Original Research Article

Study of dengue fever in Bihar population at a tertiary care centre (JLNMCH, Bhagalpur)

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Abstract

Background: Dengue fever has spread globally, especially children are more susceptible to this mosquito bite infectious disease. As this disease has different clinical manifestations hence it is compulsory to update the clinical profile and laboratory investigation to rule out different stratification of patho- physiological status. **Method:** The blood samples of clinically suspected were tested by Rapid card test, NS1 Ag and detection of IgM , IgG antibodies to dengue virus. Chest X-ray was also done if there was suspicion of ascitis and pleural effusion. USG was done in severe Nausea and vomiting patients to rule out the complications. **Results:** Fever – 75 (100%) headache 73 (97.3%) Body ache 72 (96%) Abdominal Pain 68 (90.6%) Retro – orbital pain 36 (48%) Dry cough 35 (45.3%) Anorexia, Nausea 10 (13.3%) Diarrhoea 10 (13.3%) vomiting 12 (16%) Rash (Prurtis) 7 (9.33%). Joint pain 5 (6.66%) Malena 4 (5.33%). Hypotension 6 (8%) Feeble pulse pressure 6 (8%) Tourniquet test was +ve. pleural effusion 4 (5.33%, Ascitis 7 (9.33%) oedema of Gallbladder 3 (4%), Icterus 2 (2.66%) altered sensorium 2 (2.66%) leucopoenia 62 (86%), Thrombocytopenia 62 (86%) S. Creatinine 6 (8%). NS1 +ve patients 63 (84%). IgM 5 (6.66%), Mixed (NS1/IgM/IgG) 7 (9.33%). **Conclusion:** The present study of DF will be quite useful to prognosticate the morbidity and mortality of the patients.

Key Words: Dengue Fever, Dengue Haemorrhagic Fever ,Thromboyctopenia, Female Aedes aegypti Mosquito.

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INTRODUCTION

Dengue is the most important mosquito borne viral infection across the globe with approximately 50-100 million cases annually[1].Four serotypes of dengue virus (DENV 1-4) may be transmitted by the primary vector the female Aedes aegypti mosquito infection. While one DENV strain confers permanent immunity to that strain, but it provides limited protection to subsequent infection by other strains[2]. Dengue viruses have single stranded positive polarity ribonucleic acid (RNA) viruses of the family Flaviviridae, the most common cause of arboviral disease in the world. The dengue fever (DF) and dengue haemorrhagic fever (DHF) has increased dramatically in decades across the world.[3] India represents 34% of global burden of apparent dengue infection with regular dengue out breaks as compared to other countries.[4] Dengue fever has been changing distribution trends and has variable clinical presentation which needs to be updated constantly with clinical profile laboratory parameters of dengue fever so that, there will be least morbidity and mortality in dengue fever patients as it is haemorrhagic and can be fatal if ignored in the initial stages of diagnosis.

MATERIAL AND METHODS

75 adult patients admitted at JLNMCH, hospital Bhagalpur – 812001. (Bihar) having the symptoms of Dengue fever were selected for study.

Inclusive criteria – The patients were confirmed dengue having NS1 positive of IgM positive or having both NS1 and IgM positive or Dengue Elisa reactive having minimum CBC count.

Exclusion criteria – patients with less CBC count due to bone marrow disease, cirrhosis of liver, Negative NS1 and IgM history of blood Transfusion and Immuno –

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compromised, Malignant patients were excluded from the study.

Methods

1. The blood samples of clinically suspected dengue were received in the laboratory, serum was separated from the blood samples and transferred into labelled sterile plastic vials, and stored at 4ºC. All the samples were tested by Rapid card test- It is the rapid solid phase immune to graphic test for the qualitative detection of dengue NS1 Ag and differential detection of IgM and IgG anti bodies to dengue virus from patients serum samples.
2. Elisa – All the serum samples were tested for IgM and IgG antibodies by "pan Bio dengue capture Elisa test" to confirm The dengue fever. Chest X-ray was also done if there was any suspicion of Ascitis or Pleural effusion.USG was done in severe Nausea and vomiting patients. The duration of study was from August – 2019 to January – 2020

Statistical analysis – various parameters of study classified with percentage. Mean value and with standard duration were also studied in SPSS 2007 software Ratio of male and female was 2:1.

OBSERVATION AND RESULTS

Table – 1: Clinical manifestations observed in Dengue fever patients with percentage – 75 (100%) had fever 73 (97.3%) headache, 72 (96%) had Body ache, 68 (90.6%) abdominal pain 36 (48%) had retro – orbital pain, 35 (46.6) had dry cough, 34 (20%) had anorexia, 15 (13.3%) had back pain, 10 (13.3%) had Nausea, 10 (13.3%) had Diarrhoea, 12 (16%) had vomiting, 7 (9.33%) had Rash (Pruritis), 5 (6.66%) had joint pain, 4 (5.33%) had melena. (Table-1).

Table 1: (Total No. Of patients) Clinical Manifestations of dengue fever

Particulars	Patients	% Percentage
Fever	75	100
Headache	73	97.3
Body ache	72	96
Abdominal pain	68	90.6
Retro – orbital pain	36	48
Dry Cough	35	46.6
Anorexia	34	45.3
Back pain	15	20
Nausea	10	13.3
Diarrhoea	10	13.3
Vomiting	12	16
Rash (pruritis)	7	9.33
Joint Pain	5	6.66
Melena	4	5.33

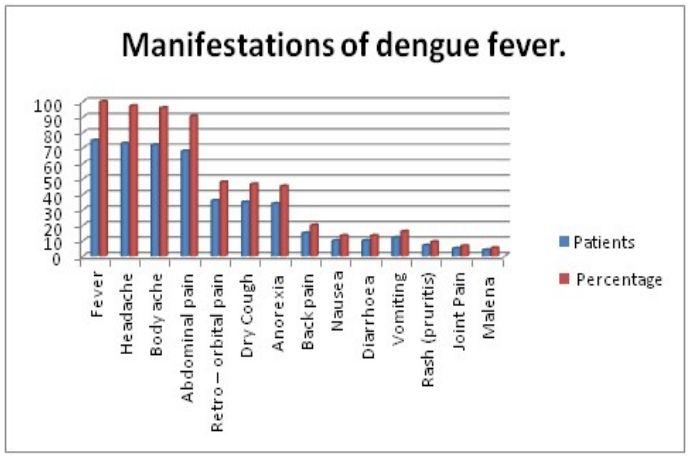


Table – 2: Alarming (warning) signs in Dengue fever patients 6 (8%) had hypotension (<90/60 mmHg) 6 (8%) Feeble pulse pressure (<20 mm Hg) 6(8%) had positive tourniquet test 4 (5.33%) had pleural effusion, 7 (9.33%) had Ascitis, 3 (4%) had edema of gall bladder, 2 (2.66%) Icterus, 2 (2.66%) had altered sensorium.

Table 2: Alarming (warning) signs in Dengue fever patients (Total No. of patients 75)

Signs	No of Patients	Percentage
Hypotension (<90/60 mmHg)	6	8 %
Pulse Pressure (<20 mmHg)	6	8%
Tourniquet test Positive	6	8%
Pleural effusion	4	5.33
Ascitis	7	9.33%
Edema of Gallbladder	3	4%
Icterus	2	2.66%
Altered sensorium	2	2.66%

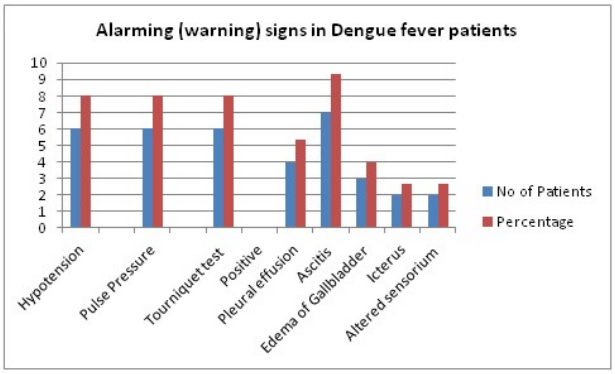


Table – 3: Laboratory findings in Dengue fever – 6 (8%) patients Hb% (>10mg/dl), 48 (64%) had leucopoenia (<4000/ul), 62 (82.6%) had thrombocytopenia (<1.0 lac/ul), 12 (16%) had Haematocrit (>45%), 3 (4%) PT (>14 sec), 3 (4%) had a PTT, 3 (4%) had INR (>1.2), 6 (8%) had serum creatinine (>1.2 mg%).

Table 3: Laboratory findings in Dengue fever

Laboratory	No. Of Patients	Percentage
Haemoglobin (9 m/dl) (>10 gm/dl)	6	8 %
Leucopoenia (<4000/ul)	48	64 %
Thrombocytopenia (<1.0 10c/ul)	62	82.6%
Haematocrit (> 45%)	12	16%
PT (>14 sec)	3	4%
a PTT (> 40 sec)	3	4%
I N R (> 40 sec)	3	4%
S. Cretanine (>1.2 mg%)	6	8 %

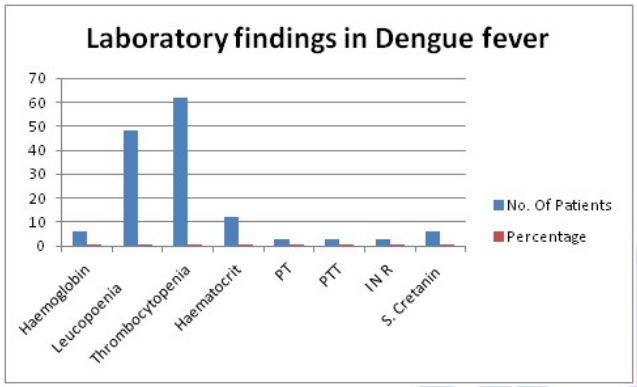
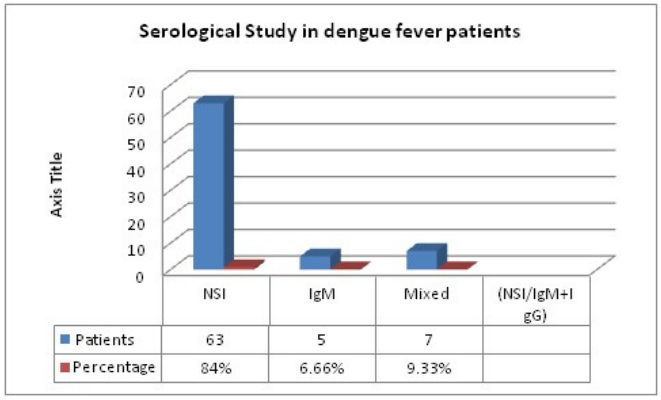


Table – 4: Serological Study in Dengue fever patients 63 (84%) had NS1 positive, 5 (6.66%) had IgM positive, 7 (9.33%) had Mixed (NS1/IgM+IgG) positive.

Table 4: Serological Study in Dengue fever patients (Total No. of patients 75)

Serological test	Patients	Percentage
NS1	63	84 %
IgM	5	6.66%
Mixed (NS1/IgM+IgG)	7	9.33%



DISCUSSION

In the present study of DF in Bihar population – The Clinical Manifestation were – 75 (100%) had fever, 73 (97.3%) had headache, 72 (97.3%) had body ache, 68 (90.6%) had abdominal pain, 36 (48%) had retro – orbital pain, 35 (46.6%) had dry cough, 34 (45.3%) had anorexia, 15 (20%) had back pain, 10 (13.3%) had Nausea, 10 (13.3%) had Diarrhoea, 12 (16%) had vomiting, 7 (9.33%) had rash (pruritis), 5 (6.66%) had joint pain, 4 (5.33%) had melena (Table – 1). The alarming (warning) signs in DF were – 6 (8%) had hypotension (<90/60 mmHg), 6 (8%) had feeble pulse (<20 mmHg), 6 (8%) had positive tourniquet test 4 (5.33%) had pleural effusion, 7 (9.33%) 3 (4%) edema and of Gallbladder, 2 (2.66%) Icterus, 2 (2.66%) altered sensorium (Table – 2). The laboratory findings were 6 (8%) Hb% (> 10 gm/dl), 48 (64%) had leucopoenia (<4000/Iu), 12 (16%) haematocrit (>45/), 3(4%) PT (>14sec), 3 (4%) a PTT (>14 sec), 6 (8%) S. Creatinine (>1.2 mg/dl) Table – 3).Serological Study in DF was 63 (84%) patients were NS1 +ve, 5 (6.66%) had IgM positive, 7 (9.33%) were +ve in mixed (NS1/IgM+IgG). (Table – 4).These findings were more or less in agreement with previous studies [5,6,7].The children in the age group 1 to 4 were most commonly affected followed by children in the age group of 5-14 year[8], but the early diagnosis and treatment of DF especially among children has proved to be an effective intervention to reduce the morbidity and mortality due to DF[9]. Rain during the monsoon brings down the temperature which leads to increase in the evaporation rate and thus helps to maintain secondary reservoirs containing rain water[10] which breed the mosquito which causes DF.

SUMMARY AND CONCLUSION

Aedes mosquitoes breed in the stagnant waters and discarded junk materials. Unfortunately every cities of India has slum areas, which are predominantly covered with stagnant drainage water in which mosquito breed throughout year which is the main source of mosquitoes. Hence awareness regarding infectious diseases like Dengue, Chickengunya, Malaria has to be created among slum-dwellers and vaccination is necessary to prevent such fatal disease.

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