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Research Article

Correlation of Clinical, Serological and Radiological Features of Severe Dengue Fever

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Abstract: Dengue virus can produce a wide spectrum of illnesses which include Dengue Fever (DF), Dengue Haemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS).This study is a retrospective analysis of various clinical manifestations of dengue fever with respect to its severity. The study was conducted in MVJ Medical College and Research Hospital, Hoskote from Aug. 2012 to Oct. 2012. An attempt was made to establish the role of serology and ultrasound in assessing the severity of dengue fever. Out of the 471 dengue patients, 141 had severe DF (88 had DHF, 53 had DSS) and 3 succumbed to death. The common clinical presentations were fever (100%), headache (95.7%), myalgia/arthralgia (92.1%), retro-orbital pain (78%), haemorrhagic manifestations (29.7%), respiratory distress (12.7%) and altered sensorium (4.5%) in that order. Only 50% of the patients with severe dengue showed positive serology. USG abdomen showing GB wall edema is a useful marker for early diagnosis of severe DF when associated with severe thrombocytopenia.
Keywords: Dengue, Serology, Ns1AG, GB wall edema, thrombocytopenia.

INTRODUCTION

Dengue is a mosquito borne viral infection transmitted by female mosquitoes mainly of the species *Aedes aegypti* and, to a lesser extent, *A. albopictus*. It causes flulike illness and occasionally develops into severe form that can be lethal. In the recent decade its incidence has grown around the world. Though specific treatment is not available, but early detection and proper medical care has lowered fatality rate below 1% [1].

In India, dengue fever used to be more common in urban population but nowadays its incidence has been found to be raising in rural population [2].

This study was taken up to assess the various clinical manifestations of DF, identify severe DF and establish the role of serology and correlate ultrasound features with severity of dengue fever.

MATERIALS AND METHODS

471 Patients >18 years of age with suspected DF, who presented to our hospital during the outbreak period of August-October 2012 were included in the study. They were evaluated based on their clinical, hematological, serological and ultra sound studies and were classified as per WHO criteria [3]. Retrospective analysis of the data was carried out to correlate the severity, serology and USG findings.

Patients with fever>2 weeks; with identified specific infections such as malaria, typhoid, UTI etc; with immunodeficiency and suspected /diagnosed vasculitis were excluded from the study.

RESULTS

All patients had fever (100%) at the time of diagnosis. Other common presentations were headache (95.7%), myalgia/arthralgia (92.1%), retro-orbital pain (78%), haemorrhagic manifestations (29.7%), respiratory distress (12.7%) and altered sensorium (4.5%). 471 dengue patients were classified as uncomplicated dengue fever (70.06%) and severe dengue fever (29.94%). Severe dengue patients were further classified as DHF (18.6%) and DSS (11.25%). 0.6 % succumbed to death. Serological tests and USG studies were performed for all patients with severe dengue fever.

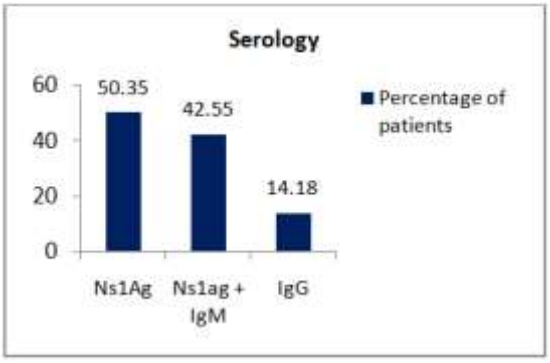

Fig. 1: Serology

Serological studies showed that Ns1Ag was more consistent with the diagnosis of dengue as compared to Ns1Ag+IgM and IgG.

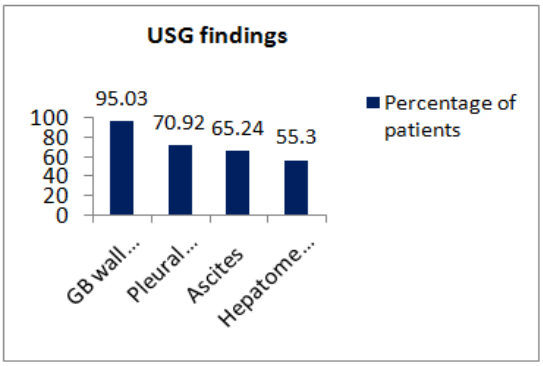

Fig. 2: USG findings

USG studies revealed that GB wall edema was the most common finding in dengue patients followed by pleural effusion , ascites and hepatomegaly.

DISCUSSION

Dengue fever is a common vector borne viral disease seen in tropical and sub-tropical countries [1]. Of the four genotypes, Type-3 genotype is predominant in India [4, 5]. Humoral and cellular immunity contributes to virus clearance from body by producing antibodies.

Dengue can cause a spectrum of illnesses ranging from mild fever to illness eslasting up to a week, with high fever, headache, retro-orbital pain, myalgia /arthralgia and rash, but rarely causing death. Dengue Haemorrhagic Fever (DHF), a deadly complication, includes haemorrhagic tendencies, thrombocytopenia and plasma leakage. Dengue Shock Syndrome (DSS) includes all the above criteria as well as circulatory failure, hypotension for age and low pulse pressure [6, 7].

In our study, out of 471 patients, 330 patients (70.06%) had uncomplicated dengue fever, 141 patients (29.94%) had severe dengue fever who were further classified as DHF (18.6%) and DSS (11.25%) as compared to a study by Ashwinikumar *et al*. [8] which showed DHF in 8.8% and DSS in 7.3%. 3 patients succumbed to death.

Only patients with severe dengue were studied with respect to their clinical, serological and radiological features.

The common clinical presentations were fever (100%), headache (95.7%), myalgia/arthralgia (92.1%), retro-orbital pain (78%), haemorrhagic manifestations (29.7%), respiratorydistress (12.7%) and altered sensorium (4.5%) in that order.

Ns1Ag was positive in 50.35%, Ns1Ag +IgM in 42.5% and IgG in 14.18% of the patients.

USG wise, GB wall edema was the most consistent finding seen in 95.03% of cases followed by pleural effusion (70.92%), ascites (65.24%) and hepatomegaly (55.3%) which was similar to 2 other studies done by M W Setiawan *et al*. [9] and P M Venkata Sai *et al*. [10].

An attempt was made to correlate the clinical, serological and radiological findings.

Table 1: Correlation of the clinical, serological and radiological findings

	Clinical features	Thrombocytopenia	Ns1Ag	GB wall edema
DHF -88	88 (100%)	88 (100%)	38 (43.1%)	81 (92%)
DSS -53	6 (11.32%)	40 (75.4%)	33 (62.2%)	53 (100%)
TOTAL-141	94 (66.6%)	128 (90.7%)	71 (50.3%)	134 (95%)

GB wall edema was the most consistent finding in severe dengue followed by thrombocytopenia, clinical features and serology.

CONCLUSION

Clinical features and thrombocytopenia are helpful in leading us to the diagnosis of dengue. There was 50.35% correlation between severe Dengue Fever and positive Serology. 95% of DHF and DSS patients had GB Wall edema. Therefore, USG abdomen showing GB wall edema is a useful marker for early diagnosis of severe DF when associated with severe thrombocytopenia.

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