Clinical Spectrum with Unusual Presentation of Dengue Fever Outbreak in Ghaziabad: A Case Series

Veldi S. R[1], Verma M[2], Shetty R[3], Aggarwal K. C[4], Batra J[5], Mittal N[6]

[1,2,3] Resident, Santosh Medical College and Hospital, Ghaziabad, Uttar Pradesh, India.

[4] Professor and Head, Department of Pediatrics, Santosh Medical College and Hospital, Ghaziabad, Uttar Pradesh, India.

[5] Dean Research and Professor Biochemistry, Santosh Medical College and Hospital, Ghaziabad, Uttar Pradesh, India.

[6] Professor, Pedodontics and Faculty in Research Department, Santosh Medical College and Hospital, Ghaziabad, Uttar Pradesh, India.

ABSTRACT:

Dengue has emerged as the world's most widespread and rapidly increasing vector-borne disease. India, is among the 30 most highly endemic countries in the world. Among southeast Asian region, India is identified as a major contributor reporting outbreaks of dengue fever regularly, one such outbreak of dengue fever was reported from Santosh Hospital, Ghaziabad, UP, India. The clinical spectrum is variable most dengue viral infections are self-limiting, but complications may cause mortality and morbidities the clinical and biochemical profile were taken to evaluate the outcome of dengue fever in children, less than 17 years of age admitted to the hospital from September 2021 to September 2022 at the department of pediatrics, Santosh medical college. A total of 150 cases of Fever under evaluation were taken into study, out of which 100 cases had confirmed diagnosis of Dengue Fever according to WHO classification (Dengue fever, Dengue fever with warning sign, and severe Dengue fever). Out of which n=87 (87%) were dengue with warning signs and n=13(13%) were with severe dengue fever. The most prevalent complaint was fever in 100% of cases and hepatomegaly was present in 50% of cases the average age of admission was 10 years, melena was seen in 4% of cases, elevation in SGOT (>200) and SGPT (>200) was seen in 50%, and thrombocytopenia was seen in 27%, 2% patients had encephalopathy, 4% patients had shock and were managed in Pediatric ICU. Post rainy season high index of suspicion should be kept as many unusual features can be there (encephalopathy, Raised Liver enzymes). Early diagnosis and optimum diagnosis can make a significant change towards reducing mortality due to dengue.

Key words: Dengue Fever, Dengue Shock Syndrome, Dengue Hemorrhagic fever, LFT

INTRODUCTION:

Dengue fever is a leading cause of Arthropod borne viral disease with an average incubation period of 14 days. Dengue virus is transmitted by female mosquitoes mainly of the species *Aedes aegypti* and, to a lesser extent, *Ae. albopictus*.(1) There are 5 Serotypes of

Dengue virus (DEN-1, DEN-2, DEN-3, DEN-4, DEN-5)(2), (3) Dengue serotype 2(DENV2) is the most prevalent serotype in India. The mortality in severe dengue presenting as dengue hemorrhagic fever and dengue shock syndrome (DSS) can be as high as 44%.

Usual presentation consists of severe headache, pain behind the eyes, muscle and joint pains, nausea, vomiting, swollen glands, rash. (2)   In literature serum glutamic-oxaloacetic transaminase was elevated in 66.7%, 78.6% and 91.7% patients of dengue without warning signs, warning signs and severe dengue respectively. Serum glutamic-pyruvic transaminase was elevated in 42.4%, 52.4% and 91.7% patients of dengue without warning signs, warning signs and severe dengue respectively. Patients with elevated SGOT (93.8%) and SGPT (81.2%) had a higher incidence of bleeding manifestations. (4)

Of the 3.5 billion people around the world living in dengue-endemic countries and at risk of contracting dengue fever, (5) 1.3 billion live in dengue-endemic areas in 10 countries of the Southeast Asian region(6), India is among the 30 most highly endemic regions (7). Many studies have reported changing latitudinal patterns in dengue. The reason for such changes is related to many factors ranging from climate change, urbanization, and modifying human behavior, the increased number of cases can also contribute to early diagnosis and a better reporting system. (1)

Dengue has varied clinical presentations ranging from asymptomatic to mild disease to severe forms like DHF and DSS, the study aims to understand the clinical features, biochemical profile of physical examination, and their co-relation with the outcome. (3)

Aedes albopictus was found to be the most abundant vector followed by Aedes aegypti.(8)

MATERIALS AND METHODS:

A hospital based prospective observational study is conducted in the department of pediatrics. all patients under 14 years with clinical suspicion of dengue were taken as study group and subjected to NS-1 and ELISA Ig-M and Ig-G were included. Standard case definition of dengue fever was considered, and patients were divided into dengue fever without warning signs, dengue fever with warning signs and severe dengue. Cases of dengue fever with warning signs and severe dengue fever were admitted.

A total of 100 patients were included in the study cases and were followed up daily for the clinical, laboratory parameters, blood parameters were monitored daily till significant improvement was seen clinically, and hematological parameters were average platelet count, TLC, HB, hematocrit, and so forth were calculated for each patient were recorded. USG whole abdomen, chest-x-ray, and liver function test was done on day 3 of admission the patients were treated with oral paracetamol, intravenous fluids, blood products, and inotropes. The frequency of various signs and symptoms and laboratory tests were compared between the severe and non-severe dengue diseases. They were tabulated and correlated. The outcomes were recorded. The clinical manifestations and laboratory findings like hemoglobin

estimation, total platelet count, hematocrit estimation, NS-1 antigen, Ig-M antibody, and Ig-G antibody of each group of illnesses were charted. Standard deviation and Mean were calculated using the formula

$$s = \sqrt{\frac{1}{N-1} \sum_{i=1}^{N}(x_i - \overline{x})^2},$$

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ETHICAL APPROVAL:

All the prerequisite approval was obtained from the ethics committee and institutional review board of the hospital

RESULTS:

Parameter	Variables	Number	%	Dengue with warning signs	Severe dengue
Age	<3 YRS	18	18	18	0
	4-7 YRS	22	22	21	1
	8-11 YRS	27	27	24	3
	>11 YRS	33	33	24	9
Sex	MALE	78	78	70	8
	FEMALE	22	22	17	5
Duration of hospitalization	0-3 DAYS	31	31	31	0
	3-6DAYS	62	62	56	6
	>7 DAYS	07	07	00	7
Classification	Dengue with warning signs	87	87		
	Severe Dengue	13	13		

A total of 100 patients were taken into the study group of which 87 presented with dengue with warning signs. 100 % of cases presented with fever, fever was the most predominant complaint along with myalgia, hepatomegaly was present in 50%, abdominal pain was present in25% patients, vomiting in 23% patients(cumulative gastrointestinal symptoms 47%), cough was present in 20% patients, bleeding in 18%, Melena and hematuria was seen in 4% of the patients, raised liver enzymes was seen in 50% of patients, thrombocytopenia was seen in 75%, All the patients are treated according to WHO guidelines, paracetamol was

given to all patients, majority of patient required IV fluids, 13 patient required blood products (blood transfusion and platelets).. Out of the complicated dengue cases all the required blood products, three of them required blood transfusion, most of the severe dengue cases were Ig-M and Ig-G positive. Mean age was 8.4 years with SD of 4.36 in cases of Dengue fever with warning signs. Mean age was 13 years with SD of 2.6 in cases of Severe Dengue fever. 70% cases of Dengue fever with warning signs were Males and 17% were females. Whereas, 8% Males and 5% Females were having Severe Dengue fever. Average stay in hospital in cases of Dengue fever with warning signs was 3.6 days with a SD of 1.2. Average stay in hospital in cases of Severe Dengue was 6.9 days with a SD of 2.3.
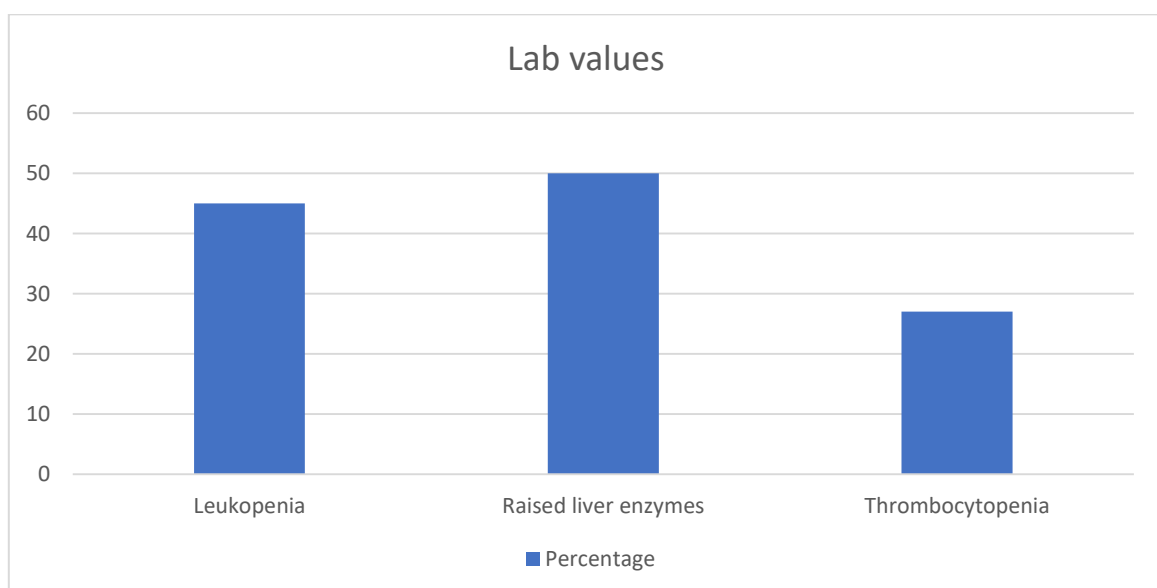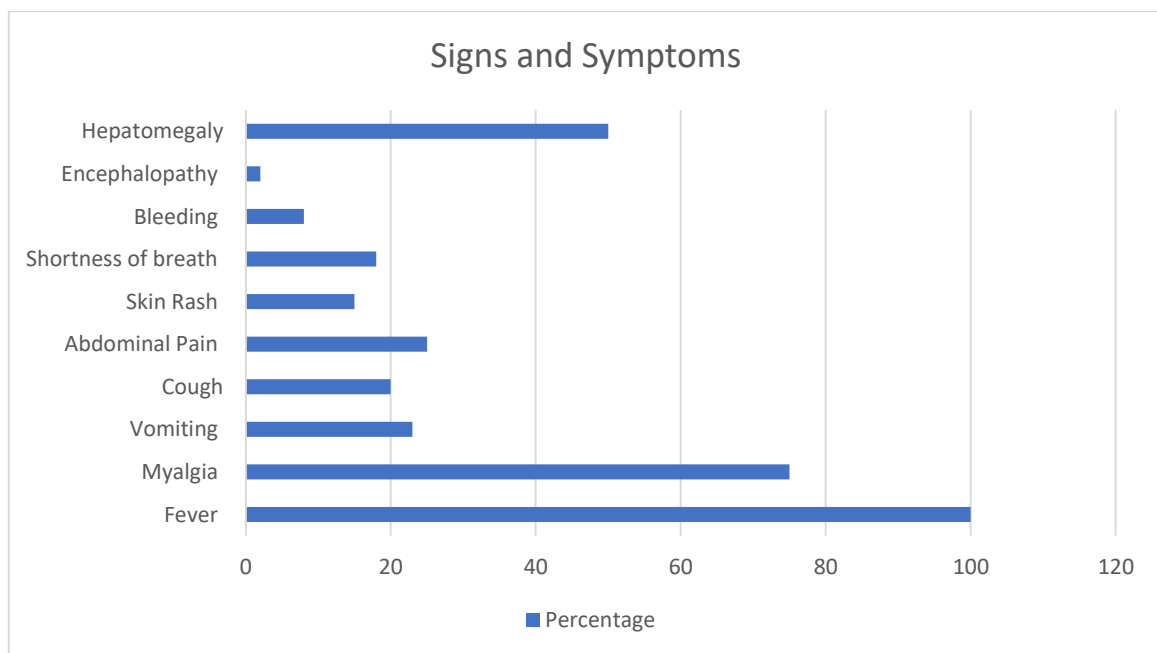
DISCUSSION:

Post rainy season high index of suspicion must be kept. Diagnosis was confirmed by Dengue NS1 Antigen/ IgM antibody ELISA test.

From our study fever was the most common presenting symptom followed by myalgia, the majority of them presented on day 3 of fever, on physical examination hepatomegaly was found in 50% of patients, and hypotension was associated with most of the cases. On laboratory findings, thrombocytopenia raised liver enzymes, and leukopenia was the most common finding, majority of the cases required IV fluid and all the patients were treated with antipyretic(paracetamol), all the severe dengue cases required blood products, only 8% of patients required inotropic support, radiological findings USG abdomen hepatomegaly and ascites was the most common finding followed by gall bladder edema. majority of the cases were dengue fever with warning signs (87 %), most of them received symptomatic treatment with antipyretic and iv fluids, and 13% severe dengue fever (DHF and DSS). There was no mortality in our study.

Dengue fever is becoming more prevalent in India and the incidence of severe dengue is increasing, vomiting, hematemesis, skin bleeds, altered sensorium, hepatomegaly, elevated SGOT, SGPT, ascites. Following the period of defervescence, especially in the rainy season and endemic setting strongly indicates dengue fever. Early diagnosis and treatment significantly reduce mortality.

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CONFLICT OF INTEREST:

None

CONTRIBUTION OF AUTHORS:

Dr. Satyanarayana Rao Veldi, Dr. Rakesh Shetty, Dr. Mannat verma: Data acquisition, analysis, management and workup of case.

Dr. K. C. Aggarwal: Guidance and management.

Dr. Jyoti Batra, Dr. Neeti Mittal: Drafting of the manuscript

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