



A CLINICAL STUDY OF DENGUE VIRUS INFECTION IN PEDIATRICS:

Pediatrics

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ABSTRACT

Dengue virus infection is a major and important public health problem in many South East Asian countries and also in more than 100 countries of tropical and subtropical region.1 Two-fifths of the world's population or 2500 million people are now at risk for dengue, and every year approximately 50 million new cases occur world wide2 Dengue is the most common arboviral disease transmitted globally, is caused by four antigenically distinct dengue virus serotypes (DEN 1, DEN 2, DEN 3 and DEN 4). The global prevalence of dengue infection has increased dramatically in the recent decades. Dengue infection of classical type has been endemic in India for many years. Recently an increasing trend of outbreaks of dengue infections and its severe forms have been reported in India. Factors responsible for dengue's spread include explosive population growth, unplanned urban overpopulation with inadequate public health systems, poor vector control and increased international travel to endemic areas. Indeed Dengue without or with warning signs is a fast emerging global health problem. Dengue viral infections are known to present a diverse clinical spectrum, ranging from asymptomatic illness to severe dengue. Unusual manifestations of dengue infections such as encephalitis, Gullian Barre syndrome, hemolytic uremic syndrome, dengue hepatitis, myocarditis, acute respiratory distress syndrome are recognized and they have become more common in recent years.

KEYWORDS

Clinical, Study, Dengue, Pediatrics

Introduction:

Dengue without or with warning signs is a fast emerging global health problem. Dengue viral infections are known to present a diverse clinical spectrum, ranging from asymptomatic illness to severe dengue. Unusual manifestations of dengue infections such as encephalitis, Gullian Barre syndrome, hemolytic uremic syndrome, dengue hepatitis, myocarditis, acute respiratory distress syndrome are recognized and they have become more common in recent years.

Dengue virus infection is a major and important public health problem in many South East Asian countries and also in more than 100 countries of tropical and subtropical region.1 Two-fifths of the world's population or 2500 million people are now at risk for dengue, and every year approximately 50 million new cases occur world wide2 Dengue is the most common arboviral disease transmitted globally, is caused by four antigenically distinct dengue virus serotypes (DEN 1, DEN 2, DEN 3 and DEN 4).3 The global prevalence of dengue infection has increased dramatically in the recent decades.2 Dengue infection of classical type has been endemic in India for many years.3 Recently an increasing trend of outbreaks of dengue infections and its severe forms have been reported in India.3 Factors responsible for dengue's spread include explosive population growth, unplanned urban overpopulation with inadequate public health systems, poor vector control and increased international travel to endemic areas. Since our hospital is a tertiary care hospital, we do see a lot of patients with dengue infections including those with atypical manifestations. So, an attempt has been made to study clinically in patients with dengue virus infection.

Aims and Objectives:

To Clinically Study the Dengue Virus Infection in Paediatric Age Group.

Materials and Methods:

METHODOLOGY

The present study was conducted in the Department of Paediatrics, Srinivas Institute of Medical Sciences and Research Centre which is a tertiary care hospital, we do see a lot of patients with dengue infections including those with atypical manifestations. So, an attempt has been made to study clinically in patients with dengue virus infection.

This study was done during the study period from December 2016 to November 2017.

ENROLLMENT OF CASES

- 1) NS1 antigen detection by rapid test.
- 2) Platelet count
- 3) SGOT and SGPT

The Cases were classified and put into specific groups and the various clinical manifestations were studied.

Inclusion criteria

Cases positive for dengue NS1 antigen.

RESULTS

Table 1: Comparison of clinical Symptomatology in dengue without warning signs, Dengue with warning signs and Severe dengue.

	Dengue without warning signs(n=36)		Dengue with warning signs (n=49)		Severe Dengue (n=16)		Total	P
	Frequency	%	Frequency	%	Frequency	%		
Fever	36	100	49	100	16	100	101	NA
Pain abdomen	1	2.8	27	55.1	15	93.75	43	<0.0001
Vomiting	13	36.1	38	77.6	16	100	67	<0.0001
Myalgia	6	16.7	22	44.9	11	68.75	39	.001
Headache	7	19.4	19	38.8	11	68.75	37	0.003
Rash	5	13.9	15	30.6	11	68.75	31	<0.0001
Joint Pain	2	5.6	7	14.3	6	37.5	15	.011
Retro orbital pain	2	5.6	6	12.2	2	12.5	10	.553
Puffiness of face	3	8.3	10	20.4	11	68.75	24	<0.0001

Table 2: Comparison between the groups with respect to clinical signs

Signs	Dengue without warning signs (n=36)		Dengue with warning signs (n=49)		Severe Dengue (n=16)		Total	P
	No	%	No	%	No	%		
Tender hepatomegaly	0	0	17	34.7	12	75	29	<0.0001
Hepatomegaly	18	50	35	71.4	14	87.5	67	.015
Icterus	0	0.0	2	4.0	5	31.25	7	<0.0001

Positive hess test	0	0.0	2	4.1	7	43.75	9	<0.0001
Bleeding(GIT, mucosa)	0	0.0	6	12.2	13	81.25	19	<0.0001
Petechiae/purpura, ecchymosis	0	0.0	4	8.2	12	75	16	<0.0001
Pedal odema	1	2.8	6	12.2	8	50	15	<0.0001
Hypotension at admission	0	0.0	1	2.0	9	56.25	10	<0.0001
Rapid and weak pulse	0	0.0	0	0.0	8	50	8	<0.0001
Narrow pulse pressure	0	0.0	1	2.0	7	43.75	8	<0.0001
cold clammy skin and extremities	0	0.0	1	2.0	8	50	9	<0.0001
Complicated dengue	0	0.0	3	6.1	13	81.25	16	<0.0001
Thrombocytopenia	19	52.8	45	91.8	16	100	80	<0.0001
Signs	Dengue without warning signs (n=36)		Dengue with warning signs (n=49)		Severe Dengue (n=16)		P	
	No	%	No	%	No	%	Total	
Convulsions /altered sensorium	0	0	2	66.6	1	33.3	3	0.4

Discussion:

Dengue viral infections are one of the most important mosquito borne diseases in the world caused by four serotypes (DEN1, DEN2, DEN3 and DEN4) of dengue virus. Presently dengue infection is endemic in 112 countries with annually 100 million cases of dengue without warning signs and 50 million cases of dengue with warning signs and severe dengue occurring globally with an average case fatality rate of around 5%. The manifestations of dengue infections are protean from being asymptomatic to undifferentiated fever, severe dengue infections and unusual complications. Recent studies suggest that there is an upsurge of complicated dengue infections in patients especially in South east and South Asia.⁵ Recognition of varied presentations of dengue infections is important so as not to miss the diagnosis.

HEPATIC INVOLVEMENT IN DENGUE INFECTION

Hepatic involvement due to dengue infection is not uncommon and has been described since 1970.⁶ Hepatic dysfunction is a well recognized feature of dengue infections and varying degree of dengue hepatitis is seen.

HEPATOMEGALY:

Hepatomegaly is one of the commonest clinical sign of dengue infection. Hepatomegaly is frequent and is commoner in patients with dengue with warning signs than in those with dengue without warning signs. Association of hepatomegaly with cases of dengue infection has been quite variable, the incidence varying from 43% to 98%¹ whereas in the present study, it was observed in 66.3% of total cases as shown in the table below. The incidence of hepatomegaly was more in severe dengue cases as compared to other cases. The maximum liver size noted was 6 cm below the right costal margin in our study.

Hepatomegaly in dengue infection

Studies	% of cases with hepatomegaly
Moren et al ⁷	90%
Ratageri et al ⁸	87%
Gurdeep S. Dhoria et al ⁹	60%
Nimmantya et al ¹⁰	98%

Conclusion:

- Clinical hepatomegaly is consistent features in dengue infection.

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