ORIGINAL RESEARCH PAPER

General Medicine

A STUDY OF DEMOGRAPHIC AND CLINICAL PROFILE OF DENGUE FEVER PATIENTS IN A TERTIARY CARE HOSPITAL, RAJASTHAN

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ABSTRACT

BACKGROUND: Dengue fever is caused by dengue virus, belongs to Flaviviridae family, transmitted mostly in urban area by Aedes aegypti and in rural area by Aedes albopictus mosquitoes. Dengue still remains challenge for the treating physician due to non-specific clinical presentation such as fever, headache, rashes, myalgia which often overlaps with other endemic infections. Early identifications of warning signs, diagnosis, appropriate fluid replacement and supportive cares can reduce dengue associated mortality. **OBJECTIVE:** A study of demographic and clinical profile of dengue fever patients in a tertiary care hospital, Jaipur Rajasthan. **MATERIAL AND METHOD:** A descriptive, prospective, cross sectional, analytic sturdy conducted on dengue fever patient who were admitted in Medicine wards in the period of august 2019 to December 2019. A detailed history, general and systemic clinical examination with hematological profile and biochemical investigations were done. Signs of plasma leakage were assessed by chest rediograph and abdominal ultrasonography, hematocrit etc. patients wewe classified as dengue fever without warning sign, with warning sign and severe dengue. **RESULT:** Total 210 patients diagnosed as dengue fever based on detection of dengue non-structural protein 1 (NS1), dengue serology [anti-dengue IgM anti-body] in the blood sample. Most cases were males (72.86%), and fever was most common symptom present in all cases. Most affected cases were in 15-25 years age group (57.14%). Maximum patient were from urban area (71.43%). Thrombocytopenia, leucopenia, increased liver enzymes raised hematocrit and bleeding manifestations were found in 87.62%, 46.62%, 95.71%, 6.67% and 58.8% patients respectively. **CONCLUSION:** Dengue fever can have different clinical manifestations. No specific anti-viral therapy or vaccination available till now. Early diagnosis and early management are needed to reduce complications and mortality.

INTRODUCTION

Dengue fever (DF) is a vector borne viral disease which occurs in tropical countries in urban and semi - urban areas.[1] Dengue fever is a major international public health problem[2] And it is caused by the 4 serotypes of the dengue virus belonging to arboviruses of the genus flaviviruses[3] The vector for the disease is the mosquito Aedes aegypti.[3] A majority of region of India is endemic for dengue fever[1] The most affected states are Delhi, west Bengal, Kerala, Tamil Nadu, Karnataka, Maharashtra, Rajasthan, Gujrat and Haryana.[4] The disease spectrum may vary with asymptomatic illness to life threatening diseases like dengue haemorrhagic fever (DHF) and dengue shock syndrome(DSS).[1]

The patients with dengue fever typically present with the sudden onset of fever, frontal headache, retroorbital pain, and back pain along with severe myalgias—break-bone fever[5] Additional signs and symptoms including anorexia, nausea or vomiting , and cutaneous- itching, mobiliform rashes may appear in illness.[5] In complicated dengue shock, epistaxis, gum bleeding, gastrointestinal tract bleeding and rashes are common presentations. the characteristic laboratory finding for the disease is leukopenia.[6] other laboratory findings include thrombocytopenia, elevations of serum aminotransferase (SGOT > SGPT) Imaging study shows GB edema. The diagnosis can be made by lgM ELISA or paired serology during recovery or by antigen-detection ELISA or RT-PCR during the acute phase.[6] There are no specific therapy management of dengue, besides supportive care .[6] The principle of management of disease include fluids, rest, and antipyretics.[6] Platelet transfusions should be considered in severe thrombocytopenia (less than 10,000/cmm) or when there is evidence of bleeding in case of DF/DHF. Volume replacement by immediate administration of intravenous fluids to expand plasma volume is essential in DSS.

Dengue fever still evolving with involvement of newer areas, newer populations and is increasing in magnitude, epidemic after epidemic. Hyperendemic transmission of dengue have the continuous circulation of multiple dengue virus serotypes in the same area.

Dengue viral infection still remains challenge for the treating physician. So this study was planned to study the demographic and clinical profile of disease in our hospital set-up.

MATERIALS AND METHODS

A descriptive, prospective, cross sectional, analytic study carried out on patients with dengue fever admitted under the Medicine department of SMS hospital, Jaipur, Rajasthan, A tertiary care teaching hospital in north India, during the period of august 2019 to December 2019.

The research protocol was presented to the institutional ethics committee (IEC) and approval was taken before commencement of the study. Nosocomial transmission of dengue virus may be transmitted via blood products, And needle stick injury[7].

INCLUSION CRITERIA

All new hospitalized patients with classical features of dengue fever with myalgia, headache, rash, bleeding manifestations and thrombocytopenia with positive result of laboratory test (NS$_1$ antigen and IgM & IgG antibody) in medical wards and ICU of SMS hospital Jaipur Rajasthan. Age group 15 years and above were included.

Exclusion Criteria

Patients unwilling to participate in the study, patient who have negative NS$_1$, dengue serology IgM, IgG and documentation of other infectious disease- malaria, urinary tract infection, typhoid fever.

Statistical Analysis

Data thus collected were entered in Microsoft Excel 2016 Worksheet in the form of master chart.

These data were classified and analyzed as per the aims and objectives. Qualitative data was expressed in the form of percentage and proportions. Significance of difference in proportions were assessed by Chi-square Test.

To get inferences Primer for Microsoft statistical software version 6 was used and significance set as follows:

P value >0.05 =Not Significant,
P value <0.05=Significant,
P value <0.001=High Significant

RESULTS

Table-1: Distribution of study subjects according to age (N=210)

Age Groups (In Years)	Number	%
15-25	120	57.14
26-35	47	22.38
36-45	18	8.57
46-55	17	8.10
> 55	8	3.81
Total	210	100.00

Table 1 shows out of 210 cases, maximum; 57.14% cases were found in the age group of 15-25 years, followed by 22.38% in age group 26-35 years.(table 1) Out of 210 cases 72.86% were male and 27.14% female with male to female ratio 1.68:1. And 71.43% cases were from urban area and 28.57% from rural area.

Table-2: Distribution of study subjects according to sign and symptoms (N=210)

Symptom	Number	%
Fever	210	100.00
Headache	171	81.43
Myalgia	132	62.86
Retro-orbital pain	63	30.00
Persistent Vomiting	22	10.48
Pain Abdomen	27	12.86
Neurological Symptoms	14	06.67
Oedema	46	21.90

Table 2 shows all the study subjects presented with fever, 81.43% with headache, 62.86% with myalgia.(table 2).

Table-3: Distribution of study subjects according to bleeding manifestations

Symptom	Number	%
Rash/ Petechiae	72	34.29
Conjunctival Suffusion	92	43.81
Epistaxis	18	8.57
Gum / Oral bleeding	14	6.67
Haematemesis/ Melena	14	6.67
Haematuria	7	3.33
Haemoptysis	16	7.62

Conjunctival suffusion were the most common bleeding manifestation; in 43.81% followed by Rash/petechiae in 34.29%.(table 3).

Table-4: Distribution of study subjects according to laboratory warning signs

Laboratory Warning Signs	Number	%
Raised Haematocrit (> 45%)	14	6.67
Leukopenia (< 4000/mm3)	100	47.62
Thrombocytopenia (< 50000/mm^3)	184	87.62
SGOT (> 45)	201	95.71
SGPT (> 55)	196	93.33
S. Creatinine (> 1.4)	67	31.90

All patients had thrombocytopenia (<150000 mm^3). Maximum; 52.86% were between 20000 to 50000 mm^3. On laboratory observations it was found that platelet count less than 50,000 per mm3 in 87.62% cases, raised SGOT (>45 IU/L), SGPT (>55 IU/L) in 95.71% and 93.33% respectively, leukopenia(<4000 /mm3) were found in 47.62% cases, raised serum creatinine(>1.4 mg/dL) in 31.90% and raised hematocrit (>45%) in 6.67% cases (table 4) 133 (63.3%) were dengue without warning sign, 59 (28.1%) were dengue with warning sign and 18 (8.6%) were severe dengue. Ultrasonography was found very important investigation tool to rule out capillary leakage. Out of 210 cases 15.24% had Ascites, 13.29% had peri GB edema, 5.71% had bilateral pleural effusionie. over all 40 % were having ultrasonographic evidence of capillary leakage

DISCUSSION

In present study the maximum prevalence of the dengue fever was in the younger age group; 15 to 25 years (57.14%). Male preponderance (153 male and 57 female out of 210 cases) with statistically significant gender difference (p Value < 0.05). In a study conducted by Chhotala YH et al (2016)[9] most common age group was between 20-25 years, mean age was 28.6 years with M: F ratio was 1.94: 1. In a study conducted by Kiran pal Singh Sirohi et al (2015)[10] in total 75 cases, 43(57.33%) were male and 32(42.7%) were female. 71.43% were from urban area whereas 28.57% from rural area. In a sturdy conducted by Madan SP et al (2018)[11] 72.54% of dengue patients were from urban area and 27.45% were from rural area.

In present study fever or history of fever was the most common clinical manifestation found in 100% cases followed by 81.43% with headache, 62.86% with myalgia, 43.81% with conjunctival suffusion, 34.29% with rash and petechiae, 30.00% with retro orbital pain, 12.86% with pain abdomen, 12.86% were presented with persistent vomiting. On clinical examination most common sign was rash and petehiae 34.29%, edema 21.96%. In a study by Hemant et al (2013)[12] most common presentation was fever 746 (97.38%) followed by headache 427 (55.74%), vomiting 328 (42.81%), myalgia 322 (42.03%), orbital pain 344(44.9%) and abdominal pain 322(42.03%). In a study by Laul A et al (2016)[13] observed that common signs and symptoms of dengue infection were fever, headache, body ache, backache, retro-orbital pain, bleeding manifestation and rash in 100%, 87%, 86%, 58%, 41%, 21% and 21% respectively.

In present study conjunctival suffusion was the most common bleeding manifestation found in 43.81% cases followed by Rash/petechiae in 34.29% cases. In a study by Kiran pal Sing Sirohi et al (2015)[10] petechiae in 16(19.2%) cases was most

common bleeding manifestation.

The higher frequency of Conjunctival suffusion and Rash/petechiae in present study could be due to the fact that this study was conducted in tertiary care hospitalized patients, they seems to be relatively sick.

15.24% cases hade Ascites, 13.29% had peri GB edema, 5.71% had bilateral pleural effusion. In the study conducted by Santosh V.R. et al (2014)8 out of 96 sero-positive dengue cases, 64 (66.7%) patients showed edimetous gall blader (GB) wall thickening, 62 (64.5%) patients showed ascites, 48 (50%) patients have pural effusion.

In our study distribution of platelet count in the range of 150000- 50000/mm^3 was seen in 12.38% cases, 20000-50000/mm^3 in 52.86%, 10000-20000/mm^3 in 30% cases and < 10000/mm^3 in 10.95%. In the present study on laboratory observations it was found that platelet count less than 50,000/μL in 87.62%, raised SGOT (>45 IU/L), SGPT (>55IU/L) in 95.71% and 93.33% respectively, leukopenia(<4000 /μL) were found in 47.62% cases , raised serum creatinine(>1.4 mg/dL) in 31.90% and raised hematocrit (>45%) in 6.67% cases. Liver enzyme elevation and leukopenia are common features in dengue infection, were apparent in our study. A study by Sreenivasulu T et al (2018)[14] 99% cases showed leukopenia and 25% showed platelet count <150000/μL.

In this study the final diagnosis of all confirmed dengue infection patients was done according to revised WHO classification of dengue disease severity (2010), 63.3% was dengue without warning signs (DF), 28.1% was dengue with warning signs (DFWS) and 8.6% was severe dengue (SD). In a study by Laul A et al (2016)[13] observed that dengue fever was in 73% cases, dengue hemorrhagic fever was in 16.5%, dengue shock syndrome was in 1.7% and extended dengue syndrome (EDS) was in 4.3% cases. Among EDS patients, the atypical presentation include encephalopathy, acalculous cholecystitis, and myocarditis. According to the study conducted by Madan SP et al (2018)10 , 14.55% cases were found Dengue without warning signs , 72.73% cases were dengue with warning signs and 12.73% were severe dengue.

CONCLUSION

In conclusion, this study has revealed a varied clinical profile of dengue fever which is of important diagnostic value. In the recent few years, the world has seen varied clinical presentation of the dengue fever in different epidemics, even in the same regions and even with the period of time. Where some known features are still manifesting. Few atypical features are noted from several parts of the world. Continuous seroepidemiological surveillance and timely interventions are needed to identify the cases, so that its complications, outbreak and mortality can be minimized.

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