



A STUDY OF HEPATIC DYSFUNCTION AND HEMATOLOGICAL ABNORMALITIES IN DENGUE FEVER

General Medicine

Dr. P Dharmendra Postgraduate

Dr. Nagarajan N* Professor *Corresponding Author

ABSTRACT

Dengue is a major international health concern that is prevalent in tropical and sub tropical countries. There are certain clinical features that are associated with Dengue in addition to the classical features. An analysis of 60 patients suffering from dengue showed liver dysfunction was present in all patients. Vomiting was an important symptom. Hepatosplenomegaly and ascitis were also present in significant number of patients. Leucopenia has been reported in dengue and has been attributed to transient marrow suppression by the virus

KEYWORDS

INTRODUCTION:

Dengue infection is a major public health problem worldwide including our country in this century. Globally the incidence of dengue has grown dramatically in the recent years. The WHO estimates that presently about 50 million dengue infections per year occur across approximately 100 countries all over the world.¹ Every year during the monsoon months and later, many parts of the country witness outbreaks of dengue infection. In the last decade, dengue outbreaks and deaths due to dengue has been reported from all the states in India. The case fatality rate is above 1%. An analysis of these patients revealed that in addition to the classical features of fever, body ache, rash, thrombocytopenia and bleeding tendency, there were other features such as liver dysfunction including a preferential rise of SGOT, hepatosplenomegaly, ascitis, pleural effusion and leucopenia.

MATERIALS AND METHODS:

A total of 60 patients were studied. These were patients who were admitted to Medicine wards at PES Medical College from August to November 2019. Only those patients were included in the study who had classical features of dengue – fever with chills, body ache, headache, rash, bleeding manifestations and thrombocytopenia and had a positive ELISA test i.e. IgM antibodies against dengue virus. Patients who had malaria and enteric fever were excluded from the study. All patients were subjected to a detailed history and a thorough clinical examination. A complete blood count, liver function tests, renal function tests, chest X-ray and USG abdomen were also done.

RESULTS:

Of the 60 patients studied, 45 were males and 15 females. The age range of patients was 17-58 years and the mean age was 29 years. All patients had fever as presenting complaint. 87% patients had body ache while 76% had vomiting. 27% patients had bleeding tendency. The average platelet count of our patients was 33,000. The average serum bilirubin level was 0.88mg/dL. The average SGPT levels were 138units/L while average SGOT levels were 254units/L. The mean alkaline phosphatase levels were 85units/L. 100% patients had an elevated SGOT level while 91% patients had elevated SGPT level.

50% patients had hepatomegaly or hepatosplenomegaly. 31 patients had hepatomegaly on ultrasonography and 19 of them had liver enlargement clinically as well. 15 patients had splenomegaly on USG of which only 3 had spleen enlargement clinically.

36 patients had evidence of ascitis on ultrasonography. Only 3 patients out these 36 had clinically detectable ascitis. Ascitis in all patients was minimal to mild. 37% patients had evidence of pleural effusion on USG/X-ray. 20% patients had evidence of leucopenia.

DISCUSSION:

The results of the present study show certain unusual manifestations of dengue. There was a universal involvement of liver in all patients as evidenced by elevated levels of SGOT in all patients. Involvement of liver in dengue has been described in textbooks as an elevation of transaminases.² Liver involvement in dengue has also been reported in children.^{3,4} In adults there are few studies that report elevated enzyme levels, ascitis and hepatomegaly.^{5,9} Our study showed a higher SGOT

levels in comparison to SGPT. Our findings are different from that of Srivenu Itha et al¹⁰ who found no preferential elevation of enzymes.

The presence of vomiting in 80% patients from day one may indicate hepatic dysfunction early on.

50% of our patients had hepatomegaly with or without splenomegaly. Studies of liver involvement in children report a higher percentage of patients presenting with hepatomegaly, as high as 80-100%.³ There are few reports of spleen enlargement in dengue infection.¹¹ The mechanism of liver involvement in dengue infection is not clear and may involve a direct injury to liver cells or an immunological response. None of our patients had dengue shock syndrome and therefore shock as a cause of liver injury is ruled out.

Ascitis was present in nearly 60% patients. This is an unusual finding in dengue. Ascitis in our patients were mild and detected usually on ultrasonography. Ascitis in dengue has been attributed to plasma leakage. However there is one study which attributes portal hypertension in addition to plasma leakage for development of ascitis.¹⁰ In this study, patients with ascitis was mild and fluid was not aspirated, the serum ascitis albumin gradient could not be calculated.

20% of patients had leucopenia. Leucopenia has been reported in dengue¹² and has been attributed to transient marrow suppression by the virus.¹³

It is important to keep these features in mind particularly considering the fact that diagnosis of dengue may be difficult in some cases and ELISA for dengue may not be positive in first few days of infection.¹⁴ We need a prospective study to see for liver enzymes within 24-48 hours of onset of fever and also to see whether SGOT levels are higher than SGPT levels.

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, ascitis, hepatosplenomegaly, elevation of SGOT more than SGPT, leucopenia should be kept in mind when evaluating patients with suspected dengue.

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

S. No.	Parameter	Value
1	Av. Platelet Count (per mm ³)	33,000±24000
2	Av. Serum Bilirubin(mg%)	0.88±0.62
3	Av. SGPT(units/L)	138 ±216
4	Av. SGOT(units/L)	254 ±452
5	Av. Alkaline Phosphatase(units/L)	85 ±78
6	Ascitis	36(60%)
7	Hepatomegaly	31(50%)
8	Splenomegaly	15(25%)
9	Pleural effusion	22(37%)
10	leucopenia	12(20%)

Table 2 : Comparison of certain characteristics in dengue hemorrhagic fever and dengue fever

S. No.		DHF(n=19)	DF(n=41)
1	Av. Platelet (per mm ³)	26,000±21,000	39,000±23,000
2	Av. Serum Bilirubin (in mg%)	0.95±0.37	0.99±0.82
3	Av. SGPT (in units/L)	140±212	130±208
4	Av.SGOT (in units/L)	237±289	271±538
5	Av. Alk. Phosphatase (in units/L)	79.6±31	86±91
6	Hepatosplenomegaly	3/19(16%)	12/41(29%)
7	leucopenia	5/19(26%)	7/41(17%)

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