

AN OBSERVATIONAL STUDY OF DENGUE INDUCED HEPATIC DYSFUNCTION IN A TERTIARY CARE HOSPITAL OF GKGH BHUJ

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ABSTRACT

INTRODUCTION: Dengue infection is a major health problem worldwide including our country. Globally the incidence of Dengue has grown dramatically in the recent years. Every year during the monsoon months and later, many parts of the country witness outbreak of dengue infection. 2020 was no exception and we experienced an outbreak of this vector borne disease in Bhuj. An analysis of these patients revealed that in addition to the classical features of fever, body ache, rash and thrombocytopenia and bleeding tendency, there were other features such as liver dysfunction including a preferential rise of SGOT, hepatomegaly, splenomegaly, ascites, gallbladder wall edema and pericholecystic fluid collection.

OBJECTIVE: To study clinical, biochemical and radiological changes in the liver of patients with Dengue fever.

METHOD:

observational and cross-sectional study was conducted on a 50 suspected cases of Dengue fever admitted and diagnosed at GKGH hospital Bhuj in October 2020. Detailed history, clinical examination, biochemical parameters, radiological investigation for liver function was done in all patients. All patients were treated as per NVBDCP guidelines.

RESULTS: all patients in our study had hepatic dysfunction in the form of elevated SGOT above normal limits.

CONCLUSIONS: Our study shows that there are certain features of Dengue that are not known to be usually associated with it. The presence of raised liver enzymes in all patients (SGOT > SGPT), ascites, hepatomegaly, splenomegaly, and gallbladder edema and pericholecystic fluid collection.

KEY WORDS: DENGUE, HEPATIC ENZYMES, SGPT, SGOT

INTRODUCTION

Dengue infection is a major health problem worldwide including our country. Globally the incidence of Dengue has grown dramatically in the recent years. Every year during the monsoon months and later, many parts of the country witness outbreak of dengue infection. 2020 was no exception and we experienced an outbreak of this vector borne disease in Bhuj. An analysis of these patients revealed that in addition to the classical features of fever, body ache, rash and thrombocytopenia and bleeding tendency, there were other features such as liver dysfunction including a preferential rise of SGOT, hepatomegaly, splenomegaly, ascites, gallbladder wall edema and pericholecystic fluid collection.

AIMS AND OBJECTIVES

To study clinical, biochemical and radiological changes in the liver of patients with Dengue fever.

MATERIALS AND METHODS

This observational and cross-sectional study was conducted on a 50 suspected cases of Dengue fever admitted and diagnosed at gkgh hospital Bhuj in October 2020. Detailed history, clinical examination, biochemical parameters, radiological investigation for liver function was done in all patients. All patients were treated as per NVBDCP guidelines for clinical management of Dengue fever.¹

EXCLUSION CRITERIA

Viral hepatitis, drug induced hepatitis, alcoholic hepatitis and heart failure.

All necessary investigations to diagnose these conditions were carried out as an when needed.

Table 1: Clinical characteristics, lab and radiological parameters in the study subjects

S. No.	Parameter	Value
1	Average serum Bilirubin (mg/dl) (N = 0.2 – 1 mg/dl)	0.55 ± 0.42
2	Average SGPT (IU/L) (N = 0-42 IU/L)	82.67 ± 102.13
3	Average SGOT (IU/L) (N = < 37 IU/L)	146.93 ± 197.32
4	Average Alkaline Phosphatase (U/L) (N = 54 -369 U/L)	75 ± 17.45
5	SGPT > 2 × ULN (N = 84 IU/L)	14 (28 %)
6	SGOT > 2 × ULN (N = 74 IU/L)	30 (60 %)

7	Ascites	26 (52 %)
8	Hepatomegaly (USG)	5 (10 %)
9	Splenomegaly (USG)	11 (22 %)
10	Gallbladder wall edema & pericholecystic fluid collection (USG)	46 (92%)

RESULTS

Of the 50 patients studied, 31 were males and 19 females. The age range of patients was 14-50 years and the mean age was 25 ± 9 years. Presenting complaints in our patients were fever (100%), body ache (90%) and vomiting (82%). The average serum bilirubin level was 0.55 ± 0.42 mg/dl. The average SGPT levels were 82.67 ± 102.13 IU/L while average SGOT levels were 146.93 ± 197.32 IU/L. The mean Alkaline Phosphatase levels were 75 ± 17.45 U/L. 100 % patients had elevated SGOT levels while 68 % had elevated SGPT levels with preferential rise of **SGOT (p Value = 0.00026) > SGPT (p Value = 0.01183)**. There were 28 % patients who had their SGPT level $> 2 \times$ ULN, while 60% patients had SGOT level $> 2 \times$ ULN. None of the patient presented with ascites however 52 % patients had presence of mild ascites on ultrasonography. Ascites in Dengue has been attributed to plasma leakage. None of the patient had palpable liver and spleen on presentation however 10 % patients had hepatomegaly and 22 % patients had splenomegaly on ultrasonography. 92 % patients had Gallbladder edema with pericholecystic fluid collection on ultrasonography. Such findings are also seen in cases of acute viral hepatitis but such cases were excluded from the study. The underlying mechanism is not known. The line of management and duration of hospital stay in all patients was same as with patients without hepatic dysfunction.

DISCUSSION

The results of the present study show certain unusual manifestations of Dengue. There was universal involvement of liver in our patients with preferential rise of SGOT > SGPT. Involvement of liver in Dengue has been described in textbooks as an elevation of transaminases². Higher SGOT levels in comparison to SGPT are known to occur in alcoholic liver disease but such cases were excluded from our study. In adults there are few studies that report elevated enzyme levels, ascites and hepatomegaly.³⁻⁶ Our findings are different from that of Srivenu Itha et al ⁷ who found no preferential elevations of enzymes.

The presence of vomiting in 82 % patients indicates hepatic dysfunction. The mechanism of liver involvement in Dengue infection is not clear and may involve a direct injury to liver cells or an immunologic response. Multiple studies had been carried out which showed preferential elevation of SGOT > SGPT in Dengue haemorrhagic fever and Dengue shock syndrome but such patients were not included in our study.

It is important to keep these features in mind particularly keeping in mind that diagnosis of Dengue may be difficult in some cases and ELISA for dengue may not be positive in first few days of infection.⁸

CONCLUSION

The present study shows that there are certain features of Dengue that are not known to be usually associated with it. The presence of raised liver enzymes in all patients (SGOT > SGPT), ascites, hepatomegaly, splenomegaly, and gallbladder edema and pericholecystic fluid collection.

Values in mean \pm standard deviation or n (%).

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