

Original Research Article

Clinico-laboratory profile of dengue fever in children

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ABSTRACT

Background: Dengue is rising globally. It presents with varied clinical manifestations. This study was done to describe the salient clinical as well as laboratory findings of serologically confirmed cases of dengue fever.

Methods: This was a prospective study conducted at Government Multispeciality Hospital-16 Chandigarh from July 2017 to December 2017. All children below 17 years of age that had clinical features of dengue and who were antigen or antibody positive were included in this study.

Results: Age group most commonly affected was 5-10 years with maximum number of dengue cases with warning signs(72.94%). Fever was present in all cases followed by headache(89.41%) and myalgia(78.82%). Thrombocytopenia was the commonest hematological abnormality(97.6%).

Conclusions: Dengue presents with varied clinical features. Community awareness, early diagnosis and management and vector control measures needs to be strengthened in order to reduce the increasing number of dengue case.

Keywords: Dengue, Thrombocytopenia, Warning signs

INTRODUCTION

The incidence of dengue has increased dramatically around the world in recent years. It is an emerging infectious disease in India. It was first reported in 1780 by Benjamin Rush and was termed as “break bone fever.” The first dengue fever in India was reported in 1956 from Vellore and the first dengue haemorrhagic fever occurred in 1963 in Calcutta.¹ One recent estimate indicates 390 million dengue infections per year, of which 96 million manifests clinically.² The number of cases reported increased from 2.2 million in 2010 to 3.2 million in 2015.³ There are certain salient clinical features for diagnosis of disease but it can also present with varied clinical manifestations.⁴ Identifying the clinical features is very essential for managing dengue patient. WHO revised dengue classification in 2009 as dengue without warning signs, dengue with warning signs, and severe

dengue.⁵⁻⁶ As the resurgence of dengue has been noted in India and clinical presentations is very varied, the present study aimed to describe the salient clinical as well as laboratory findings of serologically confirmed cases of dengue fever.

METHODS

This was a prospective study conducted at Government Multispeciality Hospital-16 Chandigarh from July 2017 to December 2017. All children below 17 years of age that had clinical features suggestive of dengue and who were antigen or antibody positive were included in this study. Children with other significant disease were excluded from study. Informed consent was taken from parents. Study was conducted after the approval of Institutional Ethics Committee. A detailed history was taken to determine symptoms. Detailed clinical

examination which include vitals, findings of general and systemic examination were recorded in a proforma at the time of admission. Laboratory parameters like hematocrit, platelet count, liver function test were done in all patients. The patients were classified according to revised WHO guideline and managed appropriately. The data was entered and analyzed using SPSS software. The clinical features, laboratory parameters and outcome of these children were taken for analysis.

RESULTS

Of 85 children, male(50) out-numbered female(35). Male female ratio was 1.43:1. Age group most commonly affected was 5-10 year which had total 39 cases followed by age group 10-17 year which had 33 cases (Table 1).

Table 1: Age and sex pattern of patients with dengue fever.

Age in years	Male	Female	Total
<1 year	1	1	2
1-5	7	4	11
5-10	22	17	39
10-17	20	13	33

There was clustering of cases during August to October (Table 2).

Table 2: Month wise distribution of dengue cases.

Month	Number (%)
July	1 (1.18)
August	19 (22.35)
September	35 (41.17)
October	24 (28.24)
November	5 (5.88)
December	1 (1.18)
Total	85

Most cases(41.17%) appeared in month of September and least number(1.18%) were found in July and December. When we compared the cases according to WHO classification (Table 3), we found that maximum number of dengue cases(72.94%) were with warning signs followed by 17.65% of cases without warning signs and 9.41% cases were of severe dengue subclass.

Table 3: Distribution of dengue cases as per revised WHO criteria.

Classification	Number of cases
Dengue without warning signs	15 (17.65%)
Dengue with warning signs	62 (72.94%)
Severe dengue	8 (9.41%)
Total	85

Amongst the clinical features, fever was present in all cases followed by headache (89.41%) and myalgia

(78.82%). 50.59% cases had decreased urine output. Rash over the body, petechiae and itching were seen in 48%, 36% and 28% respectively. Gastrointestinal symptoms included abdominal pain (24%), diarrhea (12%), vomiting (20%) and gastrointestinal bleed (9.4%). Fast breathing was seen in 2.3% and only 1% had CNS manifestation. Hepatomegaly was the most common finding which was seen in 91.7% followed by decreased air entry and ascites in around 45% cases. Splenomegaly and bradycardia was seen in around 25% and hypotension was seen in only 6% cases (Table 4).

Table 4: Clinical manifestation according to type of dengue fever cases.

Clinical symptoms	No. of cases
Fever	85 (100%)
Headache	76 (89.41%)
Myalgia	67 (78.82%)
Rash	31 (36.47%)
Petechiae	41 (48.24%)
Gastrointestinal bleed	8 (9.4%)
Diarrhoea	10 (11.76%)
Vomiting	17 (20%)
Abdominal pain	21 (24.70%)
Fast breathing	2 (2.3%)
Itching	24 (28.23%)
Facial puffiness	12 (14.11%)
Decreased urine output	43 (50.59%)
CNS manifestation	1 (1.17%)
Bradycardia	26 (30.59%)
Hypotension	5 (5.9%)
Hepatomegaly	78 (91.76%)
Splenomegaly	22 (25.88%)
Decreased air entry	37 (43.53%)
Ascites	38 (44.70%)

Amongst the laboratory parameters (Table 5), majority of cases(97.6%) had thrombocytopenia. Severe thrombocytopenia <50000/cu mm was present in 14%. Raised hematocrit and leucopenia was present in 83.5% and 41% respectively.

Table 5: Laboratory parameters in dengue fever cases.

Criteria	No. of cases
Raised hematocrit >35%	71 (83.53%)
Leucopenia <5000	35 (41.17%)
Thrombocytopenia <1.5 lakh/cu mm	83 (97.65%)
Thrombocytopenia <1 lakh/cu mm	47 (55.29%)
Thrombocytopenia <50000/cu mm	12 (14.12%)
Serum bilirubin >2 mg/dl	15 (17.65%)
SGOT	69 (81.17%)
SGPT	33 (38.82%)
Serum creatinine >1.5 mg/dl	4 (4.7%)

In liver derangement, most common finding was raised SGOT which was seen in 81% followed by raised SGPT

in 3% and 17% had raised bilirubin. Only 7% had raised creatinine.

DISCUSSION

A total of 85 cases were included in this study. Age group most commonly affected was 5-10 years followed by 10-17 years. We found male preponderance in our study. This may be due to outdoor activities of these children, where chances of getting bitten with mosquitoes are more.

Covered dress used by females may be another cause for fewer incidences. Similar finding was noted by Selvan T et al Singh R et al and Jain H.⁷⁻⁹

We noted maximum number of dengue cases during the month of September which is the monsoon season. This is thought to be due to stagnation of water after bouts of rainfall which facilitate the breeding of vector.

So, we suggest that preventive measures against dengue should be taken during water stagnation period after the initial rainfall and at the end of monsoon.

Fever was present in all cases followed by headache, myalgia. This observation was similar to Singh R et al and Jain H. Similar to Singh R et al we also noted thrombocytopenia in almost all cases which is thought to be due to oxidative stress.⁸⁻¹⁰

One of the most common feature of dengue is liver dysfunction which includes hepatomegaly, raised bilirubin and transaminitis.^{11,12} We also observed the similar finding in our study.

Central nervous system and respiratory involvement in the form of decreased air entry and fast breathing was present in less number of cases as compared to Ratageri VH et al.¹³

In this study, we noted a high hematocrit count, thrombocytopenia and leukopenia which are important clues to the diagnosis of dengue fever.

With rapid urbanization, unplanned construction work and poor sanitation facilities, we contribute to fertile breeding grounds for mosquitoes. This leads to a steady increase in the outbreak of dengue fever over the years.

So, with the help of medical fraternity and preventive measures to control the mosquitoes, we should keep a check on transmission of dengue infection.

CONCLUSION

Dengue presents with varied clinical features. Children of age group of 5-10 years were commonly affected by dengue. Fever, myalgia and headache were most common symptom and hepatomegaly was most common finding in

cases. Community awareness, early diagnosis and management and vector control measures needs to be strengthened in order to reduce the increasing number of dengue cases.

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