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Research Article

Prospective Study on the Clinico-Hematological Profile of Dengue Fever Patients in Hims, Hassan

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ABSTRACT

Introduction: Dengue virus causes a spectrum of illness ranging from in apparent, self-limiting classical dengue fever (DF) to life threatening dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). Present study is done to identify the clinical profile, hematological profile and disease outcome in dengue fever cases. **Methods**: A total of120 cases aging 18 to 80 years diagnosed as dengue fever based on rapid immunological card test (Ns1 antigen, IgG and IgM antibodies) were analysed for clinical and hematological parameters. A prospective observational study was conducted at HIMS, Hassan. **Result**: During the study period, a total of 120 dengue cases were included in the study. Of these61%male, 39%female.NS1 antigen positive 35(29%), IGM 50%positive was being highest and IGG 21%.The most common presentation was fever (100%) followed by myalgia (75%),retro orbital pain and vomiting (33%).The common hematological finding was thrombocytopenia 81(67.5%),followed by anemia66(55%), leucopenia39(39%) and the elevated levels of AST and ALT was noted. **Conclusion**: Thrombocytopenia, leucopenia, elevated AST and ALT gives clues to test dengue fever so that the dengue cases can be identified in early stages and prompt management can be started to prevent complications.

Key Words: *Dengue, fever, thrombocytopenia, leucopenia, outcome*

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INTRODUCTION

Epidemiology and clinical presentation of dengue infection differs significantly across geographical areas in India and there is a need to systematically collect data from various regions and study the nature and course of dengue infections[1].

Dengue virus causes a spectrum of illness ranging from in apparent, self-limiting classical dengue fever (DF) to life threatening dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). Recently, it has emerged as important public health threat in urban areas. This is attributable to population migration to cities resulting in urban overcrowding and infrastructure construction in these areas providing unhindered opportunities for breeding of the vector[2].

Dengue has a wide spectrum of presentation ranging from fever to life-threatening hemorrhage and shock, often with an unpredictable outcome. The spectrum of clinical presentation is variable in different epidemics and in different age groups. Though many previous studies have reported the clinical profile in dengue patients, studies focussing on predictors of thrombocytopenia and length of hospital stay are scarce from India and this region. This is important considering the burden of the disease during epidemics, its impact on hospital admissions, and the requirement of platelet transfusion[3].

Currently, the serological test is used to confirm the diagnosis of dengue infection such as the detection of the dengue NS1 antigen (sensitivity 76% and specificity 98%) or the dengue IgM antibody by the ELISA method (sensitivity 90% and specificity 93%)[4].

Though Dengue infection is self limiting disease, it can prove lethal if not diagnosed and treated at the early stage. Diagnosis of Dengue is by viral isolation, detection of viral genomic sequence by reverse transcription polymerase chain reaction (RTPCR) and detection of NS1 antigen.

METHODS

Study design and sampling

This prospective study was conducted at Hassan Institute of Medical Sciences Teaching Hospital, Hassan and the study was taken after taking permission from the Institutional Ethics Committee. This study was conducted for 6 months (September 2021 to February 2022) and informed consent was obtained from all the patients.

Data collection and analysis

Once identified as a study participant, based on the inclusion and exclusion criteria, a detailed history of every patient was taken after obtaining a written consent.

The aims and objectives of the intended study will be properly explained to the subjects and informed consent will be taken. Data will be collected as per the proforma sheet. Data with respect to age, sex, presenting complaints, past history, family history, socioeconomic status, education status, occupation, will be taken. General physical examination and biochemical investigations will be done.

IgM and IgG testing {by Enzyme Linked Immunosorbent Assay (ELISA) method} and for NS1-Ag (non-structural protein-1 antigen) test.
CBC
LFT
RFT
serum electrolytes
RBS
Usg of abdomen and pelvis
PT, APTT, INR
MP, WIDAL
Descriptive analysis was perfomed and qualitative data were presented as frequency and percentage.

RESULTS

- During the study period, a total of 120 dengue cases were included in the study.
- Of these 73(61%) male, 47(39%) female between age of 18 to 80 years.

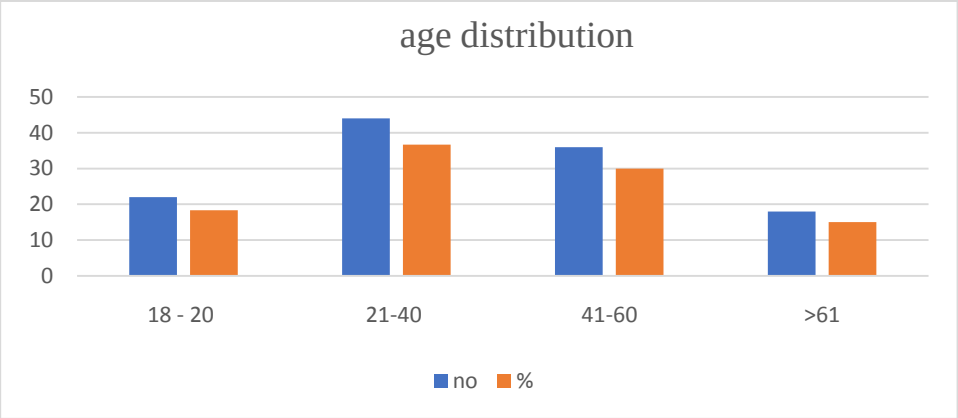

Figure 1: Distribution of Age

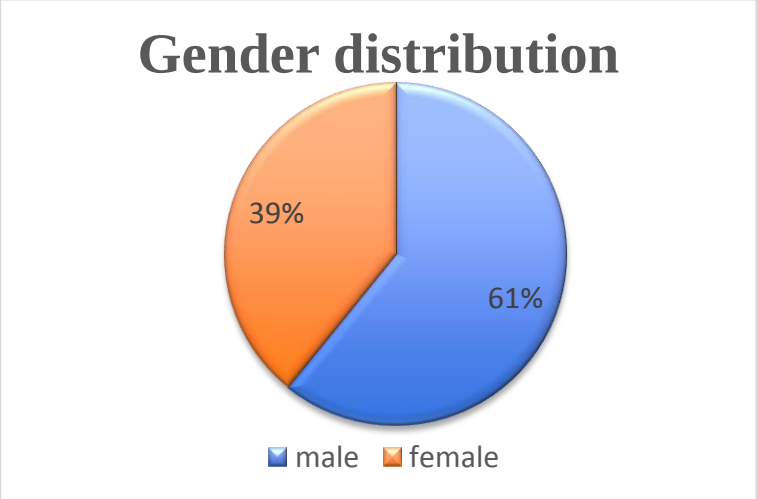

Figure 1: Distribution of Gender

- NS1 antigen positive (29%), IGM positive was being highest (50%) and IGG (21%).

Table 1: Distribution of Serology Markers

	NO	PERCENTAGE %
NS1 ANTIGEN	35	29.16
IGG	25	20.8
IGM	60	50

- The most common presentation was fever (100%) followed by myalgia (75%), retro orbital pain and vomiting (33%), rash(17.5%).

Table 2: Distribution of Symptoms

symptom	**no**	**percentage**
fever	120	100
myalgia	90	75
retro orbital pain	40	33.33
rash	21	17.5
vomiting	40	33.33
bleeding	10	8.33
joint pain	15	12.5
abdominal pain	25	20.83
loose stools	5	4.16

The common hematological finding was thrombocytopenia 81(67.5%), followed by anemia 66(55%), leucopenia 39(39%), and the elevated levels of biochemical parameters were AST 64(53%) and ALT 56(47%).

Table 3: Distribution of hematological finding

Blood parameters	Number	Percentage%
1.Platelet count		
<150000	81	67.5%
≥150000	39	32.5%
2.Total count		
<4000	47	39%
≥4000	73	60.8%
3.Hemoglobin		
Male ≤13gm/dl	44	60%
Female ≤12gm/dl	22	46%
4.AST and ALT		
AST >34	28	23%
AST ≤34	92	76%
ALT >55	64	53%
ALT≤55	56	47%
5.Hematocrit		
Male >46	12	16%
Female >46	06	12%

- USG of abdomen and pelvis was taken and majority of the report showed normal 85(70%), followed by hepatomegaly 15(12.5%), mild ascites bilateral pleural effusion 10 each (8.3%).

Table 4: Distribution of Ultrasound finding

USG FINDINGS	NO	PERCENTAGE%
NORMAL	85	70.83
HEPATOMEGALY	15	12.5
MILD ASCITES	10	8.33
MILD B/L PLEURAL EFFUSION	10	8.33

DISCUSSION

This study looked into clinical, hematological factors and outcome of the disease. We noted that out of 120 patients 73(61%) of patients were male and 47(39%) were female, Meena, et al (n=100) also observed a male predominance with 63 cases (63%) and 37 (37%) female patients, Nair et al reported 53% of their study population of dengue patients to

be females[5] and Khatroth *et al* concluded that majority of the patients were males 40 (66.6%) compared to females 20 (33.3%) and the male to female ratio was 2:1[6].

NS1 antigen positive (29%), IGM positive was being highest (50%) and IGG (21%). The most common presentation was fever 120(100%) followed by myalgia 90(75%), retro orbital pain 40(33%) and vomiting 40(33%), rash 21(17.5%). Kadadavar SS *et al*, concluded that dengue infection was more common in adult age group with slight male preponderance. It presented commonly as dengue fever with other constitutional symptoms. Petechial ecchymosis was the most common sign elicited clinically.[10] In the study by Deshwal, et al, it was concluded that fever was universal followed by headache (94.75%), myalgia (90.67%), conjunctival injection (39.41%), morbilliform skin rash (37.86%), abdominal pain (24.46%), retro-orbital pain (18.25%), itching predominantly localized to palmar and plantar aspects of hands and feet (13.39%)[7].

The common hematological finding was thrombocytopenia 81(67.5%), followed by anemia 66(55%), leucopenia 39(39%), Kadadavar SS et al, concluded that Hematological findings like raised hematocrit, platelet count and atypical lymphocytes were seen in majority of the cases[8]. In the study by Meena, et al hemoglobin ranged from 7.5-17.5 g/dl, mean hemoglobin value was 12.6 g/dl. Hemoglobin level more than 15gm% was seen in 6% cases[9]. Dongre, et al, observed hemoglobin level from 3.6 gm/dl to 16.7gm/dl with a mean of 11.9 gm/dl[10].

Elevated levels of biochemical parameters were AST 64(53%) and ALT 56(47%). Jayanthi HK et al, concluded that Transaminitis (12.12%) was the most common complication followed by acute renal injury (2%)[11].

USG of abdomen and pelvis was taken and majority of the report showed normal 85(70%), followed by hepatomegaly 15(12.5%), mild ascites bilateral pleural effusion 10 each (8.3%).

Dengue fever cases were 110 (91%), DHF 7(5.8%), DSS 3 (2.5%), Kadadavar SS et al, concluded that mortality was seen in 2% of the cases[8]. Prasad and Kumari reported that out of 120 patients, 74 (61.6%) patients were diagnosed to have DF, 46 (38.3%) patients were diagnosed to have DHF[12].

CONCLUSION

Thrombocytopenia, leucopenia, elevated AST and ALT gives clues to test dengue fever so that the dengue fever cases can be identified in early stages and prompt management can be started to prevent complications and mortality outcome of the disease.

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