



## STUDY OF CLINICAL PROFILE AND LEVEL OF LIVER ENZYMES IN DENGUE FEVER PATIENTS IN A TERTIARY CARE HOSPITAL IN PUNE.

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### ABSTRACT

Dengue, an acute arthropod borne viral infection is one of the most important cause of human morbidity and mortality<sup>1</sup>. The present study was done with an objective to study the clinical profile and liver enzymes in patients with dengue fever.

The study was conducted in Dr. D. Y. Patil hospital, Pune from July to September 2017. A total of 100 patients of dengue fever were included for studying their clinical profile and liver enzymes.

Various symptoms associated : fever(100%), myalgia(76%), arthralgia(35%), rash(24%), retro-orbital pain(17%) and bleeding tendencies(2%). The results showed that many patients with dengue had some degree of liver involvement as indicated by the abnormal liver function test. In this study 22% (1/5th) patients had deranged liver enzymes especially in the serum transaminase levels.

### KEYWORDS :

#### INTRODUCTION

Dengue, an acute arthropod borne flaviviral infection is one of the most important cause of human morbidity and mortality<sup>1</sup> affecting more than 100 countries worldwide mainly in tropical and subtropical regions<sup>2</sup>.

This mosquito borne viral infection is transmitted by *Aedes aegypti* and *Aedes albopictus*<sup>1</sup>; caused by four distinct serotypes ; DEN-1, DEN-2, DEN-3, DEN-4.

Dengue is endemic in many parts of India leading to epidemics from various parts of India<sup>3</sup>.

Clinical features range from inapparent classical self-limiting dengue fever (DF) to severe life threatening DHF and dengue shock syndrome (DSS).

DF shows features of fever, headache, retro-orbital pain, myalgia, arthralgia, and rash; whereas, DHF and DSS are characterized by thrombocytopenia, hemorrhage, and plasma leakage, which leads to shock.

The exact mechanism of causation of DHF and DSS is poorly understood.

However, several hypotheses are postulated, like antibody dependent enhancement (ADE), in heterotypic secondary dengue infections, and also the role of a virulent virus and of host factors have been suggested to explain this mechanism.

In the acute phase of the disease, aminotransferases levels increase, which subsequently decrease as the liver recovers.

This inflammatory process due to infection leads to a parenchymatous lesion releasing these markers into the blood.

The present study was conducted with an objective to study the clinical profile and level of liver enzymes in patients of dengue fever in a tertiary care hospital in Pune.

#### METHODOLOGY

The study was conducted in Dr.D.Y. Patil Hospital and Research Center, Pimpri, Pune from July to September 2017.

This was a cross sectional study, a total of 100 adult patients of dengue fever were included in this study.

Adult male and female patients having clinical manifestations of dengue fever as mentioned in the clinical case definitions of dengue with serological evidence in the form dengue IgM, or both IgM and IgG positive or NsIag positive by ELISA were included.

Dengue positive patients less than 12 years of age were excluded.

Patients who were IgG positive but IgM negative, that is those who did not have recent evidence of dengue infection were excluded from the study.

A written informed consent of each patient included in the study was taken.

The patients were assessed for their demographic features (age / sex) and clinical profile (signs & symptoms).

The patients with severe dengue infection were closely monitored.

The patients were subjected to usual laboratory test like HB, TLC, DLC, Platelet count, hematocrit, liver function tests, PT, serum proteins like albumin. The ECG, CXR, ultrasound were also studied.

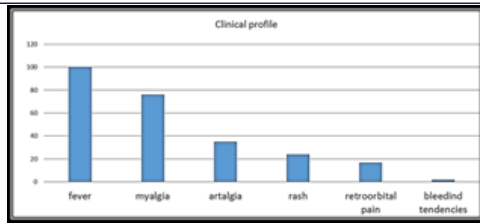
#### RESULTS

Of total 100 patients, 55 were male and 45 were female and the male to female ratio was found to be 1.2:1.

From the table it is clear that majority were in the age group of 21-40 years.

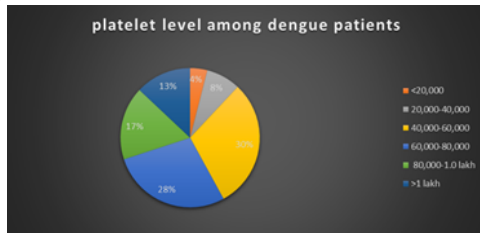
Age group	male	female	Total
11y-20y	8	9	17
21y-30y	15	14	29
31y-40y	18	12	30
41y-50y	12	10	22
>50y	2	0	2

It was seen that all had fever 100%, followed by myalgia 76%, arthralgia 35%, rash 24%, retroorbital pain 17%, bleeding tendencies 2%.

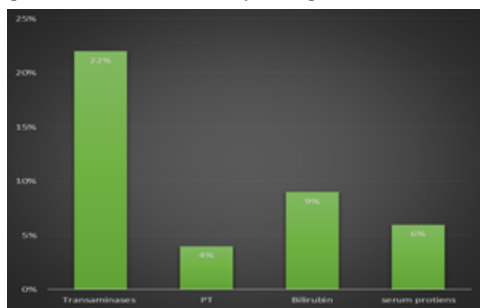


It was found that 30% had platelet count between 40,000 to 60,000 and 4% had severe thrombocytopenia with platelet count <20,000 Impact on liver function tests was studied by biochemical tests.

Abnormal levels of aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase was observed in 22% cases, elevation was mild to moderate in most cases.



Of these rise in AST was more than ALT & alkaline phosphatases. Prothrombin time was deranged in 4% patients. Bilirubin was raised in 9% of patients. Serum proteins were reduced mildly in 6% patients.



## DISCUSSION

During the last few decades dengue has reemerged in several parts of Southeast Asia, including India<sup>2</sup>.

The study of clinical symptoms revealed that most of the patients suffering from dengue had fever as the main symptom.

Other study conducted by SRIVENU ITHA, R. KASHYAP showed in recent years, several epidemics of DI have been reported from India. Forty-five patients (29 men, 16 women) with DI were included with median age of 33.

All the patients had fever as the presenting complaint; the median duration of fever was 6 (range 1–13) days.

Liver function tests revealed ALT and AST elevation in 43 patients (96%) each, hyperbilirubinaemia (>2 mg/dl) in 12 of 40 patients (30%) and hypoalbuminaemia (<3.5 g/dl) in 31 of 41 patients (76%).

Another study by Chhina, Rajoo Singh, Goyal, Omesh<sup>7</sup> showed hepatic dysfunction was very common in all forms of dengue infection, with AST rising significantly more than ALT. Serum bilirubin, ALT and ALP were significantly higher in patients with DSS, haemorrhage, sequential infection and non-survivors.

## CONCLUSION

Most common symptom was fever followed by myalgia, arthralgia, rash, retro-orbital pain, bleeding tendencies.

There was slight male preponderance.

Most of them had classical dengue fever with only two percent showing dengue hemorrhagic fever.

Almost one fifth showed hepatic involvement in terms of elevated liver enzymes showing a significant impact of dengue infection on liver, thus showing a significant increasing trend of liver dysfunction in dengue fever in recent times. Few had deranged bilirubin levels, prothrombin time and serum proteins.

## REFERENCES

1. Neeraja M, Lakshmi V, Teja VD, Umabala P and Subbalakshmi MV. Serodiagnosis of dengue virus infection in patients presenting to a tertiary care hospital. *Indian J Med Microbiol* 2006; 24: 280-2.
2. Dash PK, Saxena P, Abhavankar A, Bhargava R and Jana AM. Emergence of dengue virus type 3 in Northern India. *Southeast Asian J Trop Med Public Health* 2005; 36: 370-77.
3. S Itha, R Kashyap, N Krishnani... - ...Profile of liver involvement in dengue virus infection the national medical journal of india vol. 18, NO. 3, 2005
4. R Karoli, J Fatima, Z Siddiqi, KI Kazmi... - clinical profile of dengue infection in a teaching hospital in north INDIA, *J Infect Dev Ctries* 2012; 6(7):551-554; 2011
5. Debarati Guha-Sapir Email author and Barbara Schimmer. Dengue fever: new paradigms for a changing epidemiology; *Emerging Themes in Epidemiology*, 2005; 2:1
6. Kuo CH, Tai DI, Chang-Chien CS, Lan CK, Chiou SS, Liaw YF. Liver biochemical tests and dengue fever. *The American journal of tropical medicine and hygiene*. 1992 Sep 1; 47(3):265-70.
7. Chhina RS, Goyal O, Chhina DK, Goyal P, Kumar R, Puri S. Liver function tests in patients with dengue viral infection. WHO Regional Office for South-East Asia. PM Ukey, SA Bondade, PV Paunipagar, RM Powar; Study of Seroprevalence of Dengue Fever in