

# A study of complication and outcome of dengue managed at tertiary care institute

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## Abstract

**Background:** Dengue virus infection is a major, growing public health problem with an estimated 2.5 billion people at risk of infection. Dengue viruses can cause a wide variety of clinical illnesses ranging from mildly symptomatic dengue fever (DF) to more dangerous clinical conditions with capillary leakage syndrome such as dengue shock syndrome (DSS) and dengue hemorrhagic fever (DHF). **Aims and Objectives:** To study the complication and outcome among dengue patients admitted in tertiary care institute. **Materials and method:** In the present longitudinal study all the cases of dengue diagnosed in the year 2014 were enrolled in the present study. All the patients suspected to be suffering from dengue were tested for rapid immune-chromatography (ICT) test. Thus total 92 cases of dengue were enrolled in the present study. Demographic details of all the enrolled patients were recorded on a prestructured proforma. Detailed history along with findings of thorough general and systemic examinations was also recorded. Necessary laboratory investigations were also carried out. All patients who suffered from fever were treated with paracetamol and bed rest. Those patients, who went for complications like DHF, were treated according to the WHO protocol. All the patients were followed up daily till they were discharged from the hospital. The collected data was analyzed and presented with appropriate tables and graphs. **Results:** It was observed that 51.09% patients were having platelet count more than one lakh/cmm whereas 31.52% were having count between 50000 to 1lakh. Majority of the patients (48.91%) were having total leukocyte count less than 4000cmm. Hematocrit was raised in 35.87%. Ascites as complication of dengue was observed in 3.26% cases whereas pleural effusion was observed in 4.35%. Serious complications like encephalopathy and renal failure was observed in none of the patients. Transfusion was required in 6.52% patients. Majority of the patients (79.35%) required 6 to 10 days to recover from the disease. It was seen that 93.48% patients recovered from the disease whereas 3.26% patients improved and were discharged. 3.26% patients took discharge from hospital against medical advice. No mortality due dengue was observed in the present study. **Conclusion:** Thus we conclude that ascites and pleural effusion were the complication observed in the present study. Almost all patients recovered completely from the dengue without any associated co-morbid conditions.


**Key Words:** Dengue, outcome, complication, hospital stay.

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## INTRODUCTION

Dengue virus infection is a major, growing public health problem with an estimated 2.5 billion people at risk of infection. Dengue viruses can cause a wide variety of clinical illnesses ranging from mildly symptomatic dengue fever (DF) to more dangerous clinical conditions

with capillary leakage syndrome such as dengue shock syndrome (DSS) and dengue hemorrhagic fever (DHF).<sup>1</sup> Globally, dengue virus transmission has expanded in recent years, and all four dengue virus serotypes are now circulating in Asia, Africa, and the Americas. Dengue often presents with a confusing clinical profile. There are very less established guidelines for management of dengue fever. The dilemmas in the treatment of dengue have resulted in increased morbid periods and higher mortality. Management of all patients DHF / DSS includes administration of parenteral fluids like crystalloids initially, colloids, blood and blood products (FFP, platelets) as required. With the help of this energetic fluid therapy along with supportive measures most cases with DHF/DSS are successfully managed in hospital settings. There is no specific antiviral therapy is available, so supportive therapy is of utmost importance.

Cases with Dengue Fever are treated with antipyretics (paracetamol is the preferred antipyretic, aspirin and ibuprofen are avoided as they may precipitate bleeding), rest, good diet and fluid intake. With the invention of sophisticated diagnostic test it is now possible to identify the disease early in settings which would have been confusing in the past. Early recognition of shock, timely monitoring and proper fluid therapy has resulted in considerable reduction of mortality to one to five percent.<sup>2</sup> The mortality in DHF/DSS may be as high as 40-50 percent if left untreated. Early recognition of illness, careful monitoring and appropriate fluid therapy alone has resulted in considerable reduction of mortality to 1-5 percent. Early recognition of shock is of paramount importance as the outcome of patient with DSS depends on the duration of shock. With limited therapeutic strategies and the current lack of a vaccine, effective vector control methods are an essential component to reduce dengue-related mortality and morbidity.<sup>3</sup>

**MATERIALS AND METHOD**

The present longitudinal study was conducted in the department of community medicine of Dr Ulhas Patil Medical College, Jalgaon. All the cases of dengue diagnosed in the year 2014 were enrolled in the present study. All the patients suspected to be suffering from dengue were tested for rapid immune-chromatography (ICT) test including dengue NS1 Antigen and Dengue specific IgM and IgG antibodies. Patients showing test positive for NS1 antigen with or without antibodies, patients with either IgM or IgG antibodies positive or those positive for both antibodies included in the study. Thus total 92 cases of dengue were enrolled in the present study. Demographic details of all the enrolled patients were recorded on a prestructured proforma. Detailed history along with findings of thorough general and systemic examinations was also recorded. Necessary laboratory investigations were also carried out. All patients who suffered from fever were treated with paracetamol and bed rest. Those patients, who went for complications like DHF, were treated according to the WHO protocol. All the patients were followed up daily till they were discharged from the hospital. The collected data was analyzed and presented with appropriate tables and graphs.

**RESULTS**

**Table 1:** Distribution according to laboratory findings

		No. of patients (N=92)	Percentage
Platelet count	<10,000	1	1.09
	10,000 – 20,000	4	4.35
	20,000 – 50,000	11	11.96
	50,000 – 1,00,000	29	31.52
	>1,00,000	47	51.09
TC	< 4000	45	48.91
	4000-11000	42	45.65
PCV/ Hematocrit	>11000	5	5.43
	Normal	59	64.13
	Raised	33	35.87

It was observed that 51.09% patients were having platelet count more than one lakh/cmm whereas 31.52% were having count between 50000 to 1lakh. Majority of the patients (48.91%) were having total leukocyte count less than 4000cmm. Hematocrit was raised in 35.87%.

**Table 2:** Distribution according to Complications observed

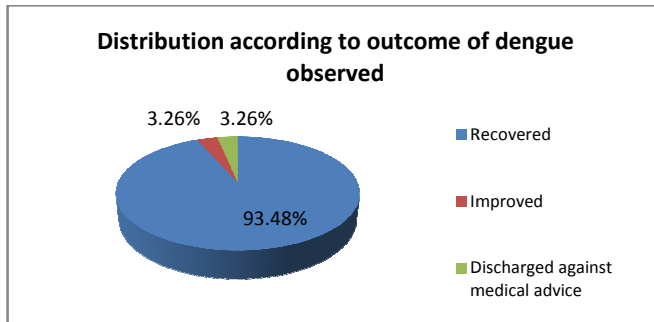
		No. of patients	Percentage
Complication	Ascites on USG	4	3.26
	Pleural effusion	3	4.35
	Encephalopathy	0	0.00
	Renal failure	0	0.00
Transfusion required	Yes	6	6.52
	No	86	93.48
Hospital stay	≤ 5 days	2	2.17
	6-10 days	73	79.35
	>11	17	18.48

Ascites as complication of dengue was observed in 3.26% cases whereas pleural effusion was observed in 4.35%. Serious complications like encephalopathy and renal failure was observed in none of the patients. Blood transfusion was required in 6.52% patients. Majority of the patients (79.35%) required 6 to 10 days to recover from the disease.

**Table 3:** Distribution according to outcome of dengue observed

Outcome	No. of Patients	Percentage
Recovered	86	93.48
Improved	3	3.26
Discharged against medical advice	3	3.26
Death	00	0.00

It was seen that 93.48% patients recovered from the disease whereas 3.26% patients improved and were discharged. 3.26% patients took discharge from hospital against medical advice. No mortality due dengue was observed in the present study.



## DISCUSSION

It was observed that 51.09% patients were having platelet count more than one lakh/cmm whereas 31.52% were having count between 50000 to 1lakh. Ritu Karoli<sup>4</sup>, Rachel Daniel<sup>5</sup>, Malavige *et al*<sup>6</sup> and NP Singh *et al*<sup>7</sup> also observed thrombocytopenia in majority of the patients. Majority of the patients (48.91%) were having total leukocyte count less than 4000cmm. Hematocrit was raised in 35.87%. Similar findings were also reported by Krishnamurthy K. *et al*<sup>8</sup> and Fu-Xi Qiu *et al*<sup>9</sup>. Thus leukocytopenia is associated with dengue. Various serious complications liver failure, encephalopathy, myocarditis, acute renal failure, DIC, and haemolytic uraemic syndrome may be observed in serious dengue infection<sup>10</sup>. Even though the complications are rare, the frequency is increasing in the recent years. None of the above mentioned serious complication was observed in the present study. Ascites as complication of dengue was observed in 3.26% cases whereas pleural effusion was observed in 4.35%. NP Singh *et al*<sup>11</sup> observed pleural effusion as complication of dengue in 2% patients whereas Krishnamurthy K *et al*<sup>8</sup> observed pleural effusion in 13.1% patients. Sharma *et al*<sup>12</sup> showed 5.10% patients had ascites due to dengue. There is no specific effective drug against dengue. Thus management net of dengue is mainly symptomatic. Proper maintenance of fluid balance is a cornerstone in management. Early identification of the leakage phase with prompt resuscitation helps to reduce complications and improve outcome. Mortality rates have been low in patients admitted early to hospital before the onset of shock.<sup>13</sup> Blood transfusion was required in 6.52% patients. In the present study platelet transfusions was given to patients who developed serious haemorrhagic manifestations or who were having very low platelet counts. Although the exact platelet count at which platelet transfusions should be given is debatable. Transfusion requirements correlated with the occurrence of bleeding in the gastrointestinal tract and not with platelet counts. Majority of the patients (79.35%) required 6 to 10 days to recover from the disease. It was seen that 93.48% patients recovered from the disease whereas 3.26% patients improved and were discharged. 3.26%

patients took discharge from hospital against medical advice. No mortality due dengue was observe din the present study. In a study Tripathi BK *et al*<sup>13</sup> observed eleven patients died out of 560 patients of dengue, majority of them were due to massive gastric haemorrhage. Fu-Xi Qiu *et al*<sup>9</sup> observed that 10 patients died out of 154 patients of DHF and the causes of death were shock, pulmonary or cerebral haemorrhage, DIC, massive gastrointestinal haemorrhage and pancytopenia syndrome.

## CONCLUSION

Thus we conclude that ascites and pleural effusion were the complication observed in the present study. Almost all patients recovered completely from the dengue without any associated co-morbid conditions.

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