



## A study of clinical manifestations, laboratory profile and outcome of dengue fever in a tertiary care centre in South Karnataka

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### Abstract

**Background:** *Dengue is an important cause of mortality and morbidity in India. Many recent studies have shown varied clinical manifestations from different geographical locations. There is inadequacy of data on this topic from this region. The present study was conducted to find out the clinical features, complications, and outcome of patients suffering from dengue in a tertiary care centre of South Karnataka, India.*

**Methods:** *The study was performed at Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, which is a tertiary care hospital of Karnataka. The study period was of 6 months from June 2017 to December 2017. Patients of 18 years of age or above it who were antigen positive or antibody positive were included in the study. All such patients admitted in the hospital underwent distinct medical examination and investigation.*

**Results:** *Dengue infection was identified in 60 patients. Thrombocytopenia was the commonest hematological abnormality. Splenomegaly, hepatomegaly, and hepatosplenomegaly, were common findings. Renal, hepatic and cerebral dysfunctions were noted. Mortality was seen in 2 (3.3%) patients. Encephalitis, shock and ARDS were associated with high mortality and poor outcome.*

**Conclusions:** *Dengue is an important cause of mortality and morbidity in Karnataka. High index of suspicion, early diagnosis, monitoring of the clinical and laboratory parameters and prompt intervention may help in reducing the mortality.*

**Keywords:** *Dengue, Clinical manifestations, Laboratory profile, Karnataka.*

### Introduction

Dengue has recently become a major public health problem causing significant morbidity, mortality and economic loss. Dengue is endemic in more than 100 countries. Worldwide around 2.5 billion people live in dengue prone regions and about 100 million new cases are detected each year.<sup>1</sup> The WHO 2009 classification divides dengue fever into

two groups: uncomplicated and severe;<sup>2</sup> though the 1997 WHO classification is still widely used, classifying dengue in to 3 groups: dengue fever (DF), dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS).<sup>3,4</sup> The resurgence of dengue has been observed in India and varied clinical presentations are being reported in the outbreaks reported from different

geographical locations.<sup>5-11</sup>

**Methods**

This prospective study was performed at Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, which is a tertiary care hospital of Karnataka. The centre receives patients from Mandya and adjacent parts of South Karnataka, India. The study period was of 1 year from June 2017 to December 2017. The consenting patients of 18 years of age or above it who were NS1 positive or Dengue IGM/IGG positive were included in the study. All such patients who were admitted in the hospital underwent detailed clinical examination and investigation. Platelet transfusion was given when the platelet count fell below 20,000/cu.mm. or thrombocytopenia was associated with bleeding.

**Results**

Of the 60 patients 34 (56.7%) were male and 26 (43.3%) were female (Table 1). Majority patients were of younger age group. Fever was present in all 60 (100%) patients (Table 2). Headache was complained by 48 (80.0%), myalgia was complained by 43 (71.6%) patients. Breathlessness was seen in 2(3.3%). Arthralgia was noted in 40 (66.6%) patients. 12 (20%) patients had diarrhea and 28 (46.6%) had vomiting. Abdominal pain was present in 10 (16.6%), Altered Sensorium was noted in 4 (6.6%). 1 (1.6%) developed ARDS while Skin Rash was observed in 9(15%) patients. Thrombocytopenia was commonest hematological finding, noted in 56 (93.3%) patients (Table 3). Severe thrombocytopenia (<50,000 / cu. mm) was noted in 34 (56.6%). Average platelet count was 40,000/cu.mm. These findings were similar to another study conducted in Lucknow where average platelet count was found to be 35,000/cu.mm.<sup>12</sup> 36 (60%) patients were leucopenic. Deranged liver functions were observed as raised serum bilirubin (> 2.0 mg/dl) in 6 (10.0%), raised SGOT in 48 (80.0%) and raised SGPT in 28 (46.6%). Raised Serum creatinine (> 1.5 mg/dl) was noted in 6 (10%) patients.

Hepatomegaly was noted in 8 (13.3%), splenomegaly in 6 (10.0%), ascites in 16 (26.6%) and pleural effusion in 5(8.3%) and edema of the gall bladder in 22 (36.6%) patients (Table 4). 2 (3.3%) patients died (Table 5). Causes of death were shock, ARDS, encephalitis and myocarditis.

**Table 1:** Age and sex wise distribution of dengue cases

Age group	Male	Female	Total
18-30	16 (26.6%)	4 (6.6%)	20 (33.3%)
31-40	8 (13.3%)	4 (6.6%)	12 (20%)
41-50	2 (3.3%)	12 (20%)	14 (23.3%)
51-60	2 (3.3%)	4 (6.6%)	6 (10%)
61-70	4 (6.6%)	2 (3.3%)	6 (10%)
71-80	2 (3.3%)	0 (0.0%)	2 (0.7%)
Total	34 (56.7%)	26 (43.3%)	60 (100%)

**Table 2:** Clinical manifestations in dengue cases

Criteria	No. of cases (n =60)
Fever	60 (100%)
Headache	48 (80.0%)
Myalgia	43 (71.6%)
Arthralgia	40(66.6%).
Vomiting	28(46.6%)
Diarrhea	12 (20%)
Breathlessness	2 (3.3%)
Abdominal pain	10(16.6%)
Unconsciousness	4(6.6%)
ARDS	1(1.6%)
Skin Rash	9(15%)

**Table 3:** Hematological and biochemical findings in dengue cases

Criteria	No of cases (%)
Thrombocytopenia <1.5 Lakh/cu.mm.	56 (93.3%)
Thrombocytopenia <1.0 Lakh/cu.mm.	54 (90 %)
Thrombocytopenia <50,000/cu.mm.	34 (56.6%)
Thrombocytopenia <50,000/cu.mm. with bleed	12 (20%)
Leukopenia (TLC <4000/cu.mm.)	36 (60%)
Serum bilirubin >2.0 mg/dl	6 (10%)
SGOT	48 (80.0%)
SGPT	28 (46.6%)
Serum creatinine > 1.5 mg/dl	6 (10%)

**Table 4:** Ultrasonographic findings in dengue cases

Criteria	No of cases (%)
Hepatomegaly	8 (13.3%)
Splenomegaly	6 (10%)
Ascites	16 (26.6%)
Pleural effusion	5 (8.3%)
Gall bladder edema	22 (36.6%)

**Table 5:** Outcomes in dengue cases

Age Group	Required Transfusion	Required Inotropic Support	Prognosis( Mortality)
18-30	12 (60%)	0(0%)	0 (0.0%)
31-40	2 (16.6%)	0 (0%)	0 (0%)
41-50	3 (21.4%)	1 (7.14%)	1 (1.6%)
51-60	0(0%)	0(0%)	0 (0%)

61-70	2 (33%)	0 (0%)	1 (1.6%)
71-80	1 (50%)	0 (0%)	0 (0.0%)
Total	20 (33.3 %)	1 (1.6%)	2 (3.3%)

**Discussion**

Severity of dengue infection varies from influenza-like self-limiting illness to life-threatening complications like dengue hemorrhagic fever (DHF) and dengue shock syndrome. Thrombocytopenia in dengue is related to oxidative stress.<sup>13</sup> In our study this was observed in 56 (93.3%) patients. Rashes are commonly observed with severe thrombocytopenia.<sup>14,15</sup> In this study rashes were observed in 9 (15.0%) patients. Ascites pleural effusion, pericardial effusion and gallbladder wall edema are not uncommon in dengue fever.<sup>16</sup> In our study ultrasonographic evidence of ascites was seen in 16 (26.6%) and pleural effusion and gall bladder edema in 27 (45%). No case of pericardial effusion was observed in our study.

Hepatomegaly, splenomegaly, ascites and pleural effusion were usually mild, so better detected by ultrasonography. Liver dysfunction is a common feature of dengue and SGOT is usually higher than SGPT.<sup>17-19</sup> This finding was also obvious in our study. Acute kidney injury is uncommon but well recognized complication of dengue fever.<sup>20-22</sup> In our study 6 (10%) patients suffered from this complication. In our study 12(60%) patients in the age group of 18-30 years , 2(16.6%) patients in the age group of 31-40 years, 3(21.4%) patients in the age group of 41-50 years, 2(33%) patients in the age group of 61-70 years and 1(50%) patients in the age group of 71-80 years required Platelet transfusion. Similarly, 1(7.14%) in the age group of 41-50 years required Inotropic support. Mortality rate was 3.3% in our study. Another study from Kerala has reported a mortality rate of 3.2 %<sup>9</sup> while mortality as high as 20% has been reported in an earlier study.<sup>23</sup> Rare but serious manifestations of dengue include encephalitis

myocarditis, ARDS, shock, liver failure.<sup>7,24-26</sup> In this study also mortality resulted because of these complications.

### Conclusion

Dengue is an important cause of mortality and morbidity and has become a widespread infection over the past few years in South Karnataka. It presents with diverse clinical manifestations. Severe Dengue infection can lead to death therefore clinician should aim for high suspicion, early diagnosis and prompt management to help reduce the mortality and morbidity.

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