Study of clinical spectrum of Dengue fever in a tertiary care hospital in North Telangana

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ABSTRACT

Objective: Dengue fever is one of the most common mosquitoe borne Arboviral infection which has become a public health concern globally with increased prevalence year after year with considerable morbidity and mortality. This study is designed to know the clinical and laboratory parameters of Dengue fever patients.

Materials & Methods: This is a prospective observational study conducted in a 70 bedded hospital in Karimnagar. This study included 280 patients presented to OPD between August 2016-December 2016 with Dengue NS1 Antigen and or IgM Antibody positive. Clinical features and laboratory parameters were noted.

Results: Of the 280 patients studied, majority were males(63.57%). Fever was the major symptom(100%), followed by myalgias(87%), headache(82.8%), rash(42.8%), hiccoughs(32.1%), abdominal pain(22.1%), retroorbital pain(17.5%), bradycardia(53.2%), pleural effusion(16.78%) and ascites(11.4%). Significant derangements in platelet count(92.85%), leucocyte counts(22.5%) and serum transaminases(71.4%) were noted.

Conclusion: Fever associated with myalgias, headache, rash over palms and soles, retroorbital pain along with thrombocytopenia, leucopenia, raised serum transaminases should prompt a clinician to evaluate for dengue infection. Prompt diagnosis and careful management is crucial in reducing the morbidity and mortality associated with these infections.

Keywords: Dengue fever, thrombocytopenia, rash

INTRODUCTION

Dengue is the most common arthropod borne viral infection in humans. Anually around 50-100 million individuals are infected[1]. The incidence has increased manifold in India due to urbanization and migration of population into urban areas. Dengue virus belongs to the family Flaviviridae, which has four serotypes and are spread by the bite of infected Aedes mosquitoes[2]. Infection with one serotype confers lifelong homotypic immunity to that serotype and a brief period of partial heterotypic immunity to other serotypes[3].

Dengue infection may be asymptomatic initially(50-90%)[4], in the form of nonspecific febrile illness, or may produce the symptom complex of classic dengue fever(DF). Classic dengue fever is marked by rapid onset of high grade fever, headache, myalgias, retroorbital pain, weakness, vomiting, maculopapular rash, etc. A small percentage of patients may present with bleeding manifestations in the form of bleeding gums, hematuria, hematemesis, malena. This syndrome is called dengue hemorrhagic fever(DHF).

The exact clinical and laboratory profile is crucial for the diagnosis and management of the patients. This study is an attempt to study the clinical and laboratory profile of serologically confirmed cases of dengue fever in our hospital.

MATERIALS AND METHODS

This is a prospective observational study carried out in a 70 bedded hospital in Karimnagar from August 2016 to December 2016. All inpatients and outpatients above 14yrs of both sex with confirmed dengue NS 1 antigen and, or IgM antibody positivity were included in this study. Patients who are coinfected with malaria, typhoid, leptospira, etc were excluded from this study. Detailed history and careful examination performed in each patient. Laboratory investigations included are – Complete blood picture(CBP) including platelet count, hematocrit, LFT, Blood urea, Serum creatinine, Chest radiography, USG abdomen and ECG wherever necessary. CBP with platelet count was repeated periodically as and when required.

Table 1: Age and Sex characteristics

Age(yrs)	Male	Female	Total
14-20	5	2	7
21-40	95	58	153
41-60	51	24	75
>60	27	18	45
Total	**178**	**102**	**280**

RESULTS

A total of 280 patients were studied and analysed from August 2016 to December 2016. Majority were males(63.57%) and females constituted 36.4%. Most of them were between 21-40 years of age(54.64%)(Table 1). Among the various clinical features, fever was universal, followed by myalgias(87%), headache(82.8%), rash(42.8%), hiccoughs(32.1%), pain abdomen(22.1%), retroorbital pain(17.5%), itching(17.1%), bradycardia(53.2%),nausea and vomiting(7.5%), loose stools(4.64%), SOB(7.5%), bleeding manifestations(7.5%), pleural effusion and ascites were seen in 16.78% and 11.4% of patients respectively(Table 2).

At presentation, platelet count <50,000/cumm was observed in 26.78% of patients, counts between 50,000-1,00,000/cumm in 53.57%, counts between 1,00,000-1,50,000/cumm was observed in 12.5% of patients. 20 patients had normal platelet count at presentation. Leucopenia, WBC<4000/cumm was observed in 22.5% of patients. Raised liver enzymes was observed in 71.4% of patients. Raised HCT was noted in 21% of patients at presentation(Table 3).

Table 2: Clinical features

Clinical features	No of pts (%)
Fever	280 (100)
Myalgias	244 (87)
Headache	232 (82.8)
Skin lesions	120 (42.8)
Hiccoughs	90 (32.1)
Abdominal pain	62 (22.1)
Retroorbital pain	49 (17.5)
Itching	48 (17.1)
Nausea/Vomiting	21 (7.5)
Bleeding manifestations	21 (7.5)
Bradycardia	149 (53.2)
Pleural effusion	47 (16.78)
Ascites	32 (11.4)
Hepatomegaly	24 (8.57)
Spleenomegaly	21 (7.5)

Table 3: Lab parameters

Parameters	No of pts (%)
Thrombocytopenia <50,000 50,000-1,00,000	 75 (26.78) 150 (53.57)
Leucopenia(<4,000/cumm)	63 (22.5)
Raised AST, ALT>45IU/L	200 (71.4)
Raised hematocrit(>45%)	59 (21)

DISCUSSION

Dengue is emerging and serious public health problem worldwide. It is evident that the demographic characteristics and clinical profile of dengue infections have changed rapidly during the last three decades[5]. Increase in the number of dengue cases over the past few years has been attributed to rapid unplanned urbanization with unchecked construction activities and poor sanitation facilities contributing fertile breeding areas for mosquitoes and it is also seen that increase in the alertness among medical personnel following the epidemics and availability of diagnostic tools in the hospitals have contributed to the increased detection of cases[6].

In the present study male to female ratio is 1.74:1, which is in correspondence with the studies conducted in Lucknow[7], Karnataka[8], Maharashtra[9]. Fever is the most common presentation which is in unison with other studies in India and South East Asia[10-14]. Myalgias and headache were seen in majority of cases. Skin lesions in the form of maculopapular rash was seen in 42.8% of the studied patients. Rajesh D et al in their study have shown myalgias in 90.7%, headache in 94.8% and skin lesions in 37.9% of all patients[14]. Thrombocytopenia is not the sole cause for the development of these rashes as they were seen in patients with normal platelet counts also. Dengue virus interacts with host cells, causing release of cytokines and stimulation of immunologic mechanism causing vascular endothelial changes, infiltration of mononuclear cells and perivascular edema[15]. Itching was noticed in 17.1% of patients. Hiccoughs was seen in 32.1% of patients, which was not noticed in other studies. Hiccoughs were mostly seen in patients with low platelet count and the symptom subsided as the countsraised. Association of Dengue fever with low platelet count and hiccoughs need more scientific information.Pain abdomen was noticed in 22.1%, nausea and vomiting were seen in 7.5% of patients. Kumar A et al in their study have observed pain abdomen in 37.6%, nausea and vomiting in 47.6% of patients[16]. Bleeding manifestations in the form of petechae, bleeding gums, hematuria, hematemesis and malena was observed in 7.5% of patients. Rajesh D et al have shown bleeding manifestations in 5.4%[14] and Laul A et al in 21% of patients[17]. Bleeding diathesis is a known feature of dengue because of low platelet count and leakage from blood vessels. Bone marrow suppression, immune mediated clearance and spontaneous aggregation of platelets to virus infected endothelium may be responsible for such thrombocytopenia.

Raised livertransaminases was seen in 71.4% of patients. In a study conducted by Rajesh D et al have shown the same in 88.54% of patients[14].Mandal et al documented raised transaminases in 83.78% of patients[18]. A study from Brazil by Silva et al has found an interacting partner between NS1 protein and liver proteins in the causation of hepatic

dysfunction in dengue fever[19]. Pleural effusion on chest radiography was documented in 16.78% and ascites on ultrasound abdomen was seen in 11.4% of patients. These findings were low from other similar studies[14].

CONCLUSION

Early diagnosis and careful management with proper fluid administration will help in reducing the mortality associated with dengue shock syndrome and haemorrhagic fever. Platelet transfusions has a little role in the management of dengue patients.

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