

A study of clinical and laboratory profile of dengue fever patients at tertiary health care center

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Abstract

Background: Dengue is the most extensively spread mosquito-borne disease, transmitted by infected mosquitoes of Aedes species. **Aims and Objectives:** To study clinical and laboratory profile of dengue fever patients at tertiary health care center. **Methodology:** This was a cross-sectional study carried out in the patients who presented with fever and clinical features suspected of dengue during the one year period i.e. May 2018 to May 2019 during the one year period. All details of the patients like age, sex, clinical feature and all routine laboratory test were done like CBC, Peripheral smear for Platelets, PS for Malaria parasite, NS 1 antigen for dengue etc. The data was entered to excel sheet and analyzed by SPSS 19 version software. **Result:** In our study we have seen that The majority of the patients were in the age group of 20-30 were 34.15%, followed by 30-40 were 30.49%, 40-50 were 15.85%, 50-60 were 10.98%, >60 were 8.54%. The majority of the patients were Male i.e. 63.41% and Female were 36.59%. The most common clinical features were Fever in 100.00%, followed by Headache in 96.34%, Retro orbital pain in 90.24%, Generalized body ache in 84.15%, Joint pain in 76.83%, Abdominal pain in 64.63%, Rash in 35.37%, Bleeding manifestations in 32.93%, Hypotension in 25.61%, decreased urine output in 23.17%, Tachycardia in 15.85%, Epi gastric tenderness in 13.41%. The most common laboratory features were Thrombocytopenia (<50000/cumm) in 64.63%, Leucopenia (<4000/cumm) in 30.49%, Raised AST/ALT (>45IU/L) in 87.80%, Raised Hematocrit (>45%) In 15.85%. **Conclusion:** It can be concluded from our study that the majority of the patients were having the clinical features like fever, Headache, Retro orbital pain. The most common laboratory features were Thrombocytopenia, Leucopenia, Raised AST/ALT etc. **Key Word:** Thrombocytopenia, AST/ALT, NS 1 antigen, Dengue fever.

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INTRODUCTION

Dengue is the most extensively spread mosquito-borne disease, transmitted by infected mosquitoes of Aedes species. Dengue infection in humans results from four dengue virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4) of Flavivirus genus. As per the WHO 1997

classification, symptomatic dengue virus infection has been classified into dengue fever (DF), dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). The revised WHO classification of 2009 categorizes dengue patients according to different levels of severity as dengue without warning signs, dengue with warning signs (abdominal pain, persistent vomiting, fluid accumulation, mucosal bleeding, lethargy, liver enlargement, increasing haematocrit with decreasing platelets) and severe dengue^{1,2,3}. Dengue fever is endemic in more than 100 countries with most cases reported from the Americas, South-East Asia and Western Pacific regions of WHO¹. In India, dengue is endemic in almost all states and is the leading cause of hospitalization. Dengue fever had a predominant urban distribution a few decades earlier, but is now also reported from peri-urban as well as rural areas^{4,5}. In our study we have seen the

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clinical and laboratory profile of the Dengue patients as tertiary health care centre.

METHODOLOGY

This was a cross-sectional study carried out in the patients who presented with fever and clinical features suspected of dengue during the one year period i.e. May 2018 to May 2019 during the one year period those patient who suspected of dengue fever undergone NS1 antigen test for the diagnosis of dengue those patients who were having classical clinical features and positive NS1 antigen test were enrolled into study, so during the one year there were 82 patients were included into the study. All details of the patients like age, sex, clinical feature and all routine laboratory test were done like CBC, Peripheral smear for Platelets, PS for Malaria parasite, NS 1 antigen for dengue etc. The data was entered to excel sheet and analyzed by SPSS 19 version software.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
20-30	28	34.15
30-40	25	30.49
40-50	13	15.85
50-60	9	10.98
>60	7	8.54
Total	82	100.00

The majority of the patients were in the age group of 20-30 were 34.15%, followed by 30-40 were 30.49%, 40-50 were 15.85%, 50-60 were 10.98%, >60 were 8.54%.

Table 2: Distribution of the patients as per sex

Sex	No.	Percentage (%)
Male	52	63.41
Female	30	36.59
Total	82	100.00

The majority of the patients were Male i.e. 63.41% and Female were 36.59%

Table 3: Distribution of the patients as per the clinical features

Clinical features	No.	Percentage (%)
Fever	82	100.00
Headache	79	96.34
Retro orbital pain	74	90.24
Generalized body ache	69	84.15
Joint pain	63	76.83
Abdominal pain	53	64.63
Rash	29	35.37
Bleeding manifestations	27	32.93
Hypotension	21	25.61
decreased urine output	19	23.17
Tachycardia	13	15.85
Epigastric tenderness	11	13.41

The most common clinical features were Fever in 100.00%, followed by Headache in 96.34%, Retro orbital pain in 90.24%, Generalized body ache in 84.15%, Joint pain in 76.83%, Abdominal pain in 64.63%, Rash in 35.37%, Bleeding manifestations in 32.93%, Hypotension In 25.61%, decreased urine output in 23.17%, Tachycardia in 15.85%, Epi gastric tenderness in 13.41%.

Table 4: Distribution of the patients as per the laboratory features

Laboratory diagnosis	No.	Percentage (%)
Thrombocytopenia (<50000/cumm)	53	64.63
Leucopenia (<4000/cumm)	25	30.49
Raised AST/ALT (>45IU/L)	72	87.80
Raised Hematocrit (>45%)	13	15.85

The most common laboratory features were Thrombocytopenia (<50000/cumm) in 64.63%, Leucopenia (<4000/cumm) in 30.49%, Raised AST/ALT (>45IU/L) in 87.80%, Raised Hematocrit (>45%) In15.85%.

DISCUSSION

The epidemiology of dengue in India was first reported in Madras (now Chennai) in 1780, and the first outbreak occurred in Calcutta (now Kolkata) in 1963; subsequent outbreaks have been reported in different parts of India.^{9, 10} Dengue is a vector-borne disease that is a major public health threat globally. It is caused by the dengue virus (DENV, 1–4 serotypes), which is one of the most important arboviruses in tropical and subtropical regions.^{6, 7} Other arboviral diseases are present in India, including Japanese encephalitis, West Nile virus, chikungunya fever, Crimean-Congo hemorrhagic fever and Kyasanur forest disease. Since the mid-1990s, epidemics of dengue in India have become more frequent, especially in urban zones, and have quickly spread to new regions, such as Orissa, Arunachal Pradesh and Mizoram, where dengue was historically non-existent.⁸ Dengue is the most common arthropod-borne viral (arboviral) illness in humans. Globally, 2.5-3 billion individuals live in approximately 112 countries that experience dengue transmission. Annually, approximately 50-100 million individuals are infected.¹¹ The incidence has increased manifold in India due to unplanned urbanization and migration of population to urban areas. Although initially reported from urban locales, dengue is now being reported from urban and rural backgrounds alike. Dengue is caused by infection with one of the four serotypes of dengue virus, which is a Flavivirus. Infection with one dengue serotype confers lifelong homotypic immunity to that serotype and a very brief period of partial heterotypic immunity to other serotypes, but a person can eventually be infected by all 4 serotypes.¹² Several serotypes can be in circulation during an epidemic. Dengue is transmitted

by mosquitoes of the genus *Aedes*, principally *Aedes aegypti*.¹³ Initial dengue infection may be asymptomatic (50-90%),¹⁴ may result in a nonspecific febrile illness, or may produce the symptom complex of classic dengue fever (DF). Classic dengue fever is marked by rapid onset of high fever, headache, retro-orbital pain, diffuse body pain (both muscle and bone), weakness, vomiting, sore throat, altered taste sensation, and a centrifugal maculopapular rash, among other manifestations. A small percentage of persons who have previously been infected by one dengue serotype develop bleeding and endothelial leak upon infection with another dengue serotype. This syndrome is termed dengue hemorrhagic fever (DHF). In our study we have seen that The majority of the patients were in the age group of 20-30 were 34.15%, followed by 30-40 were 30.49%, 40-50 were 15.85%, 50-60 were 10.98%, >60 were 8.54%. The majority of the patients were Male i.e. 63.41% and Female were 36.59% The most common clinical features were Fever in 100.00%, followed by Headache in 96.34%, Retro orbital pain in 90.24%, Generalized body ache in 84.15%, Joint pain in 76.83%, Abdominal pain in 64.63%, Rash in 35.37%, Bleeding manifestations in 32.93%, Hypotension in 25.61%, decreased urine output in 23.17%, Tachycardia in 15.85%, Epi gastric tenderness in 13.41%. The most common laboratory features were Thrombocytopenia (<50000/cumm) in 64.63%, Leucopenia (<4000/cumm) in 30.49%, Raised AST/ALT (>45IU/L) in 87.80%, Raised Hematocrit (>45%) in 15.85%. These findings are similar to Rajesh Deshwal¹⁵ *et al* they found that Of the 515 patients studied, majority were males (72.81%). Fever was the major symptom (100%) followed by headache (94.75%), myalgia (90.67%), retroorbital pain (18.25%), conjunctival injection (39.41%), rash (37.86%), abdominal pain (24.46%), pleural effusion (20%) and ascites (16.31%). Significant derangements in platelet (69.51%), leucocyte counts (20.19%) and serum transaminases (88.54%) were noted. Mortality rate was 0.77%.

CONCLUSION

It can be concluded from our study that the majority of the patients were having the clinical features like fever, Headache, Retro orbital pain. The most common

laboratory features were Thrombocytopenia, Leucopenia, Raised AST/ALT etc.

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