ABSTRACT
LIVER ENZYMES AS AN EARLY PREDICTOR OF COMPLICATED DENGUE FEVER

INTRODUCTION

Dengue fever is an important arboviral infection in tropical and subtropical areas. Severe dengue fever has got a significant mortality rate.

DF has an unpredictable clinical course which leads to a policy of indiscriminate referral to higher centres from peripheral centres. It is not very easy to assess which patient will progress from a non-severe to severe case particularly in the early stages. Diagnosing dengue early is challenging because the initial symptoms of dengue infection are non-specific and serological tests which are the mainstay of current lab diagnosis can confirm dengue only late in the course of the illness. Also, it is important to start the correct early management to have a better outcome.

Analyses of DF patients have showed that in addition to characteristic features of DF like –Fever, headache, arthralgia, myalgia, retro-orbital pain, vomiting, skin rash, thrombocytopenia and hemorrhagic manifestations- there are other features like hepatic dysfunction including an elevation in serum aminotransferase levels, hepatomegaly, ascites, pleural effusion and leucopenia.
Many laboratory investigations help us in diagnosing, prognosticating and determining the outcome of the disease like CBC, LFT, NS1Ag, IgM Dengue, IgG Dengue etc.

There have been some studies conducted on the hepatic involvement in DF. Many studies found association between elevated liver enzymes and severity of dengue disease. But only a very few studies have been conducted in the paediatric population.

IgM Dengue test widely used for the confirmation of Dengue is reliable only during the second week of illness. Drop in platelets and rise in haematocrit which can be used to identify the onset of leaky phase, cannot be used as a prognostic marker. Hence there is a lacunae in diagnosing Severe Dengue fever early. Therefore this study was undertaken to address this issue and help clinicians to diagnose severe dengue fever early with liver enzyme levels and predict the prognosis of the disease according to the degree of elevation of liver enzymes.

AIM
To evaluate if elevated liver enzymes can be used as an early predictor of severe dengue fever.

OBJECTIVES

PRIMARY OBJECTIVE:

Clinico epidemiological profile and outcome of Dengue in a tertiary care hospital
SECONDARY OBJECTIVES:

1. To prove the hypothesis that elevated liver enzymes can be used as an early predictor of severe Dengue fever.

2. To determine correlation between levels of Liver enzymes with Dengue severity.

METHODOLOGY

STUDY DESIGN:

Prospective Cohort Study

STUDY PLACE:

The Department of Paediatrics, Government Coimbatore Medical College and Hospital.

STUDY PERIOD:

1 year from July 2016 to June 2017

STUDY POPULATION:

All patients from 1 month to 12 years admitted in pediatric department and satisfying the inclusion criteria.
INCLUSION CRITERIA

All patients from 1 month to 12 years admitted with fever and thrombocytopenia.

EXCLUSION CRITERIA

Chronic Liver Disease

SUMMARY

- Out of the 200 children included in the study, Most common age group in the study population was found to be 6 – 12 yrs and 96 were males and 104 were females.

- Abdominal pain and abdominal tenderness which are warning signs were found to be common presentation among the study group. Hence Dengue fever with warning signs constituted 68 % of the study population.

- 141 (70%) of the 200 children were IgM Dengue positive.

- 198 out of the 200 children survived. Being a tertiary care centre with high quality of care and protocol based management as per WHO 2009 guidelines the mortality rate was low, only 1 %. This correlates with the South East Asian studies which also showed a similar mortality rate of < 1%.
• Study population were divided into 6 groups based upon the degree of thrombocytopenia. 31 % had only mild thrombocytopenia of 80,000 to 1,50,000.

• A positive correlation was found between severity of thrombocytopenia and severity of disease, with a significant p value of <0.05.

• Significant association was found between the degree of elevation of SGOT and IgM Dengue positivity.

CONCLUSION

• Abdominal pain and abdominal tenderness are the common presentations in Dengue fever with warning sign and Severe Dengue and these symptoms should not be ignored in any febrile child. Elevated SGOT level were found in majority of study population and is found to have significant association with IgM Dengue positivity. Moreover severe elevation of SGOT level more than 5 times was associated with severe forms of dengue fever like Dengue Shock syndrome. Hence elevated SGOT levels during the first week of admission can be reliably used as an early predictor of Severe Dengue fever. Degree of elevation of SGOT levels can be used to predict the severity of dengue. Degree of elevation of SGPT was also found to have a significant linear correlation with the severity of dengue fever. Hence both elevated SGOT and SGPT level can be used as an early predictor of Severe Dengue fever. Both normal SGOT level and SGPT level has got a very high negative predictive value.
Moreover a linear correlation was found between degree of elevation of SGOT with the severity of illness. Normal SGOT levels were found to have high negative predictive value.

Hence elevation of SGOT liver enzyme can be used as an early predictor for severity of the disease.

Significant association was found between elevated SGPT levels and severe Dengue. A linear correlation was found between severity of SGPT elevation with severity of illness. Hence elevated SGPT levels can be used to predict severity of illness.

**Keywords**: SGOT, SGPT, SEVERE DENGUE, ELEVATION OF LIVER ENZYMES