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Original Article

Dengue Fever: Features and outcome among Pediatric patients

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Abstract

Background: The gradual increase of Dengue fever among children of our country is a growing challenge of child health. Dengue fever causes considerable morbidity and mortality and a leading cause of hospitalisation during its outbreak. Therefore we aimed at a study of features and outcome of Dengue fever among children admitted in our hospital.

Objectives: The objective of the study was to study the features and outcome of Dengue viral illness for better understanding and efficient management of the disease for improvement of child health service.

Materials and methods: Between 4th September to 26th December 2018, we conducted this study among children admitted in Pediatric ward of Dhaka National Medical College Hospital. Diagnosis was established by careful history taking, Physical examination and suitable laboratory investigations. Clinical features, laboratory findings and treatment outcome were studied and subsequent statistical significance was analyzed.

Results: Out of 108 study patients, 3 (2.78%) were <1 year of age, 44 (40.74%) were 1-5 year of age and 61 (56.68%) were above 5 years of age. Duration of fever was 1-2 days in 12 (11.11%), 3-5 days in 53 (49.07%) and >5 days in 39.81%, 33 children had fever <100° F (30.56%), 49 children's had fever 100-102° F (45.37%) and 26 (24.07%) had fever >102° F. There was cutanuous bleeding in 13 (9.26%), mucosal bleeding 6 (5.56%) and internal haemorrhage in 7 (6.48%), Platelet count were>1,00,000 in 62 (57.04%), 50,000-1,00,000 in 27 patients (25%) and <50,000 in 19 (17.59%). Classical Dengue fever, Dengue haemorrhagic fever and Dengue shock syndrome were 77%, 21% and 2% respectively.

Conclusion: This study observes the clinical features, laboratory abnormalities and treatment outcome of those children who were admitted in pediatric ward of our hospital. Larger multicentral and long term study and evaluation of Dengue viral illness among our population will effect great impact in management of this disease.

Key words: Dengue fever, Dengue Haemorrhagic fever (DHF), Dengue Shock Syndrome (DSS).

Introduction:

Dengue is one of the most important mosquito borne viral infection of human being. All the continents are endemic for Dengue except Europe.

The first epidemic of Dengue was reported from French West Indies in 17th Century.[1] But the South East Asian pandemic after world war-II, is responsible for worldwide spread.[2] In recent past 1st outbreak occurred in Bangladesh in year 2000.[3]

The gradual increase in incidence has been tribute to multiple factors including global demographic changes with uncontrolled urbanization, overcrowded houses, improper sanitation, lack of prevention program for epidemic transmission and poor mosquito control effort.[4]

Dengue fever is caused by dengue virus transmitted by the bite of an infective female Aedes mosquito. A aegypti is the primary vector responsible for the transmission, other included A albopictus A polynesiensis and A nivens.

A aegypti is primarily a day time feeder. It breeds mainly in artificial water collections. The rainy season creates

ideal larval habitat and ecologically suitable niches for mosquito breeding and epidemicity.[5]

The diagnosis is based on history, physical examination and laboratory markers. There are four major clinical patterns:

1. Undifferentiated fever
2. Classical Dengue fever
3. Dengue Haemorrhagic fever (DHF)
4. Dengue Shock Syndrome (DSS)

Exact incidence of Dengue in Pediatric patient is not available.

Materials & Methods:

This study was carried out in the Paediatrics Department of Dhaka National Medical College, Dhaka, Bangladesh, 4th September – 26th October, 2018. This is a cohort of 108 admitted patients in the department of Pediatrics. During this period a total of 216 children were admitted in Pediatric ward of DNMCH out of which 108 children suffering from Dengue fever.

Diagnosis was established by thorough and careful history evaluation of physical finding (symptom/sign) and some laboratory investigation like platelet count, NSI Antigen, dengue antibody etc.

Result:

Among these 216 admitted patients 154 patients suffered febrile illness. 108 patients suffered from other febrile illness. 62 patients suffered from other illness (AGN, NS, Diarrhoea, Urticaria Pneumonia).

Table-I:

Type	Number	Percent
Dengue Fever	108	50%
Enteric fever	34	15.74%
Viral Fever	08	3.70%
Febrile illness	04	1.85%
Other illness	62	28.70%
Total	**216**	**100%**

Among these 108 children 03 were <1year of age (2.78%), 44 were in between 1 and 5 years age (40.74%) and 61 were above 5 years (56.48%). Out of these cases 56 were female (51.85%) and the rest 52 were male (48.15%)

All the patient, presented with fever of different duration and grade.

Table-II: (Duration of fever)

Days	Number	Percent
1-2 days	12	11.11%
3-5 days	53	49.07%
> 5 days	43	39.81%

Table-III: (Grade of fever)

Type	Number	Percent
<100° F	33	30.56%
100 to 102°F	49	45.37%
>102° F	26	24.07%

Bleeding occur in 23 patients (21.30%)

Table-IV: (Bleeding Manifestation)

Type	Number	Percent
Petechiae, Purpura, Echymoses, Cutaneous	13	9.26%
Mucosal (Nasal, gum)	06	5.56%
Internal (Haematuria, Haematamesis, Malena Haemoptysis)	07	6.48%

Platelet count shows among these 108 children more than 100000 in 62 patients (57.40%), in between 50000 to 100000 27 patients (25%) and below 50000 in 19 patients (17.59%) with the lowest count is one patient-23000.

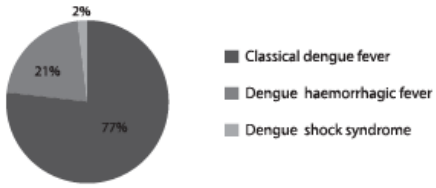
NS1 antigen was positive in 64 cases and negative in 8 cases and dengue antibody test as follows:

Table-V: (Immunological Test)

Type	Positive	Negative
NS_1 Antigen Test	64 (59.25%)	08 (7.40%)
Dengue Antibody Test	08 (7.40%)	64 (59.25%)

Based on clinical and laboratory findings the cases were categorized Classical Dengue Fever-83, Dengue Haemorrhagic Fever (DHF)-23, Dengue Shock Syndrome (DSS)-02.

Fig.-I: Percentage of types of Dengue Fever



Discussion:

Infection with dengue viruses in children may have varied presentation, ranging from asymptomatic to severe shock and death. In Bangladesh there was an outbreak of dengue fever is the later part of 1990's decade including the year 2000 particularly in Dhaka and Chattogram areas. After that it is persisting as endemic and almost every year we are facing good number of dengue fever cases in paediatric department of our hospital.

This is a retrosperative study of a paediatric patients admitted in the year 2018, (September to October) diagnosed and treated as various forms of dengue fever.

Total numbers of cases were 108. Among them majority (56.48%) were more than 5 years of age. Male female ratio is almost equal i.e 1:1.08.

All the patient presented with fever and most of them (49.07%) in between 3rd and 5th day of illness. 45.37% admitted with temperature between 100˚-102˚F. and 24.07% had above 102˚F.

Bleeding manifestation occurred in 23 children (21.30%). This is in accordance with a study in Taiwan[6] where it is shown that, 120 patients had haemorrhagic features out of 450 patients i.e. 26.67%. In our series all these 23 patients had fever for more than 5 days. A study at AIIMS, New Delhi, India reveals that their haemorrhagic cases had 03 to 09 days fever[7] which is close to our observation.

Eight patient (34.78%) had temperature below 100˚F, 14 Patients had between 100˚-102˚F (60.87%) and only one child had high fever i.e.> 102˚F.

This finding is not conforming with the finding's of malavige GN, Fernando S, Fernando DJ etal[8] who opined that DHF begins with sudden onset of high fever.DSS occurs in 02 cases only (1.63%). One in 5th and the other on 6th day of fever. DSS does not occur because of haemorrhage but due to capillary leakage and loss of intravascular volume[9], these were menifested by abdominal cramps, persistent hypothermia, altered mental status (drowsy/irritability) etc.

The remaining 83 children were clinically categorized as Classical Dengue Fever. In this study we did not encounter any patient as undifferentiated fever. This might be because of the fact that all these cases were admitted patient and mild category patients are usually treated as OPD patient.

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