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DENGUE FEVER;
A CLINICAL EXPERIENCE

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ABSTRACT… Background: Dengue is the most prevalent mosquito-born viral illness in the world. Clinically dengue ranges from asymptomatic, non-febrile illness, classic dengue to dengue hemorrhagic fever/dengue shock syndrome. **Objective: Subjects & Methods:** This study was included 79 patients conducted at Nawaz Sharif Social Sevurity Hospital, Lahore during the epidemic of dengue in Lahore from September 2011 to Dec 2011. **Results:** Twenty out of 79 patients suspected of dengue fever were dengue IgM positive. Male to female ratio was 1.19: 1. Our study included 79 patients suspected of having dengue fever. Fever was the most common symptom in these patients. **Conclusions:** Early identification of dengue with risk of developing hemorrhage is an important clinical objective. The morbidity and mortality can be reduced by appropriate and judicious treatment of dengue patients.

Key words: Dengue fever, Non-febrile, hemorrhagic fever

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INTRODUCTION

Dengue is the most prevalent mosquito-born viral infection in the world. Clinically dengue ranges from asymptomatic, non specific febrile illness, classic dengue, to dengue hemorrhagic fever / dengue shock syndrome (DHF/DSS)[1]. Dengue viruses cause 50 million infections annually and 2.5 billion are at risk[2]. The main mosquito vector (Aedes Aegypti) typically breads well in human-made-container habitat such as water storage jars in and around human settlements including those in dense urban areas[3]. The breading behaviour stands in contrast to most anopheles species (the vector for malaria), which usually avoids urban ecosystem, leading to low malaria risk in cities[4]. High human population density and need for water storage are regarded as major contributors to dengue epidemics[5].

Dengue virus is an enveloped, single stranded, positive RNA virus and a member of family Flaviviridae, genus flavivirus. There are four antigenically related but distinct subtypes; DV1, DV2, DV3 and DV4. Epidemic dengue fever was common in Asia and Pacific region through the 20th century[6]. In Asia, first outbreak of DHF began in 1950 in the Philippines and Thailand(----). In Pakistan, the first confirmed outbreak was due to sub type DV2 reported by Agha Khan University Hospital in 1994[7]. The recent outbreak in the form of large epidemic occurred in Lahore City in 2011 which resulted in greater morbidity and mortality.

SUBJECTS AND METHODS

Nawaz Sharif Social Security Hospital, Lahore is 700 bedded teaching hospital. The study was done on Pediatric patients suspected of having dengue fever from September, 2011 to December, 2011. Age of the patient was from one to twelve years. These patients were admitted in pediatric ward from outpatient department and Emergency. Inclusion criteria were moderate to high grade fever with no focus of infection. A total of 79 patients were included.

Exclusion Criteria: For all these patients CBC, Serum Electrolytes and LFTs were sent and then categorized on the bases of clinically meaningful

cut-offs. Thrombocytopenia was defined as platelet count <150,000/mm^3. Similarly leucopenia was defined as white cell count <4,000/mm^3. Dengue IgM was sent after the 6th day of start of illness. Ophthalmic evaluation was done of all patients with retroorbital pain to rule out any ophthalmic pathology.

RESULTS

A total of 79 serum samples were tested for dengue IgM antibodies during the study period. Out of 79 patients, 20 patients turned out to be positive for dengue IgM antibody (25.32%). Median age of the patient was 6.5±5.5 years. Out of 79 patients, 43 were males and 36 were females. Male to female ratio was 1.2:1 (Table I). Majority of the patients were found to have high grade fever 77.2% (n = 61) followed by vomiting 54.4% (n=43), headache in 25.3% (n=20), myalgia in 22.7% (n=18), abdominal pain in 10.1% (n=8), Retro orbital pain in 7.6% (n=6), peticheal rash in 3.7% (n=3) [Fig 1). On laboratory investigation, mean, standard deviation, and median of hemoglobin level among different age groups were evenly distributed (Table II). 48 patients (60.8%) were having leucopenia (WBC<4000) at any time during their duration of admission. On cross tabulation of immune markers (dengue IgM antibody) with platelet levels, we found no difference (Table-III). However, cases with positive dengue IgM antibody needed more platelet and blood transfusion and this difference was statistically significant (Table-IV). Detailed breakup of cases with positive dengue IgM antibody did not show any difference as regard to the level of platelets (Table-V). The treatment was supportive with careful management of fluid and electrolytes and judicial use of platelet or blood transfusion. There was no mortality amongst the study group.

Age (years)	Male (n=43)	Female (n=36)	Total (n=79)
1-5	11	12	23
6-10	15	12	27
≥10	17	12	29

Table-I. Case distribution according to age and gender

Age groups	No	Hb in gm/dl				
		Median	Minimum	Maximum	Mean	S.D
1-5 years	24	9	6.9	12.9	9.3	1.8
6-10 years	26	11.85	8.1	13.1	11.3	1.4
>10 years	29	11.7	8.7	14.8	11.5	1.6

Table-II. Hemoglobin levels according to age

Dengue IgM	No.	Platelet / mm^3 of blood	
		> 50,000 (n=62)	< 50,000 (n=17)
Positive	20	16	4
Negative	59	46	13

Table-III. Cross tabulation of dengue IgM and platelet levels *p = > 0.05*

Dengue IgM	No.	Transfusion Required (n=12)	Not Required (n=67)
Positive	20	13	7
Negative	59	3	56

Table-IV. Cross tabulation of dengue IgM v/s need for platelet/blood transfusion *p = < 0.05*

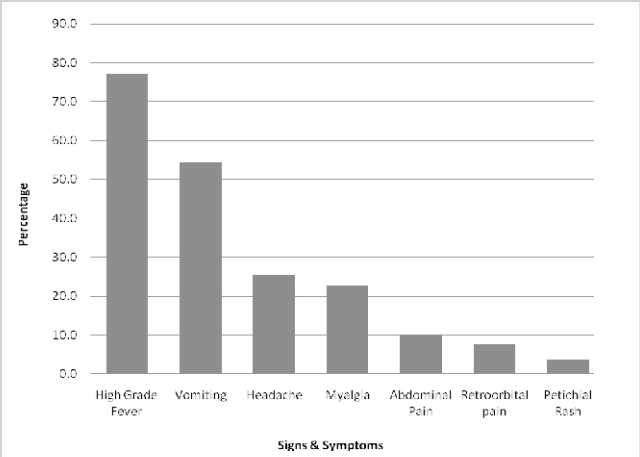

Fig-1. Major clinical features of cases admitted with dengue fever

Bleeding tendency	No.	Platelet / mm^3 blood	
		50,000 to 100,000 (n=39)	< 50,000 (n=17)
Positive	6	4	2
Negative	50	35	15

Table-V. Cross tabulation of bleeding tendency and level of platelets *p = > 0.05*

DISCUSSION

According to World Health Organization, dengue ranks as the most important mosquito-born viral disease in the world. In the last 50 years, the incidence of dengue has increased 30-fold world wide[8]. The epidemic of dengue fever occurred in Lahore during the post moon-soon period of September, 2011 to December, 2011. Tripathi et al[9] reported that the dengue was round the year in Lucknow region in India with peak incidence in post moon-soon season. Transmission appears to begin in urban centre and then spread to the rest of the country. This epidemic mainly was confined to Lahore. Male preponderance was observed in our study as it has been observed in other studies from Pakistan and India[11,12]. Dengue case fatality rate has been reported to be 0.5 to 5 %[13]. No death occurred in the pediatric patients in our study. The manifestations of dengue are currently known; dengue fever, dengue hemorrhagic fever and dengue shock syndrome. However, fever is the most common symptom in all of them[14]. In our study high grade fever is the most common symptom. Similar results have been seen in other studies as well[14]. But a recent review of public studies was unable to make any conclusion on the signs and symptoms that can clinically distinguish dengue fever from other febrile illnesses[15].

Initial dengue infection may be asymptomatic i.e. 50 to 90 %[16]. Clinical features of dengue fever vary according to the age of the patient. Infants and young children may have non specific febrile illness with rash. Older children and adults may have mild febrile syndrome or the classical incapacitating disease with abrupt onset of high grade fever, sever headache, pain behind the eyes, muscle and joint pains, and rash[17]. Early identification of the patient with dengue with risk of developing hemorrhage is an important clinical objective[15]. Three patients required platelet/blood transfusion and monitored and managed intensively in our study. The people were afraid of the disease because of gravity of the epidemic and through information by the print and electronic media. Our health system needs to be updated regularly. The information regarding dengue fever should be more readily available. The popular sources of information like newspaper and television should be used to disseminate information on a larger scale[10].

CONCLUSIONS

Early identification of dengue with risk of developing hemorrhage is an important clinical objective. The morbidity and mortality can be reduced by appropriate and judicious treatment of dengue patients.

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