Original Research Article

A study of clinical manifestations of dengue fever with laboratory investigations and outcome in a tertiary care center in Tamil Nadu

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Abstract

Background: Dengue fever it one of the common mosquito born acute febrile illness of major health concern in India due to varying presentations from simple febrile illness to dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS).

The aim of the study: The present study was done to find out the presence of varying clinical features and severity with outcome during the clinical course in a tertiary care center in Tamil Nadu.

Materials and methods: The present study was done as a prospective observational study at government Omandurar Medical College, Chennai/ Kasturba Gandhi Hospital for Women and Children in Tamil Nadu. The study was done during the period of July 2018 to December 2018 for 6 months. Patient included were more than 12 years of age. All patients were hospitalized as in patients under the medicine department.

Results: 50 patients diagnosed as dengue positive through dengue IgM Elisa method were taken for the study. The common clinical feature was fever high grade with chills, followed by headache, followed by myalgia, followed by nausea and vomiting followed by rash and GI bleeding. The commonest hematological abnormality was thrombocytopenia with leukopenia when there was a decrease in platelet count less than 50000 there was leukopenia less 3000 which improved with the recovery of rising platelet count. USG showed third space fluid accumulation due to plasma leakage

as evident by GB wall edema (associated with severe dengue) and right pleural effusion, followed by minimal ascites. Elevation of liver enzymes was noted in a few patients in our study. Severe thrombocytopenia was associated with gum bleeding in the younger age group. Melena was present in patients more than 20 years of age group. Menorrhagia was noted in female patients with thrombocytopenia. Few patients with GI bleed and severe thrombocytopenia required platelet transfusion. No mortality was observed and all patients recovered fully.

Conclusion: Dengue is a common mosquito-borne viral illness of urban areas. Early hospitalization with appropriate clinical evaluation, relevant investigations, and appropriate management under medical supervision improves the clinical outcome of dengue positive patients hospitalized. Early referral of the patient with hospitalization improves the clinical outcome and reduces mortality.

Key words

Dengue fever, Hematological manifestation, Radiological findings, IgM antibodies.

Introduction

Dengue fever is one of the major public health issues during recent years. According to WHO classification 1997, dengue classified as a simple febrile illness, Dengue hemorrhagic fever and Dengue shock syndrome [1]. Varying clinical features are noted in different age groups worldwide. Initial dengue infection may be asymptomatic (50-90%), may result in a nonspecific febrile illness, or may produce the symptom complex of classic dengue fever (DF) [2]. Classic dengue fever is marked by rapid onset of high fever, headache, retro-orbital pain, diffuse body pain (both muscle and bone), weakness, vomiting, sore throat, altered taste sensation, and a centrifugal maculopapular rash, among other manifestations [3]. A small percentage of persons who have previously been infected by one dengue serotype develop bleeding and endothelial leak upon infection with another dengue serotype. This syndrome is termed dengue hemorrhagic fever (DHF) Increase in the number of dengue cases over the past few years has been attributed to rapid unplanned urbanization with unchecked construction activities and poor sanitation facilities contributing fertile breeding areas for mosquitoes, it is also seen that the increase in alertness among medical personnel following the epidemics and availability of diagnostic tools in the hospitals have contributed to the increased detection of cases [4].

Materials and methods

This was a prospective observational study at Govt. Omandurar Medical College, Chennai/ Kasturba Gandhi Hospital for Women and Children in Tamil Nadu. The study period was from June 2018 to December 2018 patients above 12 years of age were included in the study. Who were IgM positive for dengue. All were admitted in the Hospital and Clinically evaluated for severity with hematological investigation and ultrasonography and Chest x-ray (PA) view. Platelet transfusion was given to the patients with bleeding manifestation and a falling platelet count less than 20000.

Inclusion criteria: All the Dengue positive patients more than 12 years of age admitted in the fever ward and intensive care unit of general medicine department were included for the study.
Exclusion criteria: Children below 12 years of age were excluded, antenatal women were excluded also patients with coexisting malaria and other infections were excluded.

Statistical analysis: Data analysis was done using SPSS software V16. The results are expressed as percentage prevalence.

Results

A total of 50 patients were studied. Percentage distribution of sex in dengue IgM positive patients. Results were depicted as per **Table – 1 to 5**.

Table – 1: Age group distribution of dengue positive cases hospitalized.

Age group (Years)	No. of patients	%
13-20	8	16
21-30	18	36
31-40	13	26
41-50	6	12
51-60	3	6
61-70	2	4

Table – 2: Clinical symptoms manifestation in the dengue patients.

Symptoms	No. of patients	%
Fever with chills	50	100
Headache	35	70
Myalgia	30	60
Nausea vomiting	28	56
Fatigue	20	40
Hypotension (DSS)	7	14
Rash	10	20
Loose Stools	10	20
Melena	6	12
Petechiae	4	8
Gum bleed	2	4

Table – 3: Hematological manifestations in dengue IgM positive patients.

Platelet Count	Hematological Manifestation	Number	%
	>1,00,000	30	60
	> 50,000	20	40
	> 20,000	4	8
Leukopenia	>3,000	20	40
SGOT SGPT Rise	80	15	30
Gum Bleed	1	2	4
Melena	1	8	16

Table – 4: USG findings of plasma leakage in dengue patients.

Findings	Number	%
Minimal Ascites	8	16
Pleural Effusion	10	20
GB wall edema	12	24

Table – 5: Clinical outcome of dengue IgM positive patients.

Age group (Years)	Hypotension with Ionotropes support	Platelet transfusion	Outcome/ Mortality
13-20	6	0	0
21 -30	0	4	0
31-40	0	2	0
41-50	0	1	0
51-70	1	0	0

Discussion

In our study, all patients had fever similar to the study of Shashikantha in south Karnataka [5]. The clinical presentation was most commonly high-grade fever followed by headache followed by vomiting, similar to the study of Shashikantha in south Karnataka but lower platelet count was observed only after the 6th day of illness (from the onset fever in our study) [6]. All patients had decreased platelet count (100%) in our study unlike the study of Jamshoro, Hyderabad, where only 90% of patients only had thrombocytopenia [7]. Percentage of DHF was noted in 20 % of the patients unlike the study by Bandyopadhyay, et al. 16 % of the patients had DHF [8]. Percentage of DSS was noted in 14% with a feeble pulse and systolic BP less than 90 mm of Hg, whereas in the study by Mishra at Bihar had only 1% of the patients had DSS [9]. In our study the percentage of women were 56% as opposed to 44% of men unlike the study of Soundravally R, et al. where the male patients were more than female patients [10]. Age distribution is similar to the above study by Shashikantha, of south Karnataka, with more patients in less than 40 years of age group [11]. Leukopenia was found in all the cases of thrombocytopenia in all cases unlike Thomas EA, the study had only 90% of cases having thrombocytopenia [12]. No mortality was observed in our study unlike the study by Motla Met .al, had a mortality of 2.6% [13]. Only right-sided pleural effusions were noticed during the clinical course of our patients whereas, in the study by Parkash, et al., pleural effusion was more commonly found on the left side [14, 15].

Conclusion

The clinical course of dengue fever various from febrile illness to shock and DHF. In our study, more patients were less than 40 years, were in need of Inotropes and Crystalloids. Only for the patients with GI bleed platelet transfusion was given. No mortality was observed. Early referral with hospitalization with clinical and hematological evaluation with frequent monitoring of vitals improved the clinical outcome of dengue positive patients.

Acknowledgments

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