 1: Distribution of the patient according to age and gender

Age (Years)	Male	Female	Total
18–30	68	39	107 (70.86%)
31–40	15	6	21 (13.91%)
41–50	10	7	17 (11.26%)
51–60	6	0	6 (3.97%)
Total	99 (65.56%)	52 (34.44%)	151 (100.00%)

Table 2: Distribution of the patient according to presenting symptoms

Symptoms	N	%
Fever	151	100.00
Headache	143	94.70
Myalgia	134	88.74
Conjunctival suffusion	60	39.74
Retro-orbital pain	43	28.48
Skin rashes	43	28.48
Abdominal pain	24	15.89
Nausea/Vomiting	12	7.95
Diarrhoea	8	5.30
Other	23	15.23

Table 3: Laboratory parameters

Laboratory parameters	N	%
Thrombocytopenia ($<50,000/\text{cumm}$)	68	45.03
Leucopenia ($<4,000/\text{cumm}$)	23	15.23
SGPT >55 IU/L	36	23.84
SGOT >45 IU/L	40	26.49
S. Total bilirubin > 2 mg/dL	8	5.30
Raised hematocrit ($>45\%$)	35	23.18

Discussion

There is a steady increase in the number of dengue patients over the past few years was noted. India is one of the 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.^[7]

This study describes the clinical profile, laboratory features, and outcome of dengue fever in adult patients. The identification of dengue fever is usually by clinical features and they can present with varied manifestation.^[8-13] 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, Ludhiana, Mangalore, Vellore and from other states have been published.^[9-13] The rising incidence of dengue fever in India can be contributed by 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.^[14]

This study revealed that majority of the cases were in the age group of 18–30 years and male preponderance was also found. These findings are well coinciding with the previous studies and also with the existing literature.^[15, 16]

The patients with dengue fever typically present with the sudden onset of fever, frontal headache, retro-orbital pain, and back pain along with severe myalgias.^[5] 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.^[16] This finding has also been documented in our study. Retro-orbital pain as a cardinal feature of dengue fever was seen in few (28.48%) of our patients. Most of the patients presented with dengue fever while dengue hemorrhagic fever and dengue shock syndrome were a minority group.

Liver enzyme elevation, a common feature in dengue infection was also apparent in our study.^[17,18] A total of 45.03% patients with classical or uncomplicated dengue fever had thrombocytopenia, which is reported lower than previous study from India.^[19] 28.48% of patients had skin rashes in our study while hemorrhagic manifestations were present in 21% of patients in previous study from India which included petechiae, ecchymosis, gum bleeding, hematuria, malena, hematemeses and epistaxis.^[19]

Conclusion

In conclusion, this study has revealed a varied clinical profile of dengue fever which is of important diagnostic value. In the recent few years, the world has seen varied clinical presentation of the dengue fever in different epidemics, even in the same regions and even with the period of time. Where some known features are still manifesting, few atypical features are noted from several parts of the world. Continuous seroepidemiological surveillance and timely interventions are needed to identify the cases, so that its complications, outbreak and mortality can be minimized.

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