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Original Research Article

Clinical profile and outcome of dengue fever in a paediatric tertiary care centre

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ABSTRACT

Background: A study of different presentation and outcome of dengue fever in tertiary care centre.
Methods: The observational cross sectional study was carried out from June to October 2016 in Bowring and Lady Curzon hospital attached to Bangalore Medical College and Research Institute. Included patients from 1 to 18 years of age who presented with febrile illness. WHO classification and definitions were used to classify disease as dengue fever (DF), dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). Clinically, haematological and biochemical findings were recorded till discharge.
Results: During study period,142 patients presented with typical features of dengue fever, male being 86 (60%) and female being 56 (40%). Among 142 cases 64 cases were probable dengue, 50 cases were dengue with warning signs and 28 cases were had severe dengue. Fever (100%) was the most common clinical presentation followed by vomiting (70%), body ache (43%), abdominal pain (23%), headache (12%) and rashes (5%). Laboratory findings included thrombocytopenia, leucopenia and elevated liver enzymes. 126 (88%) cases were discharged in clinical stable conditions, (8%) were died during course of treatment and 8 cases left against medical advice.
Conclusions: Fever with vomiting and thrombocytopenia were most common presentation of dengue fever, appropriate clinical diagnosis and management is relatively simple, inexpensive and very effective in saving lives as long as long correct and timely interventions instituted.

Keywords: Dengue Fever, Dengue haemorrhagic fever, Dengue shock syndrome

INTRODUCTION

Dengue fever is a viral infection caused by one of the four serotype of dengue viruses belongs to flaviviridiae family.[1] It has 4 serotypes DENV1, DENV2, DENV3 and DENV4. Dengue virus believed to be originated in Africa about 300year ago.[2] Aedes aegypti is the principal vector dengue for fever. DENV is maintained in a human-mosquito-human cycle.[3] Incidence of dengue fever and dengue hemorrhagic fever increased thirty folds globally over the last few decades. India first major outbreak was in 1996 at Delhi where more than 10,000 cases and 400 deaths were repored.[4,5] In last decade, dengue has assumed pan India proportions. Outbreak and deaths reported from all over India. In fact, the case fatality rate has been above 1% over the last 10 year.[6]

Clinical features

Dengue fever (DF) an acute viral disease manifesting with myalgias, headache, Retro-orbital pain, vomiting maculopapular rash, leucopenia and thrombocytopenia.

Dengue hemorrhagic fever (DHF) is characterized by 4 major clinical features: high fever, hemorrhagic phenomena, hepatomegaly and signs of impending circulatory failure (sweating, postural hypotension, resting tachycardia). The laboratory manifestation of DHF is significant thrombocytopenia with concurrent hemoconcentration. The of DHF with excessive plasma loss resulting in shock are labeled as dengue shock syndrome (DSS).[7,8]

Atypical presentations of dengue fever are hepatitis, acalculous cholecystitis, serositis involving pleural and abdominal cavity. Fulminant hepatic failure, splenic rupture, acute renal failure or neurological manifestations including intracranial bleeding, seizures and myelitis.[9-14]

During outbreaks of dengue in India, a good clinical history is still very important so that other common causes of fever like upper respiratory tract infection/urinary tract infection are not overlooked.

METHODS

A prospective study was carried out from May to October 2016 at Bowring hospital attached to Bangalore Medical College and Research Institute. All patients between age 2 to 18 years who attended outpatient department or those admitted in the hospital due to acute febrile illness are included in study. The WHO classification and case definitions were used to classify the disease as probable dengue, dengue with warning signs and severe dengue15. Clinical, hematological, biochemical and radiological findings were recorded serially till final outcome. Clinical features with IgM positive labeled as dengue confirmed. Other cases with features of dengue fever but negative for serology, malarial parasite and negative blood culture were considered as probable dengue. All the admitted cases followed up till the discharge, clinical, hematological and biochemical findings were recorded. Complete blood count, S. electrolytes, LFT, RFT and peripheral smear done in all the cases. Widal, Chest x – ray, ECHO and ultrasound of abdomen were performed according to symptomatology of patients. Symptomatic supportive treatment given including antipyretics, antiemetics and IV fluids. In cases of bleeding, platelets, packed cells and fresh frozen plasma was given where indicated.

Statistical analysis: mean and standard deviation was calculated for continuous variables and frequencies for categorical variables. $P<0.05$ was considered as significant.

RESULTS

Total 504 patients with febrile illness were seen in hospital. Out of these, 142 (28%) patients presented with typical features of dengue fever and were included in study. Out of 142 cases male being 86 (60%) and female being 56 (40%).

Table 1: Distribution of cases according to WHO classification.

Classification	Number	%
Probable dengue	64	45.07
Dengue with warning signs	50	35.21
Severe dengue	28	19.71

Among 142 cases, 19.71 had severe dengue.

Table 2: Clinical presentations.

Parameter	Number	%
Fever	142	100
Vomiting	100	70
Body ache	62	43
Abdominal pain	34	23
headache	18	12
rashes	8	5

Laboratory findings

Includes thrombocytopenia, leucopenia and raised alanine aminotransferase. Most common hematological abnormality was thrombocytopenia followed by leucopenia.

Among all cases studied 20 cases had positive NS1 antigen, 36 cases were IgM positive and 4 cases IgG positive. 20 cases had deranged LFT, 56 cases had bleeding episodes.

62 cases showed signs of fluid leak both clinical and investigations. 6 cases had altered sensorium. 106 cases required IV fluids remaining cases were managed with oral fluids. Inotropes were used in 43 cases. In 23 cases various blood products used, 34 cases required non-invasive ventilator, and 12 cases invasive ventilator.

The outcome of the study was 131 (88%) cases improved clinically and hematologically and were discharged in stable condition. 10 cases died (8%) during the course of treatment and three cases left against medical advice.

DISCUSSION

The present study shows the clinical, biochemical features and outcome of dengue fever in a tertiary care hospital. Among 142 patients who presented with fever, dengue was seen in 36 (25%) cases. Which similar to study done by Hasan et al and Gurdeep et al.[15,16]

Most of the cases were probable dengue based on clinical and hematological features. Very few cases were proven by dengue serology.

Gender distribution of cases showed male affected more (60), which similar to study done by Gurdeep et al.[16]

High-grade fever was the main presenting feature and was present in all the cases. Typically, the onset of fever was sudden associated with severe headache, vomiting, abdominal pain, and mayalgia which similar o study done by Hasan et al.[15] Rashes were seen in only 8 cases. 56 cases had hemorrhagic manifestations.

Thrombocytopenia was the most common laboratory finding of dengue fever followed by leucopenia similar to study done by Gudeep et al.[16] Twenty cases had deranged LFT and 62 cases showed features of fluid leak both clinically and radiologically.

Among 142 cases, 131 cases discharged in stable condition, 3 cases left against medical advice. 10 (8%) cases died; cases, which died, had hemorrhagic shock and required multiple inotropic support. Among 10 deaths, 8 cases had IgM positive and 7 cases had NS1 antigen positive. All the cases died were admitted in shock. Hence, the early recognition of signs and symptoms of dengue fever is very important for successful outcome.

The overall mortality of dengue fever is low if treated appropriately, however the death rate is high in DHF and DSS. As dengue infection is a recent addition to the already exiting endemic infections often reaching epidemic proportions, the knowledge regarding its presentation, clinical and biochemical features and best management practices are the key to successful outcome. Similarly, public awareness regarding preventive strategies is essential to fight against the disease.

CONCLUSION

Fever with vomiting and thrombocytopenia were the most common presentation of dengue fever. DF with its wide clinical spectrum ranging from flu like illness to fatal, severe dengue. Appropriate clinical diagnosis and management is relatively simple, inexpensive and very effective in saving lives as long as long correct and timely interventions instituted.

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