



Clinical profile and outcome of dengue fever in children: In a tertiary care hospital

F R Chowdhury¹, B H N Yasmeen²

Abstract

Background : Dengue is the most important arthropod transmitted human viral disease and constitutes an important worldwide health problem including Bangladesh. Although children are the usual victim of dengue infection, there is paucity of published data regarding its clinical profile and outcome in children in our country.

Objective: Now, in case of children Dengue fever is a common cause of acute febrile illness in our country, but the magnitude of it is quite unknown. Therefore, this study aims to find out the common clinical manifestations, the early warning signs and the outcome of dengue fever in different age group of children.

Materials and Methods: The present study was conducted in the Popular Medical College Hospital, Dhanmondi, Dhaka (a tertiary care private hospital) between July to September of 2019 on children of dengue fever from 1 year up to 15 years of age. It is a retrospective observational study.

Results: A total of 58 cases were enrolled. The common clinical presentations included fever (100%), arthralgia (81.9%), cough/ coryza (17.2%), headache/retro orbital pain (3.4%), and rash (10.3%). The common early warning signs at the time of admission were persistent vomiting (41.4%), severe abdominal pain (27.6%), Hepatomegaly (6.9%). Regarding clinical course, in Dengue fever (DF), Dengue Hemorrhagic fever (DHF) and Dengue Shock Syndrome (DSS) total 36 (62%), 14 (24.2%), 8 (13.8%) children are affected respectively.

Conclusion: The clinical manifestations of dengue fever are like other viral infections, but the disease severity is more in dengue. Thus, if we able to find out the more common clinical findings of dengue fever, it would help us in early diagnosis and early initiation of appropriate treatment. In this study we found that the most common clinical symptom was fever, found in 100% cases, arthralgia in 81.9%, cough/ coryza in 17.2%, headache / retro orbital pain in 10.3% and rash in 3.4% cases. Among the 58 cases 36 (62%) were diagnosed as DF, 14 (24.2%) as DHF and 8 (13.8%) as DSS and no death was occurred.

Key words: Dengue fever (DF), Dengue Hemorrhagic fever (DHF) and Dengue Shock Syndrome (DSS)

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Introduction

Dengue is a disease caused by an arbovirus. It is the most important arthropod transmitted human viral disease and constitutes a major health problem worldwide including Bangladesh. World Health Organization estimated that 390 million dengue infections occur each year (284–528 million), of which 96 million (67–136 million) manifest clinically (with different severity of the disease).¹ A study, of the prevalence of dengue (2012), estimates that 3.9 billion people in 128 countries are at risk of infection with dengue viruses.¹

There are 4 dengue virus serotypes which are designated as DENV-1, DENV-2, DENV-3 and DEN-4. Among them in Bangladesh highest numbers of reported cases are belongs to serotype DENV-3.¹ Infection with anyone of these serotypes confers lifelong immunity to that serotype. Secondary infections with another serotype increase chances of occurring more severe form of disease.¹ Many patients infected with dengue virus remain asymptomatic. Others, develop a febrile illness the manifestations of which are similar and overlapping in nature grouped into 'Dengue Syndrome' which includes the following: Undifferentiated fever, Dengue

Fever (DF), Dengue Hemorrhagic fever (DHF), Expanded Dengue Syndrome.¹

In Bangladesh, the actual magnitude of dengue fever in children was unknown. In the year, 2018, 6640 cases and 16 deaths were reported.² Nearly 90% of the dengue infections occur in children with the risk of dying during a secondary attack is nearly 15-fold higher than that of adults.³

This study aims to find out the common clinical manifestations, the early warning signs which would be facilitate early diagnosis of dengue fever and early

Initiation of appropriate treatment for a better outcome. This study also finds the outcome of dengue fever in different age group of children.

Materials and Methods

The present study was conducted in the Popular Medical College Hospital, Dhanmondi, Dhaka (a tertiary care private hospital) between July to September of 2019 on children of dengue fever 1year up to 15 years of age. It is a retrospective observational study. A total of 58 children were selected consecutively based on NS1 positive cases and having clinical features mentioned in National Guidelines for Clinical Management of Dengue Syndrome, Bangladesh.³ Patient with any other identified specific disease or febrile illness or bleeding disorder were excluded from the study. Demographic variables, presenting complaints and examination findings were recorded on a structured questionnaire. The WHO classification and case definitions were used to classify disease as DF and DHF as per National Guidelines.³ Statistical analysis was done using SPSS (statistical package for social sciences) software.

Results

In this study out of 58 patients 34 were male and 24 were female. Male to female ratio was 1:0.7 (Table-I).

Age of studied population was ranged from 1year up to 15 years. Among them 1-5 years was 16 (27.6%) cases, 6-10 years was 34 (58.6%) and 11-15 years was 8 (13.8%) patients (Table-I).

Table-I : Demographic variables (n=58)

Age (Year)	Variables	No	%
	1-5	16	27.6
	6-10	34	58.6
	11-15	8	13.8
Sex			
	Male	34	58.6
	Female	24	41.4

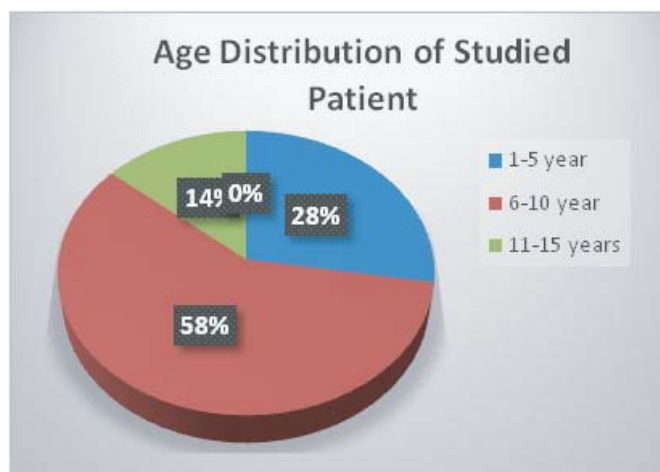


Fig: 1

The common clinical presentations included fever (100%), arthralgia (81.9%), cough/coryza (17.2%), headache/retro orbital pain (3.4%), and rash (10.3%), capillary refill time > 3 second (13.8%), diarrhea (3.4%), pleural effusion (20.6%), ascites (24%), splenomegaly (20.6%). (Table- II and Table -III)

Table II : Common clinical manifestations of dengue infection in studied patient. (n=58)

Clinical features	No	%
Fever		
<5days	42	16
>5days	72.4	27.6
Myalgia	0	0
Arthralgia	2	3.4
Headache/ Retro orbital pain	2	3.4
Runny nose/Cough	10	17.2
Rash / Itching	6	10.3
Gum bleeding / Epistaxis	0	0
Respiratory distress	12	20.6
Persistent vomiting	24	41.4
Diarrhoea	2	3.4
Severe abdominal pain	16	27.6
Altered consciousness	0	0

Table III : Clinical signs (n= 58)

Clinical Sign	No	%
BP : Systolic <25 th centile	0	0
Diastolic <25 th centile	0	0
Gum bleeding/ epistaxis	0	0
Capillary refill time > 3 sec	8	13.8
Positive Tourniquet test	34	58.6
Pleural effusion	12	20.6
Abdominal tenderness	16	27.6
Hepatomegaly	4	6.9
Splenomegaly	4	6.9
Ascites	14	24

The common early warning signs at the time of admission were persistent vomiting (41.4%), severe abdominal pain (27.6%), Hepatomegaly (6.9%). (Table -IV)

Table IV : Warning signs at time of admission (n=58)

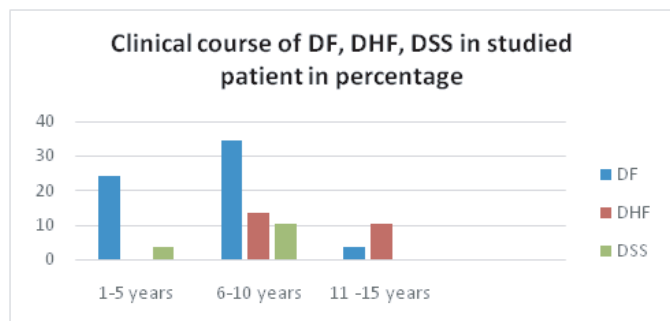
Clinical features	No	%
Persistent vomiting	24	41.4
Severe abdominal pain	16	27.6
Hepatomegaly	4	6.9

In this study Clinical course of dengue fever (DF), Dengue hemorrhagic fever (DHF) and Dengue shock syndrome (DSS) in 1-5 years old patient is 14 (24.1%), 0 and 2 (3.4%) respectively; In 6-10 years old patients it is 20 (34.5%), 8 (13.3%) and 6 (10.4%) respectively, and in 11- 15 years old patient it is 2 (3.4%), 6 (10.4%) and 0% respectively. In DF, DHF and DSS total 36 (62%), 14 (24.2%), 8 (13.8%) children are affected respectively (Table-V).

Table V : Clinical course of Dengue fever in studied patient (n=58)

Age (yr)	DF (%)	DHF (%)	DSS (%)
1-5 yrs (n=16)	14 (24.1)	0	2 (3.4)
6-10yrs (n=34)	20 (34.5)	8 (13.8)	6 (10.4)
11-15 yrs (n= 8)	02 (3.4)	6 (10.4)	0
Total	36 (62%)	14 (24.2%)	8 (13.8%)

DF-Dengue Fever, DHF- Dengue Hemorrhagic fever, DSS-Dengue shock syndrome



Regarding outcome among the 58 cases- 36 (62%) were diagnosed as DF, 14 (24.2%) as DHF and 8 (13.8%) as DSS and no death was occurred. All patients improved and discharged with advice. Duration of hospital stay was variable. Shortest (3 ± 2 days) duration of hospital stay in DF cases and longest (8 ± 2 days) in DSS cases and no death was occurred.

Table VI : Outcome of Dengue infection in studied patient

Clinical course	Mean hospital stay (days)	Improved (%)	Death (%)
DF	3 ± 2 days	36 (62%)	0
DHF	5 ± 2 days	14 (24.2%)	0
DSS	8 ± 2 days	8 (13.8%)	0

DF-Dengue Fever, DHF- Dengue Hemorrhagic fever, DSS-Dengue shock syndrome

Discussion

In the present study, out of 58 patients, 34 (58.6%) were male and 24(41.4%) were female. Male to female ratio was 1:0.7. This study is consistent with the study done by M Shubhankar et al⁴ where more male children were affected i,e 75 (77.31%) were male and 22 (22.68%) were female and the male to-female ratio was 3.4: 1. This study is also consistent with the study done by R Anand et al,⁵ where male preponderance was noted.

In our study majority of the children belonged to the 6-10 years age group, which is also consistent with the study done by M Shubhankar et al⁴ and R Anand et al⁵

In this study fever was the most common symptom seen in 100% of children, which was consistent with the study done by M.Shubhankar et al,⁴ R. Anand et al,⁵ and A Shahidul ABM et al.⁶

The presenting complaints of the patients of this study were arthralgia (81.9%), cough/ coryza (17.2%), rash (10.3%) and headache/retro orbital pain (3.4%). These findings were different from that of study done by R. Anand et al where 20 (33%) children had cough and runny nose, headache was present in 26 (43%) patients, and 33 (54%) had vomiting.⁵

These findings are also different from the study done by A.Shahidul ABM⁸, where abdominal pain was the cardinal complaint in 60% of the patients followed by vomiting (57%), myalgia (46.3%), headache (31.5%), arthralgia (18.5%), retro-orbital pain (14.8%). These findings were also completely different from that of Rahman et al.⁹ Rahman et al had reported headache as the most predominant symptom (91%) followed by myalgia/arthralgia (85%) and vomiting (64%).

In the present study, other clinical manifestations of dengue fever at admission were diarrhea (3.4%), pleural effusion (20.6%), ascites (24%), splenomegaly (20.6%). This feature is not consistent with that of R. Anand et al⁵ where only diarrhea (11.5%) and splenomegaly (3%) were found. In another study done by A. Shahidul ABM⁸ pleural effusion, (27.8%) and ascites (14.8%) were found.

The common early warning signs at the time of admission were persistent vomiting (41.4%), severe abdominal pain (27.6%), Hepatomegaly (6.9%). These features are consistent with that study done by R. Anand et al⁵ where persistent vomiting (54.1%), abdominal pain (45.9%) and hepatomegaly (57.4%) were found. It is also similar with the study done by A. Shahidul ABM et al⁸ where abdominal pain was the cardinal complaint in 60% of the patients followed by vomiting (57%).

In the present study headache/ retro orbital pain found in 2 (3.4%), Runny nose/ cough in 10 (17.2%), Rash/Itching in 6 (10.3%) cases were found. These findings were contrasting with

the study done by A. Shahidul ABM et al⁸ where rash with itching was a predominant feature (75.9%) followed by flushed appearance (64.8%) and Subconjunctival haemorrhage (33.3%). In another study by Malavige et al⁹ had reported about 40% of patients with rash and 90% with flushed appearance. R. Anand et al reported 40% children had rash and flushed skin and 11.4% of children had bleeding manifestation.⁵

Regarding the outcome of this study no death was found in any age group, which is consistent with the study done by Malavige et al.⁹ Most of the patients in this study presented with DF 36 (62%), DHF 14 (24.2%), DSS 8 (13.8%). These findings were not consistent with the findings done by A. Shahidul ABM et al⁸ where (40.7%) presented with DF and (59.3%) presented with DHF.

Conclusion

The clinical manifestations of dengue fever are like other viral infections, but the disease severity is more in dengue. Thus, if we can find out the more common clinical findings of dengue fever, it would help us in early diagnosis and early initiation of appropriate treatment. In this study we found that the most common clinical symptom was fever, found in 100% cases, arthralgia in 81.9%, cough/coryza in 17.2%, headache / retro orbital pain in 10.3% and rash in 3.4% cases. Regarding outcome of patients - 36 (62%) were diagnosed as DF, 14 (24.2%) as DHF and 8 (13.8%) as DSS. All patients improved and discharged with advice. Duration of hospital stay shortest (3 ± 2 days) in DF cases and longest (8 ± 2 days) in DSS cases and no death was occurred.

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