



CLINICAL PROFILE AND OUTCOME OF DENGUE INFECTION IN INFANTS IN A RURAL TERTIARY CARE HOSPITAL, SOUTH INDIA

Pediatrics

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ABSTRACT

Introduction: Dengue viral infection caused by flavivirus transmitted by Aedes mosquito. Globally 50 million dengue infections are reported annually and it has been identified as one of the 17 neglected tropical diseases by WHO. The clinical manifestation ranges from benign dengue fever to life threatening dengue hemorrhagic fever/ dengue shock syndrome. This study was undertaken to know the clinical profile and outcome of dengue viral infection in infants.

Materials & Methods: This is a Retrospective study carried form July 2016 to June 2017. Infants with serology positive for Dengue Ns1Ag and IgM and treated as per WHO 2012 guidelines were included in the study. Their demographic detail, history, clinical features were collected, categorised and processed for statistical analysis.

Results: A total of 46 infants were enrolled in the study. Male to female ratio was 1.55:1. Majority of infants were in category B (65.2%). Fever was the most common presentation (95.6%) followed by Respiratory, Gastrointestinal and CNS manifestation. Thrombocytopenia was seen in all infants. Supportive care like ionotropes, ventilator support and blood products were required in Severe Dengue infants. Complete recovery after treatment was noted in 95.6% and mortality was 4.3%.

Conclusion: This study shows a picture of varied clinical features in infants affected with dengue illness with non specific manifestations including respiratory and gastrointestinal manifestations as compared to older children. Early hospitalisation and management as per guidelines helps to reduce the morbidity & mortality among infants and helps for a better outcome.

KEYWORDS

INTRODUCTION

Dengue ranks as the most important, rapidly emerged mosquito-borne viral disease in recent years and is endemic in all continents. The agent of dengue, fever i.e. dengue viruses, is categorized under the genus Flavivirus. There are four dengue virus serotypes which are designated as DENV-1, DENV-2, DENV-3 and DENV-4. Dengue viruses are transmitted from an infected person to others by the bite of the female aedes mosquito. In India, Aedes Aegypti is the main vector in most urban areas; however, Aedes Albopictus is also incriminated in many states.

Globally 50 million dengue infections are reported annually and it has been identified as one of the 17 neglected tropical diseases by WHO.¹ It has shown an increase due to various reasons – construction activities, lifestyle changes, deficient water management, improper water storage, stagnation of rain water in containers lying outside houses and practices leading to proliferation of vector breeding sites in urban, semi-urban and rural areas.

The clinical manifestations range from benign dengue fever (DF) to life threatening dengue hemorrhagic fever (DHF)/dengue shock syndrome (DSS). The manifestations in infants with nonspecific symptoms like cough, cold, gastroenteritis like illness, convulsion and hepatic dysfunction. This retrospective observational study was undertaken to understand the clinical profile among the infants so that early hospitalisation and management as per guidelines helps to reduce the morbidity and mortality among infants and helps for a better outcome.

MATERIALS & METHODS

This is a Retrospective study carried out at Pediatric intensive care unit in RL Jalappa Hospital, Kolar. Study period was from July 2016 to June 2017. Infants presenting with clinical features suggestive of dengue viral infection with serology positive for Dengue Ns1Ag and IgM and treated as per WHO 2012² guidelines were included in the study. Their demographic Details, history, clinical features and investigations were collected, categorised and processed for statistical analysis.

RESULTS

A total of 46 patients who met the above criteria were enrolled, there were 28 (60.8%) male and 18 (39.2%) females, with male to female ratio- 1.55:1. On admission, 30 infants belonged to Category B (65.2%), 10 infants belonged to Category C (21.7%) and 6 belonged to category A (13%).

Fever was the most common presentation (95.6%) followed by Cough/ URI (65.2%), Vomiting (50%), Loose Stools (45.6%), Refusal of feed (45.6%), Flushing (39.1%), Abdomen pain (34.8%), Excessive crying (34.8%), Abdomen distension (28.3%), Malena (17.4%), Petechiae (10.9%), Convulsion (6.5%), Altered sensorium (4.3%), Hepatomegaly (54.3%), and Splenomegaly (10.9%).

Thrombocytopenia was seen in all infants. All the infants had thrombocytopenia 86 (100%), Hemoconcentration was seen in 25 cases on admission (54.3%), Prolonged PT & aPTT was seen in 18 cases (39.1%) & Liver enzymes were deranged in 20 (43.5%). Among dengue serological markers 12 (26%) infants were NS1Ag positive, IgM Dengue positivity seen in 15(32.6%), both NS1Ag and IgM positivity seen in 19(41.3%).

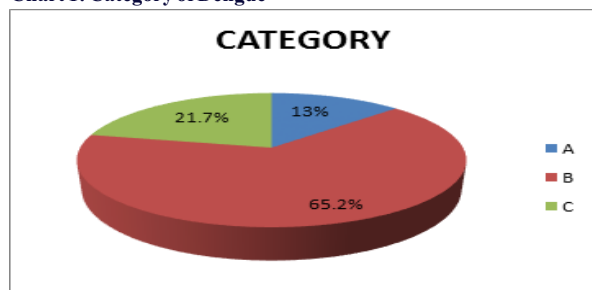
Among the 10 category C infants, 7 (70%) required FFP transfusion, 5 (50%) required packed red blood cells 9 (90%) required ionotropes and 4 (40%) needed ventilator support. Complete recovery after treatment was seen in 44 infants (95.6%) and mortality was seen in 2 infants (4.3%) belonging to category C.

Table 1: Gender Distribution

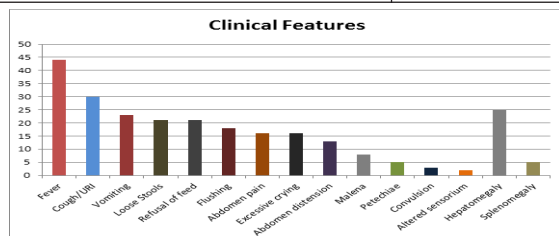
GENDER	No of Infants	Percentage (%)
Male	28	60.8
Female	18	39.2
Total	46	100

Table 2: Lab Parameters

Clinical features	Number	Percentage (%)
Fever	44	95.6
Cough/ URI	30	65.2
Vomiting	23	50
Loose Stools	21	45.6
Refusal of feed	21	45.6
Flushing	18	39.1
Abdomen pain	16	34.8
Excessive crying	16	34.8
Abdomen distension	13	28.3
Malena	8	17.4
Petechiae	5	10.9
Convulsion	3	6.5
Altered sensorium	2	4.3
Hepatomegaly	25	54.3
Splenomegaly	5	10.9

Chart 1: Category of Dengue**Table 3: Clinical Features**

Lab Parameters	No (%)
Thrombocytopenia	46 (100%)
Hemoconcentration	25 (54.3%)
Altered LFT	20 (43.5%)
Prolonged PT and aPTT	18 (39.1%)
NSI Ag positive	12 (26%)
Dengue IgM positive	15 (32.6%)
Both NSI Ag and IgM positive	19 (41.3%)

**Chart 2: Clinical features**

DISCUSSION

This study was undertaken at a tertiary teaching hospital of Kolar, Karnataka. Of the total 46 infants enrolled there was a male preponderance seen with male to female ratio of 1.55:1. This was similar to a study done by Lakshmikantha et al & Ahmed et al³. On admission, majority of infants belonged to Category B (65.2%), similar results were found study by Lakshmikantha et al.

In the present study fever was seen in 95.6% of infants at presentation followed by Respiratory, Gastrointestinal symptoms non specific symptoms like excessive crying & refusal of feeds. Hepatomegaly and splenomegaly were present in 54.3 & 10.9% infants respectively. Hung et al⁴ in their study respiratory symptoms in 42% of infants, 7.4% had malena and gastrointestinal symptoms with 99% of their 107 infants had petechiae. Altered sensorium and convulsion was noticed in 9.3% of infants. Alteration in haematological parameters like thrombocytopenia hemoconcentration, Deranged liver function tests with prolonged PT and aPTT was seen.

In the study by Lakshmikantha, fever was seen in all infants (100%) Gastrointestinal symptoms like vomiting and loose stools seen in 38% of infants & non-specific symptoms like refusal of feed (22%), excessive crying and pain abdomen/distension (16.3%) was noticed. Those with flushing was (19.7%), bleeding manifestation like malena (7%), Petechiae (4.7%) were also seen more in Category C infants. Respiratory symptoms like cough and upper respiratory infection was seen to a tune of 14%. Altered sensorium and convulsion was seen in 1.2% and 2.3% respectively. Hepatomegaly and splenomegaly were noticed in 68.6% and 8.1% respectively. Alteration in haematological parameters like thrombocytopenia seen in 100% infants, hemoconcentration 37% Deranged liver function tests 46.5% with prolonged PT and a PTT 27% was seen in all Cat C infants^{5,6}.

This stresses the importance of maintaining high index of suspicion for dengue even though initial presentation may point towards respiratory system involvement.. The presence of such significant hepatomegaly and deranged liver enzymes is an indicator of disease severity which was similarly seen in many studies.

These infants were treated as per WHO guidelines. Among the 10 category C infants, 70% required FFP transfusion, 50% required packed red blood cells 90% required ionotropes and 40% needed

ventilator support. Complete recovery after treatment was noted in 44 infants (95.6%) and mortality noted in 2 infants (4.3%) belonging to category C.

CONCLUSION

This study shows a picture of varied clinical features in infants affected with dengue illness with non specific manifestations including respiratory & gastrointestinal manifestations as compared to older children. Early hospitalisation and aggressive management as per guidelines helps to reduce the morbidity & mortality among infants and helps for a better outcome.

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