International Journal of Research in Medical Sciences
Poornima H et al. Int J Res Med Sci. 2018 Jul;6(7):2338-2342
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20182813

Original Research Article

Clinical profile of Dengue patients in a rural tertiary care centre of coastal Kerala

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Received: 19 April 2018
Accepted: 28 May 2018

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ABSTRACT

Background: Dengue epidemic is a major health problem in India. According to the directorate of National Vector Borne Disease Control Programme (NVBDCP) over 18,700 cases of dengue have been reported in India in 2017.Kerala has reported the highest number of dengue related deaths in the country. The aim of the present study is to find out the clinical profile of patients admitted with dengue fever during the epidemic in 2017 in a rural tertiary care centre in coastal Kerala.
Methods: 341 patients who were admitted in the medicine department of a rural tertiary care centre in Kerala with Dengue were included in the study. W.H.O case definitions were used for the diagnosis. Complete blood counts, RBS, serum creatinine and liver function tests and E.C.G were carried out in all patients. Chest X ray, Echocardiogram, ultrasonogram, MRI and CSF study were done when indicated.
Results: Males predominated. 317 were diagnosed as dengue fever, 12 as dengue hemorrhagic fever and 12 had dengue shock syndrome. Only four patients succumbed to death. Aminotransferases were elevated in 74.4%. In all cases AST was more than ALT. Head ache and myalgia were the common symptoms at the time of presentation. 72 patients had abnormal ECG, but all had normal ECG at the time of discharge, indicating a transient change during the episode.
Conclusions: Careful monitoring of clinical and biochemical parameters is necessary during dengue epidemics. Atypical manifestations of dengue should also be considered in the differential diagnosis of various diseases in different organ systems.

Keywords: Aminotransferases, Clinical profile, Dengue fever

INTRODUCTION

Dengue is a viral disease. It is caused by an arbovirus in the Flavivirus genus and the vector is Aedes aegypti mosquito. Dengue epidemic is a public health problem in India. According to the directorate of National Vector Borne Disease Control Programme (NVBDCP) over 18,700 cases of dengue have been reported in India in 2017. Of all the state and union territories, the maximum number of cases have been reported in Kerala followed by Tamil Nadu. Kerala has reported the highest number of dengue related deaths in the country while Uttar Pradesh stood second. Rapid urbanisation, increased movement of human population, and development of insecticide-resistance in the mosquito vector population are some of the reasons for the increase of dengue transmission in recent years.

The aim of the present study is to find out the clinical profile of dengue in patients admitted in a rural tertiary care centre in coastal Kerala during the epidemic in 2017.

WHO case definitions of Dengue fever

Probable case

An acute febrile illness with two or more of following:

- Headache
- Retro-orbital pain
- Myalgia and arthralgia
- Nausea and vomiting
- Skin rash
- Haemorrhagic manifestations
- Supportive serology

Or occurrence at the same location and time as other confirmed cases of dengue fever.

Confirmed case

Confirmation of dengue fever is based on laboratory criteria:

- Virus isolation from serum or tissue samples

Or demonstration of four-fold or more rise in IgG and IgM antibody titres to dengue antigens in paired serum samples.

Or demonstration of dengue antigen in tissue CSF by immunocytochemistry or detection of genomic sequence by PCR.

Criteria for dengue haemorrhgic fever (all 4 criteria required)

Fever or history of fever lasting for 2 to 7 days.

Haemorrhagic tendencies indicated by at least one of the following:

- A positive tourniquet test
- Petechiae, ecchymoses, purpura
- Bleeding per mucosa, GIT, other
- Haematemesis, melaena
- Thrombocytopenia <100,000/mm³

Plasma leakage evidenced by at least one of the following:

- Rise in haematocrit >20%
- Fall in haematocrit >20% after intravenous fluids
- Pleural effusion,ascites hypoalbuminaemia.

Tourniquet test is performed by inflating the sphygmomanometer cuff on the upper arm to midway between systolic and diastolic pressure for 5 minutes. A positive test is identified by appearance of more than 20 petechiae per 2.5cm.

Criteria for DSS

DSS require all DHF criteria and in addition a circulating failure manifested by:

- Rapid and weak pulse
- Narrow pulse pressure (<20 mm Hg)
- Hypotension for age ≤5 yr <80 mm Hg and for age ≥5 year ≤90 mm Hg
- Cold, dry skin restlessness.

The incubation period lasts for 4-6 days, which is followed by fever, body ache, myalgia, arthralgia, and headache. Atypical manifestations of dengue have also been reported with multiple organ involvement. Hepatic involvement is characterized by pain in the right hypochondrium, hepatomegaly, jaundice, and elevated aminotransferase levels peaking at ninth day and gradually running to normal within 4 weeks.[1]

Thrombocytopenia and haemoconcentration are constant findings in DHF. Platelet count falls below one lakh after the third day of illness. Haemoconcentration as evidenced by an increase in the haematocrit of 20% or more indicates plasma leakage. Leucopenia usually occurs near the end of febrile phase of illness.[1] A relative lymphocytosis with more than 15% atypical lymphocytes is also common at early shock stage.[2] Deranged hepatic and renal function tests and prolonged prothrombin time are observed in severe cases of DHF[3-6]. The hematological parameters have to be repeated for monitoring and prognostic purpose, more often when patient is in intensive care unit (ICU) set-up. Dengue should be differentiated from malaria, leptospirosis, infectious hepatitis, chikungunya, sepsis, meningococcaemia, rubella, influenza and other haemorrhagic fevers. Presence of haemoconcentration along with thrombocytopenia differentiates DHF from other diseases. Normal erythrocyte sedimentation rate differentiates DHF from septic shock and bacterial infection. Atypical manifestations of dengue have been reported with multiple organ involvement. Hepatic involvement is characterized by right hypochondrium pain, hepatomegaly, jaundice, and elevated aminotransferase levels peaking at ninth day and gradually running to normal within 4 weeks.[7-10]

METHODS

This retrospective observational study was conducted after getting approval from Institutional Ethics Committee. Patients admitted with seropositivity for Dengue in General Medicine department of a rural tertiary care centre of costal Kerala during the period of four months from 01-05-2017 to 30-08-2017 were included in the study. Participants were evaluated as per the proforma designed for the study. Complete blood counts, RBS, serum creatinine and liver function tests were carried out and E.C.G was recorded in all patients. Chest X ray was taken for those who had complaints of

cough and breathlessness. All participants were positive for NS1 antigen and/or anti-dengue antibodies. Ultrasonogram of abdomen was done for those who had abdominal pain, vomiting or diarrhea. Echocardiogram was carried out only when indicated. MRI of brain and CSF study were done in those presented with altered sensorium or seizures. Patients who were on antiplatelets, those with history of diseases with thrombocytopenia, alcoholism and pregnancy were excluded from the study.

Data was analysed using SPSS version 16 software. Qualitative variables were expressed in percentages and proportions and quantitative variables were summarised in mean with standard deviation. Association between the variables and the outcome variables were tested using chi square test and p value less than 0.05 was considered as statistically significant.

RESULTS

The observation was made in 342 patients in the age group of 14 -65 years who fulfilled the inclusion criteria. All the patients were referred from other hospitals. 212 (62%) were males and 130 (38%) were females (Figure 1).

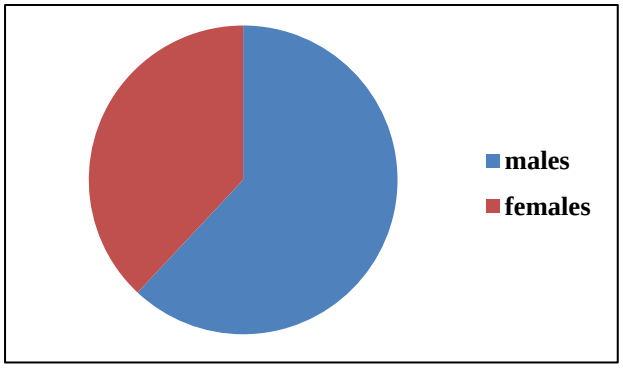

Figure 1: Sex distribution of whole sample.

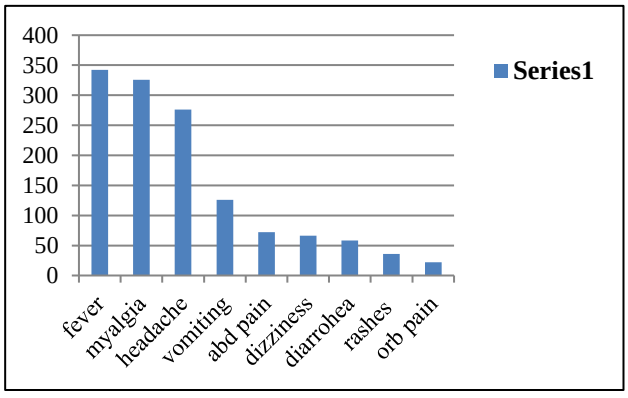

Figure 2: Distribution of presenting symptoms.

Myalgia (95.5%) was the commonest symptom next to fever. Head ache was present in 276 (80.7%) patients. Other symptoms were vomiting in 126 (36.8%), abdominal pain in 72 (21.1%) dizziness in 66 (19.3%) rashes in 36 (10.5%) and retro orbital pain in 22 (6.4%) (Figure 2).

Hemorrhagic manifestations were present in 206 (60.23%). Diarrhea was present in 58 (16.95%). An interesting observation was that all patients with diarrhea had history of consumption of papaya leaves. Hypotension was observed in 18 (5.3%), out of which only 12 patients fulfilled the criteria for dengue shock syndrome. Ascites was present in 26 (7.6%). Leucopenia was present in 172 (50.3%). 150 (43.9%) patients had a total count within the normal range (Figure 3).

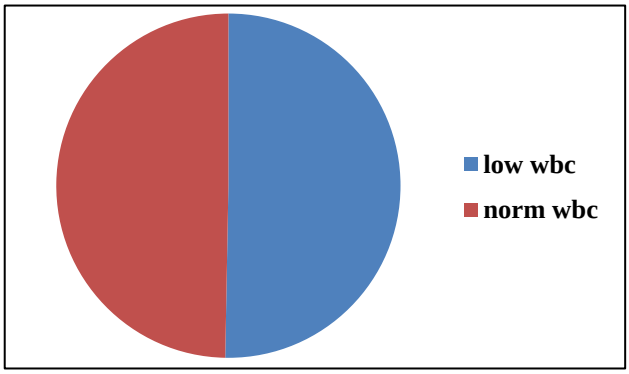

Figure 3: Leucopenia at presentation.

Platelet count at the time of admission was between one lakh and 1.5 lakh for 30 (8.77%), between 50,000 to 1 lakh in 126 (36.84%) patients, between 50000 and 20000 for 50 (14.6%), below 20,000 in 98(28.7%) and was less than 10,000 in 38 (11.1%) (Figure 4).

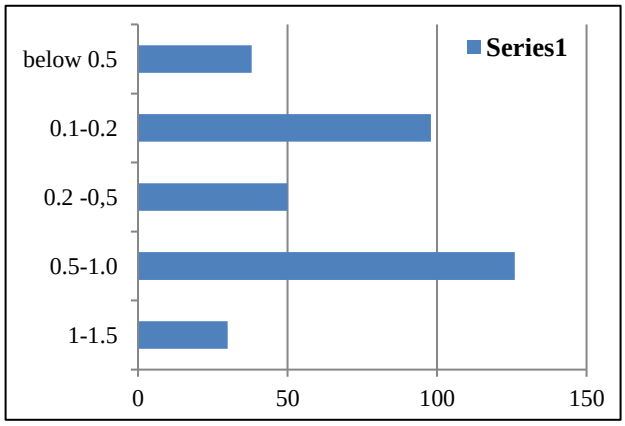

Figure 4: Thrombocytopenia at presentation.

One patient had pancytopenia and the counts came to normal levels in two weeks. Pleural effusion was present in 34 (9.94%) out of which 32 had bilateral pleural effusion with right side involved more than the left. Pericardial effusion was detected in 8 (2.3%). Out of 68 patients who underwent an ultrasonogram of abdomen, 45 were normal, 14 had a coarse liver 8 had ascites and one had splenomegaly. ECG recording showed bradycardia in 30 (8.7%), T inversion in 14 (4.1%), atrial

fibrillation in 10 (2.9%) AV block in 8 (2.3%) and ST depression in 8 (2.3%) and supraventricular tachycardia in 2 (0.58%). Serum bilirubin was elevated in 14 (4.1%). AST and ALT were elevated in 254 (74.26%). In all cases AST was more than ALT. Hypoalbuminemia was present in 40 (11.7%). Alkaline phosphatase level was normal in al (Figure 5). Two patients presented with first episode of generalized tonic clonic seizures and the MRI showed ring enhancing lesions. One patient presented with features of encephalitis. 42 (12.3%) had type 2 diabetes mellitus. 318 were diagnosed as dengue fever 12 as dengue hemorrhagic fever and 12 had dengue shock syndrome (Figure 6). Only four patients succumbed to death. 4 patients died out of this whole sample.

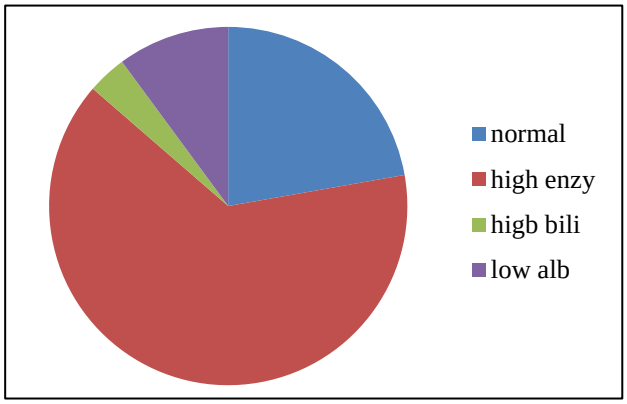

Figure 5: Liver function abnormality at presentation.

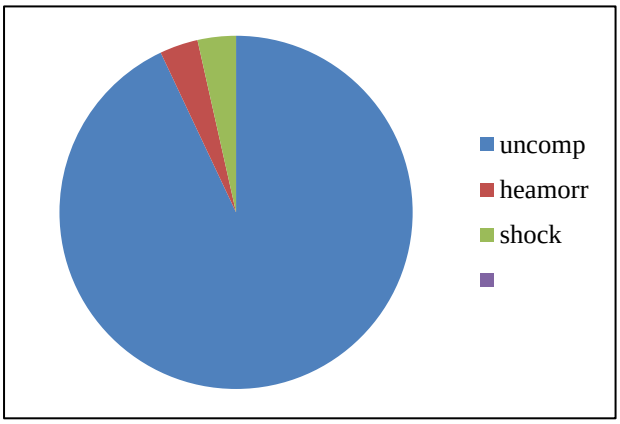

Figure 6: Diagnosis of the whole sample.

DISCUSSION

The aim of the present study is to find out the clinical profile of patients admitted with dengue fever during the epidemic in 2017 in a rural tertiary care centre in coastal Kerala. 341 patients in the age group of 14 -65 years who were admitted in the medicine department with Dengue were included in the study. W.H.O case definitions were used for the diagnosis. 317 were diagnosed as dengue fever, 12 as dengue hemorrhagic fever and 12 had dengue shock syndrome. Patients were of 14 to 85years. Most were in the age group of 45 to 60 years followed by 31 to 45 years. Males predominated. All patients were referred cases. Head ache and myalgia were the common symptoms at the time of presentation other than fever. An interesting observation was that all patients with diarrhea had history of consumption of papaya leaves.72 patients had abnormal ECG, out of which 10 had atrial fibrillation. All had normal ECG at the time of discharge, indicating a transient change during the episode. This finding is consistent with study conducted by Mohit Arora and Rekha S Patil.[3]

All the patients who presented with diarrhea had history of consumption of papaya leaves. This shows that eating papaya leaves may lead to dehydration. AST and ALT were elevated in 74.4%. In all cases AST was more than ALT. This finding is similar to the study conducted by Hien PT, et al.[6] Hypoalbuminemia was present in 40, but only 12 developed dengue shock syndrome.

CONCLUSION

This retrospective observational study included 341 patients admitted in a rural tertiary care centre in Kerala. Patients were diagnosed as per W.H.O. case definition for dengue. 317 were diagnosed as dengue fever 12 as dengue hemorrhagic fever and 12 had dengue shock syndrome. Study population was predominantly males. Head ache and myalgia were the common symptoms at the time of presentation. 72 patients had abnormal ECG, but all had normal ECG at the time of discharge, indicating a transient change during the episode. AST and ALT were elevated in 74.4%. In all cases AST was more than ALT. Hypoalbuminemia was present in 40, but only 12 developed dengue shock syndrome. Careful monitoring of clinical and biochemical parameters is necessary during dengue epidemics. Atypical manifestations of dengue should also be considered in the differential diagnosis of various diseases in different organ systems.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Poornima H, John J. Clinical profile of Dengue patients in a rural tertiary care centre of coastal Kerala. Int J Res Med Sci 2018;6:2338-42.