



(RESEARCH ARTICLE)



A study on correlation of liver function tests and outcome in patients of dengue

Nitesh Mutyala ¹, Mohith Kumar Namagiri ², Venkat Nag Pratap Reddy Avula ³, Sai Kiran Kondabolu ⁴, Jayasomeswara Abhinav Maharaj Thota ⁵, Sai Preethi Athota ⁶, Yogitha Charishma Kottali ⁷ and Naga Sampreethi Mokka ⁸

¹ Department of Medicine, Andhra Medical College, Visakhapatnam, India.

² Department of Medicine, Government College of Medicine, Srikakulam, India.

³ Department of Medicine, Sri Ramachandra Institute of Higher Education and Research, Chennai, India.

⁴ Department of Medicine, Andhra Medical College, Visakhapatnam, India.

⁵ Department of Medicine, Andhra Medical College, Visakhapatnam, India.

⁶ Department of Radiology, Dr Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Vijayawada, India.

⁷ Department of Medicine, Andhra Medical College, Visakhapatnam, India.

⁸ Department of Medicine, Andhra Medical College, Visakhapatnam, India.

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Abstract

Dengue, a mosquito-borne viral disease, presents a significant public health threat, particularly in tropical and subtropical regions. This study aims to assess the correlation between elevated serum aminotransferases and dengue severity, focusing on patients at a tertiary care center. The liver is affected to varying degrees in dengue patients, from asymptomatic enzyme elevation to severe hepatitis. The study found that elevated SGOT levels correlate with more severe symptoms, including prolonged fever, abdominal pain, and bleeding manifestations.

Keywords: Dengue; LFTs; NS1Ag; Aminotransferases

1. Introduction

Dengue is an emerging global health concern affecting millions of people worldwide. The World Health Organization (WHO) estimates that two-fifths of the global population is at risk, with 50 million dengue fever cases annually. The liver, although not the primary target of the dengue virus, frequently shows signs of dysfunction. This study seeks to explore the relationship between clinical manifestations, liver function tests, and ultrasound findings in dengue patients.

Aims

To assess the correlation between elevated serum aminotransferases and dengue severity.

Objectives

- Estimate serum aminotransferase levels in dengue patients.
- Evaluate the correlation between elevated aminotransferases and disease severity.
- Correlate ultrasound findings with disease severity.

* Corresponding author: Nitesh Mutyala

2. Materials and Methods

- Study Design: Cross-sectional observational study.
- Sample Size: 50 patients diagnosed with dengue between November 2022 and August 2023.

2.1. Inclusion Criteria

- Age above 12 years.
- Positive dengue diagnosis confirmed by NS1Ag test.
- Informed consent provided.

2.2. Exclusion Criteria

- Alcoholic liver disease.
- Viral hepatitis.
- Coagulation disorders.
- Pregnancy.
- Malaria.

After consent, 5 ml of venous blood was drawn from each patient for analysis, including hemogram, liver function tests (LFT), and abdominal ultrasound.

3. Results

3.1. Age Distribution

- 11-20 years: 28%
- 21-30 years: 40%
- 31-40 years: 10%
- 41-50 years: 14%
- 51-60 years: 2%
- 61-70 years: 4%
- 71-80 years: 2%

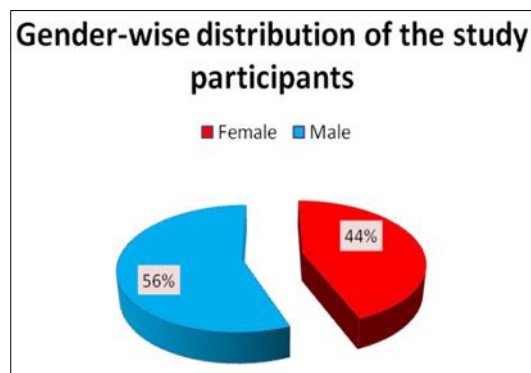


Figure 1 Gender- wise distribution of the study participants

3.2. Clinical Findings

- 49% of patients presented with abdominal pain.
- 39% had vomiting.
- 27% experienced melena.
- 25% had diarrhea.
- 5% experienced hematemesis.
- 6% developed jaundice.

Patients with elevated SGOT levels were more likely to experience vomiting, abdominal pain, prolonged fever, and bleeding complications, particularly melena.

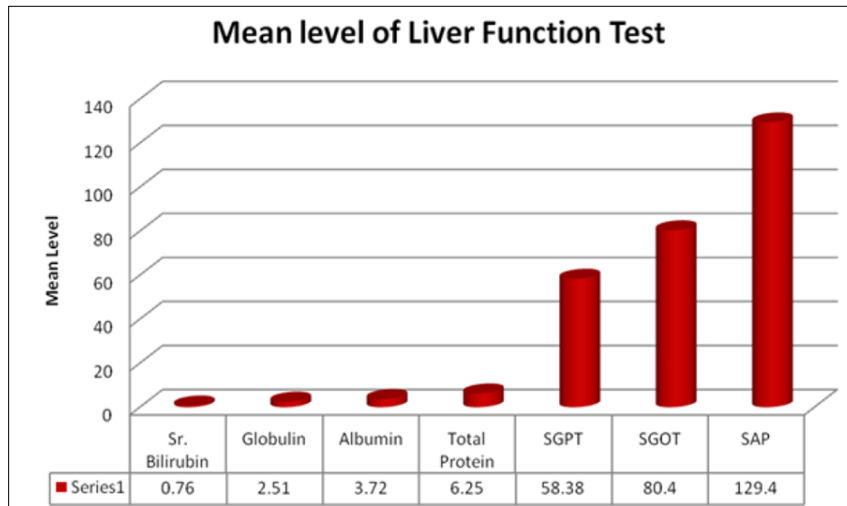


Figure 2 Mean level of liver function test

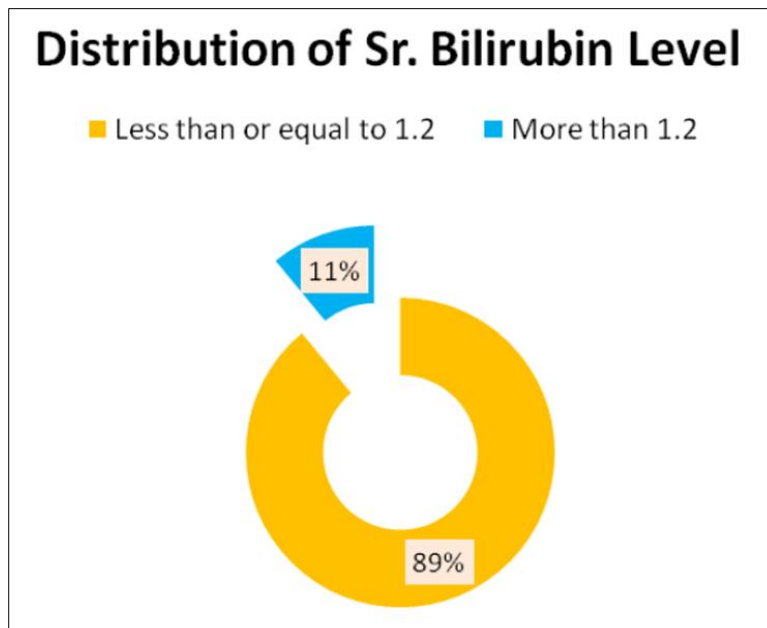


Figure 3 Distribution of Sr. Bilirubin level

3.3. Hematological and Biochemical Correlations

Patients with lower hemoglobin levels also had lower serum globulin.

High serum alkaline phosphatase was associated with bleeding tendencies such as melena, a statistically significant finding.

3.4. Ultrasound Findings

Common findings included gallbladder edema, hepatomegaly, and ascites, often undetected through clinical examination alone.

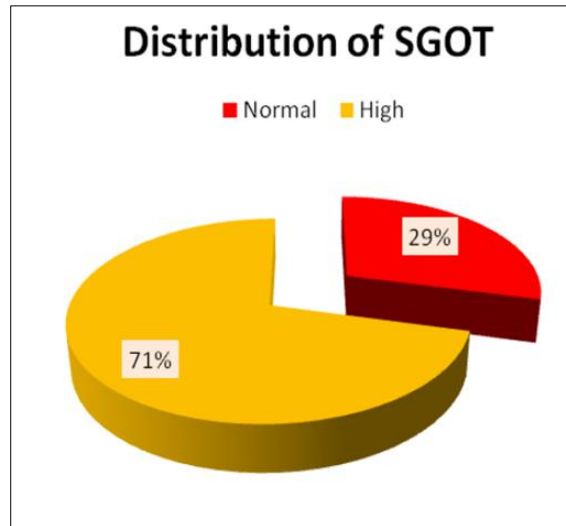


Figure 4 Distribution of SGOT

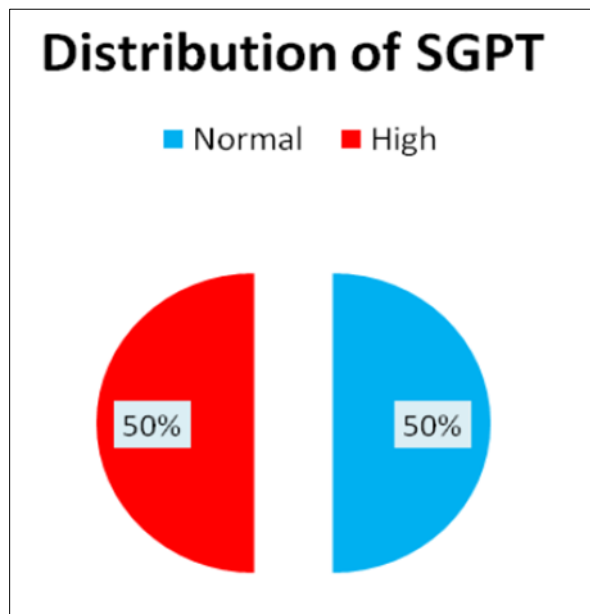


Figure 5 Distribution of SGPT

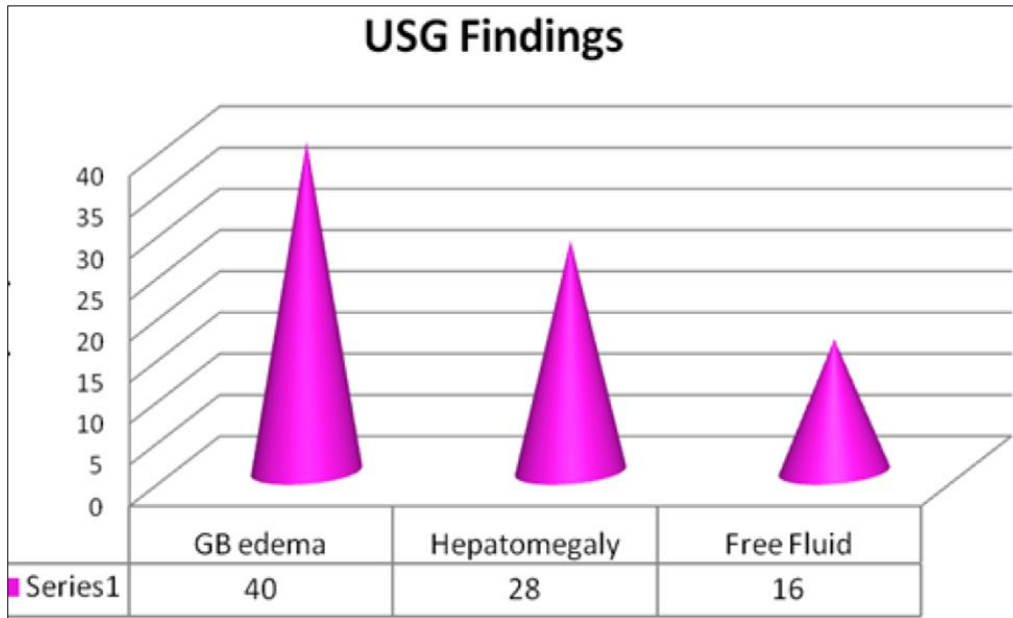


Figure 6 USG findings

Table 1 Blood test report

Blood Count	Minimum	Maximum	Mean	Std. Deviation
Haemoglobin	10.2	18.2	13.76	1.43
Total Counts	2300	12500	4220.00	1633.73
Platelets	6000	196000	59583.00	45251.37

4. Discussion

Severe dengue frequently involves multiple organs, including the liver, which can be affected through mechanisms such as direct viral toxicity, dysregulated immune responses, and circulatory failure. The study confirms that elevated SGOT correlates with more severe symptoms and disease outcomes. USG is a superior diagnostic tool for detecting hepatobiliary complications like gallbladder edema and ascites, enhancing clinical decision-making.

5. Conclusion

This study found that dengue impacts multiple body systems, with particular emphasis on the hepatobiliary system. Elevated serum transaminases, particularly SGOT, are markers of severe dengue. In dengue-endemic regions, febrile patients with elevated hepatic enzymes should be assessed for severe dengue. Ultrasound plays a vital role in diagnosing hepatomegaly and ascites, complementing clinical assessments.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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