

Myriad manifestations of dengue fever: Analysis in retrospect

Prabhat Agrawal¹, Ashish Gautam¹, Roshmy Jose², Maaz Farooqui¹, Jitendra Doneria¹

¹PG Department of Medicine, Sarojini Naidu Medical College, Agra, Uttar Pradesh, India, ²Department of Medicine, Lady Hardinge Medical College, New Delhi, India

Correspondence to: Ashish Gautam, E-mail: dr_ashishgautam@gmail.com

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ABSTRACT

Background: Dengue is a viral disease which has grown dramatically over the years and has emerged as a public health issue requiring intervention to curb its spread. Favorable environment, abundance of vector, and lack of hygiene are leading to unprecedented spread of the disease. **Objectives:** The objectives were to study the prevalence of various manifestations of dengue fever. **Materials and Methods:** The study was conducted at Sarojini Naidu Medical College, Agra, during the outbreak from August to November 2015. During the study period, we observed a total of 131 patients. The serology included dengue immunoglobulin (Ig)-M, IgG, and non-structural protein 1 antigen. This study is a hospital-based retrospective study. All the data were expressed in percentage. **Results:** In this study, we found that cutaneous manifestation was seen in 22.9%, bleeding manifestation in 21.37%, polyserositis in 20.61%, fever in all patients 100%, thrombocytopenia platelet count <10,000 in 71.67%, organomegaly in 25.19%, and gallbladder wall thickening in 6.1%. Atypical manifestation such as hepatic coma, acute respiratory distress, seizure, and chest pain (myocarditis) was also seen in some patients. In this study, 62.59% affected patients were young male in the age group of 21 to 50 year thus it showed that dengue is more prevalent in young male population. **Conclusion:** The problem of dengue is ginormous in our country; the problem is multiplied due to humongous population, poor hygiene, lack of medical and diagnostic facilities, inadequate vector control measures, and lack of awareness among the population. Hence, future studies should be aimed to identify various atypical manifestations as well as early treatment protocols for timely intervention so as to halt the disease progression.


KEY WORDS: Dengue Fever; Myriad Manifestations of Dengue Fever; Atypical Manifestations of Dengue Fever

INTRODUCTION

Dengue is a viral disease which has grown dramatically over the years and has emerged as a public health issue requiring intervention to curb its spread. Although the full global burden of the disease is uncertain, there are estimated 50–100 million cases every year with 5,00,000 people requiring hospitalization annually and about 2.5% of those

affected die.^[1] In India, there have been frequent outbreaks of the disease every alternate year in urban and rural areas. Favorable environment, abundance of vector, and lack of hygiene are leading to unprecedented spread of the disease.

Dengue presents with a range of clinical symptoms often with an unpredictable clinical course and outcome. There are four serotypes; all of the four can cause subclinical infection as well as overt disease which may lead to the loss of life or quality of life. The WHO 2009 revised criteria classify dengue infection into dengue with or without warning signs and severe dengue (dengue with severe plasma leakage, severe bleeding, or organ failure).^[2] Atypical manifestations of the disease were observed among patients during this outbreak to add on to the existing clinical information available for the benefit of treating the physicians as well as to add to his clinical acumen.

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MATERIALS AND METHODS

The study was conducted at Sarojini Naidu Medical College, Agra, during the outbreak from August to November 2015. It was a retrospective observational study. During the study period, we observed a total of 131 patients. A detailed pro forma about epidemiological, clinical, and laboratory investigation was filled for every patient. All clinical and laboratory parameters were reviewed daily for the course of the hospital stay. The serology included dengue IgG, IgM & NS1Antigen. However positive patients were considered as those with the latter two positive as IgG can be positive in patients up to 10 months from disease onset. Patients were classified into dengue without warning signs (D), dengue with warning signs, and severe dengue. The variables studied were abdominal pain, vomiting, headache, third space fluid accumulation, bleeding manifestations, organomegaly, liver abscess, and skin rashes. Severe case was those with capillary leak and respiratory distress and those with shock, elevated transaminases, and involvement of organ systems such as *central nervous system* and heart.

Statistical Analysis

This study is a hospital-based retrospective study. All the data were expressed in percentage.

RESULTS

In this study, there were a total of 131 patients in which 82 patients were male (62.59%) and 49 patients were female (37.41%). Most of the patients were in between the age of 21 and 50 years. A total of 94 patients (71.67%) were having platelet count below 1,00,000/cu mm. Deranged liver function test, i.e., high aspartate transaminase (AST) (>100 IU/L), high alanine aminotransferase (ALT) (>100 IU/L), and raised bilirubin (2 mg/dl) was found in 55 patients (41.98%). In the total of 131 patients, 100% of patients were having fever, 13.74% of patients were having headache, 19.08% were having vomiting, 22.9% of patients were having abdominal pain, 22.9% of patients were having skin rash, 21.37% of patients were having bleeding manifestations, 20.61% of patients were having fluid accumulation, 25.19% of patients were having organomegaly, 6.1% of patients were having gallbladder wall thickening, and 3.05% of patients were having liver abscess [Tables 1 and 2].

Atypical Manifestations

A total of nine patients showed atypical manifestations, in which two patients were having hepatic coma, one was having acute respiratory distress, two were having seizure, and four were having chest pain (myocarditis) [Table 3].

Table 1: Laboratory parameters of dengue patients

Parameter	Number of patients (%)
Thrombocytopenia ($\leq 20,000$)	6 (4.5)
20,001–50,000/cu mm	40 (30.53)
50,001–10,000/cu mm	48 (36.64)
>100,000/cu mm	37 (28.24)
High AST>100 IU/L	19 (14.5)
High ALT>100 IU/L	30 (22.9)
Bilirubin>2 mg/dl	6 (4.5)

AST: Aspartate transaminase, ALT: Alanine aminotransferase

Table 2: Clinical manifestations of dengue patients

Clinical manifestations	Number of patients(%)
Fever	131 (100)
Headache	18 (13.74)
Vomiting	25 (19.08)
Abdominal pain	30 (22.9)
Skin rash	30 (22.9)
Bleeding manifestation	28 (21.37)
Fluid accumulation	27 (20.61)
Organomegaly	33 (25.19)
GB wall thickening	8 (6.1)
Liver abscess	4 (3.05)

GB: Gallbladder

Table 3: Atypical presentations

Atypical manifestations	Number of patients
Hepatic coma	2
Acute respiratory distress	1
Seizures	2
Chest pain (myocarditis)	4

DISCUSSION

Nearly 71.67% of patients were having platelet count <100,000/cu mm. Deranged liver function test, i.e. high AST (>100 IU/L), high ALT (>100 IU/L), and raised bilirubin (2 mg/dl) was found in 41.98%. Nearly 100% of patients were having fever, 13.74% of patients were having headache, 19.08% were having vomiting, 22.9% of patients were having abdominal pain, 22.9% of patients were having skin rash, 21.37% of patients were having bleeding manifestations, 20.61% of patients were having fluid accumulation, 25.19% of patients were having organomegaly, 6.1% of patients were having GB wall thickening, and 3.05% of patients were having liver abscess. A total of nine patients showed atypical manifestations in which two patients were having hepatic coma, one was having acute respiratory distress, two were having seizure, and four were having chest pain (myocarditis).

In our study, majority affected were male population in concordance with various other Indian studies.^[3,4] Cutaneous manifestations vary from rash, itch, petechiae, and flushing. Rash was seen in 22.9%, itch was seen in some 12% of patients. A study in North India by Karoli *et al.*^[5] showed similar result. Polyserositis in the form of ascites and pleural effusion was a frequent finding. A total of 20.61% of patients showed effusions which resolved spontaneously over 2–4 weeks. However, the findings were contrary to what was seen in a study by Chatterjee *et al.*^[6] who found serositis in 47% of patients. Bleeding manifestation in the form of epistaxis, gum bleed, per rectal bleed, increased menstrual flow, and petechial rash has been seen in this tropical disease. It was associated with thrombocytopenia. A total of 94 patients (71.67%) were having platelet count <1,00,000. Bone marrow suppression, immune-mediated clearance, and splenic sequestration are all responsible for this feature. However, thrombocytopenia observed was much higher in comparison to the study by Khan *et al.*^[7] Fever was the most common manifestation (100%) among the patients and the prime reasons for seeking medical attention by all the patients. This is in accordance to many studies conducted over a period of time. Gastrointestinal symptoms were also a common manifestation in concordance with studies conducted elsewhere, for example, a study in Kerala.^[8] Dengue fever during pregnancy has potential maternal and fetal complications like in our other study of pregnancy outcome in women with dengue infection, and there were premature labor in 52%, antepartum hemorrhage (APH) in 32%, postpartum hemorrhage (PPH) in 36%, intrauterine device (IUD) in 8%, abortion in 16%, fetal distress in 16%, and maternal death in 18%.^[9] In this study, there were 62.59% affected patients who were young male in the age group 21–50 years; it is showing that is more prevalent in young male population.^[10,11]

Strength and Limitation of this Study

Strength of the study is that our study has included comprehensive manifestations which range from cutaneous manifestations (such as rash, itch, petechiae and flushing) to Polyserositis (in form of pleural effusion and ascites) and clinical manifestations in form of Fever, Headache, Vomiting, Abdominal pain, Fluid accumulation, Organomegaly, G B wall thickening and Liver abscess. Apart from it atypical manifestations (such as Hepatic coma, Acute respiratory distress, Seizures, myocarditis) and complications occurring during pregnancy, such as premature labor, APH, PPH, IUD, Abortions have also been included. Additionally Bleeding manifestation in the form of epistaxis, gum bleed, per rectal bleed, increased menstrual flow & petechial rash along with its various laboratory parameters have also been taken into account. Along with it, various laboratory parameters have also been taken into account. The other studies which were conducted previously were not as exhaustive as our study. The limitation of our study is that a larger sample size would have been much more advantageous.

CONCLUSION

The problem of dengue is ginormous in our country; the problem is multiplied due to humongous population, poor hygiene, lack of medical and diagnostic facilities, inadequate vector control measures, and lack of awareness among the population. Hence, the future studies should be aimed to identify various atypical manifestations as well as early treatment protocols for timely intervention so as to halt the disease progression.

REFERENCES

1. World Health Organization. Dengue and Severe Dengue. Fact Sheet no.117. Geneva: WHO; 2014. p. 204. Available from: <http://www.who.int/mediacentre/factsheets/fs117/en>. [Last accessed on 2014 Mar 16].
2. World Health Organisation. Dengue: Guidelines for Diagnosis, Treatment, Prevention and Control. Geneva, Switzerland: WHO; 2009.
3. Seema A, Singh V, Kumar S, Kumar A, Dutta S. The changing clinical spectrum of dengue fever in the 2009 epidemic in North India. *J Clin Diagn Res* 2012;6:999-1002.
4. Patil AA. Clinico-laboratory profile of suspected dengue patients in a tertiary care hospital. *Medplus Int Med J* 2015;2:54-7.
5. Karoli R, Fatima J, Siddiqi Z, Kazmi KI, Sultania AR. Clinical profile of dengue infection at a teaching hospital of Eastern India. *J Infect Dev Ctries* 2012;6:551-4.
6. Chatterjee N, Mukhopadhyay M, Ghosh S, Mondol M, Das C, Patar K. An observational study of dengue fever in a tertiary care hospital of Eastern India. *J Assoc Physicians India* 2014;62:224-7.
7. Khan J, Khan A. Incidence of dengue in 2013: Dengue outbreak in District Swat, Khyber Pakhtunkhwa. *Pak Int J Fauna Biol Stud* 2015;2:1-7.
8. Daniel R, Rajamohanam, Philip AZ. A study of clinical profile of dengue fever in Kollam, Kerala, India. *Dengue Bull* 2005;29:197-202.
9. Agrawal P, Garg R, Srivastava S, Verma U, Rani R. Pregnancy outcome in women with dengue infection in North India. *Indian J Clin Pract* 2014;24:1053-6.
10. Prasith N, Keosavanh O, Phengxay M, Stone S, Lewis HC, Tsuyuoka R, *et al.* Assessment of gender distribution in dengue surveillance data, the lao people's democratic republic. *Western Pac Surveill Response* 2013;4:1-8.
11. Thai KT, Nishiura H, Hoang PL, Tran NT, Phan GT, Le HQ, *et al.* Age-specificity of clinical dengue during primary and secondary infections. *PLoS Negl Trop Dis* 2011;5:e1180.

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