

Clinical Profile of Dengue Fever Patient with Thrombocytopenia less than one lakh/Cumm among Adults in Ed

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Abstract

Dengue infection presents varied clinical manifestation ranging from asymptomatic or simple viral illness to circulatory shock (DSS), severe bleeding and death. So, early diagnosis and recognition of complication is a cornerstone in management. It is prospective observational study which was conducted in KVG medical college. With inclusion of 100 cases all seropositive for dengue antigen or antibodies or both and platelet count less than 1 lakh/cumm. Done from October 2022 till September 2023. Chi square test was used for data analysis. The study was mainly focused on bleeding manifestations, to find correlation between platelet count and bleeding manifestations. Routine investigations that include CBC with ESR, RUE, ECG, Dengue serology (NS1, IgM, IgG), RFT, LFT, serum electrolytes. Coagulation profile was done in suspected DHF patients. Leucopenias taken below 4000 cells/cumm. Out of 100 patients, 88 were classified under dengue fever with/without haemorrhage and rest 12 were classified into Dengue haemorrhagic fever as per WHO criteria. The presenting symptoms were: fever (97%), headache (78%), retro orbital pain (32%), myalgia (72%), arthralgia (52%), nausea (62%), vomiting (39%), abdominal pain (56%), diarrhoea (15.2%), bleeding manifestations (42%). The major physical findings noted included positive tourniquet test (21%), hepatomegaly (15%), bradycardia (18%), pleural effusion (6%) and ascites (11%). The study concluded that there was no association between bleeding manifestation and platelet count. Bleeding can happen at any level of platelets count. Hence prognosis based on platelet count can't be done.

Keywords: Dengue fever; Thrombocytopenia; Dengue Hemorrhagic fever; Bleeding manifestations.

INTRODUCTION

Dengue fever is an illness caused by a virus belonging to family Flaviviridae that is spread

by *Aedes (Stegomyia)* mosquitoes. Dengue is a self-limiting acute febrile illness followed by a phase of critical defervescence, in which patients may improve or progress to a severe form (characterized by hemodynamic disturbances, increased vascular permeability, hypovolemia, hypotension, and shock). Diagnosis is established by either antigen (NS1) and/or antibody (IgM/IgG) positivity.¹ Symptoms typically begin from three to fourteen days after infection. This may include a high fever, headache, vomiting, muscle and joint pains, and a characteristic skin rash. Recovery generally takes less than two to seven days. Infection with one type usually gives lifelong immunity to that type, but only short-term immunity to the others. Subsequent infection with a different type increases the risk

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of severe complications.^{11,12} There is no specific treatment for dengue, but appropriate medical care saves the lives of patients with the more serious dengue haemorrhagic fever.¹

Dengue Epidemiology

About 2.5 billion people – two fifths of the world's population in tropical and subtropical countries – are at risk. An estimated 50-100 million dengue infections occur worldwide annually. Approximately 500 000 people with DHF require hospitalization each year. About 2.5% of those affected with dengue die. Dengue and DHF is endemic in more than 100 countries which includes the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific. The South-East Asia and Western Pacific regions are the most seriously affected. Epidemics of dengue are increasing in frequency. Seasonal variation is observed. Primarily an urban disease, dengue and DHF are now spreading to rural areas worldwide.¹ Dengue is the most rapidly spreading mosquito-borne viral disease in the world. In the last 50 years, its incidence has increased 30-fold with increasing geographic expansion to new countries.

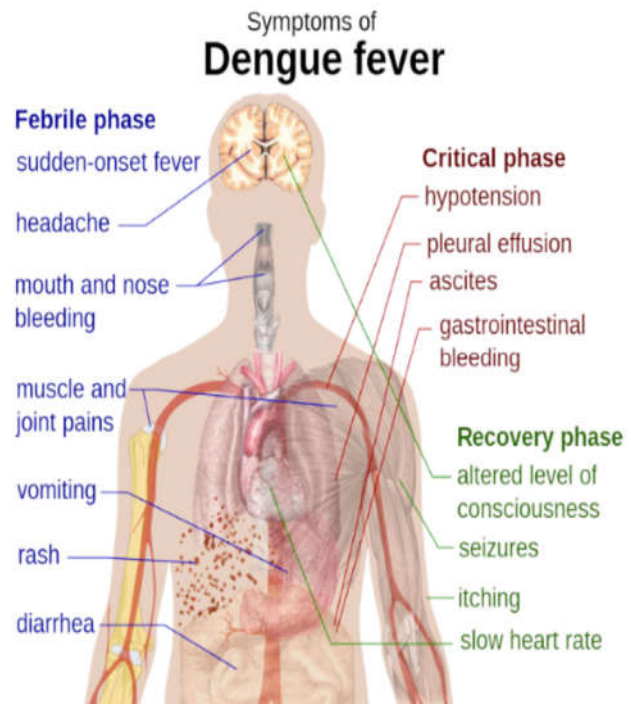
An estimated 50 million dengue infections occur annually. Some 1.8 billion (more than 70%) of the population at risk for dengue worldwide live in member states of the WHO South-East Asia Region and Western Pacific Region, which bear nearly 75% of the current global disease burden due to dengue.²

The aim is to study the Clinical Profile of Dengue Fever Patient with thrombocytopenia (<1,00,000/cumm) among adults, attending KVG medical college Sullia. To estimate the percentage of patient's having DHF. The study was mainly focused on bleeding manifestations, to find correlation between platelet count and bleeding manifestations.

METHODOLOGY

The study was undertaken as a hospital-based descriptive study with prospective data collection. One hundred adult patients with confirmed dengue fever, attending ED and who got admitted in KVG hospital Sullia during a 11-month period from October 2022 to September 2023 were selected for this study. Patient's positive for NS1 antigen or IgM, IgG dengue antibody-positive and platelet count less than 1 lakh/cumm cases were included. These patients were admitted with fever, retro

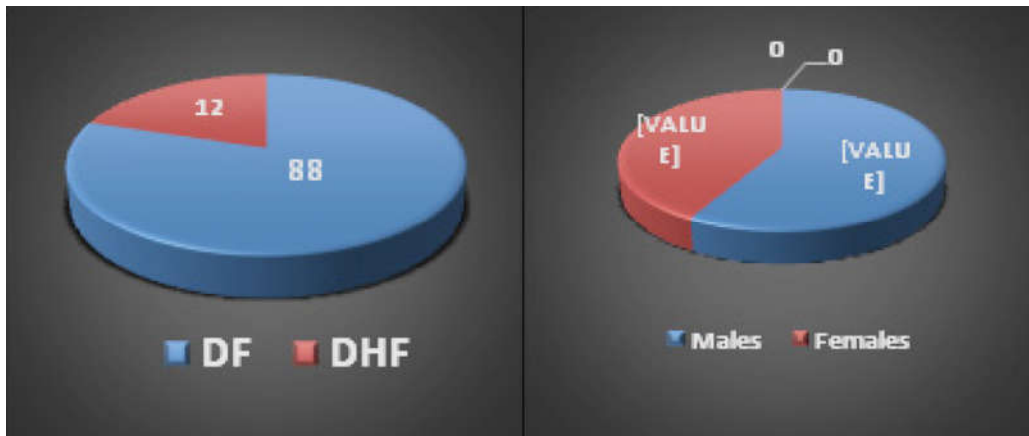
bulbar pain, abdominal pain, myalgia, headache or bleeding manifestations. The diagnosis of dengue fever, dengue haemorrhagic fever and dengue shock syndrome was based on the WHO criteria.¹ Routine blood investigations that include complete blood picture with ESR, routine urine examination, ECG, Dengue serology (NS1, IgM, IgG), renal function tests, liver function tests, serum electrolytes were assessed and analysed. Chest x-ray and ultrasound abdomen was also done to look for pleural/peritoneal effusion which aided in diagnosis of DHF. Coagulation profile was done in suspected DHF patients. Leucopenia is taken below 4000 cells/cumm. Hypotension was taken as SBP < 90/60mmHg. Bradycardia was taken as heart rate < 60bpm. Plasma leakage was assessed based on the presence of any pleural effusion and presence of ascites. Chi-square test was used for analysis.



Source 10: http://en.wikipedia.org/wiki/Dengue_fever

RESULTS

We analysed the data of 100 patients out of which 88 were diagnosed to have Dengue fever and 12 with Dengue Haemorrhagic fever. Out of 88 patients with Dengue fever, "52 were classified as dengue fever without haemorrhage" and "36 with dengue fever with haemorrhage". Mean age of patients in the study was 39 years (SD 20), from age 18 yrs to 60 yrs. Among 100 patients, males 58 and females 42 with males: female ratio of 1.38:1.



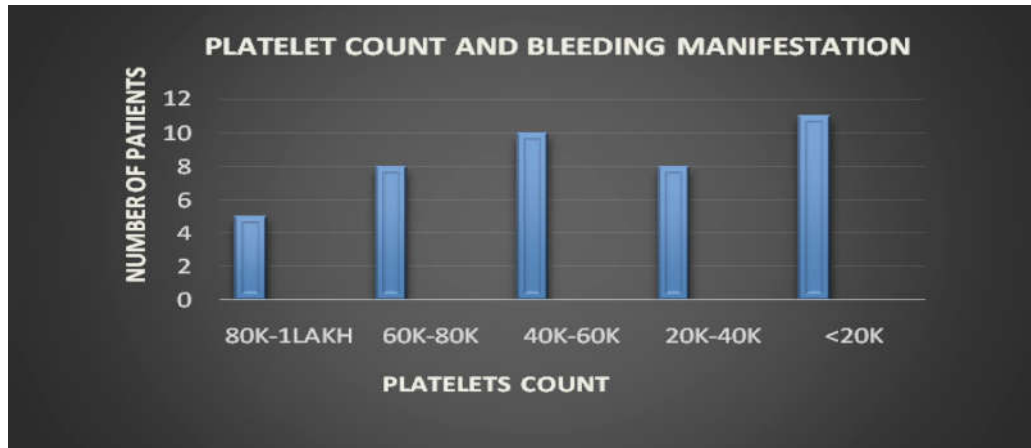
The main symptoms were fever (97%), headache (78%), retro bulbar pain (32%), myalgia (72%), arthralgia (52%), haemorrhagic manifestation (42%), nausea (62%), vomiting (39%), abdominal pain (56%), diarrhea (24%), hypotension (21%), bradycardia (28%). 42% patients had bleeding manifestations as follows Petechias and purpuras - (28%), Torniquet test positive (21%), Nasal bleeding (18%), Gum bleed (8%), Hematuria (14%), Hemoptysis (12%), Malena (3%). 5 patients had bleeding manifestations within platelet range

of 80,000 - 1lakh/cumm, 8 patients had bleeding manifestations within 60,000 - 80,000cells/cumm, 10 patients within platelet range of 40,000 - 60,000 cells/cumm, 8 patients within platelet range of 20,000 - 40,000 cells/cumm, 11 patients within platelets less than 20,000cells/cumm.

Dengue Hemorrhagic Fever And Grading

Based on clinical presentation and investigations, patients of Dengue Haemorrhagic fever were classified as follows as per WHO criteria.





DISCUSSION

Grade of DHF	Criteria	Number of patients
Grade I	Fever and haemorrhagic manifestation and evidence of plasma leakage (ascites, pleural effusion or hypoalbuminemia or raising hematocrit)	7
Grade II	Grade I plus spontaneous bleeding	5
Grade III	Grade I and Grade II plus circulatory failure (weak pulse, narrow pulse pressure (less than or equal to 20mmhg), hypotension	0
Grade IV	As in Grade III plus profound shock with undetectable BP and pulse	0

This study included 100 patients out of which 88 cases classified as Dengue fever and 12 were classified as Dengue haemorrhagic fever which was similar to that in study by D. Chhina *et al.* (13.5%).⁶

Mean age of patients in the study was 39 years which included patients from age group of 18 years to 60 years. Out of 100 patients with dengue, 58 were males and 42 were females with male to female ratio of 1.38:1. Higher incidence among males was also reported in studies of D chhina *et al.*⁶ and B Bandyopadhyay *et al.*⁹

Most common clinical manifestation was fever observed in 97% of patients followed by musculoskeletal features and gastrointestinal features which was similar to study by Chhotala, Y. H *et al.*⁸

This study was mainly focussed on bleeding manifestation in dengue. (to find co-relation between bleeding manifestation and platelets count, patterns of bleeding manifestations).

Petechial rash was the most common bleeding manifestation (28%) followed by nasal bleed (18%), gingival bleeding (8%), hematuria (14%), hemoptysis (12%), malena (5%).

A Few patients *i.e.* 18 patients out of 42 with hemorrhagic manifestation (42%) had more than one bleeding manifestation in the study in contrast to study of Daniel *et al.*⁷

There were no mortalities from dengue during the period of study.

Few patient who had mucosal/spontaneous bleeding didn't go into DHF or DSS because of good supportive treatment.

Raising hematocrit (more than 20%) was seen only in 8 patients, when raised Hematocrit was not available, other evidence of plasma leakage like ascites and pleural effusion and hypoalbuminemia were considered for diagnosis of DHF.

CONCLUSION

Our study showed that there is no correlation between the occurrence of hemorrhagic manifestations and the degree of thrombocytopenia as seen in other studies.^{4,6,7}

Various bleeding manifestations can be seen in dengue which can't be linked with level of thrombocytopenia. Platelet count can drop to

less than 10,000 cell/cumm without any bleeding manifestation. And below 1lakh bleeding manifestations have happened at various ranges and hence a specific range is not defined.

Hence platelets count cannot be used in prognostication of patients coming to ED and to regarding duration of stay in hospital or ED.

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