



Clinical profile of 315 Dengue patients in a tertiary care centre in Kerala (India)

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Abstract

Introduction: Dengue is a major arboviral infection which poses great public health problems globally. According to WHO, around 3.9 billion people, in 128 countries, are at risk of infection with dengue virus. As there is no specific treatment for Dengue, iv fluids and paracetamol are the mainstay of treatment. This study was designed to assess the clinical and biochemical parameters of dengue fever patients admitted in medical wards of Government medical college, Ernakulam for the year 2016.

Materials and Methods: This is a Cross sectional study conducted at Department of General medicine, Government Medical College, Ernakulam, Kerala from January 2016 to December 2016. All patients admitted in medicine wards with laboratory confirmed dengue fever above the age of 12 years were included in the study. Details of history, examinations and laboratory and technical investigations reports were noted from time to time. Data were coded and entered into MS Excel. Analysis was done using S software. Quantitative variables were summarized using mean and SD.

Results and Discussion: A total of 315 patients who were admitted between January and December 2016 were studied and analysed. Majority of the patients were males (58%). Fever was seen in almost all patients. Platelet count less than 1 lakh was seen in 75 % of the patients. There was no mortality among the patients studied in our study.

Conclusions: Conservative management is required in the majority of the cases and the mortality rate is very low with adequate management. Dengue fever peaks during the monsoon period. So preventive measures carried out before that can drastically reduce the transmission of dengue.

Keywords: Dengue fever, thrombocytopenia, Kerala.

Introduction

Dengue is a major arboviral infection which poses great public health problems globally. Dengue virus (DENV) infection results in a broad spectrum of clinical presentations, ranging from asymptomatic to dengue shock syndrome. Dengue also results in many atypical manifestations.

Death usually results from circulatory collapse due to massive plasma leakage. The dengue viruses are members of the Flaviviridae family. There are 4 distinct serotypes-DENV1, DEN2, DEN3, and DEN4.⁽¹⁾ All 4 serotypes are prevalent in India.

The two most important vectors of dengue are *Aedes (Stegomyia) aegypti* and *Aedes (Stegomyia) albopictus* (*Ae. albopictus*). The intrinsic incubation period is 5 to 7 days. The extrinsic incubation period in mosquito is 8 to 12 days.⁽²⁾

According to WHO, around 3.9 billion people, in 128 countries, are at risk of infection with dengue virus.⁽³⁾ And the majority are from Asia-pacific region. Dengue fever was first reported in Kerala in 1997 in Kottayam district. The First epidemic occurred in 2003 with 3546 cases and 68 deaths. Since then the incidence has been steadily increasing.

A definitive diagnosis of dengue infection can be made only in the laboratory and depends on isolating the virus, detecting specific antibodies in the patient's serum, or detecting viral antigen or RNA in serum or tissues.⁽⁴⁾ As there is no specific treatment for Dengue, iv fluids and paracetamol are the mainstay of treatment. Recently, Dengvaxia (CYD-TDV) a tetravalent, recombinant, live, attenuated vaccine has been approved in many countries. It is not yet used in India as it has to undergo phase III trial.⁽⁵⁾

Aim of the Study

Dengue fever is an important Arboviral infection which is increasing in prevalence every year. This study was designed to assess the clinical and biochemical parameters of dengue fever patients admitted in medical wards of Government medical college, Ernakulam for the year 2016.

Materials and Methods

This is a Cross-sectional study conducted at Department of General medicine, Government Medical College, Ernakulam, Kerala from January 2016 to December 2016. All patients admitted in medicine wards with laboratory confirmed dengue fever above the age of 12 years were included in the study. Patients not giving consent were excluded from the study.

Once the patient was admitted, history was taken and data collected in pre-structured proforma.

Details of history, examinations and laboratory and technical investigations reports were noted from time to time. Patients were treated symptomatically and with platelet transfusions whenever required.

Dengue fever was confirmed by immunochromatographic method identifying the antibodies against dengue virus – IgM and Dengue viral antigen – NS1. Patients were followed up clinically during the hospital stay till discharge. Data were coded and entered into MS Excel. Analysis was done using SPSS software. Quantitative variables were summarized using mean and SD.

Results

A total of 315 patients who were admitted between January and December 2016 were studied and analysed. Majority of the patients were males (58%). Females comprised 42 % of the population (Figure 1). The majority of patients belonged to the 15-30 age group (33%). Female preponderance was seen above the age of 46. Fever was seen in almost all patients (98%). It was followed by headache (94.2%), back pain (49.2%), calf muscle pain (34%), retro orbital pain (14.6%), bleeding manifestations (10.5%) and rash (4.8%). Hepatomegaly and tachycardia were seen in 18 patients each. Pulse pressure narrowing and systolic BP <90 were seen in 13 patients each (Table 2).

Platelet count less than 1 lakh was seen in 75 % of the patients. Platelet count less than 10,000 were seen in only 7 patients (2.22%). The lowest platelet count seen was 3,800 cells. Leucopaenia was seen in 160 patients (50.8%). 124 patients (39.3%) had SGOT >100. 88 patients (27.9%) had SGPT >100. PCV more than 40 was seen in 84 patients (26.7%). Serum creatinine more than 1.5mg/dl was seen in 10 patients (3.2%). CPK was elevated in 21 (6.7%) patients. ECG changes were noted in 71(22.5%) patients. (Table 3)

49 patients required blood transfusions.

Complications were seen in 15 (4.7%) patients. But there were no mortalities. Dengue card test

was done for confirmation of Dengue fever. NS1Ag was positive in 260(82%) patients. IgM was positive in 113 patients. 58 patients had both NS1Ag and IgM positivity. Systemic Hypertension as a comorbid illness was seen in 26 patients (8.2%). Type 2 Diabetes Mellitus was seen in 24 patients (7.6%).

Platelet transfusions were given for 49 patients (15.55%). A total of 40 patients had platelet count below 20,000 during hospital stay and 28 of them received blood transfusions.

Figure 1: Sex Distribution

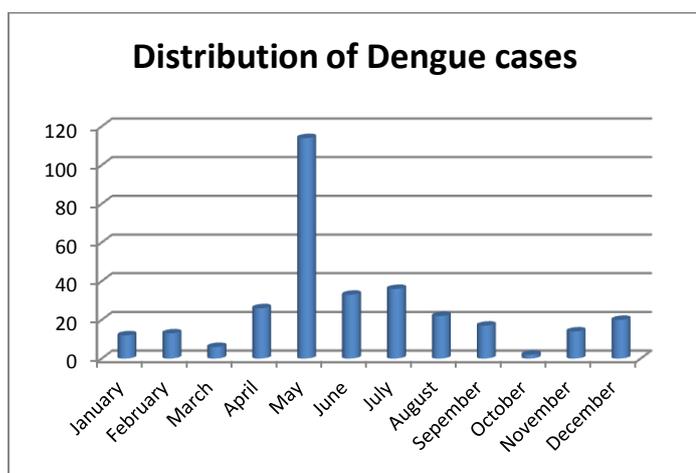
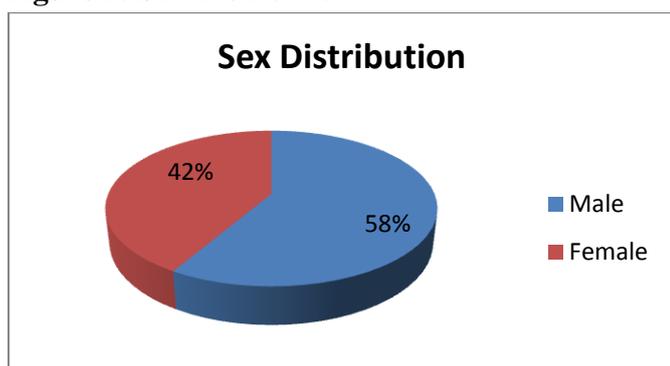


Table 1: Age sex distribution of study subjects

Age Group	Male	Female	Total
< 15	17	11	28
15 - 30	74	32	106
31 - 45	51	32	83
46 - 60	30	39	69
> 60	12	17	19
Total	184	131	315

Table 2: Clinical profile of dengue patients

Symptom/Sign	Number	%
Fever	309	98.1
Headache	297	94.2
Rash	15	4.8
Bleeding Manifestation	33	10.5
Retro Orbital Pain	46	14.6
Back Pain	155	49.2
Calf Muscle Pain	107	34
Hepatomegaly	18	5.7
Pulse>100	18	5.7
Pulse Pressure Narrowing	13	4.1
SBP<90	13	4.1

Table 3: Laboratory profile of dengue patients

LAB PARAMETERS	NUMBER	%
PLATELETS<100000	237	75.2
TC<4000	160	50.8
SGPT>100	88	27.9
SGOT> 100	124	39.3
PCV>40	84	26.7
S.CREATININE>1.5mg/dl	10	3.2
CPK ELEVATION	21	6.7
ECG CHANGES	71	22.5

Discussion

The present study of 315 patients was done in a tertiary care hospital in south India. Majority of the patients were males (58%). This was similar to many studies from Kerala.⁽⁶⁾⁽⁷⁾⁽⁸⁾ The male predominance was probably because they actively go out of the house and also females use more protective clothing. 15-30 age group was the most commonly affected. And <60 years was least affected. This was comparable to a study by Sreenivasulu et al.⁽⁹⁾

Fever was the most common presenting complaint in most of the cases. It was followed by headache. This was seen in majority of the previous studies.⁽⁶⁾⁽⁹⁾⁽¹⁰⁾ But a study by Turbadkar et al in Mumbai showed that headache was seen in only 14 % of the patients.⁽¹¹⁾ Another study by Deshwal et al in elderly showed that headache was seen only in 18.9% of the patients.⁽¹⁰⁾ Retroorbital pain was seen in 14.6 % of the patients. But it was seen in 50% of the patients in a previous study.⁽⁹⁾ Platelet count less than I lakh was seen in 75% of the patients. Sreenivasulu T et al studied 100 patients and observed that Thrombocytopenia (platelet count <150,000) was seen in 25% of

the patients⁽⁹⁾ The higher number of thrombocytopenia in this study was because this was done in a referral centre. Leucopenia (<4000/cumm) was seen in half of the patients. Leucopenia was seen in 20 -99% of the patients in previous studies.⁽¹⁰⁾⁽⁶⁾⁽⁹⁾

Bleeding manifestations were seen in about 10% of the patients. Rajesh et al studied 515 dengue patients and observed that bleeding manifestations were seen in 5.4 % of the patients.⁽¹⁰⁾ But a study by Bhalla et al in North India showed that bleeding manifestations were seen in 47 % of the Dengue patients. Hepatomegaly was seen in 5.4% of the patients. In the previous studies hepatomegaly was seen in 17- 56% of the patients.⁽⁶⁾⁽⁹⁾⁽¹²⁾ The most common comorbid illness associated were Systemic Hypertension (8.2%) and Type2 Diabetes Mellitus(7.6%). It was similar in a previous study.⁽¹⁰⁾

In this study majority of the cases occurred in the month of May. This was in line with the starting of monsoon in Kerala.

Blood transfusions were given for patients with bleeding and also prophylactically at platelet count less than 20,000. A total of 49 patients (15.5%) received blood transfusions. A similar rate of blood transfusions were seen in study by Bhalla et al⁽¹³⁾ But blood transfusions were given only in 4 patients out of the 515 studied patients by Rajesh et al.⁽¹⁰⁾

There was no mortality among the patients studied in our study. Less than 1 percent mortality was seen in many studies from India.⁽¹⁰⁾⁽¹³⁾ Higher mortality rate was seen in some of the other studies(3%)⁽⁹⁾

Conclusions

Dengue cases are increasing in prevalence year by year. It is mostly seen among males and presents with fever, headache and rashes. Leukopenia and thrombocytopenia are seen on laboratory investigations. Conservative management only is required in the majority of the cases and the mortality rate is very low with meticulous management. Thrombocytopenia alone is not a

cause of too much concern or cause for mortality and patients can be managed in secondary care centres with confidence if the medical officers are trained to offer adequate care and observation for early referral if warning signs develop. Dengue fever peaks during the monsoon period. So preventive measures carried out before that can drastically reduce the transmission of dengue.

Conflicts of Interest: Nil

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