Original Article

Hospital Based Study of Dengue Hemorrhagic Fever in Western Uttar Pradesh Region

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Abstract

Background: Dengue hemorrhagic fever is Arbo virus mediated outbreak, hitting different geographic areas with typical and atypical manifestations. Dengue hemorrhagic fever emerged as major health problem in India. Here in this study we have tried to find out the trend of DHF in western Uttar Pradesh region.

Material & Methods: In this study we retrospectively studied the case files of 196 patients who were admitted as the case of Dengue/ Dengue haemorrhagic fever, but we included only those cases in this study, which fulfilled the World Health Organization case definitions for DHF. Blood samples from suspected cases were collected and tested for Dengue by ELISA.

Results: Among all cases fever was present in all the cases and other noticeable symptoms were, headache, Rash, Pleural effusion, Bleeding, Neurological deficits & Ascites. Various biochemical parameters showed different values.

Conclusions: We concluded our study with the fact that while keeping in mind the common symptoms of DHF, we should keep an eye on atypical symptoms and manifestations also, so that no case should go unnoticed and proper treatment modality should be applied on the patients.

Keywords: ELISA, WHO, Dengue Virus Infection, Fever

INTRODUCTION

Dengue is the most rapidly spreading mosquito-borne viral disease in the world. Dengue fever (DF) and Dengue hemorrhagic fever (DHF) is endemic Western Pacific region.

DHF is defined as an acute febrile illness with hemorrhagic, a platelet count <100,000/mm^3 and objective evidence of plasma leakage due to increased vascular permeability, shown by either a fluctuation in hematocrit ≥ 20% during the course of illness and recovery or clinical signs of plasma leakage, such as ascites, pleural effusion, or hypoproteinemia.[1] (WHO, 1997).

The first virologically confirmed epidemic in India occurred at Kolkata and in the eastern coast of India in 1963-1964.[2]

According to (Bharaj et al, 2008)[3] four serotypes of the virus are circulating in India.

In 1996 another major widespread epidemic of dengue hemorrhagic fever (DHF) occurred involving areas around Delhi and Lucknow.[4,5] After there has been resurgence of the infection in north Indian plains including Uttar Pradesh.

DHF occurs throughout the year with a peak during monsoon and post-monsoon season due to high vector density. Major outbreaks have occurred in north India.[6]

In the last 50 years, incidence has increased 30-fold with increasing geographic expansion to new countries beyond national borders.[7]

The objective of present retrospective study was to determine the number of DHF cases admitted to the

TMMC for the year 2012-2013 and note their clinical presentations and epidemiology.

MATERIAL & METHODS

This being a retrospective study, the patients were selected from outpatient department and indoor of Teerthankar Mahaveer Medical College and Hospital, Moradabad, Uttar Pradesh, a tertiary care centre in the state. The study was approved by the ethical and research committee of the hospital. Consent was taken from Medical superintendent of the hospital to go through the files and medical record section. We included 148 patients in the study as per definition of DHF by World health organization, and final decision regarding selection of cases was made as per reports of ELISA for IgM.

RESULTS

Table 1: Clinical features as seen in descending order in Dengue Hemorrhagic Fever

Clinical features in descending order	Number of patients
Fever	148
Headache	80
Rash	56
Pleural effusion	28
Bleeding	20
Neurological features	16
Ascites	12

In the present study, total 148 dengue positive patients are included and analyzed. The different clinical features and symptoms of these patients are shown in Table 1. It was seen that fever was present in all (n =148) patients. Next symptom noted was headache (n= 80) followed by rash. Bleeding was noted from different sites of the body in 20 patients. Among these 20 patients with bleeding manifestations, four patients had both gum bleeding and gastrointestinal bleeding in the form of melena, eight patients had bleeding from the gums and 8 patients had only melena. Among the 56 patients with rash, 24 patients had an erythematous outlook of the skin and the rest had purpuric spots. Eight patients also had subconjuctival hemorrhage. Out of 148 patients, 56 had platelet count below fifty thousand/cumm of blood and the rest 92 patients had more than fifty thousand /cumm of blood. And among these 56 patients with below fifty thousand platelet count, 16 patients had both rash and bleeding, 12 had rash only and 4 had bleeding episode only without any rash irrespective of having a low platelet count while other 24 had neither rash nor bleeding. Considering the rest 92 patients, only 14 patients had rash but none had bleeding episodes.16 patients had neurological manifestations. Patients with encephalopathy presented with disorientation, confusion and rash with fever. MRI was done in the patients was normal. CSF Study in 4 patients revealed - cell-14/10, glucose-56/63 mg/dl, protein-65/56 gm/d. Tests for Japanese encephalitis, Herpes simplex were negative. Serology was negative for HIV antibodies, ANCA and ANA levels were within normal limits. Two patients developed weakness six days after admitted with fever with rash. Patient admitted with history of fever, rash and weakness of both the lower limbs and positive ELISA. These patients improved spontaneously with conservative management without requiring any plasmapheresis. Two patients presented with fever with erythematous hue. Magnetic resonance imaging (MRI) of brain did not reveal any abnormality. Weakness improved completely within next 10 days. Among the 6 lateral rectus palsy patients 4 were females and 2 were male. Two female patienst had papilloedema while others four had no other neurological features. MRI of the two female patients was absolutely normal. Out of 148 patients, 58 patients had PCV less than 45 and 32 patients had more than 45. Among those 32 patients 20 had features of serositis. 8 patients had both ascites and pleural effusion and 12 patient's only pleural effusion. Among those 116 patients, 12 had serositis; 4 had ascites and 8 had pleural effusion.

Various biochemical parameters were depicted in Table 2.

Table 2 : Mean value of different biochemical parameters as obtained in 148 patients

Biochemical parameters	Values±SD	Unit
Total count	4998±1516	Cubic mm
Platelet count	99000±62563	Cubic mm
Hemoglobin	11.9±1.98	(gm/dl)
PCV	41.2±4.8	-
Creatinine	1.05±0.38	(mg/dl)
Bile (Total)	0.99±0.33	(mg/dl)
Bile (Direct)	0.47±0.28	(mg/dl)
Bile (Indirect)	0.52±0.20	(mg/dl)
Total Protein	6.68±0.56	(gm/dl)
Albumin	3.68±0.48	(gm/dl)
Globulin	2.71±0.33	(gm/dl)

DISCUSSION

Dengue has emerged as one of major health problem in western Uttar Pradesh region. In India, different circulating serotypes have been reported during different outbreaks. During 2012, DV-1, became the dominant serotype.[3] During conduction of this study we found that manifestations of DF/DHF have ranged from known clinical presentations to some atypical presentations. In western Uttar Pradesh India, post-monsoon period is the most affected period. In DF, cutaneous manifestations can vary from maculopapular rash, petechiae, flushing to even desquamation. In our study

we found rash in 56 cases. In a study conducted by Nadia et al,[8] cutaneous manifestations were present in flushing was present in 72% cases. In a study of patients in Japan, by Itoda et al,[9] rash was more frequent in 82% cases. Rahim & Sikdar,[10] also found rash in high frequency of 78.5% in a Bangladesh based study. Bleeding diathesis is also one of known feature of DF because of low platelet count and leakage from blood vessels. In our study, we found 20 patients had bleeding episodes in the form of gum bleeding and melena while 56 patients had platelet count below 50,000/cmm. In a north Indian study by Seema et al,[11] only 8% patients had bleeding episodes while 26% patients had platelet count below 20,000/cmm. On the other hand, in a study by Tripathy et al,[12] hematemesis, melena and epistaxis were found in 28.28%, 26.78% and 14.28% respectively but only 12.85% cases had platelet count < 70,000/cmm In north India a study was done by Mittal et al,[13] which revealed thrombocytopenia in 92.6% while bleeding was there in 48.8% cases. In this study only 29% cases had leukocyte count below 4000/cmm. But in study of Itoda et al,[9] leucopenia was detected in 71% cases, while Ageep et al,[14] reported leucopenia in 90%. Mittal et al,[13] found leucopenia in 19.2% cases and in Bangladesh based study by Rahim & sikdar[10] detected it in only 4.1% cases. In our study we found 80 patients presented with headache that is similar (61.6%) to the study by Singh NP et al.[15] Itoda I et al,[9] in Japan, headache was present in 90%cases. On the other hand the north Indian study by Seema et al[11] reported headache in only 9% of cases. In this study we noticed ascites and pleural effusion in 28 and 12 of cases. In the study by Singh et al,[15] ascites was in 1.08% and pleural effusion was also in 1.08% cases. In a study by Mia et al,[16] 41% patients developed ascites and 42% had pleural effusion. Like, in the study by Kamath et al[17] neurological manifestations were noticed in 20% of the patients and Mendez et al[18] reported 25% patients with neurological manifestations. We found them in 16 of our patients. This study is totally based on patients who attended hospital OPD and may not give the exact picture of community as only highly suspected or confirmed cases are reported here. Increase in awareness, better diagnostic facilities, availability of more sensitive and specific diagnostic tests can influence reporting pattern to some extent.

CONCLUSION

In last few years, varied clinical presentation of the Dengue hemorrhagic fever is noted in the different parts of the world and more so over varied clinical manifestations at different times in same geographical area. Along with some typical manifestations some atypical features are also noted, which makes the treatment more complicated and motivates the researchers to go deeper in the etiopathogenesis of different atypical features of dengure hemorrhagic fever. Continuous surveillance and timely interventions are required, so that its complications, outbreak and mortality can be minimized.

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