

Article

# A prospective study for assessment of cases of dengue fever in pediatric patients

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**Abstract:** **Aim:** To assess cases of dengue fever in Pediatric patients.

**Methodology:** Sixty-eight pediatric cases of dengue of both genders were included in the study. Clinical features and laboratory findings were recorded. Statistical analysis was performed using appropriate tests.

**Results:** Out of 68 patients, boys were 38, and girls were 30. Common symptoms were fever in 95%, vomiting in 68%, loose stools in 22%, periorbital puffiness in 10% and respiratory distress in 26, pain abdomen in 47% cases. The mean hemoglobin level at admission was 12.6 gm% and at discharge was 12.7gm%. The mean TLC was 56210 cumm of blood at admission, and at discharge was 122452 cumm of blood.

**Conclusion:** Common symptoms were fever, vomiting, respiratory distress and pain abdomen. Hence careful evaluation of dengue in children is required.

**Keywords:** Dengue; Children; Respiratory distress; Mortality.

## 1. Introduction

Dengue fever is a commonly seen viral infection among all age groups. The number of dengue-affected patients is on the rise universally. It has a great effect on the social and economic life of the individual. The morbidity, as well as mortality rate of dengue infection in the USA, has doubled in the last ten years [1]. It is caused by mosquito *Aedes albopictus* and *Aedes aegypti*. It presents as fever, muscle pain, rashes over the body, headache, bodyache, etc. The reason for the increased incidence of dengue infection may be urbanizations, poor vector control, and sanitation [2]. It has become a matter of great concern and has spread to tropical as well as subtropical countries. It has been evident that there have been more than 34% dengue infected patients in India only, which accounts for one-third of world cases [3].

Vellore of Andhra-Pradesh was the first city that reported the first dengue case, and haemorrhagic fever occurred in Calcutta in 1963. In India, the annual incidence is calculated to be 7.5 to 32.5 million[3]. World Health Organization reported the fatality rate for dengue to be as high as 5%. DENV-2 is the prevailing serotype [4]. The severe forms of dengue infection are dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS), and maybe as high as 44%. The mortality rate is expected to be less than 1% with early assessment of prompt treatment. Dangerous complications may arise from dengue infection. The cases of dengue re-infection tend to be severe in children due to immunological factors [5]. Considering this, we selected the present study to determine cases of dengue fever in the Pediatric population.

## 2. Methodology

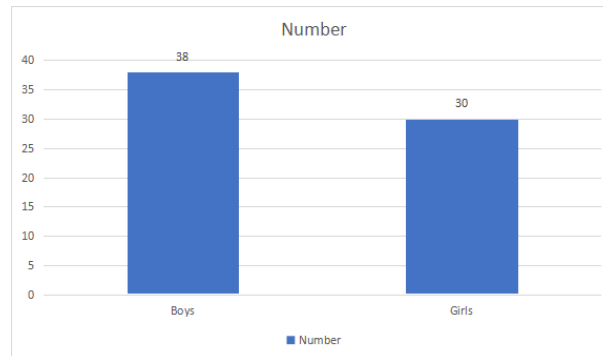
A total of 68 pediatric cases of dengue of both genders were included in the study. Parental consent for participation in the study was taken. Ethical approval was sorted before starting the study as well. A thorough clinical examination was performed. Parameters such as assessment of haemoglobin (Hb), platelet number, serology of dengue, haematocrit, ultrasound (USG) of abdomen and thorax, chest radiography, duration of hospital stay, and outcome were recorded. Results of the study were compiled, entered into an MS excel sheet, and statistical analysis was done. P-value <0.05 was set significant.

### 3. Results

Our study revealed that there were 38 boys and 30 girls (Table 1, Figure 1).

**Table 1.** Distribution of patients

Total- 68		
Gender	Boys	Girls
Number	38	30

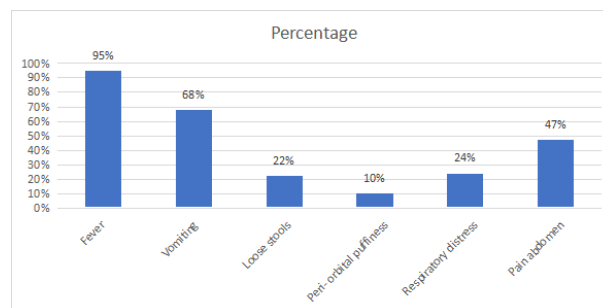


**Figure 1.** Graphically representation of distribution of patients

Common symptoms were fever in 95%, vomiting in 68%, loose stools in 22%, periorbital puffiness in 10% and respiratory distress in 26, pain abdomen in 47% cases. On statistical analysis, a significant difference was observed ( $P < 0.05$ ) (Table II, graph II).

**Table 2.** Evaluation of clinical findings

Symptoms	Percentage	P value
Fever	95%	<0.05
Vomiting	68%	
Loose stools	22%	
Peri- orbital puffiness	10%	
Respiratory distress	24%	
Pain abdomen	47%	

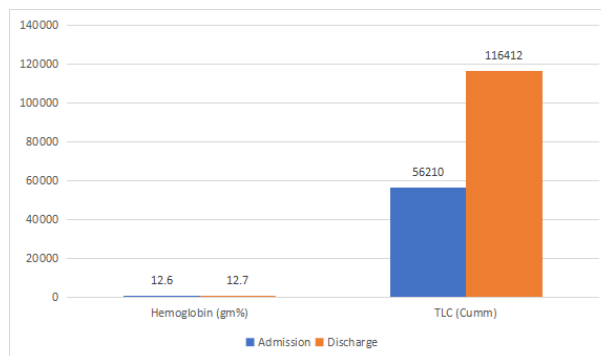


**Figure 2.** Graphically representation of evaluation of clinical findings

The mean hemoglobin level at admission was 12.6 gm% and at discharge was 12.7gm%. The mean TLC was 56210 cumm of blood at admission, and at discharge was 122452 cumm of blood. On statistical analysis, a significant difference was observed ( $P < 0.05$ ) (Table 3, Figure 3).

**Table 3.** Evaluation of laboratory parameters

Parameters	Admission	Discharge	P value
Hemoglobin (gm%)	12.6	12.7	>0.05
TLC (Cumm)	56210	116412	<0.05

**Figure 3.** Graphically representation of evaluation of laboratory parameters

#### 4. Discussion

Dengue infection is found to greatly impact social and mental health. There has been an increase in dengue-infected patients worldwide [6]. It is widely observed readily mosquito-borne viral disease with 30 times increase in cases in last five decades [7,8].

In order to evaluate the magnitude of the problem and to guide and assess public health interventions, a dependable system is needed to permit effective valuation of the harm caused by the disease and the changing patterns of morbidity and mortality. However, previous studies have identified problems that may affect the notifications of dengue fever cases, hence compromising the validity of the information [9,10]. The present study was conducted to assess cases of dengue fever in the Pediatric population. In the present study, out of 68 patients, boys were 38, and girls were 30. Common symptoms were fever in 95%, vomiting in 68%, loose stools in 22%, periorbital puffiness in 10%, respiratory distress in 26, and pain abdomen in 47% cases. Romero-Vega *et al.*, [11] conducted a case-control study among 4,359 dengue patients. It was observed that 17 patients were found to have severe dengue fever, 461 had dengue fever, whereas 904 had dengue fever and no warning signs. Results showed that there was 13.2% global sensitivity and 98.4% specificity. Sensitivity varied according to severity: 12.1% for patients presenting dengue fever with no warning signs; 14.5% for those presenting dengue fever with warning signs, and 40.0% for those with severe dengue fever.

Pothapregada *et al.*, [12] found that there was 60.9% non-severe and 39.1% severe dengue infection out of 261 cases of dengue fever. More males than females (1.2:1), and the mean age was  $6.9 \pm 3.3$  years. Fever was seen in 94.6%, conjunctival congestion in 89.6%, 81.9% exhibited myalgia, 79.7% had coryza. The headache was present in 75.1%, palmar erythema was commonly observed in 62.8%, and 51.3% showed retro-orbital pain. The common early warning signs at admission were persistent vomiting seen in 75.1%. Liver enlargement was seen in 59.8%, 45.2% exhibited cold and clammy extremities, 31.0% showed pain in the abdomen, 29.5% patients presented with hypotension, 26.4% had restlessness, giddiness was seen in 23.0%, bleeding in 19.9% and 18.4% had oliguria. The common manifestation of severe dengue infection was shocking, evident in 39.1%, bleeding in 19.9%, and multi-organ dysfunction seen among 2.3% cases.

A study by Kumar *et al.*, [13] performed in the year 2017 included 52% of the cases of dengue fever. 16.6% of cases were dengue fever with warning signs, and 31.4% had severe dengue infection out of total patients. Fever was seen in all patients, vomiting in 77%, 56.25% had respiratory distress, 54.1% had a generalized weakness, and pain abdomen was seen among 33.3%. Loose stools were seen in 6.25%, periorbital puffiness in 6.25%. 4.1% had altered sensorium, 2% showed oliguria, and bleeding manifestations were seen in 2% of all cases. Improvement was seen in 70.8% of children without complications, and complications were seen in 20.8%; complications were acute respiratory distress syndrome (ARDS), acute liver failure, DSS, and meningitis. Discharge against medical advice was seen in 6.25% children, and 2% of children expired during treatment. Prompt treatment is only possible if cases are diagnosed early with the help of assessment of NS1

antigen, platelet counts, packed cell volume, red cell distribution width, mean cell haemoglobin level, and mean cell haemoglobin concentration level [14–17].

## 5. Conclusion

Authors found that common symptoms were fever, vomiting, respiratory distress and pain abdomen. Hence careful evaluation of dengue in children is required.

**Author Contributions:** All authors contributed equally to the writing of this paper. All authors read and approved the final manuscript.

**Conflicts of Interest:** “The authors declare no conflict of interest.”

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