www.jmscr.igmpublication.org

Impact Factor 3.79
ISSN (e)-2347-176x

IGM Publication

Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Clinical Profile of Dengue in a Tertiary Care Hospital of Rohelkhand of U.P.(Bareilly)

Authors

Amit Sachan[1], Nipun Agrawal[2], Amit Varshney[1], Pranesh Nigam[3], Nirmal Yadav[4]

[1]3rd year PG-student, Medicine
[2]3rd year PG-student, Community Medicine
[3]Professor of Medicine
Department of Medicine, Shri Ram Murti Smarak Institute of Medical Sciences

Corresponding Author

Amit Sachan

3rd year PG-student, Medicine, Department of Medicine, Shri Ram Murti Smarak Institute of Medical Sciences
Permanent Address: 221, Bagh Gulsher Khan, Pilibhit-262001
Email: *amit.sachan.pbt@gmail.com*

Abstract

Dengue fever has emerged as one of the major health problems in North India in recent years. The 2011 epidemic and beyond had created concern about the efforts regarding the prevention and treatment of this disease at the country level. This study will highlight different clinical and laboratory features in patients with dengue fever in a tertiary care hospital which will go a long way in guiding primary care clinicians in diagnosing and managing such patients.

Material and methods- *Seventy-two cases of dengue positive for dengue IgM and antibodies (ELISA) were included in this study. All relevant parameters were studied and analyzed with the help of STAT-A software version 2.0. The severity was classified as per WHO guidelines. They were submitted to detailed clinical history and laboratory investigation for hematocrit values, liver and renal function test.*

Observations- *Seventy-two cases of dengue were taken for this study of age varied from 8 to 69 years with mean ± SD= 32.6 ± 8.6 years and male to female ratio of 1.5:1. The most affected age group was 20 to 39 years (61.1%). Most of the cases were of dengue hemorrhagic fever (DHF=61.1%), Dengue fever(DF=35%) and dengue shock syndrome(DSS=4.17%). Common manifestations were fever, diminished/loss of appetite, headache, body ache in all patients. Bleeding manifestations (52.8%) were seen in the form of petechial rashes (52.8%), hematemesis (2.8%), malena (13.9%), conjunctival hemorrhag e (13.9%) with platelets< 50,000/cumm. Liver involvement was with hyperbilirubinemia and more than two fold increase of serum transaminases. Overall mortality was 8.4% with two cases out of 3 cases of Dengue Shock Syndrome. Recovery was fast with Dengue fever cases as compared to others.*

Conclusion- *The appropriate investigation, strict monitoring and prompt supportive management can reduce the mortality. This study indicates that dengue hemorrhagic fever is a common manifestation and dengue should be considered as a differential diagnosis in patients with clinical bleeding manifestation in association with raised liver enzymes.*

Key words- *Dengue fever (DF), Dengue hemorrhagic fever(DHF) and Dengue Shock(DSS) Dengue rashes and Bleeding.*

Introduction

Dengue Fever has been a serious disease in most tropical areas of the world and over past 20 years it has been considered most widely spread infection trasmitted by insects with increase spread of vector mosquito throughout the tropics and sub tropics, large areas of the world have become vulnerable to the introduction of dengue virus. Both dengue fever and related dengue haemorrhagic fever are becoming increasingly common.

The incidence and geographical distribution of dengue have greatly increased in recent years. Dengue is an acute febrile viral disease frequently presenting with headache, bone, joint and muscular pain, rashes and leucopenia. It is also known as breakbone fever[1,2]. Dengue is now a significant public health problem in India and in tropical areas of south east asia and western pacific regions.[2,3] . The disease is among the ten leading cause of hospitalization and death in at least eight tropical asian countries.[2-4]

Dengue fever has emerged as one of the major health problem in North India in recent years. The 2011 epidemic and beyond had a created concern about the efforts regarding the prevention and treatment of this disease at the country level. This study will highlight the different clinical and laboratory features in patients with dengue fever in a tertiary care hospital Rohelkhand (U.P.) which will go a long way in guiding primary care physicians in diagnosing and managing such patients.

Objective-

The objective of the study was to determine the clinical and heamatological parameters of patients suffering from dengue.

Material and Methods-

All patients having abrupt onset of fever, chills, headache and retro orbital pain and back ache were included in this study. Patients were labelled as a confirmed cases of dengue fever on the basis of positive Dengue IgM antibody (by ELISA). Patients who were having mixed infections like dengue and malaria and where dignosis was not confirmed were excluded from the study. All the relevent parameters including duration of illness, duration of hospital stay, presence or absence of rash, leucopenia, thrombocytopenia and hematocrit were analysed with help of STAT-A software version 2.0. The severity of Dengue is classified according to WHO guidelines[5]. Grade 1 and 2 were infections without sepsis or shock, Grade 3 with impending and Grade 4 with profound shock. Severe liver involvement was defined as a more than fivefold increase of serum transaminases above normal.[6]

A detailed history and careful clinical exmaination was taken. The laboratory investigation like Haemoglobin(Hb), total and differential leucocyte count(TLC & DLC, leucopenia <4,000/cumm) platelet count(thrombocytopenia<1,50,000/cumm) haematocrit(Hct), Liver function test, Blood Urea, Sr. Creatinine, Chest X-Ray and Ultrasonography were done along with other relevant investigation as and when required[7,8,9].

Observation and Results-

In this study a total of 72 cases who were positive with MAC ELISA Test were included and analysed. The age of the patients ranged from 8 to 69 years with 32.6±8.6 years and male (44cases) to female(28 cases) ratio 1.5:1(Fig.1). The most affected group was 20 to 39years(44 cases or 61.1%). Most of the cases had dengue haemorrhagic fever(DHF=44 cases or 61.1%), followed by dengue fever(DF= 25 cases or 35%) and Dengue Shock Syndrome(DSS= 3 cases or 4.17%)(Figure.2).

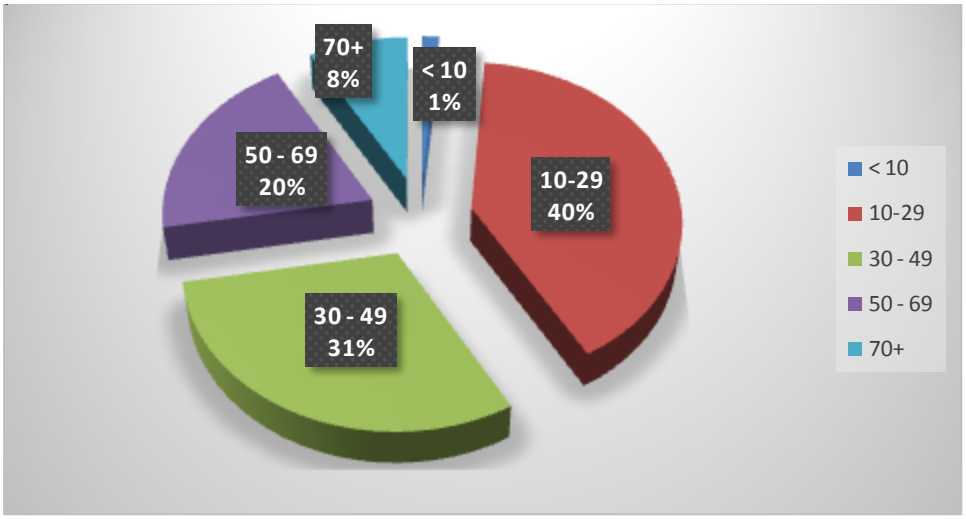

Figure 1. Showing age distribution of cases (age in years)

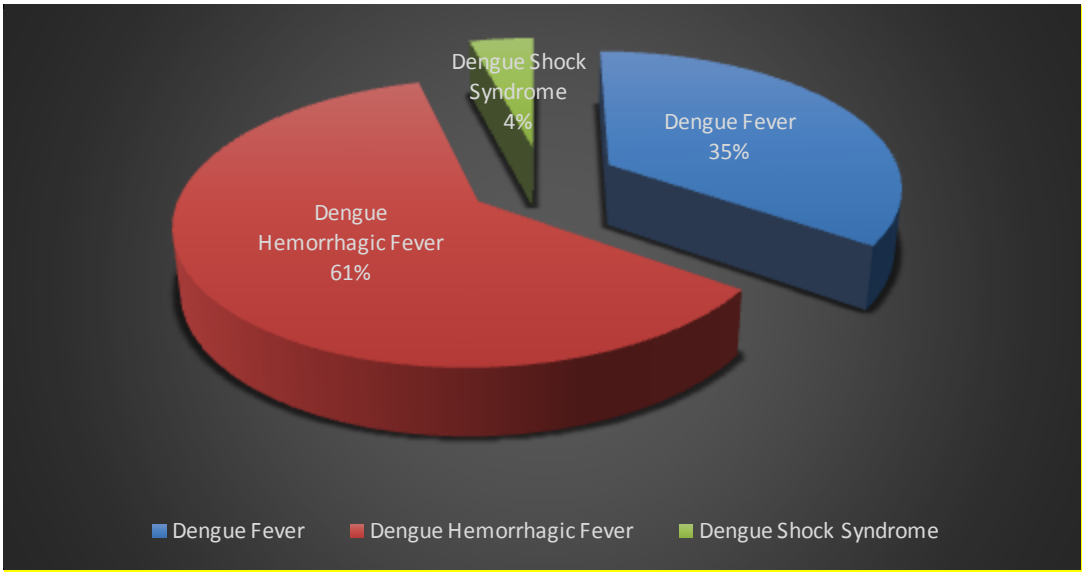

Figure 2. Showing different forms of Dengue

The different clinical features of these patients were shown in Table.1. It was noted that fever, loss and/or diminished appetite, bodyache and muscular pain was seen in each and every patient(100%). Bleeding manifestation were seen as petechiae (52.8%), malena (13.9%), rashes (47.7%), hematmesis (2.8%) and conjunctival hemorrhage (13.9%) with the platelet count <50,000/cumm (25 cases). Raised level of serum transaminases more than two fold was present in 44 cases (61.1%). None of these had hyperbilirubinemia. Blood urea and serum createnine levels were within normal range.

Table.1. Clinical manifestation of Dengue cases (n=72)

Clinical findings		No. Of cases	Percentage
Fever		72	100%
Nausea and vomiting		51	70.80%
Bleeding diathesis			
a)	Petichae	38	52.80%
b)	Epistaxis	3	4.20%
c)	Malena	10	13.90%
d)	Hematemesis	2	2.80%
e)	Rashes	35	48.70%
f)	Conjunctival hemorrhage	10	13.90%
Pain in abdomen		51	70.80%
Diminished/loss of appetite		72	100%
Lethargy and dullness		72	100%
Mascular pain and bodyache		72	100%
Ascites		25	34.70%
Retro orbital pain		4	5.60%
Leucopenia (TLC<4000)		20	22%
Thrombocytopenia			
a)	<50,000/cumm	25	34.70%
b)	<1,50,000/cumm	35	48.70%
Raised level of serum transaminases more than two fold increase		44	61.10%
Pleural effusion right side		3	4.20%

Table 2 reveals the mortality (8.4%). Two patients out of 3 of Dengue shock syndrome expired on 4th and 5thday of admission. Amongst Dengue hemorrhagic fever the mortality was 5.6%. Recovery was fastest with dengue fever (mean 5.2days) and longest in patient with dengue shock syndrome(mean 10.4 days).

Table.2. Outcome of patients (n=72)

Type of dengue	No. of cases	Percent	No. of cases expired
Dengue fever (DF)	25	34.70%	
Dengue Hemorrhagic Fever (DHF)	44	61.10%	4 - 5.6%
Dengue Shock Syndrome (DSS)	3	4.10%	2 - 2.8%
TOTAL	72	100%	6 - 8.4%

Discussion-

Dengue fever is now a days a frequent occurrence in almost all the major cities of our country and mostly in summers and rainy season.In urban areas have substatial proportion of population living in crowded areas with poor sanitation[10]. Male predominated the series with male to female ratio of 1.5:1 and majority of them from 3rd(24 cases or 33.3%) and 4th(20 cases or 17.7%) decade of life.

Among the clinical manifestation we observed the higher proportion of febrile syndrome with general manifestation like diminished or loss of apetite, lethargy and bodyache etc.(100%).Dengue Haemorrhagic Fever is a biphasic febrile illness with hemorrhagic tendencies due to plasma leakage and increased vascular permaebility[11]. In dengue fever cutaneous manifestations can vary from maculopapular rashes (47.7%), petichae (52.8%), flushing to even desquamation Mandal et al[9] reported the same. In a north Indian study by Karoli R. et al[12]reported rashes in 26% while 16% had cutaneous hypersensitivity. Rahim MA et al (cited by 13) found rashes even as high as 78.5% and these are immunologic cause which interact with host cells causing release of cytokines and leads to immunologic mechanism which resulted in vascular endothelial changes infiltration of mononuclear cells and perivascular oedema.

Bleeding diathesis is a known feature of dengue fever because of low platelet count and leakage from blood vessels, bone marrow suppression, immune mediated clearance, spontaneous aggregation of platelet to virus infected endothelium may be responsible for such thrombocytopenia. The present study revealed bleeding diathesis is in form of petechae, epistaxis, malena etc where platelet count was less than 50,000/cumm (25 cases or 34.7%). In some cases thrombocytopenia was reported as low as 20000/cumm or below 100000/cumm upto 88% cases we too observed platlet counts of 50,000 to 1,50,000/cumm in 35 cases(48.5%). Mittal et al[14] reported low platelets in 92% of children.

Leucopenia (TLC < 4,000/cumm) in dengue may be seen as virus-induced inhibition/destruction of myeloid progenitor cells. We found leucopenia (TLC<4000) in 20 cases or 27.8%. The same has been reported by Mandal et al[9] and as high as 90% by Ageep et al[15].

Headache, bodyache and muscular pain mostly from systemic inflammatory mediators are well known features in dengue. This can range from 9% to 90 %[13,14,16]. Ascites and pleural effusion from capillary leak syndrome are one of those features, more and more reported in recent years of outbreak. We have detected 3rd space collection in the form of ascites in 34.7% and pleural effusion in 3 cases(4.2%). In the study by Singh NP et al[17]reported in 1 % of cases. These ascites and pleural effusion may be due to Hemoconcentration (hematocrit >20% of expected for age and sex) this is supported by Kalayan Rooji et al in their USG study.(cited by 9).

Dengue fever can cause hepatic injury as indicated by raised transaminases level similar to viral hepatitis. We found their rise in 61.1 % of cases, where as high as 83.78% to 93% reported in literature[9].

Conclusion-

High mortality in DHF/DSS cases with secondary response indicates that emphasis should be more for close monitoring and conservative management to reduce morbidity and mortality. Inspite of best treatment given to DSS patients (3 cases), two of them got complications and resulted in death. Total mortality was 6 cases or 8.4 %. None of death was seen in case of dengue fever. These deaths are mainly due to secondary infection and other organ failure. This indicates the need for their conservative management to

decrease the incidence of death. The early diagnosis serologically and hospitalization with prompt management will help in reducing the mortality and morbidity[7,9].

Acknowledgment-

We are extending our gratitude and thanks to Chairman, Sri Ram Murti Smarak Trust and Dean SRMS Institute of Medical Sciences, Bareilly for their kind permission to pursue this report.

References-

1. S. Hales, N. De Wet, J. Maindonald, and A. Woodward. "Potential effect of population and climate changes on global distribution of dengue fever: an empirical model".Lancet 2002,360 : 830-34.
2. Ahmed F, Hussain Z, Ali Z; Clinical and Hematological Profile of Patients with Dengue Fever. J.Med.Sci(Peshawar, Print) 2014, 22:17-19.
3. Siqueira JB, MartelliCM, HatchDL;et al; Dengue and dengue hemaoorhagic fever, Brazil 1981-2002. Emerg. Infect Dis 2005;2005:11:48-53.
4. Guha-Sapir, Debarati, and Schimmer B; Dengue fever in Pakistan. Asia Pac Faem Med, 2011, 10:1-4.
5. World Health Organization. WHO report on global surveillance of epidemic prone infections diseases. Geneva: WHO, 2005.
6. Wichmann O, Hongsiriwon S, Bowonwat-anuwong C, Chotivanich K, Sukthana Y, Pukrittayakamee S;Risk factors and clinical features associated with severe dengue infection in adults and children during the 2001 epidemic in Chonburi, Thailand. Trop Med and Inter Health, 2004:9:1022-1029.
7. Neerja M, Lakshmi V, Teja VD, Umabala P, Subbalakshmi MV; Serodiagnosis of Dengue Virus Infection in Patients presenting to a tertiary care hospital.:2006, 24: 280-282.
8. Shah I and Katira B; Clinical and Laboratory Abnormalities due to Dengue in Hospitalized Children in Mumbai in 2004. Dengue Bulletin, 2005, 29:90-94.
9. Mandal SK, Ganguly J, KoelinaSil, Chatterjee S, Chatterjee K, Sarkar P,Hazra S, Sardar D; Clinical profiles of dengue fever in a teaching hospital of eastern India. Nat. J. Med. Res, 2013,3:173-176.
10. Chaturvedi UC, Shrivastava R. Dengue haemorrhagic fever: A gobal challenge. Indian J Med Microbiol 2004;22:5-6.
11. World Health Organization. Dengue haemorrhagic fever. Diagnosis, treatment, prevention and control. 2nd edition chapter 4. World Health Organization:Geneva, Switzerland;1997.
12. Karoli R, Fatima J, Siddiqi Z, Kazmi KI, Sultania AR. Clinical profile of dengue infection at a teaching hospital in North India. J Infect Dev Countries. 2012 23;6:551-554.
13. Nadia A, Malik M, Jamil A, Jahangir M, Tirmiz N, Majid A, Ashraf M, Malik M. Cutaneous manifestations in patients of dengue fever. Pakistan Assoc Dermatol 2012;22:320-324.

14. Mittal H, Faridi MM, Arora SK, Patil R. Clinicohematological profile and platelet trends in children with dengue during 2010 epidemic in north India. Indian J Pediatr. 2012 ;79:467- 471.
15. Ageep AK, Malik AA, Elkarsani MS. Clinical presentations and laboratory findings in suspected cases of dengue virus. Saudi Med J 2006;27:1711-1713.
16. Itoda I, Masuda G, Suganuma A, Imamura A, Ajisawa A, Yamada K. Clinical features of 62 imported cases of dengue fever in Japan. Am J Trop Med Hyg. 2006;75:470-474.
17. Singh NP, Jhamb R, Agarwal SK, Gaiha M, Dewan R, Daga MK, et al. The 2003 outbreak of Dengue fever in Delhi, India. Southeast Asian J Trop Med Public Health 2005; 36: 1174-1178.
18. Silva EM, Conde JN, Allonso D, Nogueira ML, Mohana-Borges R. Mapping the Interactions of Dengue Virus NS1 Protein with Human Liver Proteins Using a Yeast Two-Hybrid System: Identification of C1q as an Interacting Partner. PLoS One. 2013;8:e57514.