Study of Clinical Profile of Dengue Fever with Acute Complications

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ABSTRACT

Background: Dengue fever is typically a self-limited disease with a mortality rate of less than 1% when identify early and with access to proper medical care. The present study is an attempt to describe the salient clinical as well as laboratory findings of serologically confirmed hospitalized cases of dengue fever.

Material & Methods: All those patients (N=80) who are going to get admitted as in patients in Department of General Medicine, Narayan Medical College & Hospital, Sasaram, Bihar (India) with symptoms suggestive of Dengue fever such as fever, severe headache, joints pain and bleeding manifestations, shock are investigated with Dengue rapid test. Those patients found positive for the test are included in study and informed consent is taken from all patients.

Results: In our results suggested that the 51.25% was male and 48.75% were females. Clinical profile was 80% cases presented with fever, followed by 65% cases of headache, 52.5% abdominal pain & 21.25% tourniquet test positive in patients. The laboratory parameters. Four patients (5%) had haemoglobin >16 gm%. However, haemoglobin levels were not consistently related with Hct. Haematocrit (Hct) was measured in 80 patients, of whom 22 patients (27.5%) had Hct >45%. The total white cell count was found to be <4000/cmm in 32 patients (40%). 38 patients (47.5%) had a count <50 000/cmm and 6 patients (7.5%) had a count <10 000/cmm. Bilirubin was above 2 mg% in 7 of the 80 patients (8.75%) in whom it was estimated. Aspartate amino transferase (AST) was >45 IU/L in 67 of the 80 patients (83.75%).

Conclusion: The most notable features in this study were the high proportion of DHF cases, more gastrointestinal symptoms, and association of increased haematocrit with worse disease outcome and recognition of DIC as the major cause for mortality.

KEYWORDS: Dengue fever, Platelets, Haemocrit value, Fever, WBC, Bleeding.

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INTRODUCTION

Dengue fever is an acute viral infection with potential fatal complications. The spread of dengue was explosive and accompanied the movement of people across continents in the early 1900's because of the slave trade and the two World Wars; India was one of the major areas affected.[1] Recently, about 40% of the world's population is at risk and there are 50–100 million cases every year. An estimated 500 000 people with severe dengue require hospitalization each year and about 2.5% of those affected die. In the last few years, dengue has re-emerged in the United States of America and has made inroads into Europe. In India, dengue is widespread and endemic in most major cities.[2]

Dengue fever is typically a self-limited disease with a mortality rate of less than 1% when identify early and with access to proper medical care. The overall mortality rate of 1.2% in 2007 dropped to 0.25% in 2013. This reduction is probably the result of the cumulative effects of better patient management, increased diagnostic capabilities and better reporting.

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.[3]

Dengue is a mosquito-borne viral illness caused by one of the four serotypes of the dengue virus (DENV; (DENV-1 to DENV-4) belonging to the family Flaviviridae. The virus serotypes are closely related but antigenically distinct. Dengue infections can result in a wide spectrum of disease severity ranging from an influenza-like illness (dengue fever; DF) to the life-threatening dengue hemorrhagic fever (DHF)/dengue shock syndrome (DSS), when treated, severe dengue has a mortality rate of 2%-5%, but, when left untreated, the mortality rate is as high as 20%.[4]

Although the number of dengue cases has shown a constant rise with every passing year, the mortality has reduced. Early diagnosis is essential and clinical suspicion is based on the frequency of symptoms in the population. 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.[5] Several fatal forms of the disease i.e., DHF, DSS have been reported in India from time to time in different parts of India.[6] During all these epidemics infection occurred in active adults in the age group of 16–60 years.[7] The common signs and symptoms observed were fever, headache, myalgia, arthralgia and bleeding manifestations have also been observed.

According to the new terminology recommended by WHO in 2009[8] dengue cases can be classified into dengue without warning signs, dengue with warning signs (abdominal pain/persistent vomiting/mucosal bleed/increase in HCT with decrease in platelet count) and severe dengue (severe plasma leakage, severe bleeding and severe organ involvement. The exact clinical profile is important for management and prognosis. The present study is an attempt to describe the salient clinical as well as laboratory findings of serologically confirmed hospitalized cases of dengue fever.

MATERIAL & METHODS

All those patients (N=80) who are going to get admitted as in patients in Department of General Medicine, Narayan Medical College & Hospital, Sasaram, Bihar (India) with symptoms suggestive of Dengue fever such as fever, severe headache, joints pain and bleeding manifestations, shock are investigated with Dengue rapid test. Those patients found positive for the test are included in study and informed consent is taken from all patients.

A detailed clinical history is taken from all patients followed by thorough clinical examination of all systems. They are further investigated with other biochemical, microbiological, haematological, radiological investigations mentioned in study protocol.

Inclusion criteria: All the adult patients with clinical features suggestive of Dengue infection, confirmed by Dengue serology (NS1, IgM & IgG) were included in this study.

Exclusion criteria
1. Mixed Infections Were Excluded From The Study
2. Chronic Alcoholics Were Excluded From The Study
3. CLD Cases
4. ITP, TTP Due To Any Cause
5. Septicemia Due To Any Cause

Measurement of blood for clinical manifestations
As adapted from precious study protocols, heparinized blood samples (5 ml) from patients hospitalized with febrile dengue virus infections were collected on subsequent day of admission and then on the 7th day.

RESULTS

In our results suggested that the 51.25% was male and 48.75% were females (table 1). Clinical profile was 80% cases presented with fever, followed by 65% cases of headache, 52.5% abdominal pain & 21.25% tourniquet test positive in patients (table 2).

The laboratory parameters. Four patients (5%) had haemoglobin >16 gm%. However, haemoglobin levels were not consistently related with Hct. Haematocrit (Hct) was measured in 80 patients, of whom 22 patients (27.5%) had Hct >45%.

The total white cell count was found to be <4000/cmm in 32 patients (40%). 38 patients (47.5%) had a count <50 000/cmm and 6 patients (7.5%) had a count <10 000/cmm.

Bilirubin was above 2 mg% in 7 of the 80 patients (8.75%) in whom it was estimated. Aspartate amino transferase (AST) was >45 IU/L in 67 of the 80 patients (83.75%).

Table 1: Gender wise and age wise distribution of patients

Characteristics		Dengue Fever (DF)
No. of Patients	Male	39 (48.75%)
	Females	41 (51.25%)
Median Age (years) (Range: 22-69)		80

Table 2: Clinical profile of patients

Clinical profile	Number	Percentage
Fever	64	80%
Abdominal pain	42	52.5%
Diarrhoea	10	12.5%
Headache	52	65%
Sore throat	3	3.75%
Skin rashes	8	10%
Pruritus	7	8.75%
Bradycardia	11	13.75%
Bleeding	10	12.5%
Hepatomegaly	12	15%
Ascites	8	10%
Tourniquet test positive	17	21.25%
Pleural effusion	8	10%
DIC	1	1.25%
Seizures	1	1.25%
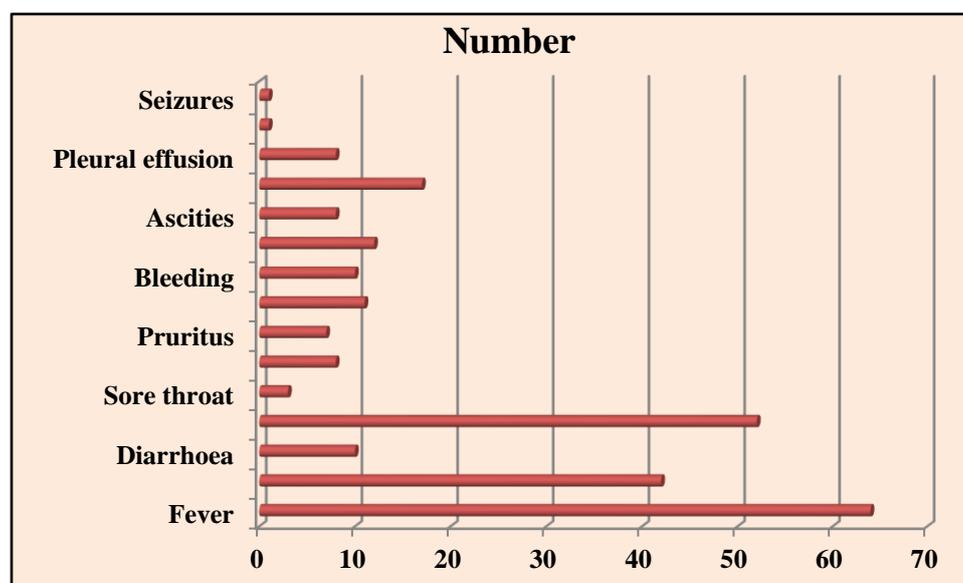
Graph 1: Clinical profile of patients

Table 3: Laboratory parameters

Hb. (>16 gm%)	4/80 (5%)
Hct>45%	22/80 (27.5%)
Total WBC (<4000/cmm)	32/80 (40%)
Platelet count <10000/cmm	6/80 (7.5%)
Platelet count <50000/cmm	38/80 (47.5%)
Bilirubin >2 mg%	7/80 (8.75%)
AST >45 IU/l	67/80 (83.75%)

DISCUSSION

A high incidence of gastrointestinal symptoms was noted in this epidemic. In this study 52.5% patients had abdominal pain in contrast to 38% reported by Sharma et al.[9] This symptom was predominantly noted in the early leak phase and is attributed to hepatomegaly and serosal inflammation.

Sore throat was reported in 3.75% of patients. Sore throat being a very common manifestation of influenza, the rarity of this symptom may be useful in differentiating between the two fevers.

In a study from Nimmannitya et al[10], around 96% of patients had congested pharynx, and rhinitis was reported in 13% of the patients.

Bleeding from various sites was seen much less in the present series. This is in contrast to the finding of Horvath from Australia[11] and Sharma from India[9] who reported 63% and 69% of bleeding episodes respectively. Increased bleeding from venipuncture sites was not counted as a bleeding tendency in this study, which perhaps would account for the lower incidence of bleeding manifestations.

The gastrointestinal tract was the predominant site of bleeding observed in the present series in comparison to other series reported by Sharma et al. from India[9] and Chairulfatah from Indonesia[12].

Although thrombocytopenia was a common finding, there was poor correlation between thrombocytopenia and bleeding tendencies, an observation similar to the one made by Sharma et al.[9] Rapid fluctuations in platelet count were noted in some of our patients.

Liver function abnormalities, especially elevated transaminases, were noted in this study. AST was elevated (>250 IU/L) in 83.75% of patients who died, suggesting an association of abnormal AST with a worse outcome.

Dengue virus-induced damage to the hepatocytes, hypoxia, shock or associated liver disease have all been postulated to be the pathogenic mechanisms for the occurrence of transaminitis. DF patients also showed increased AST but to a lesser extent, compared to DHF. No case of fulminant hepatic failure was noted in our study. The series from Sharma et al. from India[9] reported elevated transaminases in 90% of patients. Hepatomegaly in this series was 17.6%, compared to12.5% of Sharma from India[9] and 13.5% from Thailand[10].

CONCLUSION

The most notable features in this study were the high proportion of DHF cases, more gastrointestinal symptoms, and association of increased haematocrit with worse disease outcome and recognition of DIC as the major cause for mortality.

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