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Original Research Article

Clinical profile of dengue fever in children in a secondary care hospital: an observational study

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ABSTRACT

Background: Dengue is the most prevalent mosquito-borne viral disease worldwide. It is endemic to hyperendemic in various parts of India. Symptomatic dengue infection causes a wide range of clinical manifestations, from mild dengue fever to potentially fatal disease, such as dengue hemorrhagic fever or dengue shock syndrome. Aim of the study was to analyze the clinical profile of children affected by dengue fever.
Methods: A total of 250 who had dengue fever serologically positive cases had included in this study. All the demographic and clinical history and laboratory diagnosis had collected from the study people and written informed consent form had obtained from the patient. Results were statistically analyzed and discussed.
Results: Based on symptoms all the 250 patients had a fever, 219 patients had vomiting, 209 patients had a loss of appetite, 197 patients had abdominal pain, 160 patients had body/leg pain, 135 patients had a headache/ retro-orbital pain, 91 patients had abdominal distension, 81 patients had skin rashes, 53 patients had bleeding disorders, and 7 patients had a convulsion. 99 patients had an undifferentiated fever, 115 patients had dengue fever, and 43 patients had severe dengue fever. 75 patients had platelet count of 50,000-1,00,000/mm^3, 34 patients had 20,000-50,000/$mm^3$and 12 patients had less than 20,000/mm^3 platelet count.
Conclusion: The majority had common presenting symptoms of fever, vomiting, headache and body pain. No deaths have occurred in this study. Conservative management strategy with rational platelet transfusion is effective in managing dengue patients.

Keywords: Dengue fever, Platelet, Hemorrhage, Headache

INTRODUCTION

Dengue is one of the tropical diseases that affect humans most. The World Health Organization (WHO) reports that there are currently about 2.5-3 billion people living in dengue transmission areas. Dengue is an acute febrile disease caused by dengue virus (DENV) infection. DENVs are single positive-stranded RNA flaviviruses, which belong to the family Flaviviridae. There are four main serotypes of this virus (DENV-1, DENV-2, DENV-3, and DENV-4). Subsequent infection with distinct DENV serotype was associated with increasing the risk of serious complications.

The clinical appearance and laboratory parameters of dengue fever are very similar in the initial course of the disease to other acute febrile diseases and viral hemorrhagic fever (Kyasanur forest disease, malaria, leptospirosis, yellow fever, chikungunya, influenza) and therefore very difficult to distinguish.[1] The laboratory tests are also non-specific with leucopenia and thrombocytopenia.

Dengue fever is a serious condition that has signs including pain in the bones and muscles, vomiting, decrease in WBC and skin rash. Dengue hemorrhagic fever (DHF) has four main clinical features such as high fever, bleeding, hepatomegaly and circulatory failure.[2]

Some of the people infected may experience hypovolemic shock due to serious plasma leakage. The progression of dengue fever can have divided into three main phases: febrile phase, critical phase and phase of recovery. Severe manifestations of clinical disease occur during the critical period starting around day 4-7 after the onset of fever and usually lasting 48-72 hours. During the critical period, patients' condition may rapidly improve or deteriorate; requiring clinicians to observe. Early clinical treatment focused on fluid-replacement therapy decreases the morbidity and mortality associated with severe dengue.[3] DHF mechanisms and pathogenesis are not entirely understood. Suggested risk factors that are associated with DHF include virus virulence, immune enhancements, cytokine storm, lipid profile change, autoimmune responses, host genetic factors, *Staphylococcus aureus*, bacteremia etc.[4-11]

Till date no vaccine and anti-viral drugs were available to treat dengue fever. Dengue fever and DHF remain a severe community health problem worldwide. DHF was recently reported in several dengue outbreaks and resulted in high mortality. Clinically, DHF is a severe threat. However, the reasons for the occurrence of this disease are still unknown, owing to its etiological complexity.

Aim of the study was to analyze the clinical profile of children affected by dengue fever.

METHODS

This single institutional observational study was conducted from January 2019 to December 2019 to in a government headquarters hospital, Ramanathapuram, Tamil Nadu. Convenient sample size was taken. Inclusion criteria: A total of 250 who had dengue fever serologically positive cases had included in this study. Exclusion criteria: Cases with other comorbid and critical cases were not included. A thorough history had taken, and careful clinical examination had performed. All the laboratory investigation had done for all patients and written informed consent form had obtained from the patient. Data were collected using proforma, converted to MS Excel for descriptive analysis and discussed.

RESULTS

Out of 250 patients, 118 patients were males, and 132 patients were females. Out of 250 patients mean age was 6 years 2 months.

Out of 250 patients based on symptoms all the 250 patients had a fever, 219 patients had vomiting, 209 patients had a loss of appetite, 197 patients had abdominal pain, 160 patients had body/leg pain, 135 patients had a headache/retro-orbital pain, 91 patients had abdominal distension, 81 patients had skin rashes, 53 patients had bleeding disorders, and 7 patients had a convulsion.

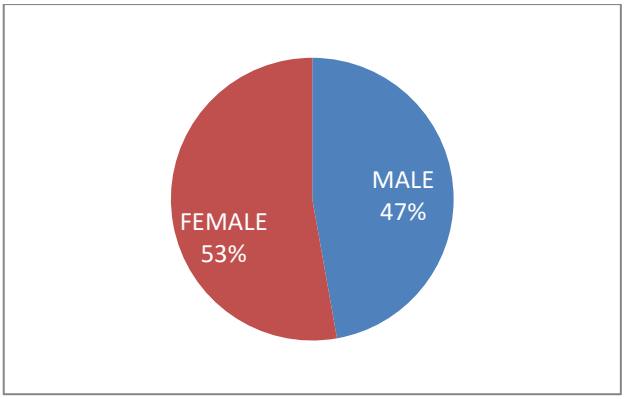

Figure 1: Gender distribution.

Table 1: Common symptoms.

Symptoms	No. of children	Percentage (%)
Fever	250	100
Vomiting	219	88
Loss of appetite	209	84
Abdominal pain	197	79
Body/leg pain	160	64
Headache /retro orbital pain	135	54
Abdominal distension	91	36
Skin rash	81	32
Bleeding tendencies	53	21
Convulsion	7	3

Out of 250 patients, 99 patients had an undifferentiated fever, 115 patients had dengue fever, and 43 patients had severe dengue fever.

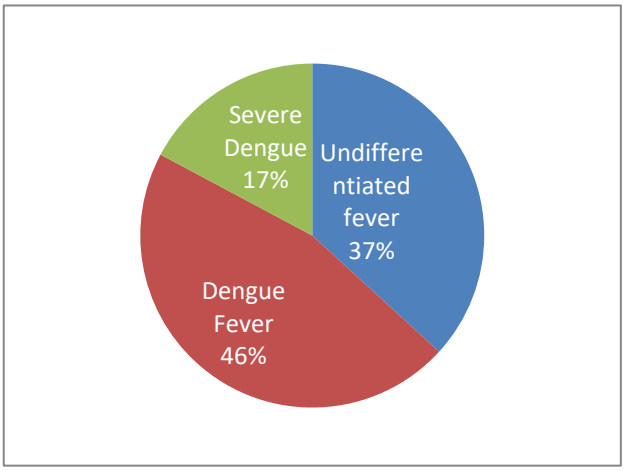

Figure 2: WHO classification.

Out of 250 patients, 75 patients had platelet count of 50,000-1,00,000/mm^3, 34 patients had 20,000-50,000/mm^3 and 12 patients had less than 20,000/mm^3 platelet count.

Table 2: Thrombocytopenia distribution.

Minimum platelet count (mm^3)	No. of children	Percentage (%)
1,00,0000-50,000	75	29.3
50,000-20,000	34	13
Less than 20,000	12	4.5
Total	121	47

DISCUSSION

Dengue is a persistently occurring infectious disease, particularly in developing countries. These factors led to an increase in complication incidence and the emergence of types of severe disease. In potentially avoidable cases, the lack of technical support and clinical basis for proper management of patients with hemorrhagic manifestations, particularly as regards transfusion procedures, may lead to the occurrence of death.

Most of them in the sample were females as compared to males. The most frequent findings in analyzing the distributions of reported clinical symptoms were fever, vomiting, lack of appetite and headache, which agree with other literature reports. The majority of children had dengue fever accompanied by undifferentiated fever and extreme fever based on recommendations from the WHO. 4.8% had a platelet count less than 20,000/mm^3.

Patients presented with headache in Mandal et al were 62.16%.[12] 90% of patients diagnosed with headache in particular research such as Itoda et al.[13] A study conducted by Awasthi et al in north India, revealing that as their primary symptom only 9% of cases had a headache.[14] In a report by Karoli et al and Singh et al thrombocytopenia was found in 61.39% of cases in 40% of patients.[15,16] 37.8% had platelet counts below 50,000/mm^3 in a study by Mandal et al and 13.51% had bleeding in gums and GIT.[12] Just 12.8% had platelet counts <70,000/mm^3 in a study by Tripathi et al.[17] In a survey carried out by Khan et al based in Hyderabad, only bleeding present in 5% of patients and thrombocytopenia presents in 40% of patients.[18]

Horvath from Australia and Sharma from India who registered 63% of the bleeding episodes and 69% respectively. The GIT was the major site of bleeding reported by Sharma et al from India and Chairulfatah from Indonesia.[19-21]

The study is an observational study of dengue fever cases from a single secondary care center and included only those cases that were admitted to the hospital. Viral isolation and serotype identification and serotype identification were not done in the present study.

CONCLUSION

From this study, concluded that the majority had common presenting symptoms of fever, vomiting, headache and body pain. No deaths have occurred in this study. Conservative management strategy with rational platelet transfusion is effective in managing dengue patients.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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