

## A Study on Prevalence, Clinical Manifestations and Outcomes in Dengue Fever in Paediatrics Department of a Tertiary Care Hospital

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Date of Submission: Date of Acceptance:

**ABSTRACT:** Dengue is an endemic disease that is quickly emerging in more than 100 countries around the world. India is one of the seven identified countries in the South-East Asia region regularly reporting dengue fever (DF) /dengue haemorrhagic fever (DHF) outbreaks.

**METHODS:** A prospective observational study was conducted to evaluate the prevalence, clinical manifestations and outcomes of paediatric dengue patients admitted in a government general hospital, Kurnool from December 2021 to May 2022.

**Results:** In a sample of 103 cases, Gender distribution shows that females 53 (51.45%) were mostly affected when compared with males 50 (48.54%) and the p value is (p=0.79). The most affected age group was Early childhood between 6 to 11 years is 48% i.e.; males (24) & females (24). High-grade fever (100%) was most common symptom in all the cases. Typically, the onset of fever was associated with vomiting 51 cases (49.51%), Abdominal pain 45 cases (43.6%), Headache 3 cases (2.9%), Rashes 9 cases (8.7%), Seizures 1 case (0.9%), and loose stools 6 cases (5.8%) are observed. The clinical complications shows that Hypovolemic shock cases (15%) are mostly seen in males (11). In our study, 2 incidents of shock-related deaths were reported.

**Conclusion:** Our study concluded that fever and vomiting were most common symptoms of dengue. The females are more prone when compared with males. Mortality rate was low in the present study. The death rate is usually high in Dengue Haemorrhagic Fever and Dengue Shock Syndrome but it can be treated if it was recognized early.

**KEYWORDS:** Dengue Haemorrhagic Fever (DHF), Dengue Shock Syndrome.

### INTRODUCTION

Dengue fever is an acute infectious virus disease, also called "bone fever". It is an arthropod-borne illness in human. And it is caused by a virus called Flavivirus with four serotypes viz. DENV-1, DENV-2, DENV-3 and DENV-4. Dengue is often a leading cause of illness in areas of risk. Once affected person acquire long life serotype specific immunity.

Dengue infection is caused by the dengue virus [DENV], which is a single-stranded RNA virus that is approximately 11 kilobases long with icosahedral nucleocapsid and covered by a lipid envelope. The virus is in the family Flaviviridae (genus Flavivirus) and the type specific virus is yellow fever. Dengue is transmitted to the people through the bite of an infected Aedes species (principally Ae. aegypti or Ae. albopictus) female mosquito. Recovery generally takes two to seven days. In a small proportion of cases, the disease develops into a leakage, or into dengue shock syndrome, where dangerously low blood pressure occurs.

The dengue virus is spread through a human-to-mosquito-to-human cycle of transmission. Typically, four days after being bit by an infected Aedes aegypti mosquito, a person will develop viremia, a condition in which there is a high level of the dengue virus in the blood. Viremia lasts for approximately five days, but can last as long as twelve days.

On the first day of viremia, the person generally shows no symptoms of dengue. Five days after being bit by the infected mosquito, the person develops symptoms of dengue fever, which can last for a week or longer. After a mosquito feeds on the blood of someone infected with the dengue virus, that mosquito becomes a dengue vector. The

mosquito must take its blood meal during the period of viremia, when the infected person has high levels of the dengue virus in the blood. Once the virus enters the mosquito's system in the blood meal, the virus spreads through the mosquito's body over a period of 8 to 12 days.

After this period, the infected mosquito can transmit the dengue virus to another person while feeding. Female mosquitoes require blood to produce eggs, so they bite humans. Each female mosquito can lay multiple batches of eggs during its lifetime, and often *Aedes aegypti* take several blood meals before laying a batch of eggs.

When a female mosquito is infected with the dengue virus, the virus is present in its salivary glands and the virus is passed on when it bites the person.

## II. OBJECTIVES

1. To Estimate the prevalence of dengue fevers among paediatric inpatients.
2. To assess the symptoms with warning signs, without warning signs and severe symptoms of dengue fever.
3. To assess the complications in dengue in paediatric department.

## III. METHODOLOGY

**STUDY DESIGN:** Prospective observational Study.

**STUDY PERIOD:** The present study was conducted for a period of 6 months from December 2021 to May 2022.

**STUDY SITE:** The Present Study was conducted at Paediatrics Department, Government General Hospital, Kurnool.

**SAMPLE SIZE:** A total of 103 cases were collected and studied.

## INCLUSIVE CRITERIA:

1. Only inpatients are involved in the studies, who are admitted for treatment in hospital.
2. Patients of age 1-12 years are included in our study.
3. Patients of either gender is considered.
4. Patients diagnosed with warning, without warning signs and severe symptoms.
5. Patients with complications like shock, encephalitis, hepatitis, bleeds, renal failure, septicaemia.

## EXCLUSIVE CRITERIA:

1. Patients who were receiving medications other than allopathic drugs.
2. Patients below 1 year and above 12 years are excluded in this study.
3. Outpatients are excluded from the study because they don't stay at hospital.

## IV. PLAN OF STUDY

•All the patients satisfying the inclusion criteria were selected from the Paediatrics Department in Government General Hospital, Kurnool.

•All the data for study was collected from the subjects by using proforma.

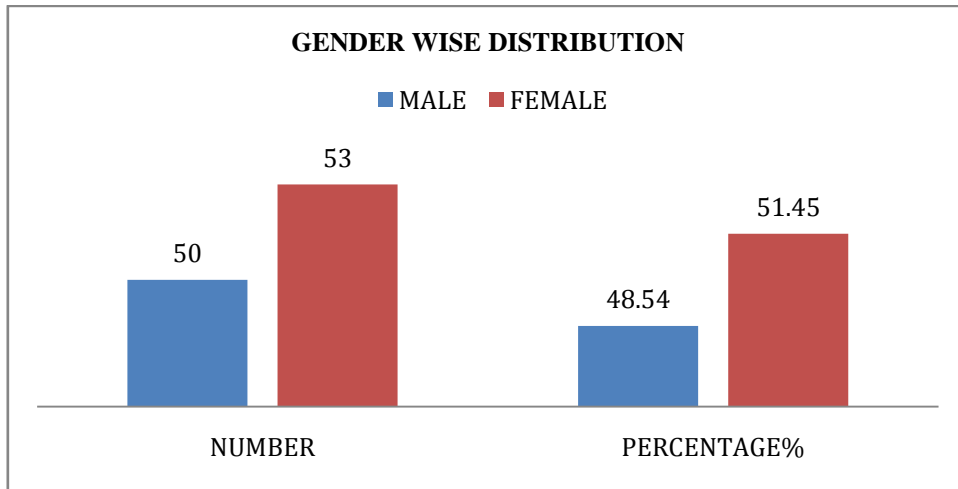
•The data collection includes Demographic details, Chief complaints, Serology of Dengue, Family history, Personal history, Complications, Complete blood picture, Laboratory analysis, Treatment plan, Duration of stay.

## V. RESULTS

### 5.1. GENDER WISE DISTRIBUTION

The Gender Wise distribution was found to be is in females 53 (51.45%) followed by males with 50 (48.54%).

GENDER	NUMBER	PERCENTAGE
MALE	50	48.54
FEMALE	53	51.45

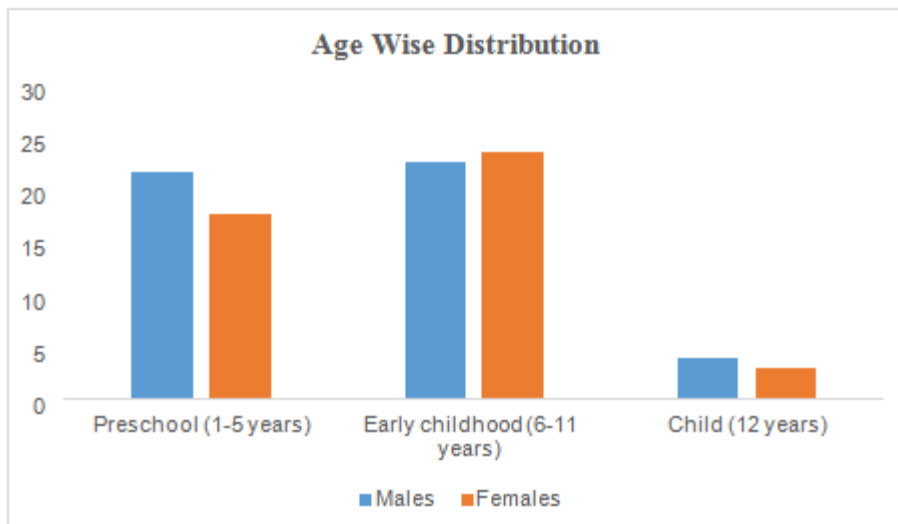


**5.1. A. GENDER WISE DISTRIBUTION**

**5.2: AGE WISE DISTRIBUTION:-**

The Age Wise distribution was found to be

Age Group	Males	Females
Preschool (1-5 years)	22	19
Early childhood (6-11 years)	24	24
Child (12 years)	5	3

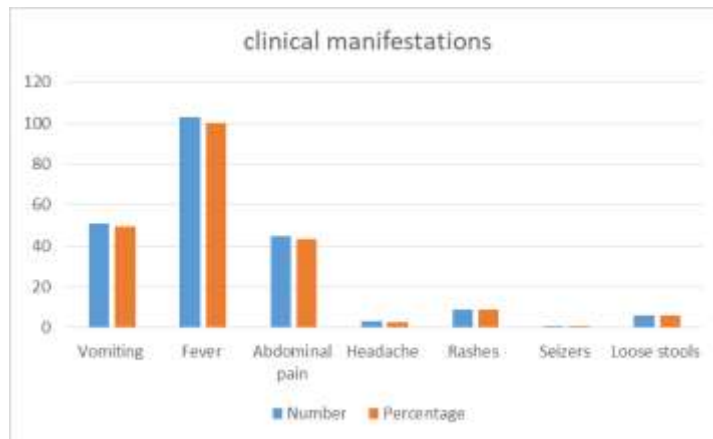


**5.2. B. AGE WISE DISTRIBUTION**

**5.3. Distribution based on Clinical Manifestations:-**

Parameters	Number	Percentage
Vomiting	51	49.51
Fever	103	100
Abdominal pain	45	43.6
Headache	3	2.9

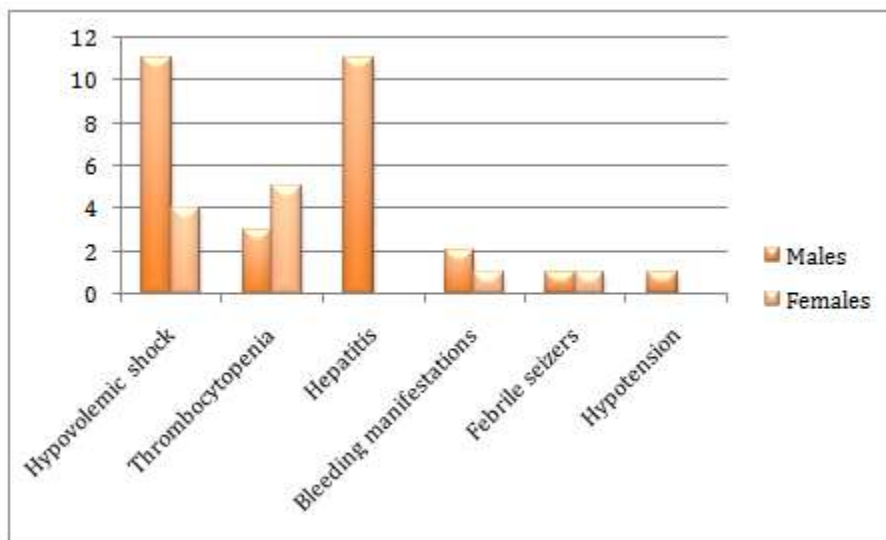
Rashes	9	8.7
Seizers	1	0.97
Loose stools	6	5.8



**5.3. C. Clinical Manifestations**

**5.4. Distribution based on complication:-**

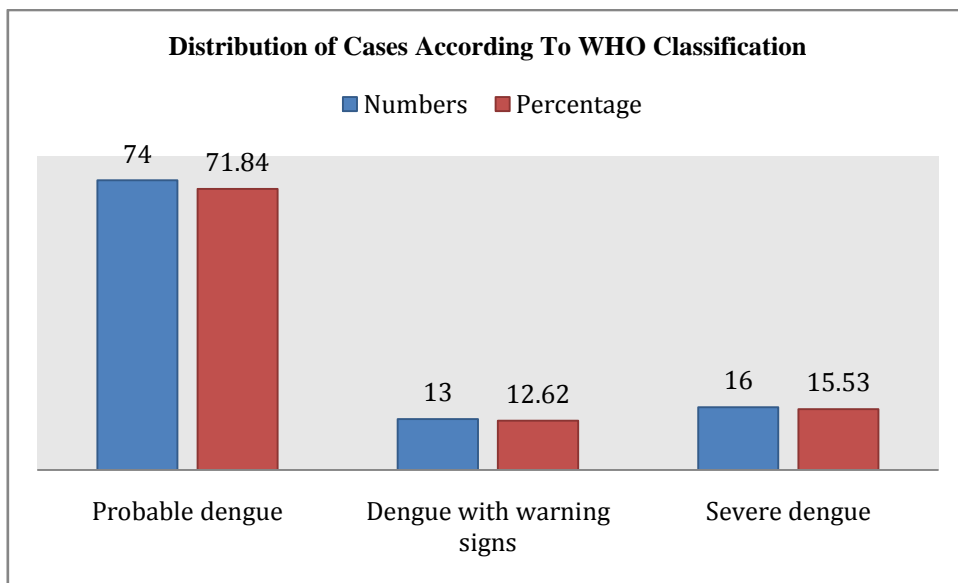
Complications	Males	Females
Hypovolemic shock	11	4
Thrombocytopenia	3	5
Hepatitis	11	0
Bleeding manifestations	2	1
Febrile seizers	1	1
Hypotension	1	0



**5.4. D. complication**

**5.5. Distribution of Cases According To WHO Classification**

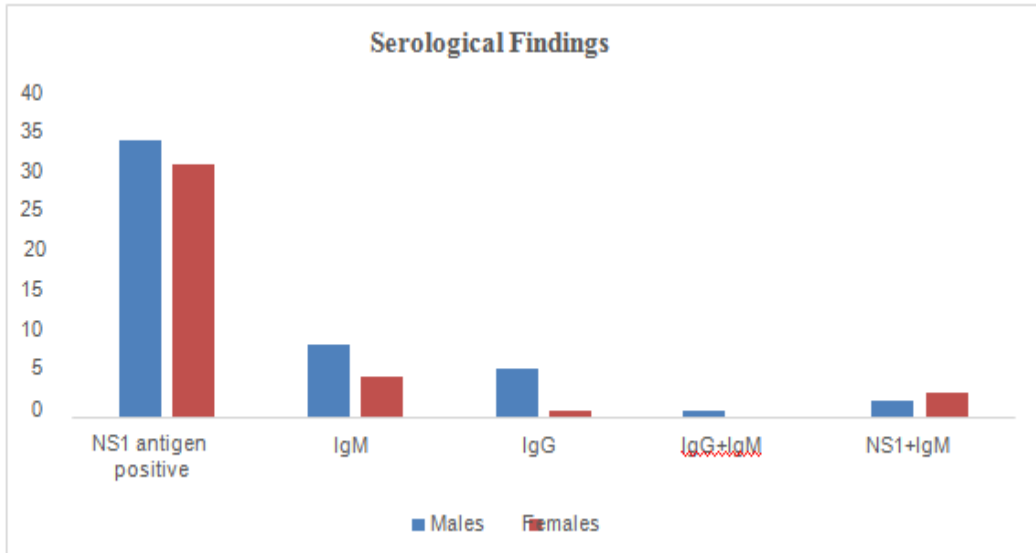
Classification	Numbers	Percentage
Probable dengue	74	71.84
Dengue with warning signs	13	12.62
Severe dengue	16	15.53



**5.5. E Distribution of cases according to WHO Classification**

**5.6 Distribution based on Serological Findings**

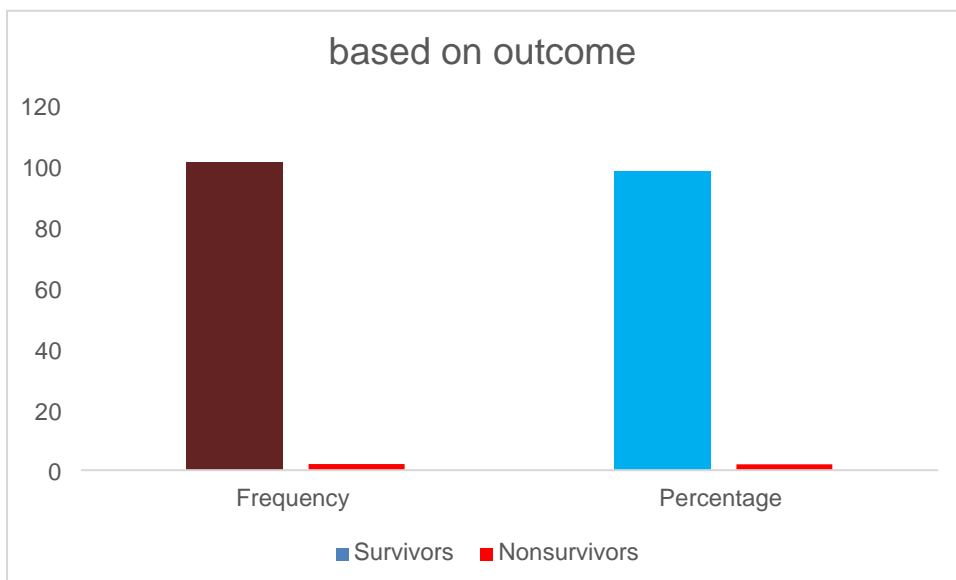
Serological tests	Males	Females
NS1 antigen positive	34	31
IgM	9	5
IgG	6	1
IgG+IgM	1	0
NS1+IgM	2	3



5.6. F Distribution based on Serological Findings

5.7 Distribution based on Clinical Outcomes

	Frequency	Percentage
Survivors	101	98.05
Non survivors	02	1.94



5.7. GBASED ON OUTCOME

VI. DISCUSSION

The study was conducted in Paediatrics Department at Government General Hospital, Kurnool over a period of 6 months i.e., from December 2021 to May 2022.

The present study shows the prevalence, clinical manifestations and outcome of dengue fever in tertiary care hospital.

In a sample of 103 cases, Gender distribution shows that females 53 (51.45%) were

mostly affected when compared with males 50 (48.54%) and the p value is (p=0.79)

According to Age wise distribution, Pre-school age group between 1-5 years were 41% mostly seen in males (22) than in females (19), Early childhood age group between 6-11 years were 48% i.e.; males(24) & females(24) , and Child age group of 12 years were 8% mostly in males(5) than in females(3). The most affected age group was early childhood between 6 to 11 years.

Based on clinical manifestations, High-grade fever (100%) was most common symptom in all the cases. Typically, the onset of fever was associated with vomiting 51 cases (49.51%), Abdominal pain 45 cases (43.6%), Headache 3 cases (2.9%), Rashes 9 cases (8.7%), Seizures 1 case (0.9%), loose stools 6 cases (5.8%).

The clinical complications shows that Hypovolemic shock cases (15%) are mostly seen in males(11) when compared with females(4) followed by Thrombocytopenia 8% i.e.; males(3) females(5), Hepatitis 11% seen only in males(11), Bleeding Manifestations 3% i.e.; males(2) females(1), Febrile Seizures 2% i.e.; males(1) females(1), Hypotension 1% seen only in males(1).

Based on clinical and hematological features most of the cases were Probable dengue i.e.; 74 cases (71.84%), Dengue with warning signs were 13 cases (12.62%) & Severe dengue were 16 cases (15.53%).

Serological findings of dengue report in the sample shows that most of the cases were proven by NS1 antigen positive is 55% i.e.; males (34) females (31) whereas IgM positive were 14% i.e.; males(9) females(5), IgG positive were 7% i.e.; males(6) females(1), IgG and IgM positive were 1% seen only in males(1) , NS1 and IgM positive were 5% i.e.; males(2) females(3) were observed.

Among 103 cases, 101 cases (98.05%) were discharged in stable condition, 2 cases left against medical advice and 2 (1.94%) cases were died. Among 2 deaths, one case was IgM positive and another case was NS1 antigen positive.

The cause of the death cases was due to SHOCK. Hence, the early recognition of signs and symptoms of dengue fever is very important for successful outcome.

The overall mortality rate of dengue fever is low in the sample. If it is recognized early and treated appropriately then we can overcome the death rate in dengue.

According to other clinical studies the death rate is high in Dengue Haemorrhagic Fever and Dengue Shock Syndrome.

As dengue infection is a recent addition to the already existing endemic infections often reaching epidemic proportions, the knowledge regarding its presentation, clinical and biochemical features and best management practices are the keys to the successful outcome.

## VII. CONCLUSION

Dengue is the most extensively spread mosquito-borne disease; endemic in more than 100 countries. India is one of the seven identified countries in South-East Asia region regularly reporting dengue fever (DF)/dengue haemorrhagic fever (DHF) outbreaks.

Our study has concluded that Fever with vomiting were most common symptom of dengue fever. The females are more prone when compared with males and age group of early childhood were more prone to dengue with 48 cases when compared with other age groups.

Probable dengue cases were more i.e.; 71.84%, whereas serology of dengue shows more cases of NS1 antigen positive i.e.; 55%.

From our study we can conclude that the overall mortality rate of dengue fever is low. Early diagnosis and appropriate treatment of dengue can overcome the death in Dengue haemorrhagic Fever and Dengue Shock Syndrome.

The knowledge regarding the dengue presentation, clinical and biochemical features and best management practices are the keys to the successful outcome.

Similarly, public awareness regarding preventive strategies is essential to fight against the disease.

## VIII. RECOMMENDATIONS

Pharmacists and other health care providers should be adequately trained and resourced to offer proper counselling to the dengue patients on their medication and disease condition. Pharmacist can do study on symptoms, complications and how many days taking to recovery in dengue patient.

Better health promotion and education strategies and intervention programs should be adopted for long term control of dengue.

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