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Research Article

DENGUE FEVER EPIDEMIC-A CLINICAL STUDY IN A TERTIARY CARE CENTRE

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ABSTRACT

Background: There is a resurgence of dengue fever in the recent times due to the multitude of changes in environment. During the last rainy season there was again an outbreak of dengue fever in Kerala and Calicut medical college was one of the main tertiary care centres where serious cases were referred and treated.

Materials and methods: All patients admitted to medicine wards with short duration fever and with dengue NS1 antigen positivity were taken up for study. The patients were subjected to clinical examination and baseline clinical investigations according to a detailed proforma.

Results: The total number of cases were 202 patients of which 146 were males (72.3% and 56 were females (27.7%). The most common symptoms high grade fever, rash, polyarthralgia, myalgia headache vomiting. Leucopenia was seen in majority of patients 143(71%). Severe thrombocytopenia (platelet count<10000) was seen in 13% (27) patients. 23(11%) of the patients had DHF diagnosed by WHO criteria of which 4 died. 4 (1.9%) patient had DSS of which all the patients died. Hepatitis in the form of elevated liver enzymes were seen in 189 (89%) patients. All the patients who expired had very high liver enzymes. all the four patients who died has hypotension, fulminant hepatic failure serosistis and hemoconcentration and severe thrombocytopenia.

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INTRODUCTION

Dengue fever is caused by flavi virus 1,2,3,4. The incidence of dengue is increasing worldwide. In the past few years the incidence of dengue fever has increased many fold in India. Outbreaks and deaths have been reported from northern states of Haryana, Punjab and Uttar Pradesh; southern states of Andhra Pradesh, Tamil Nadu and Karnataka; western states of Gujarat and Rajasthan; and eastern state of West Bengal. Dengue fever was first reported in Kerala in 1997 in Kottayam district. First epidemic occurred in 2003 with 3546 cases and 68 deaths. Thiruvananthapuram was the worst affected district. Dengue fever has become endemic in Kerala^{1,2}. In this article we made an attempt to study the clinical profile of dengue fever epidemic in a tertiary care centre in the month of June.

Aim

To study clinical profile and laboratory abnormalities in confirmed cases of dengue fever in the month of June 2015 admitted to all medical wards of Kozhikode Medical College.

MATERIALS AND METHODS

- Inclusion Criteria: All patients with fever and had dengue NS1 antigen positive

- Exclusion Criteria: Patients who did not give consent to the study and those having a negative NS1 antigen.

All patients admitted to Medicine department in June 2015 with history of short duration fever and dengue NS 1 antigen positive were taken up for the study. Dengue NS 1 antigen was done using elisa kit.

The diagnosis of dengue fever, dengue hemorrhagic fever and dengue shock syndrome was made according to the WHO Criteria.

RESULTS

All adult patients with confirmed dengue fever and dengue NS 1 Ag positive were taken up for study. The total number of cases were 202 patients of which 146 were males (72.3% and 56 were females (27.7%). Minimum age was 13 yrs and maximum was 78 yrs. No statistically significant association was seen between age and severity of thrombocytopenia, severity of leukopenia, bleeding manifestation complications deaths.

The predominant symptoms of the patients in the descending order of frequency (table 1)

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High grade fever, rash, polyarthralgia and myalgia were the most common symptoms. The most common bleeding manifestation was bleeding gums. The median duration of fever was 4 days with a maximum duration of up to 12 days. There was no statistically significant association between the duration of fever and the complications, death or thrombocytopenia. On clinical examination hepatomegaly was found in 15 (7%) of the patients. Serositis in the form of pleural effusion and ascites was found in 23(11.4%) of the patients. Hemoglobin of >15gm% was seen in 25 patients, 12-15gm% in 192 patients and <12gm% in rest of the patients. Significant association was noted between high Hb% of >15gm% and high HCT (p=0.000), serositis (p=0.000), hepatitis (p=0.003), thrombocytopenia (p=0.004), death (p=0.045). 10 % (21) of the patients had a total wbc count of <2000cells/mm³ and 73% (143) patients had a total count between 2000-4000cells/mm³. A very low platelet count of <10000cells/mm³ was seen in 25(12.3%) pts, 135(67.5%) patients had platelet count between 10-50000, and 40 (20%) patients had a platelet count of >50000. No statistically significant association between bleeding manifestation and severity of thrombocytopenia. Severe thrombocytopenia (PLT<10,000 cu mm) is associated with Hepatomegaly (P=0.001) Hemoconcentration (HCT>45) (P=0.001) Serum albumin <3g/dl (P=0.048.)

Table 1 predominant symptoms of the patients in the descending order of frequency

Symptoms	Number of patients	Symptoms	Number of patients
High grade fever	192 (95.5%)	Jaundice	4 (1.9%)
Rash	181 (89.6%)	Bleeding gums	10 (4.9%)
Polyarthralgia	185 (91.6%)	Hemoptysis	1 (0.5%)
Myalgia	190 (94.6%)	Epistaxis	2 (1%)
Head ache	150 (74.2%)	Hematuria	1 (0.5%)
Vomiting	74 (36.6%)	Menorrhagia	3 (1.5%)
Nausea	85 (42.1%)	Hematemesis	1 (0.5%)

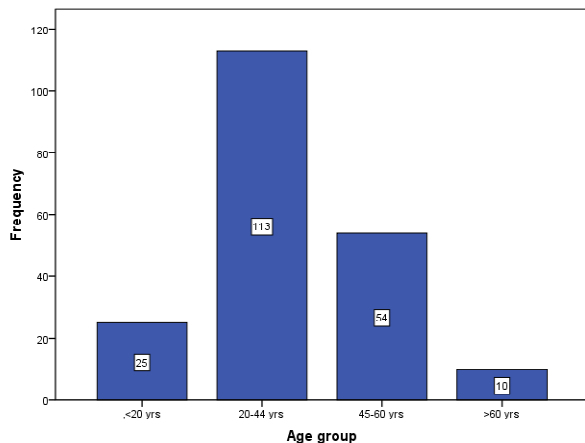


Table 2 agewise distribution of cases

All the four deaths occurred in group with platelet count<10,000 cu mm. A hematocrit of >55 was seen in 10(4.9%) patients. High hematocrit was associated with Hepatitis (P<0.001), Serositis (P<0.001), Severity of thrombocytopenia (P=0.001), Deaths (P<0.001). 8 out of 10 patients with high hematocrit developed dengue hemorrhagic fever. A serum albumin of <3gm/dl was seen in 33(16.3%) of the 202 patients. But there was no statistically significant correlation between serum albumin and other complications or

death. Serositis was seen in 23 patients and they had more incidence of complications. DHS was seen in 11% of the patients. DSS was seen in 4 (1.9%) patients and all the four died. Hepatitis in the form of transaminitis was found in 22(10.8%) patients and all the 4 patients who died had hepatitis. No significant correlation between hepatitis and hepatomegaly, serositis, thrombocytopenia. Of the 202 patients 4(1.98%) patients died. All the four patients who died had dengue hemorrhagic fever, hepatitis.

DISCUSSION

Dengue fever is a rapidly emerging serious health problem mainly in India. Kerala state has undergone many changes in climatic as well as geographic profile which has seen the resurgence of many vector borne illnesses the most important of which is dengue virus infection. In early 1990s Kerala state witnessed only a few sporadic cases of dengue infection but now Kerala has become hyperendemic for dengue infection. Our study shows a male preponderance for dengue infection. This could be due to the fact that males predominantly go out in the day time when the carrier aedes aegypti bites them. A congruent pattern was also seen in retrospective analysis of dengue infection in Udappi district of Karnataka from 2002 to 2008. But in the Observational Study of Dengue Fever in a Tertiary Care Hospital of Eastern India by Nandini Chatterjee *et al* from Kolkotta no gender difference was noted⁴. Fever rash polyarthralgia is the predominant symptom in our study which goes along with the many studies published for various parts of India. The most common bleeding manifestation was bleeding gums and it did not significantly correlate with platelet count while in the record based study from Karnataka petechiae was the most common bleeding manifestation. Hemoconcentration of >45% was seen in 10 patients. There was association between severe hemoconcentration and hepatitis, serositis, severe thrombocytopenia and death⁵. In an observational study in Chennai by Emmanuel *et al* Evidence of hepatitis defined as transaminase elevation ≥ 400 IU/l was seen in 35 (27.3%). Similar to it in the present study hepatitis was seen in 22(10.8%) of the 202 patients. All the four patients who died had transaminase level>1000IU. But in clinical and lab profile of dengue by Rajesh *et al* there was a higher incidence of hepatitis. But there was significant correlation between hepatitis and hepatomegaly, serositis, thrombocytopenia. In the clinical and lab profile of dengue fever by Rajesh *et al* Pleural effusion was documented in 20.0% on chest radiography and ascites seen in 16.31% of patients on ultrasound scan of abdomen was marginally higher from other similar studies⁶. Similarly in our present study serositis in the form of pleural effusion was seen in 23 (11.3%) patients and ascites in 16(7.9%) patients. The presence of serositis was a bad prognostic indicator and those were the patients who were managed by fluid therapy and ICU care. The overall mortality rate was 2% and all the patients had dengue shock syndrome, severe hepatitis and severe thrombocytopenia. The fatality rate is similar to that of other south east Asian countries. In An Observational Study of Dengue Fever in a Tertiary Care Hospital of Eastern India the fatality rate was 3.8% which is in par with our case fatality rate.⁷ Early diagnosis, early detection of bad prognostic factors and prompt treatment of complications will drastically reduce the mortality rate. As per

the present study the most common age group affected is young and middle aged people predominantly males. Platelet count alone is not the single major determinant of bleeding complications. There is no statistically significant correlation between the degree of leucopenia and other complications. The higher the hematocrit the more the chances of developing complications. The bad prognostic markers are hemoconcentration, serositis, hepatitis and Severe thrombocytopenia.

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