ORIGINAL ARTICLE

Clinical Features and Outcomes of Dengue Fever in a Tertiary Paediatric Hospital in Dhaka, Bangladesh

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ABSTRACT

Globally, children, adolescents, and young adults constitute the largest burden of Dengue. Early diagnosis is crucial for timely intervention and better outcome. This cross-sectional study was conducted among 51 children with dengue fever admitted in the Department of Paediatrics, Dr. M R Khan Shishu Hospital & Institute, Dhaka, Bangladesh, between April and September of 2025, to assess the clinical features of the dengue infection in children and to evaluate the outcomes. The most common age of presentation was between 2 and 10 years. The most common presenting symptom was fever less than 5 days, seen in 51% cases followed by body ache (47%) and anorexia (38%) followed by rash (28%), diarrhea (22%) and cough and cold (22%). Vomiting (55%) and abdominal pain (37%) were common warning features followed by shock (18%). No co-morbidities were found. All the patients were recovered and discharged to home. Dengue in children bears the common presentation as evident by other research studies. Early suspicion and effective management can lead to a favorable outcome.

Keywords: Dengue fever, clinical feature, outcome, children, Bangladesh

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INTRODUCTION

Dengue fever, a disease with a long history, has made a comeback over the past decades, characterized by a broader geographic spread of both the viruses and mosquito vectors, a rise in epidemic occurrences, and the appearance of dengue haemorrhagic fever in previously unaffected regions, including Bangladesh.[1] Dengue virus (DENV) is a member of the flavivirus genus, possesses a single-stranded positive-sense RNA genome. There are four serotypes of dengue virus which are DENV-1, DENV-2, DENV-3, and DENV-4.[1,2] The dengue virus transmission cycle relies on *Aedes aegypti* and *Aedes albopictus* as the primary vectors. Aedes aegypti is the principal vector due to its strong adaptation to urban settings, preference for human hosts, and high vector competence.[2,3] Meanwhile, *Aedes albopictus*, although secondary, can maintain transmission in rural and suburban areas or in regions where *Aedes aegypti*

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populations are low.[4,5] It is a leading cause of febrile illness in areas with risk. According to the World Health Organization (WHO), estimates up to 100 million cases of dengue fever each year.[6]

Dengue infection affects the health of all age groups. However, the highest burden of dengue has been observed among children, adolescents, and young adults in particular, the infection rate is highest among infants.[7,8] Children are more vulnerable to dengue infection due to their underdeveloped immune systems, smaller body size, and heightened risk of severe complications, such as dengue haemorrhagic fever (DHF) or dengue shock syndrome (DSS). Their immature immune response can result in delayed or less effective viral clearance.[7-9] Additionally, studies suggest that higher vascular permeability in children contributes to fluid leakage, a key feature of severe dengue.[1,4,8]

Different research indicates that adults with dengue often suffer from fever, myalgia, retro-orbital pain, nausea, and arthralgia, whereas children tend to exhibit vomiting and rashes. Moreover, gastrointestinal symptoms, hepatomegaly and fatigue were observed among children.[7,9-12] Sometimes it is challenging to recognize dengue because of its undifferentiated presentation and many symptoms are similar to those of other viral illnesses, making differentiation difficult especially in children.[12,13] Therefore, timely identification and proper treatment is directly related to outcome. Our study aimed to examine paediatric dengue virus infection's clinical features and to assess co-morbidities. The integrated data generated will enhance understanding of dengue virus severity and its outcomes.

METHODS

This cross-sectional, observational study was conducted over six months from April to September of 2025 in the Department of Paediatrics, Dr. M R Khan Shishu Hospital & Institute of Child Health, Dhaka, Bangladesh. Dr. M R Khan Shishu Hospital is a 250 bedded, well-established, teaching hospital for paediatric patients and is having indoor and outdoor facility. Every year the hospital deals a lot of dengue patients. In this study, the clinical features of children who got admitted due to dengue infection in the form of dengue fever, dengue hemorrhagic fever, dengue shock syndrome or dengue like features but dengue serology negative were included in this study. Parents who did not give consent were excluded from the study. Data regarding age of the patient, gender (male or female), residence (urban or rural), presenting complaints (fever, body ache, headache, joint pain, rash, anorexia, diarrhoea, cough and cold) were noted down. Presence of any warning sign such as vomiting, abdominal pain, bleeding manifestation, shock and ascites were also documented. Patients' weight in kilogram, height in centimeter were measured. Body mass index (BMI) was also calculated. Co-morbid situations like obesity, underweight, heart disease and epilepsy were also addressed. After thorough data collection, data was compiled. Data was analyzed by using IBM SPSS Statistics for Windows, version 22 (IBM Corp., Armonk, NY, USA). Categorical data were expressed as frequency and quantitative data were expressed as mean±SD (standard deviation).

RESULTS

During the study period, a total of 51 children got admitted with dengue fever were enrolled in this study. Among them, male was slightly predominant. Most of the children were aged above 2 years to 10 years. Around two third of the patients reside in urban area as shown in Table 1. Table 2 represents the variation in clinical presentation among the patients. Common symptoms observed were fever less than 5 days (51%), body ache (47%) and anorexia (38%) followed by rash (28%), diarrhea (22%) and cough and cold (22%). In Table 3, common warning features ware given: vomiting (55%) and abdominal pain (37%) were among the most common, followed by shock (18%). Co-morbidities like overweight, underweight, heart disease, epilepsy were not found in any of the patient. Table 4 represents that morbid conditions of all of the children got improved and they were discharged (100%). Mean duration of staying in the hospital was 5±1.3 days.

Table1: Baseline characteristics of the study participants (N=51)

Variables	Frequency	Percentage
Age		
< 6 months	2	4
6 months – up to 24 months	15	30
>24 months -up to 10 years	29	57
>10 years	5	9.8
Gender		
Male	26	51
Female	25	49
Residence		
Urban		
Slum	10	20
Building	37	73
Rural	4	7.8

Table 2: Distribution of presenting complaints among the study population (N=51)

Variables	Frequency	Percentage
Fever		
<5 days	26	51
≥5 days	25	49
Body ache Yes No	 24 27	 47 53
Headache Yes No	 14 37	 28 72
Joint pain Yes No	 2 49	 4 96
Rash Yes No	 14 37	 28 72
Diarrhea Yes No	 11 40	 22 78
Anorexia Yes No	 19 32	 38 62
Cough and cold Yes No	 11 40	 22 78

Table 3: Distribution of warning signs among the study population (N=51)

Variables	Frequency	Percentage
Vomiting Yes No	 28 23	 55 45
Abdominal pain Yes No	 19 32	 37 63
Bleeding manifestation Yes No	 1 50	 2 98
Shock Yes No	 9 42	 18 82
Ascites Yes No	 3 48	 6 94

Table 4: Outcome of the study population (N=51)

Mean hospital stay	5±1.3 days
Improved and discharged	51 (100%)
Death	0 (0%)

DISCUSSION

This cross-sectional study conducted during the peak season of Dengue shows that common age of presentation was from > 2 years to up to 10 years. In a similar study done by Sharif et al., found that case fatality rate was more in children aged between 0 and 10 years in Bangladesh during the Dengue outbreak in 2023.[14] Another Bangladeshi study also mentioned that below 5 years age group are the most vulnerable group and are at risk of developing severe dengue. This group also present with a wide variation of clinical features of dengue fever.[15] Male children were predominantly affected in this study and this finding is consistent with previous study results, as male representation was found often between 55% and 60% of paediatric cases.[16] While dengue affects all children, males often have a higher incidence of hospitalization, possibly due to higher exposure, though severe cases occur in both sexes.

Among the clinical features, fever was predominant. Fever less than 5 days was 51%, fever for 5 days or more was 49%, body ache (47%) and anorexia was 38% followed by rash

(28%), diarrhea (22%) and cough and cold (22%). Similar findings were observed in a study done by Islam et al.[16] Sometimes warning signs may develop in dengue, usually begin in the first day or two after fever onset. These include: severe abdominal pain, persistent vomiting, bleeding and rapid breathing.[17] In this study, vomiting (55%) and abdominal pain (37%) were common warning features followed by shock (18%). In another study done by Akram et al., reported similar findings in dengue affected children where nausea/vomiting (81%) and abdominal pain (61%) were predominant gastrointestinal features.[18] Co-morbidities were not observed in our study might be due to small sample size. All of the patients were discharged to home.

CONCLUSION

Children more than 2 years of age are at risk of dengue fever. It commonly presents with fever, headache, bodyache and other gastrointestinal symptoms. Strong suspicion and judicious management can improve children's survival.

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Ethical approval: The study was approved by the Ethical Review Committee of Dr. M R Khan Shishu (Children) Hospital, Dhaka, Bangladesh.

Authors' contribution: All authors were equally involved in design of the study, patient selection, data collection, compilation and analysis as well as manuscript writing, editing and final submission.

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