Research Article

Clinical presentation and outcome of dengue cases in a tertiary-care hospital, Hyderabad

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Abstract

Background: Dengue viral infection, i.e., dengue fever (DF), and its sever form, dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS), form the most important mosquito-borne diseases and have become a major global public health concern. The World Health Organization estimates that 50 million dengue infections occur annually and 500,000 people require hospitalization each year.

Objective: To evaluate the clinical features and outcome of dengue infection case admitted in a tertiary-care hospital (government fever hospital) in Hyderabad.

Materials and Methods: A hospital record-based descriptive study was performed in a tertiary-care hospital in Hyderabad. Medical records of 80 seropositive dengue patients who were admitted from July 1 to August 31, 2015 were studied and analyzed.

Result: Of 80 seropositive dengue patients, 25% were female and 75% were male patients, 24% patients were <15 years of age, and 9% patients were above 45 years, while majority (67%) belonged to age group of 15–45 years, with the majority in that being students. Mean hospital duration stay was 4.76 ± 1.53 days; 45% of patients showed DF, 21% DHF stage I, 19% DHF stage II, 9% DHF stage III, and 6% DHF stage IV. All 45% patients of DF revealed platelet count more than 100,000; remaining 55% patients of DHF and DSS showed platelet count less than 100,000. All 85% patients up to DHF stage II were normotensive patients, while 15% patients belonging to DHF stages III and IV showed hypotensive condition.

Conclusion: Dengue infection ranges from mild self-limiting illness to severe disease with high cure rate.

KEY WORDS: Dengue infection, dengue hemorrhagic fever (DHF), dengue shock syndrome (DSS), hypotensive people, thrombocytopenia

Introduction

Dengue viral infection, i.e., dengue fever (DF), and its sever form, dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS), form the most important mosquito-borne diseases and have become a major global public health concern. Over the past three decades, there has been dramatic global increase in frequency and epidemic of dengue infection. It is found in tropical and subtropical region around the world, predominantly in urban and semi-urban areas, and is now spreading to rural areas. The World Health Organization estimates that 50 million dengue infections occur annually and 500,000 people require hospitalization each year. Almost half the world's population lives in countries where dengue is endemic. With dengue being a worldwide concern, with a sturdy raise in the number of countries recording the disease, currently, nearly 75% of the world population exposed to dengue reside in the southeast Asia and western Pacific regions.[1]

In India, dengue is endemic in 31 states/union territories, and all four serotypes have been isolated. Totally, 64,058 cases are reported, of which 135 cases died (till October 25, 2015). Highest number of cases was reported from Tamil Nadu, Panjab, Delhi, and Andhra Pradesh.[2] Majority of infection occure

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in adults of 16–60 years, but children <15 years are severely affected. Mortality rate is only 1% in treated DHF/DSS cases; however, it increases to 20% when left untreated.[3,4] This study was conducted to evaluate the clinical features and outcome of dengue infection case admitted in a tertiary-care hospital (government fever hospital) in Hyderabad.

Materials and Methods

A hospital record-based descriptive study was undertaken from July 1 to August 31, 2015, in Sir Ronald Ross Institute of Tropical and Communicable Diseases (government fever hospital), Hyderabad, Telangana, India. The patients who presented with febrile illness, fulfilling the diagnostic criteria of DF according to WHO[5] and serologically positive for IgM antibody by ELISA were included in the study. Study protocol was approved by the ethical committee of the institute. Medical records of 80 seropositive dengue patients who were admitted during study period were studied. Data of clinical profile, laboratory findings, and outcome of those 80 patients were collected using predesigned questioner and analyzed using SPSS (version 20) and results expressed in terms of proportions, mean, and SD.

Results

Total 80 patients admitted in fever hospital in 2 months of study period were evaluated; 25% were female and 75% were male patients, 24% patients were <15 years of age, and 9% patients were above 45 years, while majority (67%) belonged to age group of 15–45 years, with the majority in that being students. Mean hospital duration stay was 4.76 ± 1.53 days. All cases were presented with fever with chill; other common symptoms were vomiting, myalgia, headache, and abdominal pain [Table 1]. About 45% patents showed DF, 21% DHF stage I, 19% DHF stage II, 9% DHF stage III, and 6% DHF stage IV. DHF stages III and IV are considered as DSS. All 45% patients of DF showed platelet count more than 100,000; remaining 55% patients with DHF and DSS showed platelet count less than 100,000. All 85% patients up to DHF stage II were normotensive patients, while 15% patients belonging to DHF stages III and IV showed hypotensive condition [Table 2]; 90% cases were cured and 10% cases referred to specialized center.

Table 1: Presenting features of dengue cases

Symptoms	Number	Percentage
Fever with chill	80	100
Myalgia	37	46
Headache	28	35
Vomiting	20	25
Abdominal pain	22	27
Rash	6	7
Malena	7	9
Joint pain	2	3
Cough	14	17
Splenomegaly	4	5

Table 2: Stages of dengue infection

	N (%)
Stages of dengue infection	
Dengue fever	36 (45)
DHF1	17 (21)
DHF2	15 (19)
DHF3	7 (9)
DHF4	5 (6)
Platelets count	
Above 1 lakh	36 (45)
Below 1 lakh	44 (55)
Blood pressure	
Normotensive condition	68 (85)
Hypotensive condition	12 (15)

Discussion

Past few years have recorded a stable raise in the number of dengue patients. This is owing to rapid urbanization with construction activities and poor environmental sanitation providing breeding places for mosquitoes. Increase in awareness among medical fraternity owing to several epidemics occurred in different parts of country and availability of rapid diagnostic tools in hospitals have helped in the improved case detection. This study described the clinical profile and outcome of dengue infection of patients admitted in a tertiary-care infectious disease hospital in a metropolitan city of India. Total 80 patients admitted in hospital during 2 months of study period were evaluated; among them, 25% were male and 75% female patients, which is in concurrent with other studies. In a study done by Bansal et al.,[6] male:female ratio was 3:1, while in the study by Kale et al.,[7] 63% were male and 33% female subjects. In the study by Karoli et al.,[8] 58% were male and 42% female subjects. This high prevalence of dengue infection among male subjects was observed mostly owing to male are assigned more outdoor activities and more exposed to environmental risk factor. In this study, 24% patients were <15 years of age and 9% patients were above 45 years, while majority (67%) were in the age group of 15–45 years. Similar finding have also been reported from other studies.[9,10] In the study by Kashinkunti et al.,[10] 61% patients belonged to 15–40 years of age. Mean hospital duration stay was 4.76 ± 1.53 days, which was similar to the study done by Kale et al.,[7] which found mean duration of hospital stay to be 4.86 days. In a study done by Kashinkunti et al.,[10] the average hospital stay was 7–12 days.

All cases were presented with fever; similar studies in and around India have also highlighted fever as common presenting

feature.[7,10–14] In our study, patients presenting with vomiting were 25% and abdominal pain 27%; in total, 52% patients presented with gastrointestinal complaints. In a study by Abor et al., vomiting was present in 26% patients. In a study done by Arunagirinathan et al.,[15] abdominal pain and vomiting were seen in 61% patients. According to Kumar et al.,[9] abdominal pain was observed in 37% and vomiting in 47% patients. In the study by Kale et al.,[7] vomiting was presented as complaint among 64% of patients. This could be owing to liver damage caused by dengue virus. In the study done by Bansal et al.,[6] it was found that 57% of patients showed elevated liver enzymes. It is important to keep in mind other infections that cause fever with gastrointestinal symptoms such as typhoid, leptospirosis, and other enteroviral infection, which may lead to a delay in the diagnosis of dengue. In this study, 35% patients showed headache, which is concurrent to the findings of Ratageri et al.,[13] while in the study by Abor et al., headache was a presenting feature among 52% of patients. In our study, 46% patient presented with myalgia, while in the study by Abor et al.,[16] it was 63%, and in the study by Turbadkar et al.,[14] it was 25%. In our study, 17% patient experienced cough; in the study by Richel et al.,[12] 5% showed sore throat. The diagnosis of DF cases is achievable by clinical features but they can present with diverse manifestation. We found that dengue infection presented with some typical clinical features of fever, rash, myalgia, and headache to some atypical presentation such as gastrointestinal symptoms, cough, and splenomegaly. These features in one sense are quite misleading, as they could be manifested as other diseases such as malaria and leptospirosis. Thus, clinicians should possess a high rate of disbelief and awareness of these atypical features, especially in view of mounting burden of DF cases. Epidemiological knowledge along with microbiological test and hematological and biochemical parameters can help the clinician in proper management of patients.

In our study, 45% of patients showed DF, 40% DHF, and 15% DSS, while, in the study by Kanu et al.,[11] DF showed in 80%, DHF in 16%, and DSS in 4% patients. In the study by Daniel et al.,[12] DHF/DSS rate was 33%. In the study by Karoli et al., DF rate was 70% and DHF 30%.[8] All 45% patients of DF revealed platelet count more than 100,000; remaining 55% patients of DHF and DSS showed platelet count less than 100,000, which was 82% with < 1 lakh in the study by Ratageri et al.[13] and 89% in the study by Karoli et al.[8] In the study by Khan et al.,[17] 40% of patients revealed thrombocytopenia. In our study, 90% cases were cured and 10% cases referred to specialized center, which is similar to 97% cure rate found in the study by Kumar et al.[9]

Conclusion

Dengue is one of the major causes of undifferentiated fever. Diverse clinical presentation of DF in the same region even in the same period of time has been observed worldwide in the recent few years, where some recognized characteristics are still manifesting, and a small amount of atypical characteristics are also noted. Hence, constant seroepidemiological examination and timely intervention are required to control the outbreak and reduce the complication and mortality. This study highlighted the importance of DF epidemiology, clinical manifestation, complication, and outcome of the disease. As dengue infection is a vector-borne disease affecting mainly young adult population, vector control measures should be applied in work places and in schools with enhanced community participation and health education. This study has limitation inherent to a hospital record-based study; hence, entomological information, IEC strategies, and vector control measures were not correlated.

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