

Occurance and Haematological Profile of Patients with Dengue Virus Infection Attending in Tmmc & Rc, Moradabad



Medical Science

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ABSTRACT

Hematological Picture in dengue fever is mainly Thrombocytopenia - < 100,000 cells/mm Hemoconcentration (> 20% of rise in average hematocrit for age and sex)

INTRODUCTION

Every year, there are around 50 million infections of dengue and around 500,000 individuals are hospitalized with dengue fever and dengue hemorrhagic fever, mostly in Southeast Asia, the Pacific.

Dengue is caused by any of four single stranded (ss), positive sense RNA viruses (dengue virus type 1 to dengue virus type 4), which is also referred as serotypes of flavivirus genus (family flaviviridae). During the acute phase, Infectious virus and the virus encoded NS1 are present in blood, and viremia of high level and NS1 antigenemia have been related with more severe clinical presentation. Hematological Profile can diagnose Dengue Fever.

MATERIALS AND METHODS

The present study “Occurrence of dengue virus infection and its hematological profile” was conducted in the department of Microbiology, at Teerthanker Mahaveer Medical College Hospital and Research Centre, Moradabad U.P., between Jan 2014 to Jun 2015.

SAMPLE SIZE

Total 200 samples were included in my study.

INCLUSION CRITERIA-

Individuals attending outpatient and inpatient departments of T.M.M.C. with symptoms of fever for two days of duration or more, with more than or equal to two of the following findings- Joint pain, Rash, Myalgia, Retro orbital pain, Headache, Hemorrhagic manifestations.

EXCLUSION CRITERIA-

Patients presenting with fever of less than two days duration and fever which has been diagnosed shall be excluded from our study.

DISCUSSION

Dengue virus infection has emerged as the most important and widely spread arboviral disease in the world. Today dengue is endemic in most of the tropical and Subtropical countries. The South East Asian regions have recorded increasing incidence of dengue and have contributed to the major portion of global disease burden. Dengue hemorrhagic fever and dengue shock syndrome are endemic to these regions and pose a severe threat to global health. Dengue virus infection was first reported in India from Chennai in 1780. Today dengue virus and all its clinical forms are documented in almost all parts of India. Teerthanker

Mahaveer Medical College & Research Centre is a tertiary care hospital which not only caters to moradabad district, but also to the neighbouring districts. Cases of dengue virus infection have been constantly reported from these regions. In the present study, a total of 200 serum samples from patients with clinical features of dengue were analyzed for NS1 Ag, dengue IgM & IgG using rapid card test and ELISA (J. Mitra Pvt .Ltd.). Of the 200 Samples, 100 cases (50%) were positive for dengue infection. Our study shows that out of 200 suspected dengue cases among the study population, only 100 (50%) turned out to be positive for dengue infection. This is comparable to the study conducted by Atul Garg et al and by Baruah J in which prevalence was 46.5% n 44% respectively. Huber et al shows prevalence of 62.2. Low incidence was recorded by Banerjee et al from Lucknow in 2005 which was 8.69%.

RESULTS

The present study was conducted at Teerthanker Mahaveer Medical College & Research Centre, Moradabad, U.P. Total 200 suspected cases of Dengue were taken for the study from January, 2014 to June 2015. Out of 200 samples 100 samples were positive for Dengue by Dengue day-1 rapid card and Dengue ELISA (J.Mitra pvt.ltd.).

Table 1: Occurrence of Dengue Virus infection

Total no. Of	Cases	Dengue positive Cases	
		Number	Percentage
200		100	50%

Table 1 shows that out of 200 suspected dengue cases among the study population, only 100 (50%) turned out to be positive.

Table 2: Gender wise distribution of Dengue positive cases

Gender	Total	Dengue Positive cases	Occurrence Distribution	
			%	%
Male	123	67	54.47	67
Female	77	33	42.85	33
Total	200	100	50	100

Graph 1: Gender wise distribution of Dengue positive cases
Female 42.85% Male 54.47%

Table 2 and Graph 1 shows that out of 100 subjects, 67 males and 33 females were affected. The prevalence of dengue illness among males was 54.47% and among females was 42.85%.

Table 3: Age and gender wise distribution of Dengue positive patients by Rapid card and ELISA (n=100)

Age - Group (Years)	Male Positive	Female Positive	Total Positive
0-10	02 (100%)	00 (0%)	02 (2%)
11-20	08 (72.7%)	03 (27.2%)	11 (11%)
21-30	23 (60.5%)	15 (39.4%)	38 (38%)
31-40	14 (66.6%)	07 (33.3%)	21 (21%)
41-50	09 (69.2%)	04 (30.7%)	13 (13%)
51-60	05 (71.4%)	02 (28.5%)	7 (7%)
61-70	04 (80%)	01 (20%)	5 (5%)
71-80	02 (100%)	00 (0%)	2 (2%)
81-90	00 (0%)	01 (100%)	1 (1%)
Total	67 (67%)	33 (33%)	100

Graph 2: Age and gender wise distribution of Dengue positive patients by Rapid card and ELISA.

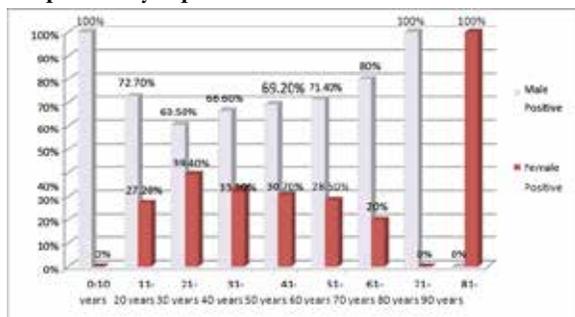


Table 3 and Graph 2 shows Age and Gender wise distribution of positive patients by dengue rapid card and ELISA. There were total 100 positive cases (67 males + 33 females), the age group 21 to 30 years showed maximum Males (23) and Females (15) positive cases of Dengue.

Table 4: NS1 Antigen, IgM and IgG Antibodies distribution of Dengue patients on the basis of Dengue day 1 rapid card test and ELISA NS1, IgM & IgG test. (n=100)

Infection (Dengue)	Rapid card test	ELISA
NS1 +ve	44 (44%)	44 (45.83%)
NS1 +ve & IgM +ve	15 (15%)	09 (9.37%)
IgM +ve	07 (7%)	08 (8.33%)
IgM +ve & IgG +ve	26 (26%)	27 (28.12%)
IgG +ve	06 (6%)	06 (6.25%)
NS1+ve, IgM +ve & IgG +ve	02 (2%)	02 (2.08%)
Total	100	96

Out of 100 positive cases by Day 1 rapid card test, 44 patients were NS1 antigen positive, 15 were NS1 Ag & IgM positive, 07 patients were IgM positive, 26 were IgM & IgG positive, 06 patients were IgG positive and remaining 02 patients were NS1 Ag, IgM & IgG positive. Whereas on the basis of Dengue ELISA test. Out of 100 positive cases, 47 patients were NS1 antigen positive, 09 were NS1 Ag & IgM positive, 08 patients were IgM positive, 28 were IgM & IgG positive, 06 patients were IgG positive and remaining 02 patients were NS1 Ag, IgM & IgG positive.

CONCLUSIONS

Our study shows that out of 100 subjects, 67 males and 33 females were affected. The prevalence of dengue illness among males was 54.47% and among females was 42.85%. This is due to the fact that males predominantly form the working population & more prone to infection by mosquito bite in a day time. Oc-

currence of dengue virus infection was 50% (100/200) during the period of outbreak. Majority (80%) of the patients were in adult age group (21-40 yr). Disease was more common in males than females. The various symptoms associated were fever (100%), headache (50%) arthralgia(60%), retro-orbital pain (87%), myalgia (70%), backache (40%), petechia (40%), Subconjunctival hemorrhage (3%), hepatomegaly(10%), splenomegaly(13%), pleural effusion(17%), altered sensorium(2%). An elevation of specific NS1 antigen levels 0 to 9 days after the onset of symptoms indicates primary dengue virus infection; this generally persists up to 15 days. IgM positivity indicates recent primary infection & IgG positivity indicates recent secondary infection or past infection. ELISA test was more sensitive than rapid card test for detection of NS1 Ag, IgM and IgG. Specificity of rapid card test was more compared to ELISA. In our study 100 serologically confirmed cases of dengue viral infection were studied to analyze the haematological parameters which will help in predicting prognosis of disease. Thrombocytopenia was seen in 81% of the cases. Thrombocytopenia was most predominant haematological discrepancy. Thrombocytopenia was associated with DF (80.45%), DHF (90%) and DSS (66%).

CONFLICT OF INTEREST

None

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