

Dengue Infection in Adult: A Clinical Study of Fifty Cases

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Dengue has not been a public problem till the outbreak of 2000. So, there was little knowledge in this regards. The study was conducted to gather knowledge regarding epidemiological and clinical perspective. patients were admitted in Dhaka Medical College Hospital and Mitford Hospital. A total of 50 patients were included. Among them 20 patients were dengue fever, 20 were of dengue haemorrhagic fever and 10 were dengue shock syndrome. Highest number of patients were between 16 and 25 years of age (42%). Male patients were predominant (76%). Fever was present in 100% of the patients. Gum bleeding was most common haemorrhagic manifestation. Lowest platelet count was observed in dengue shock syndrome group. Lowest platelet count was found on the 1st day after cessation of fever. Now rash was found in more than half of the patients. Morality was found nil in this study.

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Introduction

Dengue fever, a very old disease, was spread around the world as commerce and the shipping industry developed in the eighteenth and nineteenth centuries. Dengue along with yellow fever, caused devastating epidemics in port cities as the principal mosquito vector, *Aedes aegypti* and the viruses were spread from country to country and region to region by sailing vessels. Due to disruption caused by world war-II, and the rapid economic development with the increased movement of the human resulted an increased dengue transmission in South East Asia.¹ There was an outbreak of dengue and chikungunya virus infection called. "Dacca fever" which was the first documented outbreak of dengue in Bangladesh in 1964.² Another epidemic fever features closely mimicking that of Dengue haemorrhagic fever occurred again in 1968 in areas of Bangladesh bordering Myanmar following that no significant outbreak occurred in this country.² Following 2000 outbreak many cases was reported in 2001

and in 2002 occurred.³ Bangladesh is a country where most infectious disease are prevailing in endemic through mosquitoes. Dengue is a similar mosquito vector born disease.⁴ All the favourable environments and other related factors are not only present but also developing rapidly, the factors responsible for global resurgence of Dengue fever include unplanned and uncontrolled urbanization, increase air travel deterioration of public health infrastructures.⁵ Humidity and temperature have a effect on dengue. transmission. Due to high humidity during rainy season mosquito survival is longer.⁶ Still we are unaware of many pathological process regarding dengue infection. So, multiple studies in this field will help to remove the ambiguity and confusion of professional and general practitioners regarding diagnosis and management. Dengue has not been a public health problem till the outbreak of 2000. So, there was little knowledge in this regard. This study was done actually to gather knowledge regarding epidemiological and clinical perspective

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Methods

Fifty patients were included in this study. The enrolled patients were admitted in Dhaka medical college hospital and Mitford hospital in adult medicine department. SEARO/WHO guidelines for the diagnosis of dengue fever (DF), dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS) were followed for patient selection. Patients with age below 16 years, fever more than 7 days and fever other than dengue diagnosed clinically or by investigations were excluded. They were grouped in three depending on the diagnostic criteria into group-1(Dengue fever), group-2 (Dengue haemorrhagic fever), and group-3 (dengue shock syndrome). Clinical feature and relevant investigation was recorded in preformed structured questionnaire and regular clinical and pathological examination was done to attain further information and finally they were analyzed in groups.

Results

Among 50 patients 20 patients (40%) were in group-1, 20 patients (40%) in group-2 and 10 patients (20%) were in group-3 (table I). Highest number of cases was found between 16-25 years (42%) and no patient was above 54 years of age. Male patients were predominant in this study (76%). Male female ratio was 3:1.

Table I: Distribution of patients in different groups.

Age (years)	Group-1 (DF)	Group-2 (DHF)	Group-3 (DSS)	Total
16-25	11	6	4	21
26-35	6	10	4	20
36-45	3	3	2	8
46-55	0	1	0	1
Total	20	20	10	50

Table II: Signs and symptoms observed in study groups, except haemorrhage (n=50)

Signs and symptoms	Group-1 (n=20)	Group-2 (n=20)	Group-3 (n=10)
Fever	20(100%)	20(100%)	10(100%)
Frontal headache	18(90%)	17(85%)	9(90%)
Myalgia	16(80%)	17(85%)	10(100%)
Nausea/Vomiting	14(70%)	16(80%)	8(80%)
Back pain	10(50%)	11(55%)	6(60%)
Arthralgia	12(60%)	11(55%)	10(100%)
Retro Orbital pain	9(45%)	9(45%)	6(60%)
Hepatomegaly	5(25%)	7(35%)	6(60%)
Splenomegaly	0	0	2(20%)
Hepatosplenomegaly	0	0	1(10%)
Ascitis	0	3(15%)	8(80%)
Pleural effusion	0	5(25%)	8(80%)
Lymphadenopathy	2(10%)	1	0

Fever was present in 100% cases. Frontal headache and myalgia was most common symptom other than fever. Rash and hepatomegaly was prominent sign (table II).

Gum bleeding was the commonest haemorrhagic manifestation, 55% in group-2 and 100% in group-3. Melaena was observed in 35% of group-2 and 80% in group-3. Tourniquet test was positive in 20% cases of group-1 though other bleeding manifestations were absent. Both in group 2 and 3 tourniquet test were positive in 80% cases. Among different types of rashes erythematous rash was noticed in 13 patients of different group which was highest. No rash was present 50% of group-1, 35% of group-2 and 43% of

group-3. Lowest individual platelet counts of study subjects were recorded (Fig. 1). Among these lowest, highest and mean values were compared in three groups. Mean value was lowest in group-3(57,000/cmm), highest in group-1(1, 29,000/cmm) and group-2 was in between (88,000/cmm).

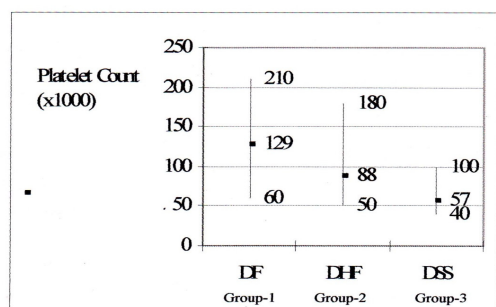


Figure 1. Lowest platelet count in different groups

When all platelet counts were plotted in relation to the last day of fever it was noticed that lowest counts tended to occur in the 1st day after the cessation of fever.

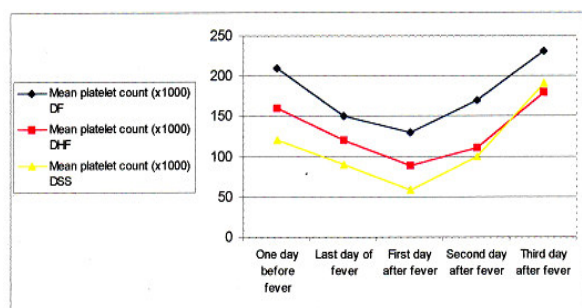


Figure 2. Magnitude of serial platelet count in relation to fever.

Elevation of liver enzyme noticed in 58% patients and leukopenia in 18% cases. Pleural effusion on chest X-ray was also found in 18% cases. Haemorrhagic manifestations and rashes in different types of dengue fever are shown in the table III and IV.

Table III: Haemorrhagic manifestations of the study subjects. (n=50)

Types of haemorrhagic manifestation	Group-1 (n=20)	Group-2 (n=20)	Group-3 (n=10)
Positive Tourniquet test	4(20%)	16(80%)	8(80%)
Gum bleeding	0	11(55%)	10(100%)
Melaena	0	7(35%)	8(80%)
Conjunctival haemorrhage	0	7(35%)	3(30%)
Petechiae	0	5(25%)	3(30%)
Haematemesis	0	3(15%)	4(40%)
Haemoptysis	0	0	1(10%)
Haematuria	0	0	1(10%)
Epistaxis	0	4(20%)	2(20%)

Table IV: Different types of rash appeared in study subjects. (n=50)

Type of rash	Group-1 (n=20)	Group-2 (n=20)	Group-3 (n=10)
Macular	3(15%)	4(20%)	3(30%)
Maculopapular	2(10%)	3(15%)	1(10%)
Erythematous	5(25%)	6(30%)	2(20%)
No rash	10(50%)	7(35%)	4(40%)

Discussion

A total number of fifty patients were studied. Among these 20 patients (40%) belongs to group-1 (DF), 20 patients (40%) belongs to group-2 (DHF) and 10 patients (20%) belongs to group-3 (DSS) in Fig-4. Patients with DSS were less in this study as very few patients admitted with shock or developed shock after admission. Bokisch *et al* (1973) found 38% cases of DSS in his study and Wali JP, *et al* 1999 found 20% cases of DSS.^{8,9}

Age of the patients ranged from 16-54 years. Maximum number of cases were found between 16-25 years (n=21) and 26-35 years (n=20) age group. Mean age was 25.4 ± 7.9 , 30 ± 10.4 , 28.3 ± 6.9 respectively in group 1, 2 & 3. Wali JP, *et al*, 1999 showed that contrary to popular belief DFIF/DSS is mainly a diseases of children he found mean age of his study, was 31 ± 5.2 (SD). Which is almost similar in this study. Majority of the study subjects were male. Number of male patients were 38 (76%) and female were 12 (24%). Male female ratio was almost 3:1. This finding does not support findings of Kuberski, T. *et al* (1977), who found male and female almost in equal frequency but Wali JP, *et al*, 1999 found male female ratio was about 2.5:1. This finding nearly supports my finding. Facts may be due to males are more alert about the diseases and females are yet being neglected group in the society.

Fever was present in 100% study subjects. Myalgia and frontal headache were most common symptoms. It was 88% and 86% respectively.

Ascitis and effusion resolve within two weeks period. Wali, JP. (1999) in a study found ascitis and effusion in much lower number of patients with 7.2% of cases of plural effusion and only 2.7% cases of ascitis.¹¹ No obvious explanation is forthcoming for this observation but small study group in my study may play a role. In his study only clinically detectable ascitis were included; the number would be more if sonographically detectable ascitis were also included.

Gum bleeding was most frequent pattern of bleeding, 55% in group-2 and 100% in group-3. Second most common bleeding manifestation was melaena, 35% in group-2 & 80% in group-3. Haemoptysis and haematuria was least common, only 10% in group-3 Patients had brief episodes of bleeding and in general appeared late in the

disease, 1 to 2 days after remission of fever. Almost similar findings observed Wali, JP. (1999) who also found gum bleeding followed by melaena as the most common pattern of bleeding. Tourniquet test was positive in about 80% of patients of group-2 (DHF) and group-3 (DSS) but only 20% group-1 (DF). Almost similar observation noted in another study by Nimmannitya S, *et al* 1969. Who reported 84% tourniquet positive in patients with DHF/DSS. Rash consisted of either diffuse erythema or erythematous macular /maculopapular rash. Diffuse erythema was most marked over chest, back of the trunk and face. No rash was observed in 50% patients of group-1. A study in the 1996 Delhi epidemic supports this (Kabra, S.K. 1999), who observed 48% of DF cases had no rash.¹⁵

Thrombocytopenia of varying severity was common among different study groups. The mean platelet counts ($\times 1000$) were 129 ± 43.8 /cmm, 88 ± 34.7 /cmm, 57 ± 25.4 /cmm respectively in group-1, 2 & 3. Kabra SK, *et al* 1999¹⁵ found mean platelet count in DF was 106 ± 80 . Bokisch V.A *et al* 1973⁸ observed average platelet count 1,08,000/cmm in DHF & 52,500/cmm in DSS. These findings are almost similar.

A close relationship observed between the lowest platelet count and termination of fever. In all three group lowest platelet count tended to occur on the first day after cessation of fever. This observation is consistent with the study of Kuberski, T. 1977¹⁰

Conclusion

Now a days dengue has become a major public health problem for our country. Every year a good number of cases being identified specially during rainy season. In this study we found Dengue is more prevalent in early adult and middle aged population and rare in older age group. Males were predominant sex group, affected. Fever, frontal headache and

myalgia were most common symptoms. Positive tourniquet test was found in most of the cases specially in DHF and DSS. Gum bleeding was the most common bleeding manifestation. No rash was found in more than half of the patients. Decrease platelet count was most common laboratory finding was more marked in DHF and DSS. Lowest platelet count was observed first day after fever in all groups.

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