Section: Medicine

Original Research Article

CLINICAL PROFILE AND HEMATOLOGY IN DENGUE-A HOSPITAL BASED RETROSPECTIVE STUDY

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ABSTRACT

Background: Dengue is the most common arthropod-borne viral fever in travellers returning from most tropical and subtropical destinations worldwide. The common symptoms associated with dengue fever is fever, myalgia, headache etc.

Materials and Methods: This is a hospital based, retrospective study conducted at Tezpur medical college and hospital, Tezpur, Assam. It included confirmed dengue cases from January 2021 to October 2023. The objective of the study is to analyze the clinical and laboratory parameters of dengue to facilitate early diagnosis and better management of dengue cases.

Results: On analysis, it has been found out that among 98 patients included in the study, 29% of patients are in 30-39 years, 27% of patients fall in age group of 21-29years,16% in 40-45 years, 11% in 18-20 years, 8% each in age group of 50-59 years and 60-69 years and 1% in 70-79 years. On evaluation it was calculated that 74% of patients are males and 26% females. Regarding the duration of fever, it has been found out that 45% of patients had 5-10 days, 36% had < 5 days,12% had 11-20 days, 5% had 21-30 days,2% had >30 days. On evaluating the dehydration status, 19% of the patients had dehydration. Bleeding symptoms were manifested in 11% of the patients.

Conclusion: Dengue fever is associated with high morbidity and mortality. Early diagnosis and treatment of dengue fever is necessary to prevent complications.

Keywords: Dengue fever, hematological profile, duration of fever, dehydration, bleeding manifestation.

INTRODUCTION

Dengue is the most common arthropod-borne virus worldwide and the leading cause of fever in travellers returning from most tropical and subtropical destinations.[1] The vector associated with is Aedes female mosquitos, Aedes aegypti and Aedes albopictus mosquitoes.[2]

Principally the former the breeding sites include any stagnant water collections like buckets, mud pots, discarded containers, used tyres, etc, and hence the distribution of dengue cases in urban areas serve as a primary reservoir for dengue. In this part of North East India with not so significant urban population, it is also noticed that the number of cases of dengue or breakbone or 7-day fever,[3] are increasing because of people with travel history to other urban areas of different parts of India. The dengue virus belongs to the family flavivirida and has 4 serotypes namely DENV-D.[1-4] The fever is associated with symptoms like headache, musculoskeletal pain, rash, nausea, vomiting, leukopenia and is occasionally biphasic (so also called saddleback fever). There are three phases of dengue infection namely febrile phase lasting for 1-3 days, critical phase from around 4th -6th day, and finally the recovery phase. The potential clinical issues during the respective phases include dehydration in febrile phase, shock, bleeding (due to thrombocytopenia) and organ impairment in the critical phase and reabsorption and fluid overload during the recovery phase. The treatment mainly includes oral fluids and paracetamol for outpatient management and intravenous administration of isotonic fluids like normal saline and ringer lactate for inpatient management. There have been major advances in vaccines, specific antiviral drug

development and vector control activities in the past 10 years, effective utilisation of these new tools will provide new opportunities to control the disease.[4]This study therefore aims at revealing the clinical and haematological profile in dengue patients.

MATERIALS AND METHODS

This is a hospital based retrospective study conducted at Tezpur medical college and hospital, Tezpur, Assam. It included confirmed dengue cases from January 2021 to October 2023 which amounts to 98 patients.

Inclusion criteria

- Aged> 18 years
- Patients with acute febrile illness i.e. fever less than 7 days without organ-specific symptoms;
- Positive NS1 antigen or dengue-specific IgM antibody using an enzyme-linked immunosorbent assay (ELISA).
- Both male and female cases

Exclusion criteria

- A history of underlying medical illness, for example, diabetes mellitus, hematologic diseases, chronic kidney disease, or malignancy
- The presence of a comorbid infection, such as malaria, leptospirosis, or bacterial infection;
- Receiving blood transfusion.
- Patients taking drugs like NSAIDS, statins, ranitidine, sulfonamides, quinine, quinidine, furosemide, penicillin, linezolid
- Patients taking chemotherapeutic agents like gemcitabine, platinum or temozolomide

Method

a. Patients presenting to the emergency, outpatient and inpatient departments with complaints of fever and clinical features of dengue with positive NS1 antigen test or dengue antibody serology IgM were included in the study.
b. Age, gender, clinical presentation, duration of fever, dehydration, hemodynamic status, urine output, hepatomegaly, splenomegaly, ascites, pleural effusion, presence of petechiae, positive tourniquet test, other bleeding manifestations, haematocrit and platelet counts were recorded at presentation.
c. Thrombocytopenia was taken as a platelet count < 1 lac/cu.mm are taken.[5]
d. Patients were categorized as (as per WHO classification).[6]

- Dengue fever without warning signs (DF),
- Dengue fever with warning signs (DFWS),
- Severe dengue (SD) based on presence of abdominal pain, vomiting, pleural effusion, ascites, lethargy and restlessness, hepatomegaly, severe bleeding, respiratory distress, and other organ involvement as per the World Health Organization (WHO) classification.

a. NS1 antigen test was done in patients presented within 5 days of onset of the symptoms.
b. IgM antibody test was done in patients presented beyond 5 days of onset of the symptoms.
c. The mainstay of therapy was maintenance of hydration status and early recognition of plasma leakage and shock.

Management of cases was done strictly as per the guidelines.

RESULTS

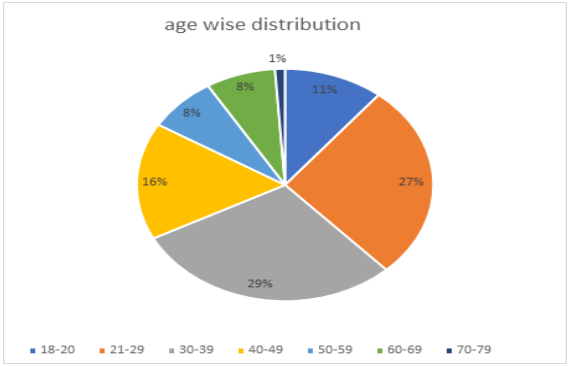

Figure 1: Age wise distribution

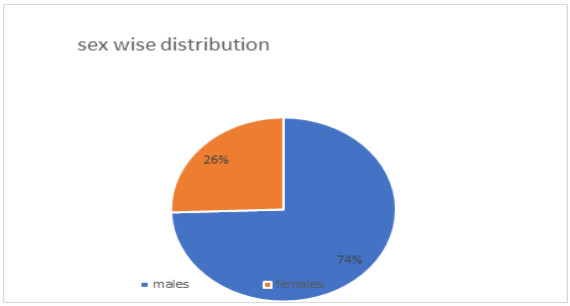

Figure 2: Sex wise distribution

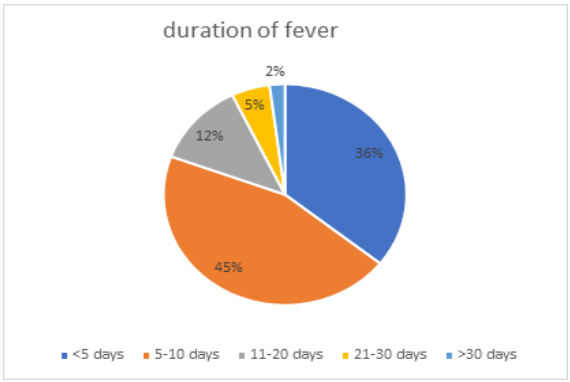

Figure 3: Duration of fever

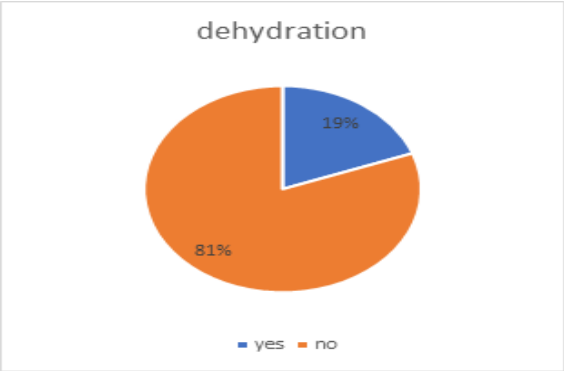

Figure 4: Dehydration

Table 1: Age Wise Distribution

Age group	Number of patients
18-20	10
21-29	25
30-39	27
40-49	15
50-59	13
60-69	7
70-79	1

Table 2: Sex Wise Distribution

Gender	Number of patients
Male	73
Female	25

Table 3: Duration Of Fever

Duration of fever	Number of patients
< 5 days	35
5-10 days	44
11-20 days	12
21-30 days	5
>30 days	2

Table 4: Dehydration Status

Dehydration status	Number of patients
Yes	18
No	75

Table 5: Bleeding manifestations

Bleeding manifestations	Number of patients
Yes	10
No	83

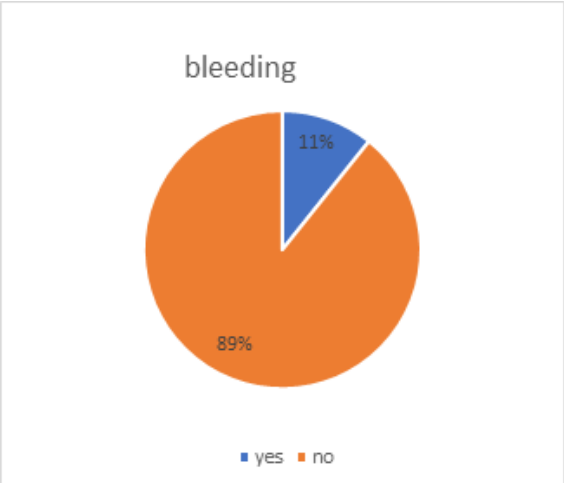

Figure 5: Bleeding manifestations

There were 98 patients who were diagnosed as dengue confirmed cases in Tezpur Medical College and Hospital over a period of 2 years and 10 months. On analysis, 29% of patients are in 30-39 years, 27% of patients fall in age group of 21-29years,16% in 40-45 years, 11% in 18-20 years, 8% each in age group of 50-59 years and 60-69 years and 1% in 70-79 years. The sex wise distribution showed that there were 73 males (74%) and 25 females (26%). Regarding the duration of fever, it has been found out that 45% of patients had 5-10 days, 36% had < 5 days,12% had 11-20 days, 5% had 21-30 days,2% had >30 days. On evaluating the dehydration status, 19% (18) of the patients had dehydration. Bleeding symptoms were manifested in 11% (10) of the patients.

DISCUSSION

Dengue is a hemorrhagic arthropod borne viral fever which may have serious consequences. The objective of the study is to analyze the clinical and laboratory parameters of dengue to facilitate early diagnosis and better management of dengue cases. The common symptoms associated with dengue fever was fever, myalgia, headache, petechial rashes, fever being the most common symptom.[7] Fever was associated with headache, retroorbital pain, erythematous morbilliform rash, conjunctival suffusion, etc.[8] The virologic diagnosis of dengue can be made by usual means (nucleic acid amplification or antigen detection) in the first 5 days of infection after which serology for antibody detection has to be performed. We evaluated 98 patients of serologically confirmed dengue cases, out of which majority were hospitalized patients managed conservatively with fluids, antipyretics and regular monitoring.

This study showed that the age group of 30-39 years was affected the most followed by 21-29 years having 29% and 27% respectively making a total of 56 %, which is similar to the findings of most of the previous studies, for example, study by Naveen K et al,[9] conducted in Karnataka shows maximum affected age group to be 21-40 years, amounting to 49%. In our study we have found that more males are affected as compared to females, that is 74% males and 26% females. This is in coherent with the previous studies, notably study by D.Y.Patil et al,[10] in Navi Mumbai, which showed the percentage of affected males to be 66 % and that if females to be females 34%.This study also showed that 19% had symptoms of dehydration similar to previous studies, one of which showed 12.5% of patients showing symptoms of moderate to severe dehydration according to study conducted by Vishal Vishnu Tewari et al,[11] in New Delhi. In this study around 11% of cases showed bleeding manifestations which is comparable to the previous study,in which 9.2% had bleeding manifestations.

CONCLUSION

This study has exposed the variations in clinical and haematological profile of dengue fever patients. The treatment of dengue is simple and less expensive, but dengue fever is associated with high morbidity and mortality.it is also observed to cause high mortality and morbidity. Therefore, public awareness is very important and early diagnosis and medical intervention is necessary to prevent complications of dengue fever.

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