



CLINICAL AND LABORATORY PROFILE OF DENGUE FEVER IN CHILDREN IN A TERTIARY CARE CENTRE, TAMIL NADU, INDIA

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Abstract

Background: The most prevalent mosquito-borne disease worldwide is Dengue. It is Endemic and Hyperendemic in many areas in our country. The clinical presentations of Dengue vary from mild to severe. The aim of the study is to study the clinical profile of dengue in children.

Materials and Methods: A cross sectional study was conducted from May 2021 to April 2022 in Dhanalakshmi Srinivasan Medical College, which is a tertiary care centre, Siruvachur, Tamil Nadu. Based on inclusion and exclusion criteria the total study participants recruited were 60. Demographic data and laboratory investigations were collected. The data were analyzed using IBM SPSS version 21. P value less than 0.05 was considered to be statistically significant.

Results: The mean age of the study participants has been found to be 6.8. Majority of the study participants were in the 5-10 years of age. Male preponderance was observed. Fever was the most common presentation followed by vomiting. The hemoconcentration, thrombocytopenia, hepatic derangement are found to be statistically significant with severe dengue.

Conclusion: The study depicts that 5-10 years was the most common age category suffering from Dengue. The most common presentation was fever and vomiting. Deranged liver function test, thrombocytopenia, hemoconcentration tends to occur in severe dengue.

Keywords: Dengue, Vector born, Public health, Mortality

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Introduction:

Dengue is an acute systemic viral infection and it is caused by dengue virus. Dengue virus belongs to the Flaviviridae family. There are four types of dengue virus subtypes, i.e., DEN 1, DEN 2, DEN 3 and DEN 4. The principal vectors are *Aedes aegypti* and *Aedes albopictus*. The infection is found to be a major public health problem in tropical and subtropical regions of the world like Africa, Asia, Caribbean, The Pacific and America (1). 2.5 billion population and 124 countries are at the risk of developing dengue. Around 30,000 deaths have been estimated worldwide.

The primary infection to humans is often inapparent whereas the secondary infection causes severe dengue as it is of heterologous type

(2). Over 100 countries dengue has been endemic which is due to urban and semi-urbanization which are the risk factors to develop this infection. In endemic countries there is an outbreak for every 2-4 years (3). The clinical presentation of Dengue fever varies from mild to severe. There are many classifications of which we commonly use the WHO 2009 classification. This classification classifies dengue into Dengue without warning signs, Dengue with warning signs and Severe Dengue (4,5). The signs and symptoms of Dengue are fever, nausea, vomiting, retro-orbital pain, muscular pain, joint pain and spontaneous bleeding. Rapid decrease in the platelets and the increase in hematocrit values are the important predictors of severe dengue which indicate the critical phase (6). Globally Dengue is considered as

an important cause for childhood morbidity and mortality. The number of dengue cases tends to increase from the last decade(7,8).

Change in temperature, nutritional status (Both underweight and overweight), Inadequate knowledge and lacking in preventive measures tends to increase the case load (9,10,11).This study was done to address the clinical presentation of children in Dengue in this area .

Materials and methods:

Study setting:

Hospital based cross sectional study was conducted in the Department of Paediatrics, Dhanalakshmi Srinivasan Medical College, Siruvachur which is a tertiary care centre. The study was done for a period of one year ,May 2021 to April 2022.

Inclusion criteria:

- All patients ages less than 14 years of age diagnosed of Dengue through antigen or antibody test are included

Exclusion criteria:

- Children with preexisting haematological illness
- Cases with comorbid conditions

Results:

Table 1:Demographic profile of the study participants:

S no.	Socio-demographic factors	Number	Percentage	
1	Age in completed years	<5 years	3	5
		5-10 years	54	90
		>10 years	3	5
2	Sex	Male	32	53.3
		Female	28	46.7
3	Duration of illness	<3 days	16	27
		3-6 days	38	63
		>6 days	6	10
4	Dengue classification (WHO)	Undifferentiated fever	22	37
		Dengue Fever	28	47
		Severe Dengue	10	16

Among the total study participants majority of the study participants were in the 5-10 years of age 54(90%).The mean age of the study participants was found to be 6.8±2.6 .Males were more in our

- Critical cases

Sample Size:

Based on the inclusion and exclusion criteria the study participants were recruited for our study.The final sample size attained during the study period is 60.

Data collection:

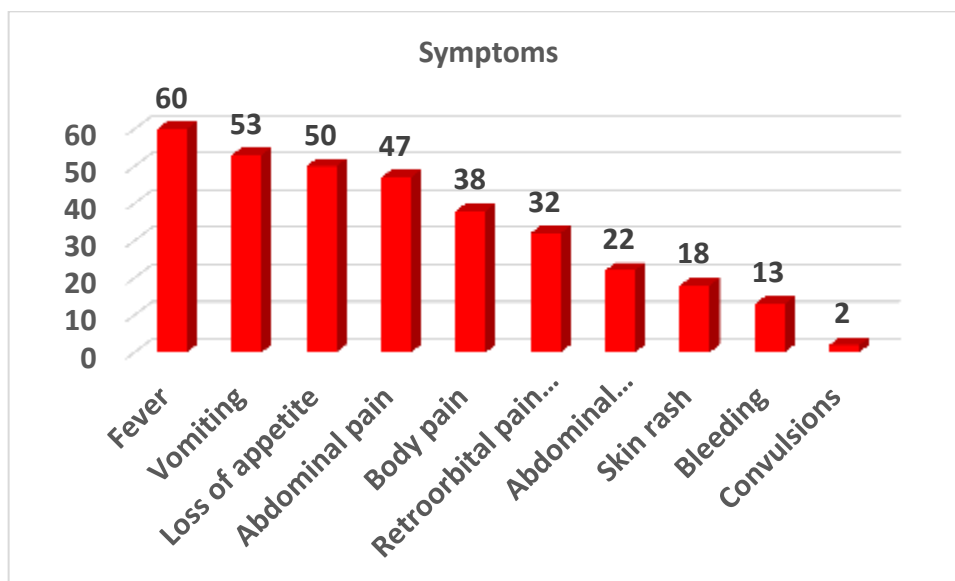
After obtaining the ethical committee clearance ,the consent was obtained from the parents of the study participants. Demographic particulars like Name, Age, Gender, symptoms were collected and clinical examination was done carefully. Laboratory investigations were done for all the patients.

Statistical analysis:

After collecting the data, it was entered in MS excel Windows10.Statistical analysis was done in SPSS 23.Continuous data were expressed in terms of Mean±Standard deviation and.Categorical variable were expressed in terms of numbers(percentages).P value of <0.05 was considered as significant

study 32(53.3%).Most of the study participants have 3-6 days of illness 38(63%).Denge fever was the most common 28(47%) followed by undifferentiated fever 22(37%).

Figure 1. Clinical presentation



The most common presentation was Fever among all children 60(100%) .The second most common

presenting complaint was Vomiting 53(88%) followed by loss of appetite 50(83.3%).

Table 2: Laboratory parameters of the study participants

S no.	Laboratory parameters	Severe Dengue (10)	Non Severe Dengue (50)	P value
1	Hemoglobin	13±2.1	12±1.2	0.01
2	PCV	43±3	34±3	0.01
3	Platelet count	30980±2460	61810±7625	<0.01
4	Bilirubin	0.7±0.2	0.5±0.1	<0.01
	SGOT	1835±226	182±42	0.001
	SGPT	920±114	98±26	0.001

From the above table it was found that hemoconcentration, thrombocytopenia, hepatic derangement are found to be statistically significant with the severe dengue.

Discussion:

In Indian Subcontinent and the neighbouring countries Dengue has emerged as a major public health problem (12).In last few years the mortality due to dengue was found to have increased significantly in our country(13).There is lack of data about the prevalence of dengue among different age group in children. Majority of our study participants were in the age group between 5-10 years 54(90%).The mean age was found to be 6.8.Similar results was also seen in Anand R et al (14)study where the mean age was found to be 6.2 and most of the study participants was in 6-10 years of age.

Male preponderance was observed in our study. Similar results was also seen in Anand R et al, Pothapregada et al(15) and Sharma et al (16) study. This may be due to presence of more exposed area in male child which significantly increases the chance of mosquito biting. The most

common presentation of our study participants are fever followed by vomiting. Similarly in Anand R et al Fever was the common presentation. Kumar BV (17)et al study also showed similar results.

In our study hemoconcentration, thrombocytopenia, hepatic derangement were found to be statistically significant with severe dengue.Similar results also seen in Kumar BV et al study. These are consistent with results of von gorp et al study where study was done between the survivors and non survivors.

Conclusion:

Dengue fever tends to occur in older children. Fever and vomiting are the common symptoms of Dengue. Deranged hepatic profile, Hemoconcentration and the thrombocytopenia tends to occur in severe dengue and it is found to be statistically significant. Thus liver enzymes can be taken as an early predictor to find the severity of Dengue.

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Conflict of Interest: Nil

Authors contribution: All authors contributed to the study

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