A Prospective Study to Analyse the Presentation of Dengue Cases in a Tertiary Care Hospital of Northern India

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ABSTRACT

Background: Dengue fever is one of the most common arbo virus mediated epidemics, causing major concerns in India since the last two decades. Many parts of India, including the Maharashtra region, are now endemic for the Dengue infection. Dengue fever (DF), Dengue haemorrhagic fever (DHF) and Dengue shock syndrome (DSS) are different modes of presentation of the disease.

Objective: To study the clinical manifestations, trend and outcome of all confirmed dengue cases admitted in a tertiary care hospital.

Materials: This prospective study done on patients diagnosed with dengue fever with one or more warning signs attending outpatient department and indoor of Teerthanker Mahaveer Medical College & Research Centre, Moradabad, a tertiary care centre in the state were included in the study. 75 patients were included on the basis of inclusion and exclusion criteria.

Results: Out of 75 patients diagnosed Dengue cases, 43(66.4%) were males and 32 (33.6%) were females and Maximum number of cases were in the age group of 31–45 years, 32 (42.4%) and the least cases were reported above 60 years age group, 4%. The most common presentation was fever 75 (99.1%) followed by myalgia 70 (70.4%), vomiting 42 (43.2%), headache 43 (46.4%), abdominal pain 32 (33.6%), skin rash 28 (25.6%). Bleeding from different sites of the body was evident in 18 patients (14.4%). In bleeding manifestations, petechiae 16 (19.2%) was the most common presentation.

Conclusion: The study highlighted the high prevalence of Dengue cases in Moradabad region. Therefore clinicians are required to suspect Dengue in all cases of fever presenting in the hospital. Prompt diagnosis and early treatment can decrease the mortality associated with Dengue.

KEYWORDS: Dengue, dengue Haemorrhagic fever, dengue shock syndrome

INTRODUCTION

Dengue, a viral disease transmitted by Aedes mosquitoes, is a serious global public health problem, infecting 50 to 390 million people each year in more than 100 countries and resulting in at least 20,000 deaths annually.[1] The disease is widespread throughout the tropics, with local variations in risk influenced by rainfall, temperature and unplanned rapid urbanization.

A mosquito borne fast emerging viral infection manifesting in four serotypes capable of causing dengue fever (DF), dengue hemorrhagic fever (DHF), and dengue shock syndrome (DSS), poses an increasingly perilous situation due to lack of antiviral drugs or vaccine.[2]

India is believed to have more cases of dengue than any other country in the world, and except for a slight dip in 2011, the incidence rate has grown steadily there in recent years. In 2013, India's National Vector Borne Diseases Control Program reported that the country had experienced an annual average of 20,474 dengue cases and 132 dengue-related deaths since 2007, but infectious disease experts believe those official numbers likely reflect only a small fraction of actual cases.[1]

During all these epidemics, majority of infection occurred in active adults in the age group of 16–60 years.[3,4] Certain common signs and symptoms such as fever, headache, myalgia, arthralgia and bleeding manifestations have also been observed. However, few other studies done in the past have shown differences in age and sex distribution and clinical presentation of the disease.[5–8]

Dengue has a wide spectrum of clinical presentations, often with unpredictable clinical evolution and outcome. A small proportion progress to severe disease characterized by plasma leakage with or without haemorrhage. World Health Organization (WHO) has conferred it as a notifiable disease and since 2005 dengue is considered as a public health emergency of international concern.[9] The first evidence of occurrence of dengue fever in India was reported during 1956 from Vellore district in Tamil Nadu. Every year during the period of July-November there is an upsurge in the cases of dengue/dengue hemorrhagic fever (DHF).[10]

The present study was undertaken with the aim to assess the Clinical Manifestations along with the clinical features, complications, and outcome of cases admitted to a tertiary care teaching hospital in Moradabad, U.P.

MATERIALS & METHODS

This was an observational and prospective study done on patients diagnosed with dengue fever with one or more warning signs attending outpatient Medicine department and indoor of Teerthanker Mahaveer Medical College & Research Centre, Moradabad. The study was approved by the ethics committee of the hospital and informed consent was obtained from all the subjects. We included 75 patients suffering from dengue fever.

The case definition of Dengue/ DHF/DSS (Dengue shock syndrome) which was followed in the present study was that which was recommended by the WHO[13] i.e. An acute febrile illness of two to seven days duration with two or more of the following manifestations-headache, retro-orbital pain, myalgia, arthralgia, vomiting, rash, haemorrhagic manifestations and leucopoenia. Furthermore, patients were admitted after the laboratory diagnosis was established with warning signs.

RESULTS

A total of n=75 patients diagnosed with dengue fever were admitted during the study period. In our study, majority of the cases, 43 (66.4%) were males and 32 (33.6%) were females. Maximum number of cases were in the age group of 31–45 years, 32 (42.4%), followed by 15-30 years, 30 (40.8%), and only 4% cases were reported above 60 years age.

Out of 75 cases admitted to the hospital, n=70 (81.6%) had dengue fever, n=8 (9.6%) had dengue haemorrhagic fever, and n=6 (7.2%) had dengue shock syndrome.

As seen in Table 2, fever was the most common presentation 75 (99.1%) followed by myalgia 72 (70.4%), vomiting 40 (43.2%), headache 42 (46.4%), abdominal pain 29 (33.6%), and skin rash 26 (25.6%). Bleeding from different sites of the body was evident in 10 patients (14.4%). In most of the cases, same patient showed bleeding from different sites. Hemorrhagic manifestations included petechiae 15 (19.2%), gum

bleeding 3 (5.6%), hematuria 4 (6.4%), malena 2 (4.8%), hematemesis 2 (4%), and epistaxis 2 (4%). **Table 2**

Out of 75 patients, 29 (38.4%) had platelet count below 50,000/cumm of blood and the rest 44 patients (61.6%) had more than 50,000/cumm of blood.

In the study, 9 (14.4%) patients had complications of which, 3 (38.8%) patients had adult respiratory distress syndrome (ARDS), 2 (33.3%) had pleural effusion, 1 had encephalopathy, 1 had pneumonia. Table 3

Table 1: Demographic details of Dengue cases (n=75).

Male	Female	Total
43(66.4%)	32 (33.6%)	75

Table 2: Clinical Presentation of Dengue cases (n=75)

Symptoms	Number	(%)
Fever	75	99.5
Myalgia	48	70.4
Vomiting	36	43.2
Headache	38	46.4
Abdominal pain	25	33.6
Skin Rash	20	25.6
Petechiae	17	19.2
Diarrhoea	12	15.2
Altered sensorium	9	10.3
Hematuria	5	6.4
Gum Bleeding	4	5.6
Malena	3	4.8
Hematemesis	2	4
Epistaxis	2	4

Table 3: Complicated Dengue cases (n=18)

Symptoms	Number	(%)
Dengue with ARDS	7	38.8
Dengue with pleural effusion	6	33.3
Dengue encephalopathy	3	16.6
Dengue with pneumonia	2	11.1

DISCUSSION

Dengue is an important emerging disease of the tropical and sub-tropical regions today. The diagnosis of dengue cases is possible by distinct clinical features but they can present with atypical presentation also.[6–9] Therefore this study was carried out to see the clinical manifestations of Dengue in our region, Moradabad.

In our study, most of the patients were from 31–45 years age group, 53 (42.4%), followed by 15-30 years, 51 (40.8%). This is in accordance with the study conducted by Kumar A et al. 2010 who also showed that majority of dengue patients were from 15-44 years age group [14]. The male to female ratio in this study was 1.9:1 respectively. This pattern is also seen in the retrospective analysis of the 2006 North Indian Dengue outbreak and Kumar A et al. 2010.[12,13]

While this may be true that the humans are responsible for outbreak of Dengue due to the rapid unplanned urbanization with unchecked construction activities and poor sanitation facilities contributing fertile breeding grounds for mosquitoes; but on the other hand it is also true that an increase in the alertness among medical fraternity following the initial epidemic and the availability of diagnostic tools in the hospital have contributed to the increased detection of cases.[14] Therefore rate of mortality due to dengue cases have been declined.

In our study, fever was the most common presenting symptom, 75 (99.1%). Similar studies in and around India have also substantiated fever as being the most common presenting symptom. Myalgia is also present in 70.4 % of cases. Abdominal pain and vomiting were found to be present among 76.8% of the study population, which could be due to the liver injury caused by the dengue virus, this is similar to the findings by Kumar A et al. 2010.[12] As other infections that cause fever and gastrointestinal symptoms may confuse while making diagnosis of Dengue and may lead to a delay in the diagnosis of dengue. Therefore our study suggests that dengue in all its forms should be included in the differential diagnosis of patients with fever and gastrointestinal symptoms. Similar inference was also drawn from a study done in Pakistan.[15]

In our study, headache was seen less frequently as compared to other studies.[16] We have seen that of the total 75 cases, majority of patients, n=70 (81.6%) had dengue fever, whereas less number of patients found to have dengue haemorrhagic fever, and dengue shock syndrome. Similar findings have also been reported from rural Maharashtra.[17]

In our study, Bleeding from different sites of the body was evident in 9 patients (14.4%). while 38 (38.4%) patients had platelet count below 50,000/cmm. Whereas a similar study in north Indian by Seema A et al, showed only 8% patients had bleeding episodes while 26% patients had platelet count below 20,000/cmm and 84% had <1 lakh/cmm.[18]

The most common bleeding manifestation in our study was petechiae 17 (19.2%), whereas during the 2006 outbreak of dengue in North India, Malena (50%) and hematemesis (38%) were found to be more common.[13]

The overall outcome of patient care in our study was good, with 95.2% patients recovering completely.

CONCLUSION

The present study highlights the importance of dengue fever to clinicians in the areas of epidemiology, manifestations, complications and outcome of the disease. The study highlighted the high prevalence of Dengue cases in Moradabad region. Therefore clinicians are required to suspect Dengue in all cases of fever presenting in the hospital. Prompt diagnosis and early treatment can decrease the mortality associated with Dengue.

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