

Study of Clinical Profile and Laboratory Parameters of Dengue in Children: In Tertiary Care Hospital, Patna

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Abstract:

Introduction: Dengue is one of the emerging diseases. It has wide range of clinical spectrum, so this study is done to find out the clinical profile and laboratory investigations in confirmed cases of dengue.

Methods: This was a retrospective observational study done in the Department of Pediatrics, PMCH Patna, over one year period from December 2015 to December 2016. 90 children <18 years age present with fever and positive for dengue based on serological test were included in the study. Their demographical profile, clinical history, general, systemic examination and laboratory investigations were recorded.

Result: Out of 90 cases there were 60 male and 30 female. Male to female ratio was 2:1. The most common age group affected was 6-12 years of age (45.56%) cases. Most of the cases were reported in post-monsoon period (91%). Most common presenting symptom was fever present in all cases (100%) followed by headache (86.67%) and myalgia (73.33%). The most common clinical sign was Hepatomegaly present in (86.67 %) cases. Thrombocytopenia was present in 96.67% of cases.

Conclusion: due to varied clinical presentation of dengue, suspicion of dengue kept in mind even if the children present with non specific symptoms for early diagnosis which reduce morbidity and mortality.

Key word: Dengue, clinical spectrum, Children <18years

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I. Introduction

Dengue is one of the most rapidly spreading mosquito born viral disease in the world. The first clinical cases were reported in 1780 by Benjamin Rush, who coined the term Break bone fever because of the symptoms of myalgia and arthralgia. Dengue fever is transmitted by bite of Aedes aegypti mosquito and also by albopictus. Dengue virus belongs to flaviviridae and there are four serotypes of the virus DV-1, DV-2, DV-3, and DV-4¹.

1997 WHO divided dengue fever into undifferentiated fever, dengue fever and dengue hemorrhagic fever². In 2009 WHO classified dengue into three groups: Dengue without warning signs, Dengue with warning sign and severe dengue³.

Emergence of dengue in India has gone into epidemic proportion and dengue outbreaks are frequently encountered in different part of country in both urban and rural population⁴⁻⁹.

Dengue remains as puzzling disease in many aspects such as virus –host relationship and wide range of clinical spectrum¹⁰. So aim of this study is to find out the clinical profile and laboratory investigations.

II. Material & Methods

It was a retrospective observational study carried out at Department of pediatrics, PMCH Patna from December 2015- December 2016. Children below the age of 18, a total of 90 cases admitted with acute onset of fever and diagnosed as dengue based on positive serological test were included in the study. Their demographical profile, clinical history, general and systemic examination and laboratory investigations: hematological, X- ray chest and USG abdomen for detection of pleural effusion and ascites were recorded. Data was entered in proforma and analysed.

III. Observation

In the present study out of 90 cases 60(66.67%) were male and 30(33.33%) were female. The male to female ratio was 2 :1. The most common age group affected are 6-12 years of age (45.56%) cases, followed by 12-18 years of age (36.67 %).

Table 1 : Age and Sex distributions of Dengue cases (n=90)

Age (years)	Male	Female	Total
<1	2	1	3
1-6	8	5	13
6-12	27	14	41
12-18	23	10	33
Total	60	30	90

The maximum number of cases was found in Post –monsoon period (91%).

Table 2: Numbers of Dengue cases as per revised WHO criteria classification:

Classification	No. of cases (n=90)	Percentage
Dengue without warning sign	17	18.89
Dengue with warning sign	64	71.11
Severe	9	10

As per revised WHO criteria 71.11% of dengue present with warning sign.

Table 3: Clinical manifestation of Dengue cases under study

Most common clinical symptom was fever present in all (100%) cases followed by headache (86.67%), myalgia (73.33%) cases .Hepatomegaly (86.67%) was most common clinical sign.

Clinical Symptoms	No. of cases(n=90)	Percentage
Fever	90	100
Headache	78	86.67
Myalgia	66	73.33
Vomiting	56	62.22
Rash	38	42.22
Petechiae	16	17.78
Gastrointestinal bleed	7	7.78
Diarrhea	11	12.22
Abdominal pain	25	27.78
Itching	28	31.11
Facial puffiness	12	13.33
Decreased urine output	46	51.11
CNS manifestation	2	2.22
Bradycardia	28	31.11
Hypotension	6	6.67
Hepatomegaly	78	86.67
Splenomeagly	22	24.44
Decreased air entry	38	42.22
Ascitis	40	44.44

Table 4: Laboratory parameter in dengue fever

Parameters	No. of cases(n=90)	Percentage
Raised haematocrit >35%	74	82.22
Leucopenia <5000	38	42.22
Thrombocytopenia <1.5 lakh/cumm	87	96.67
Thrombocytopenia <1 lakh/cumm	50	55.56
Thrombocytopenia <50000 lakh/cumm	14	15.56
Serum bilirubin >2mg/dl	16	17.78
SGOT/AST	70	77.78
SGPT/ALT	35	38.89
Serum creatinine >1.5mg/dl	6	6.67

Thrombocytopenia was most common hematological abnormality present in 96.67% of cases. Liver function test show increased SGOT/AST in 77.78 % of cases, rise of bilirubin only in 17.78% of cases.

IV. Discussion

The epidemiology of dengue in India was first reported in Chennai in 1780, and first outbreak occurs in Kolkata in 1963. Subsequent outbreak is noted in different parts of India¹¹⁻¹².

In the present study male were more affected then female and sex ratio was 2:1 .It was observed that maximum number of cases were in age group 6-12 years of age (45.56%) followed by 36.67 % in the age group 12-18 years of age. Male child are more commonly affected because they are mainly involved in outdoor activity and female are usually well dressed than male child. These findings are in accordance to finding of Selvan T et al¹³, Singh R et al¹⁴ and Jain H¹⁵.

Environmental factor play an important role in transmission of disease. In many countries dengue epidemic are reported to occur in warm, humid and rainy seasons, which provide growth of mosquito and shorten the extrinsic incubation period¹⁶⁻¹⁸.

In the present study also the largest numbers of cases were found in post-monsoon period which is in accordance with previous study¹⁷⁻¹⁹.

In the present study most common clinical presentation was fever, headache, myalgia and these finding were similar to finding of Singh R et al¹⁴ and Jain H¹⁵. Camending et al²⁰ in their study found fever only in 10-25% of symptomatic infants. Respiratory symptom like cough, upper respiratory tract infection was present in 42.22 % so there is suspicion for dengue even if the initial presentation may be due to involvement of respiratory system. Hung et al²¹ in their study found involvement of respiratory system in 42% infants. CNS involvement in less number of cases as compared to Ratageri VH et al²².

In dengue liver dysfunction is common, Hepatomegaly was found in 86.67% cases and raised transaminase in 77.78% cases which was in accordance with finding of Prakash et al²³, Itha et al²⁴.

Thrombocytopenia was present in 96.67 % of cases, Singh R et al in their study found thrombocytopenia in all cases which is due to oxidative stress²⁵.

V. Conclusion

There is wide range of clinical spectrum of dengue. The global burden of dengue has increased around the world. In the present study children below the age of 18 years are included with male predominance. Severe dengue is a cause of serious illness and death among children. Knowledge of exact clinical presentation in children is important for diagnosis, early management and thereby reduce mortality.

References

- [1]. Whitehorn J, Farrar J, Br Med Bull., 95:161-73 www.Global medicine.nl/index.php/dengue fever.
- [2]. World Health Organization .Dengue hemorrhagic fever: Diagnosis, Treatment, Prevention, control. Geneva: WHO, 1997.
- [3]. Special programme for Research, Training in Tropical Diseases and WORLD Health Organization, Dengue: Guidelines for Diagnosis, Treatment, Prevention and control, World Health Organization, Geneva, Switzerland, 2009.
- [4]. Kabra SK, Jain Y, Pandey RM .Dengue hemorrhagic fever in children in the 1996 Delhi epidemic. Trans R Soc Trop Med Hyg 1999; 73 435-440.
- [5]. Narayan M, Aravind MA, Thilothammal N. Dengue fever epidemic in Chennai: a clinical profile and outcome. Indian Pediatr 2002; 39:1027-1033.
- [6]. Shah I, Deshpande GC, Tardeja PN. Outbreak of dengue in Mumbai and predictive markers for dengue shock syndrome. J Trop Pediatr 2002; 50:301-305.
- [7]. Gupta P, Khare V, Tripathi S. Assessment of WHO definition of dengue hemorrhagic fever in North India. J Ctries 2010; 4:150-155.
- [8]. Kumar A, Sharma SK, Padbidri VS. An outbreak of dengue fever in rural areas of northern India. J Commun Dis 2001; 233:274-281.
- [9]. Arunchalam N, Murty US, Kabilan L. Studies on dengue in rural areas of Kurnool District, Andhra Pradesh, India. J Am Mosq Control Assoc 2004; 20:87-90.
- [10]. Nimmannity S, Clinical manifestation of dengue /DHF .In monograph on dengue/DHF. New Delhi; WHO regional publication SEARO 22, 1993; 48-54.
- [11]. Ramakrishnan SP, Geljand HM, Bose PN .The epidemic of acute hemorrhagic fever, Calcutta, 1963; epidemiological inquiry. Indian J Med Res 1964; 52: 633-650.
- [12]. Chaturvedi UC, Nagar R. Dengue and dengue hemorrhagic fever: Indian perspective Bio Sci 2008; 33:429-441.
- [13]. Selvan T, Kumar PS, Giridhar, Swamy N, Kumar M. A study of Current Outbreak of Dengue Fever in Children. JMSCR.2015;03(08); 7017-21.
- [14]. Singh R, Singh SP, Ahmad N. A study of clinical and laboratory profile of dengue fever in tertiary care center of Uttarakhand, India. It J Res Med Sci 2014; 2(1):163.
- [15]. Jain H. Clinical profile and outcome of dengue fever in hospitalized children of South Rajasthan, India. Int. J contemp Pediatr 2016; 3(2): 546-9.
- [16]. Gibbons RV, Vaughn DW, Dengue: An escalating problem. BMJ .2002; 324: 1563 -6.
- [17]. MC Bride WJ, Bielefeldt -ohmann H. Dengue viral infections pathogenesis and epidemiology. Microbe's infect.2000; 2: 1041-50.
- [18]. Katya R, Singh k, Kumar K. Seasonal variations in A. Aegypti population in Delhi, India. Dengue Bull. 1996; 20; 78-81.
- [19]. Chakravarti A, Kumaria R. Eco epidemiological analysis of dengue infection during an outbreak of dengue fever. India Virol J .2005; 2-32.
- [20]. Capeding RZ ,Brion JD , Caponpon MM ,Gibbons RV, Jarman RG, Yoon IK . The incidence characteristics and presentation of dengue virus infection during infancy. Am J tropic Med Hygiene.2010 Feb 1 82 (2): 330-6.
- [21]. Hung NT, Huan -Yao L , Lan NT ,Yee -Shin L , Kao-Jean H . Dengue hemorrhagic fever in infants: A Study of Clinical and Cytokine Profile: J Infect Dis. 2004; 189:221-32.
- [22]. Ratageri VH, Shepur TA, Wari PK. Clinical profile and outcome of dengue fever cases. India J Pediatr 2005; 72: 705.
- [23]. Prakash O, Almas A, Jafri WSM. Severity of acute hepatitis and its outcome in patients with dengue fever in a tertiary care hospital Karachi, Pakistan (South Asia). BMC Gastroenterology 2010; 10:43.
- [24]. Itha S, Kashyap R Krishnani N, Saraswat VA, Choudhri G , Aggarwal R . Profile of liver involvement in dengue viral infection. Natl Med J India. 2005; 18(3):127-30.
- [25]. Soundravally R, Sankar P, obby Z, Hoti SL. Oxidative stress in severe dengue viral infection association of thrombocytopenia with lipid peroxidation platelets. 2008; 19(6):447-54.

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