A STUDY OF CLINICAL PROFILE OF DENGUE FEVER IN A TERTIARY CARE CENTRE

Kalpna Chandra¹, Praveen Kumar², Kalyan Kumar Saha³, Amarendu Kumar⁴, Manish Shankar⁵

¹Assistant Professor, Department of Pathology, IGIMS, Patna, Bihar.

²Associate Professor, Department of General Medicine, IGIMS, Patna, Bihar.

³Senior Resident, Department of General Medicine, IGIMS, Patna, Bihar.

⁴Senior Resident, Department of General Medicine, IGIMS, Patna, Bihar.

⁵Associate Professor, Department of TB and Chest, IGIMS, Patna, Bihar.

ABSTRACT**BACKGROUND**

Dengue fever is the most common arbovirus disease in urban and semi-urban areas of tropical country. Over the past three decades, there is dramatic increase in number leading to unprecedented panic amongst the general population. Hence, this study was designed to characterise the clinical profile of the outbreak.

Aims and Objectives- To evaluate the clinical profile of the patient of dengue fever.

MATERIALS AND METHODS

All patients of age above 14 years admitted in general medicine ward at SRMS-IMS, Bareilly with acute febrile illness and positive IgM antibody were included for study.

RESULTS

Dengue fever affected commonly young males in monsoon to post monsoon season. Fever was present in all the cases followed by gastrointestinal symptom in 62% cases. Other clinical features were body ache/ joint pain, headache, bleeding manifestation, weakness, respiratory symptoms, rashes, pruritus and altered sensorium in 43%, 26%, 24%, 24%, 12%, 9%, 3% and 1% cases respectively. Thrombocytopenia was present in 93% cases and leucopenia in 40% cases. Altered liver function test was very common biochemical abnormality with raised SGOT, SGPT and bilirubin in 90%, 75% and 10% cases respectively. Ascites was present in 27% cases and pleural effusion in 17% cases.

CONCLUSION

Dengue fever is an important acute febrile illness in tropical countries affecting predominantly young males. It is commonly associated with fever, headache, body ache, gastrointestinal symptoms, thrombocytopenia, leucopenia and transaminitis. Dengue with organ dysfunction is associated with high mortality.

KEYWORDS

Dengue, DHF, DSS.

HOW TO CITE THIS ARTICLE: Chandra K, Kumar P, Saha KK, et al. A study of clinical profile of dengue fever in a tertiary care centre. J. Evolution Med. Dent. Sci. 2018;7(16):1989-1992, DOI: 10.14260/jemds/2018/447

BACKGROUND

Dengue fever is the most common arbovirus disease worldwide caused by four antigenically related dengue viruses 1, 2, 3, 4.^[1] It is found in tropical and subtropical regions, predominantly in urban and semi-urban areas and now spreading in rural areas. In India, high number of cases has been reported in urban, periurban and rural areas. The cases peak after monsoon.^[2]

Over the past three decades, there is dramatic increase in cases of dengue fever. Dengue epidemics are becoming a regular threat every year leading to significant mortality, morbidity and generating unprecedented panic amongst the general population. Hence, this study was designed to characterise the clinical profile of the outbreak.

'Financial or Other Competing Interest': None.
Submission 08-03-2018, Peer Review 01-04-2018,
Acceptance 09-04-2018, Published 16-04-2018.

Corresponding Author:

Dr. Praveen Kumar,

Kailash-501, Jalapur Height,

Near RPS Mahilla College,

Mansarovar Colony, RPS More,

Bailly Road, Dananpur, Patna-801503, Bihar.

E-mail: praveen_kmr_23@yahoo.co.in

DOI: 10.14260/jemds/2018/447

Aims and Objectives

To evaluate the clinical profile of patients of dengue fever.

MATERIALS AND METHODS

Patients admitted in the general medicine ward at SRMS-IMS, Bareilly in our unit were studied from July 2013 to Dec 2013. All patients of age above 14 years with acute febrile illness and positive IgM antibody for dengue virus were taken as case.

Selected patients were subjected to a thorough clinical examination and investigations like complete haemogram, KFT, LFT, chest x-ray, ECG and ultrasound of abdomen, dengue serology, antigen malaria, Widal, urine R/M and C/S, blood C/S along with serum amylase and lipase where indicated.

RESULTS

We included 100 cases for this study. The patients were subjected to a thorough clinical examination, investigation and a structured proforma was filled for each case. Descriptive statistics were calculated. Numbers and percentages were enumerated for all categorical variables such as clinical findings, haematological investigations,

biochemical investigations and radiological investigations. Results are summarised as follows:-

1. Sex-wise distribution- Out of 100 cases, 68 were males and 32 were females with male-to-female ratio of 2.1: 1.
2. Age-wise distribution (Table-1)- Dengue was prevalent in all age groups with age ranges from 15 to 75 years. Commonest age group was 21 to 30, contributing 38% followed by 41 to 50.

Age	Frequency in Percentage
11-20	17
21-30	38
31-40	17
41-50	20
51-60	6
61-70	1
71-80	1

Table 1

3. Month-wise distribution (Table-2)- Maximum number of cases reported in September (59%) followed by October (25%) and August (13%).

Month	Frequency in Percentage
July	2
August	13
September	59
October	25
November	1
December	0

Table 2

4. Clinical Features (Table-3)- Fever was present in all the cases followed by gastrointestinal symptom such as nausea, vomiting, loose motion and abdominal distension in 62% cases. Other clinical features were body ache/ joint pain, headache, bleeding manifestation, weakness, respiratory symptoms, rashes, pruritus and altered sensorium in 43%, 26%, 24%, 24%, 12%, 9%, 3% and 1% cases respectively.

Clinical Features	Frequency in Percentage
Fever	100
Body ache/ Joint pain	43
Headache	26
Gastrointestinal symptom	62
Bleeding manifestation	24
Respiratory symptom	12
Pruritus	3
Weakness	24
Rashes	9
Altered sensorium	1

Table 3

5. Bleeding manifestation- Bleeding manifestation was present in 24% cases. The commonest site of bleeding was gastrointestinal bleeding in 16% cases. Other bleeding manifestations were epistaxis (2%), bleeding gums (2%), haemoptysis (2%), haematuria (1%) and pervaginal bleed (1%).
6. Gastrointestinal Manifestation- Gastrointestinal symptom was the second most common presentation next to fever in dengue. The most common gastrointestinal manifestation was nausea and vomiting

in 34% cases followed by abdominal pain, loose motion and abdominal distension in 14%, 8% and 6% cases respectively.

7. Haematological parameter (Table-4)- Out of 100 cases 5 cases were having PCV more than 45, 40 cases were having TLC less than 4000/cumm and 93 cases were having platelet less than 100000/ cumm. 47 cases were having lymphocytic predominance in DLC. Severe thrombocytopenia (platelet < 20000/cumm), moderate thrombocytopenia (platelet 20001 to 50000/cumm) and mild thrombocytopenia (platelet 50001 to 100000/cumm) were present in 19%, 36% and 38% cases respectively.

Variable	Frequency in Percentage
PCV > 45	5
PCV < 45	95
TLC > 4000/ cumm	60
TLC < 4000/ cumm	40
Lymphocyte more than neutrophil	47
Platelet < 20000/ cumm	19
Platelet 21000 - 50000/cumm	36
Platelet 51 - 100000/cumm	38
Platelet > 100000/cumm	7

Table 4

8. Biochemical parameter (Table-5)- Altered liver function test was very common biochemical abnormality in dengue. High SGOT, high SGPT and high bilirubin were present in 90%, 75% and 10% cases. Abnormal kidney function test was present in one case.

Variable	Frequency in Percentage
Bilirubin > 1.2 mg/dL	10
SGOT > 60 IU	90
SGPT > 60 IU	75
Abnormal KFT	1

Table 5

9. Radiological finding (CXR and USG)- Radiologically ascites was present in 27% cases, pleural effusion in 17% cases, hepatomegaly in 7% cases, splenomegaly in 7% cases, thickened gall bladder wall in 7% cases and hepatosplenomegaly in 5% cases.
10. Out of 100 cases, 6 patients were having secondary infection commonly in respiratory system and urinary system. Bacteria isolated were staphylococcal, E. coli, Klebsiella and Acinetobacter.
11. Out of 100 cases 2 patients died and 1 patient left against medical advice. 1st patient died was 43 years female presented with fever with bleeding manifestation. Investigation revealed Hb 14.3 gm%, TLC 1600 cmm/dL, platelet 15000/cumm, S. bilirubin 2.5 mg/dL, SGOT 5168IU, SGPT 1989IU, S. creatinine 5.9 mg/dL and positive dengue serology.

2nd patient died was 38 years old female who presented with fever. She was giving history of diabetes mellitus and hypothyroidism. Her investigation revealed Hb 10 gm/dL, TLC 16000/cumm, platelet 60000/cumm, S. bilirubin 1.7 gm/dL, SGOT 5177IU, SGPT 2503IU, hepatosplenomegaly and positive dengue serology.

DISCUSSION

We conducted a clinical study on 100 cases of dengue fever at SRMS-IMS, Bareilly from July to December in 2013. Dengue fever affected all age groups with age ranges from 15 to 75 years. Commonest age group was 21 to 30, contributing 38% followed by 41 to 50. Nandini Chatterjee et al, Yagnik H Chhotala et al and Kakarla Thota Kanugolu Murali Mohan et al were having similar observation with a common affection in the age group of 20-29, 20-29 and 21-40 respectively.^[3,4,5] Whereas Rachel Daniel et al observed that the incidence was equally distributed in all the three age groups, viz. 12.30, 30.50 and > 50 years. The patient's mean age was 42.6 (SD 20) years.^[6]

In our study, out of 100 cases 68 were male and 32 were female with male-to-female ratio of 2.1: 1. Yagnik H Chhotala et al and Kakarla Thota Kanugolu Murali Mohan et al were having similar observation with male-to-female ratio of 1.94:1 and 1.66:1 respectively.^[4,5] Whereas Nandini Chatterjee et al and Rachel Daniel et al observed almost equal distribution in male and female with male-to-female ratio of 0.95:1 and 1.08:1.^[1,6]

In our study, maximum number of cases were reported in September (59%) followed by October (25%) and August (13%). Kakarla Thota Kanugolu Murali Mohan et al reported more patients in October (40.47%) followed by September and November.^[5]

In our study, fever was present in all the cases followed by gastrointestinal symptom in 62% cases. Other clinical features were body ache/ joint pain, headache, bleeding manifestation, weakness, respiratory symptoms, rashes, pruritus and altered sensorium in 43%, 26%, 24%, 24%, 12%, 9%, 3% and 1% cases respectively. Bleeding manifestations were present in 24% cases and the commonest site of bleeding was gastrointestinal bleeding. Ascites was present in 27% cases and pleural effusion in 17% cases. Nandini Chatterjee et al observed fever, headache with retro-orbital pain, myalgia, gastrointestinal symptom, skin rashes, bleeding manifestation disorientation and seizure in 98%, 90%, 86%, 42%, 28%, 23%, 10.4% and 3.8% cases respectively. They also observed isolated hepatomegaly in 13.5% cases, hepatosplenomegaly in 9% and evidence of effusions either pleural or peritoneal or both in 43% cases.^[3] Yagnik H Chhotala, Chetal M Suva observed fever, headache, myalgia and vomiting in 100%, 98%, 97% and 49% cases respectively. They observed that warning signs were present in 28% patients out of 100 which includes ascites (8%), hypotension (5%), pulse pressure < 20 mmHg (5%), positive tourniquet test (5%), pleural effusion (3%), uncommon gall bladder wall oedema (2%), icterus (1%) and altered sensorium (1%).^[4] Rachel Daniel et al observed fever in 96.8%, headache in 77.2%, abdominal pain in 62.4%, diarrhoea in 15.2%, pruritus in 10.4%, bleeding manifestations occurred in 15.2% and positive tourniquet in 33.67% cases. Ascites was detected in 12%, hepatosplenomegaly in 9.2%, pleural effusion in 13.2% and polyserositis in 10% patients. Disseminated intravascular coagulation was noted in 3.2% cases.^[6] Kakarla Thota Kanugolu Murali Mohan et al observed fever in all the 84 cases. Body pains and myalgia were present in 45%, bleeding manifestation in 30%, backache in 25%, arthralgia in 25%, abdominal pain with vomiting in 25%, headache 20%, hepatomegaly 18%, splenomegaly 15%, retro-orbital pain in

15%, diarrhoea in 15%, upper respiratory catarrh with dry cough in 15%, hyperaemic rash all over the body in 10%, petechial rashes in 5% and breathlessness in 6%, altered sensorium with neck stiffness in 2.38% cases and seizures in 1.19% case. Ascites was found in 20% and bilateral pleural effusions in 6% cases.^[5]

In our 100 cases 5% cases were having PCV more than 45, 40% cases were having TLC less than 4000/ cumm and 93% cases were having platelet less than 100000/cumm. 47% cases were having lymphocytic predominance in DLC. High SGOT, high SGPT and high bilirubin were present in 90%, 75% and 10% cases. Abnormal kidney function test was present in one case. Rachel Daniel et al observed haemoglobin > 16 gm% in 6% cases, TLC < 4000/cmm in 40% patients and platelet < 100000/cmm in 90% patients. Bilirubin was above 2 mg% in 9.7% and aspartate aminotransferase (AST) was > 45 IU/L in 83.9%.^[5] Yagnik H Chhotala et al observed thrombocytopenia in 79% cases followed by leucopenia in 56% patients, PCV ($\geq 45\%$) in 14% patients and S. creatinine (> 1.2 mg%) in 8% patients.^[4] Nandini Chatterjee et al observed HCT < 45% in 86% cases, TLC < 4000/cmm in 32.7%, platelet count of < 100000/cmm in 55.6%. Aspartate aminotransferase (AST) was > 45 IU/L in 72% cases.^[3] Kakarla Thota Kanugolu Murali Mohan et al observed low platelet in 76.19% cases, leukopenia in 36.90% cases, leukocytosis in 16.66% cases, raised haematocrit in 35% cases, raised liver enzymes aspartate aminotransferase and alanine aminotransferase in 69.04% cases, moderately raised bilirubin and alkaline phosphatase levels in 5.955 cases and moderately raised serum creatinine and BUN in 5.95% cases.^[5]

Out of 100 cases 6 patients were having secondary infection, commonly chest urinary system. Bacteria isolated were staphylococcal, E. coli, Klebsiella and Acinetobacter.

Out of 100 cases 2 patients of dengue fever with complication and multiorgan dysfunction died. Nandini Chatterjee et al observed case fatality rate of 3.8% and the causes of death were intracranial haemorrhage and DIC.^[3] Yagnik H Chhotala, Chetal M Suva observed mortality rate in 4% cases and Rachel Daniel et al observed mortality in 3.2% cases.^[4,6] Surangrat Pongpan et al observed dengue fever with low systolic blood pressure, low pulse pressure, signs of vasculopathy, hepatomegaly, high haematocrit level, high SGOT and SGPT and prolonged PT and PTT are poor prognostic indicator.^[7]

CONCLUSION

Dengue fever is an important acute febrile illness in tropical countries in monsoon to post monsoon season. It affects all age groups with predominant affection to young males. Fever, headache, bodyache and gastrointestinal symptoms are common presentations. Thrombocytopenia, leucopenia and transaminitis are common laboratory findings. Mortality is associated with complicated dengue with organ dysfunction.

Sl. No.	Abbreviations	Full Form
1	Hb	Haemoglobin
2	PCV	Packed cell volume
3	HCT	Haematocrit
4	TLC	Total leukocyte count
5	DLC	Differential leukocyte count
6	PT	Prothrombin time

7	aPTT	Activated partial thromboplastin time
8	SGOT	Serum glutamic oxaloacetic transaminase
9	AST	Aspartate transaminase
10	SGPT	Serum glutamic pyruvic transaminase
11	ALT	Alanine transaminase
12	KFT	Kidney function test
13	LFT	Liver function test
14	ECG	Electrocardiogram
15	R/M	Routine and microscopy
16	C/S	Culture and sensitivity
17	CXR	Chest x-ray
18	USG	Ultrasonography
Abbreviations		

ACKNOWLEDGEMENT

I take this opportunity to extend my gratitude and sincere thanks to all those who helped me to complete this study. I am highly thankful to Department of General Medicine, Pulmonology, Pathology, Biochemistry, Microbiology and Critical Care Medicine for providing me adequate facility which helped me to carry out this study. I owe great sense of indebtedness to Dean SRMS-IMS, Bhojipura, Bareilly for permitting me to carry out this study.

REFERENCES

- [1] Yeolkar ME. Dengue. In: Munjal YP, edr in chief. API text book of medicine. 9th edn. New Delhi: Jaypee Brothers 2012; p. 1158-60.
- [2] Park K. The dengue syndrome: Park's textbook of preventive and social medicine. 24th edn. Jabalpur: M/s Banarsidas Bhanot Publisher 2017; p. 261-71.
- [3] Chatterjee N, Mukhopadhyay M, Ghosh S, et al. An observational study of dengue fever in a tertiary care hospital of Eastern India. Journal of the Association of Physicians of India 2014;62(3):224-7.
- [4] Chhotala YH, Suva CM. A study of clinical profile of dengue fever in a tertiary care hospital of Jamnagar, Gujarat, India. Int J Res Med Sci 2016;4(10):4500-4.
- [5] Mohan KTKM, Rao BB, Raghuram C, et al. A clinical study of dengue fever cases: NRI Medical College, Chinakakani, Andhra Pradesh, South India. International Journal of Medicine and Public Health 2015;5(4):367-71.
- [6] Daniel R, Rajamohanan, Philip AZ. Study of clinical profile of dengue fever in Kollam, Kerala, India. Dengue Bulletin 2005;29:197-202.
- [7] Pongpana S, Wisitwong A, Tawichasri C, et al. Prognostic indicators for dengue infection severity. Int J Clin Pediatr 2013;2(1):12-8.