ORIGINAL ARTICLE

Dengue Fever : Study of 100 Cases in a Tertiary Care Hospital in Dhaka City

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Abstract :

Dengue is a rapidly spreading mosquito-borne viral disease world wide. The endemicity in Bangladesh is also increasing gradually. The study was a prospective observational one, documented the presenting features and outcome of management. It was carried out in Department of Medicine in Holy Family Red Crescent Medical College Hospital, Dhaka from June 2013 to December 2013. Total 100 admitted cases of both sero-positive and sero-negatve were included in this study. Detailed history was taken, clinical examination and relevant investigations were done. Out of 100 patients 54 (54%) were male and 46 (46%) were female. So male to female ratio was 1.7:1. The age of the patients ranged from 12-75 years. Among them 20-40 years age group was highest 63%. Patients of higher socio-economic group were (69%) more affected. Out of 100 cases 54 had classical dengue fever (DF), 46 had dengue haemorrhagic fever (DHF). Antibody was positive in 81% cases. All patients presented with high fever, headache in 90%, retro-orbital pain in 45%, body ache in 56%, and backache in 48%. Leucopenia found in 60, platelet count $<100\times109/L$ was in 57, HCT- normal 17, <20% rise in 48%, ?20% rise in 28%. With proper management all patients were recovered.

Introduction:

Dengue fever (DF) and dengue haemorrhagic fever (DHF) are re-emerging diseases that are endemic in the tropical and sub-tropical regions of the world. The disease is caused by 4 closely related dengue viruses that belong to the genus Flavivirus and principally transmitted by *Aedes aegypti* mosquito. The virus has 4 antigenically similar but immunologically distinct serotypes[1]. Infection with one serotype confers protective immunity against that serotype but not against other serotypes. In fact secondary infection with a heterologous serotype is a risk factor for developing DHF/DSS[2]. Both viral and host factors are thought to contribute to the manifestation of the disease in each infected individual[3]. In fact the disease has become hyperendemic in many urban, peri-urban and rural areas in recent decades with frequent epidemics. South-East Asia is one of the regions with highest risk of DF/DHF, accounting for 52% of the global risk[4].

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DF was first documented in Bangladesh in mid-1960s but an outbreak of DHF was not reported that decades[5]. On June 2000 ELISA proved cases of DHF presented with asites, pleural effusion and thrombocytopenia was first identified and on that year an outbreak of DF (>5000 hospitalized cases reported) and DHF occurred in Dhaka and other major cities of Bangladesh[6] .

According to WHO criteria[7], for defining DHF the following must all be present (a) fever (b) haemorrhagic tendency (c) thrombocytopenia (d) evidence of plasma leakage, manifested by either a rise of haematocrit 20% above average for age, sex and population or signs of plasma leakage such as pleural effusion, ascites and hypoproteinemia. For defining DSS all of the above four criteria of DHF plus evidence of circulatory failure manifested by rapid and weak pulse, narrow pulse pressure (less than 20 mm Hg), hypotension for age or cold clammy skin must be present.

Clinicians must be well versed with the clinical presentations, the initial diagnosis and the platelet count , and has to evaluate it thoroughly.

Materials and method :

This prospective observational study was carried out on admitted patients of dengue fever in medicine department of holy family red crescent medical college hospital from June 2013 to December 2013. Patients with prolonged fever were excluded from this study. Written consent was taken from the patient before inclusion in the study. Dengue fever was diagnosed on the clinical definition described by WHO guidelines on dengue management and prevention and supported by laboratory reports. The cases were classified on the basis of WHO comprehensive Guidelines for prevention and control of dengue fever and dengue haemorrhagic fever 2011. Data were collected in specified structured questionnaire and analyzed later on with the help of SPSS 16.

Results:

A total number of 100 patients with dengue fever from June 2013 to December 2013 were studied. Age of the patients is ranged from 12 years to 75 years. Age distribution and male to female ratio of the patients are shown in Fig- 1.
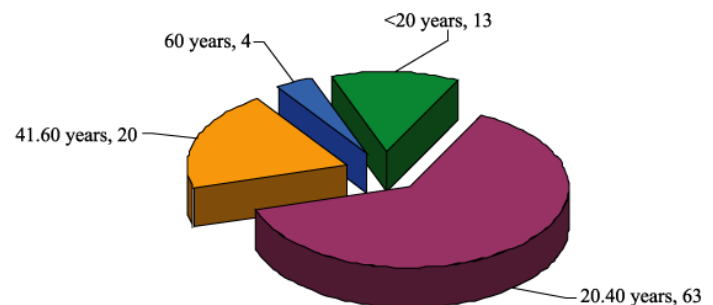

Figure-1: Age distribution of patients

Male patients were 54 and female were 46 in number. Male to female ratio was 1.17:1. All patients presented with fever 100% and other features are as follows- headache 90%, retro-orbital pain 45%, bodyache 48%, nausea and/or vomiting 28%, loose stool 30%, constipation 20%, generalized itching 62%, bleeding manifestations (any form) 32%. Detail clinical features are shown in table-I.

Table-I: Symptoms and signs of patients

Symptoms and signs	Number of patients	Percentage
Fever	100	100%
Headache	90	90%
Retro-orbital pain	45	45%
Bodyache	56	56%
Backache	48	48%
Nausia/vomiting	28	28%
Diarrhoea	30	30%
Constipation	20	20%
Generalized itching	62	62%
Bleeding manifestations	30	30%
Tourniquet test	02	02%
Skin rash	52	52%
Cervical lymphadenpathy	16	16%

Table-II: Important investigation reports

Investigations	Number of patients	Percentage
WBC(normal)	40	40%
Leucopenia	60	60%
SGOT (normal)	11	11%
SGOT (raised)	89	89%
Platelet count	00	00%
< 10×109 /L	25	25%
10-50×109 /l	32	32%
51-100×109 /L	27	27%
100-150×109 /L	16	16%
>150×109 /L		
HCT (rise/normal)	17	17
Normal	53	53
<20% rise	28	28
?20% rise	02	02
Decrease(<10%)		
CXR	08	08%
USG	31	31%
Hepatomegaly	24	24%
Splenomegaly	10	10%
Ascites		

Leucopenia was present in 60 (60%), SGOT was raised in 89 (89%) patients. No patient had platelet count less than 10×109 /L and 25 had platelet count 10-50×109 /L range, 32 had 51-100×109 10/L, 27 had 100-150×109 /L, 16 patients had >150×109 /L platelet count. Haematocrit (Hct) value was normal in 17 patients, <20% rise in 53, ?20% rise in 28, Hct

was decrease (<10%) in only 02 patients. CXR showed pleural effusion in 8 patients. Ultrasonogram (USG) shows hepatomegaly in 31, splenomegaly in 24, ascites in 10 patients. Antibody test IgM positive in 50, both IgM and IgG positive in 31, and antibody negative in 19 patients.

Most of the patients were from higher socio-economic group of people.

Table- III: Socio-economic status of patients

Class	Monthly income	Number of patient	Percentage
Higher	>50000	69	69
Middle	20000-50000	28	28
Lower	<20000	03	03

Table- IV: Presence of antibody in patients

	Number of patient	Percentage
IgM	50	50
IgM & IgG	31	31
Antibody negative	19	19

Table- V: Dengue grading (according to WHO criteria)

	Number of patient	Percentage
Classical DF	54	54
DHF (I+II)	42	42
DHF III	04	04
DHF IV	00	00

Among all patients classical DF variety were 54 (54%), DHF(I+II) variety were 42 (42%), DHF III were 4 (4%). No patient was in DHF IV grade.

The study was done on admitted patients. Duration of hospital stay >5days were 67 (67%) patients and <5 days stay were 33(33%) patients. Only symptomatic treatment according to WHO guidelines was given like paracetamol, plenty oral fluid including fruit juice and ORS. Intravenous fluid was used in grade II and III patients and in patients with repeated vomiting and diarrhea. Antibiotics were used in patients

with super-added bacterial infections. Steroid was not used in any patient and platelet concentrate or blood was not transfused in any patients. With these treatments all patients recovered and there was no death.

Discussion:

Male preponderance with a male to female ratio of 5:1 was observed by Hanif Mohammad et al.[8] Male preponderance was also found in this study but male to female ratio was low 1.17:1 and that difference may be because of this study was done in a highly paying private hospital. 63 (63%) patients were in the age group of 20-40 years which differs from study result done by Mia MW et al[9] where 42% patients were in this age group but coincides approximately with the observation of N Parveen et al[10] where patients of this age group were 56%. Headache along with retro-orbital pain and bodyache were very common clinical presentations as is the name of the disease 'breakbone disease'. 32% of patients had any one or more of bleeding manifestations. Most of the haemorrhage were in DHF cases but a few cases of DF patients also had minor bleeding attacks. The clinical presentations found in this study are almost similar to those found in previous studies[3]. Many of the investigation findings of this study are similar to those of previous studies[9,11]. Liver enzyme elevation was common in this study, SGOT was elevated in 89 (89%) patients which corresponds to study of Kalayanarooj S et al[12].

In this study classical DF were 54 (54%), DHF (I+II) 42 (42%), DHF III 04 (04%) and DHF IV zero (0%) cases. This finding nearly corresponds to the study of ABM Shahidul Alam et al[13] excepting the DHF IV grade which was present in 11.15 cases in that previous study. Dengue fever and dengue haemorrhagic fever

grading was done according to WHO guideline[14]. As the study was done on hospital admitted patients, the duration of hospital stay was >5 days 67 (67%) patients and <5 days 33 (33%) patients. Treatment was also applied according to WHO guidelines. Significant morbidity and mortaliy can occur in patients whose early recognition and monitoring of severe forms are not done. If left untreated, the mortality of DHF and DSS patients may be as high as 40-50%. But early recognition of the disease, careful monitoring and appropriate fluid therapy can decrease mortality to 1%[15]. Mortality was nil in this study. In Agarwal et al's[16] study mortality was 3.8%.

Conclusion:

Dengue causes more illness and death than any other arbo-viral infections in the world. In this study, we tried to find out pattern of clinical presentation, management and outcome of the dengue cases. High continuous fever along with headache, retro-orbital pain, bodyache, generalized itching with skin rash were most common clinical features among the patients. Bleeding manifestations were uncommon presentation. Leucopenia was very common. Thrombocytopenia was inevitable. Raised SGOT was observed as a common finding. In this study, DSS was a rare event, resulting in a lower morbidity and zero mortality than reported elsewhere, likely representing hospitalization of less severe cases.

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