Clinical and Investigational Profile of Adult Patients Suggestive of Dengue Fever at Teritiary Care Mamata General Hospital

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Abstract
Introduction: *Dengue fever epidemic s have been causing major concern in India, many parts of India are endemic for the dengue. Dengue is mosquito borne infection caused by 4 distinct serotypes deny-1, v-2, v-3, v-4.v-3 is most prevalent serotype in last few years. Dengue illness often confused with other febrile states, this difficulty is especially striking during early phase of illness, when non specific clinical symptoms accompany the febrile illness.*
Objective: *Objective of the study is to document various clinical manifestations and laboratory parameters of all dengue cases.*
Materials And Methods: *Study conducted at Mamata general hospital during june2014-july 2015.This is a prospective study conducted on 100 cases who were presented with fever and admitted in hospital. A detailed history and clinical examination findings were recorded and all cases were subjected to laboratory investigations. Which included complete heamogram, mean plc, mean hematocrit, mean hb. all the patients were treated symptomatically.*
Results: *Among 100 serologically confirmed dengue cases the male and female ratio was l:l. the most common age group affected was 21-30years and most common presenting complaint was fever seen in 98%.mean duration of fever was 6.1 day. Among the cases 56% developed thrombocytopenia. In them 2 patients were having plc of 20000. Among 56% 3 cases developed DHF and DSS, 4 cases developed bleeding manifestations. 39% developed leucopenia.*
Conclusion: *This study showed that most common presentation was fever and 56%patients presented with thrombocytopenia but rarely developed bleeding manifestations and complications. cases developed bleeding manifestations. 39% developed leucopenia.*
Keywords: *Dengue fever, thrombocytopenia, hemogram*

INTRODUCTION

Dengue is an endemic viral disease affecting tropical and subtropical regions around the world, predominantly in urban and semi urban areas. Dengue fever (DF) and its more serious forms, dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS), are becoming important public health problems. The disease is now endemic in more than 100 countries. In Africa, the Americas, the Eastern Mediterranean, Southeast Asia, and the Western pacific, threatening more than 2.5 billion people. Dengue virus is a mosquito-borne flavivirus and the most prevalent arbovirus in tropical and subtropical regions of the world. Dengue virus is a positive-stranded encapsulated RNA virus. There are four distinct serotypes, serotypes I to 4. infection induces a life-long protective immunity to the homologous serotype but confers only partial and transient protection against subsequent infections by the other three serotypes. Instead, it has generally been accepted that secondary infection or infection with secondary or multiple infections with various dengue virus serotypes is a major risk factor for DHF, DSS due to antibody dependent enhancement 8,9,10,11. Other factors have been postulated to be important in the pathogenesis of DHF, including viral virulence 12, 13. host genetic background4. t-cell activatio14,15`.the viral burden16', and autoantibodies17,18. As attempts to eradicate aedes aegypti. the most efficient mosquito vector of dengue virus arc not successful in countries where Dengue is endemic. Dengue virus causes a broad spectrum Of illnesses, ranging from in apparent infection, flu-like mild undificrentiated fever. and classical DF to the more severe form DHF-DSS, from rates of morbidity and mortality are high. DF is characterized by fever of 3-5 days,' duration. headache, muscle and joint pain and a rash which is self limited and from which patients usually recover completely. There is no specific treatment for DF, and most forms of therapy are supportive in nature. DHF-DSS is characterized by the same signs and symptoms as classic DR but it is followed by increased vascular permeability and hemorrhage, which may lead to vascular collapse and death. Careful clinical management by experienced medical professionals is important in saving the lives of DHF patients. Diagnosis of dengue virus infection on the basis of clinical syndromes is not reliable, and the diagnosis should be confirmed by laboratory studies, because more than half of infected individuals either are asymptomatic or have a un differentiated fever 8:22. Therefore, there is a great demand for the rapid detection and differentiation of dengue virus infection in the acute phase of illness in order to provide timely clinical treatment.

MATERIALS AND METHODS
METHODOLOGY

The present study was conducted at Mamata General Hospital, Khammam. An alarmingly increasing epidemic of dengue was noticed in this part of state, with more number of admissions of dengue cases. Hence, the following study was conducted to find out the early clinical manifestations and laboratory parameters in Dengue fever.

100 patients of age of more than 13 years presenting with signs and symptoms suggestive of Dengue fever as per who criteria were included in the study between June 2014 — July 2015. Written consent was taken from patients before enrolling in study. Complete history and clinical examination was done.The results were tabulated and correlated.

All suspected cases are subjected to IgG, IgM, antibody, and NS I antigen testing.

And confirmed cases are subjected to routine hematological and other clinical investigations

DENGUE FEVER (DF) (W.H.0)
Clinical Case Definition:

An acute febrile illness of 2-7 days duration with 2 or more of the following:

- Headache
- Retro-orbital pain
- Myalgia
- Arthralgia
- Rash
- Hemorrhagic manifestations
- Leucopoenia

LABORATORY CRITERIA FOR DIAGNOSIS

Any one or more of the following:

- Isolation of dengue virus from serum, plasma, leukocytes, or autopsy samples

- Demonstration of a fourfold or greater change in reciprocal IgG or IgM Antibody titers
- Demonstration of Dengue virus antigen

METHODS:
- IgG antibody testing
- IgM antibody testing
- NS I antigen testing

ROUTINE BLOOD INVESTIGATIONS:
- Mean hemoglobin
- Mean hematocrit
- Mean total leucocyte count
- Mean neutrophil count
- Mean lymphocyte count
- Mean platelet count

INCLUSION CRITERIA:
- All patients above 13 years with fever
- With rash, bleeding manifestations, sore throat, abdominal pain, bradycardia, headache
- All cases attending to 0.P, 1.P with fever to Mamatha General Hospital, Khammam, Telangana.

EXCLUSION CRITERIA:
- Diagnosed cases of thrombocytopenic purpura on treatment
- Patients with thrombocytopenia already diagnosed to have hematological disorder / malignancy, on treatment with chemotherapy and other immunosuppressants
- Diagnosed cases of platelet disorders and dysfunction
- Patients on treatment with antiplatelet drugs and other drugs causing thrombocytopenia
- Patients with cirrhosis and chronic liver disease
- Concomitant cases of other bacterial and viral infections.

Study duration: 1 year period

Study design: Prospective study

RESULTS
In this study out of 100 patients 56% were presented with PLC of <100, 000, in them 28 (50%) were male, 28(50%) were female, 2 patients (35%) were presented with the PLC of 20000, 12 patients (21.4%) were presented with the PLC of 21-40000, in them 7 were male, 5 were female.18 patients (32.1%) were presented with the PLC of 41-60000 in them 8 were male, 10 were female, and 10 patients (17.8%) were presented with PLC of 61-80000, in them 5 were male, 5 were female,14 patients(25%) were with the PLC between 81-100000, in them 6 were male 8 were female 4 patients developed complications like ARDS, Respiratory failure, AKI, MODS. In this study 5% mortality was observed out of them 4 were male, 1 female patient. Out of 5 patients 4 presented with plc<100,000.In this study 55 patients were positive for NS l antigen, 24 patients were positive for IgG, IgM antibody and NS1 antigen, 21 patients were positive for IgG and IgM.

DISCUSSION
Dengue infection is systemic and dynamic disease. In the recent few years varied clinical manifestations of dengue fever seen in different epidemics from different parts of the world. Early recognition and meticulous management are very important to save precious Iives from this killer disease,

AGE:
In this study more number of dengue cases was reported between the age group of 21- 30years
- Goh kt 74 et al, have reported dengue fever occurrence and morbidity in adults.

SEX: Female to male ratio was 1:1 .both genders equally affected.

CLINICAL PROFILE:
Fever was the most common presenting symptom, seen in 98%patients similar studies in around India have also substantiated fever as being the

most common presenting symptom. Fever followed by myalgias 61%,vomiting 41%,15%pain abdomen,6%head ache and bleeding manifestations,5% with jaundice,4% with loose stools.

Clinical presentation in this study similar to that which were seen in other studies.

Anuradha et al75, found fever as most common presentation (100%), followed by vomiting in 8%, bleeding manifestations in 52.6%.

Narayana et aim, study reported fever in 98.3%, vomiting in 80%, abdominal pain in 22%, bleeding manifestation in 66%.

It is imperative to keep in mind that other infections that cause fever and gastro intestinal symptoms may often lead to a delay in diagnosis of Dengue. This conclusion was also made from a study done in tertiary care centre in Pakisthan.

Most common bleeding manifestations in this study were petechiae, bleeding per vaginum, melena hematuria

Thrombocytopenia seen in 56%patients, which was similar to study by Ahmed et cal78, that thrombocytopenia was seen in 65% patients. Platelet count between 81,000-100,000 seen in 14 patients, PLC between 61-80,000 seen in 10 patients. patients presented with the PLC between In between 41-60000 seen in 18 patients, 12 I-40000, in 2 patients PLC was 20,000

In Malavige et al", reported plc between 50 and -100,000 was 24.2%, 20-50000 was 46% d <20000 in 30% patients. In this study thrombocytopenia is associated with to bleeding manifestations and DHF, DSS in 7% cases.

In this study leucopenia was observed in 39%cases, a study by Arif et .alg' was observed in 43%, Ratageri et al study showed 26%, Itoda et al81, study showed d leucopenia in 71% cases.

Laboratory findings were compared between DF, DSS, and DHF. In total 100 cases 6 cases were DSS, 3 cases were DHF. Mean HB% was 11.9±2.6 in DF, 6.7+4.2 in DHF, 9.3±2.8 in DSS. Mean HCT was 33.09±7.5 in DF, 21+10.8 in DHF, 29.6±4.17 in DSS. Mean neutrophil count was 69.4±12.5 in DF, 77±13.9 in DI-IF, 74±11.6

in DSS. Mean PLC at admission was 81321±8729 in DF, 136666±75055 in DI-IF, 68840±67407 in DSS. Mean PLC at discharge 103431±54175 in DF, 40333±34383 in DHF, 58200+11150 in DSS. Mean TLC was 5550±3768 in DF, 17233±1266 in 131-1F, 7750±1436 in DSS. Mortality was observed in 5% patients in them 4 were male, 1 was female. Other studies showed morbidity highest in older adults. In 100 patients 55% were positive for NS I antigen, 24% were positive for IgG, IgM antibody and ns1 antigen,2 I % patients were positive for both IgG and 1gM.

CONCLUSION

The present study had an objective of studying early clinical manifestations, hematological profile associated with the disease for appropriate management. In our study 21 -30 years age group patients were more affected. Fever was most common symptom, followed by myalgias and vomiting. Platelets were decreased in 56%. Leucopenia was observed in 36% .Importance should be given to symptoms like fever, myalgias, retro orbital pain, abdominal pain ,if these are associated ,with low platelet count ,especially during Dengue epidemics Dengue should be considered differential diagnosis who presented with above symptoms.

Blood pressure, Pulse, Heamatocrit should be monitored along with total leukocyte count as leucopenia noted in febrile period, then leukocytosis in dengue with secondary infection.

Warning signs and bleeding tendencies should be closely watched for disease progression to DSS or DHF.

The treatment of Dengue is mainly supportive, but early institution and meticulous monitoring are the corner stone for positive outcome along with vector preventive measures

SUMMARY

100 serologically confirmed cases were studied from June 2014-2015.

Most common age group affected was 21-30 years Female to Male ratio was 1:1

Fever was the most predominant symptom 98%, followed by myalgia 61% and vomiting41%

Mean duration of fever was 6.1 day

56% patients presented with PLC<100,000, in them 2 patients developed DSS, 1 patient developed DHF. Another 4 patients developed bleeding manifestations.

Out of hundred 39 patients developed leucopenia.

55% positive for NS1 antigen, 24% were positive for IgG, IgM antibodies.

5% mortality observed in them 4 were male and 1 female.

Complications associated with Dengue were AKI, MODS, ARDS and Respiratory Failure.

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