



CORRELATION STUDY BETWEEN SERUM AFP & ALT (SGPT) LEVEL IN ACUTE VIRAL HEPATITIS


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ABSTRACT

Serum AFP & ALT were measured serially in 80 patients with acute Viral hepatitis. AFP which is fetal protein, normally found in adults in a very low concentration. ALT level is measured to evaluate the extent of hepato cellular injury. Aims & Objective: to find the correlation between AFP and ALT in Viral hepatitis patients. To establish AFP as a routine investigation in patients with chronic hepatitis. The level of AFP increased moderately during the course of illness in almost all cases. Majority of cases showed moderate increase, but in 10 patients level of AFP were comparatively very high. In 20 patients, the AFP concentration increased as ALT level (used as an Index for hepatocyte damage) was returning to normal. In remaining patients, the AFP level paralleled that of ALT, suggesting an acute phase reaction to live injury.

Keywords:- Serum AFP & ALT.

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INTRODUCTION

Viral hepatitis is an important cause of morbidity and mortality worldwide, particularly in the tropics. It is caused by not fewer than 5 distinct viruses, each with unique molecular characteristics and replication cycle but sharing a common tropism for the liver and overlapping clinical pattern of disease. It is one of the major cause of Hepatocellular carcinoma (especially Hepatitis B or C Virus infection) where it is endemic. ALT (Alanine transaminase) a liver enzyme is commonly measured clinically as a part of Diagnostic evaluation of hepato cellular injury (Ref). ALT levels are significantly increased during acute viral hepatitis. In these patients it is used as an index to assess the live damage. AFP (Alpha fetoprotein) – An albumin like glycoprotein formed by yolk sac and immature liver cells during fetal life. AFP is a fetal protein, normally very low levels are found in adults.

In our study we have compared serum AFP and ALT levels in patients with viral hepatitis, trying to establish the significance of measurement of AFP as routine investigation in chronic hepatitis patients.

METHODOLOGY

The present study group consists of 80 patients and 20 control between the age group of 18 to 85 years. All were screened for HBs Ag, Anti HAV, and HCV. Positive subjects were taken as patients and negative subjects were taken as controls. There were 25 female and 55 male patients and in control group 5 female and 15 male were there.

STUDY DESIGN

Detailed baseline clinical data of each patients including age, sex, present and past clinical complaints, family history and associated complaints

were noted. Serum AFP and ALT levels were measured on day 1, 10 and 25, using venous blood sample. All the samples were processed on the same day of collection, using AU 400 Beckmann fully automated analyzer and Roche diagnostics elecsys 2010 immuno Assay system.

RESULTS

In 78 of the 80 patients the serum AFP concentration rose during the course of disease. In 7 patients maximum level attained was 200 ng/ml. The

highest level reached was 620 ng/ml. In most of the patients the serum AFP level fell between the range of 50 – 100 ng/ml. In 15 patients AFP level increased as ALT level returned to normal, in the remaining patients the level paralleled that of ALT. With the exception of 9 patients ALT level has come down to near normal level by the end of 25 day. AFP level more than 500 ng/ml which is usually diagnostic of malignancy is seen in one patients, who was referred for further investigation.

Table 1. Age Distribution of Patients

Gender	< 20 years	20 -30	31 -40	41 - 50	> 50
Female	3	5	4	4	9
Male	0	12	8	9	26

Table 2. Age Distribution of Control

Gender	< 20 years	20 -30	31 -40	41 - 50	> 50
Female	0	1	1	0	3
Male	0	2	3	6	4

Table 3. Variation between patients and Control Group with AFP Level

AFP				
Patient	Day	Numbers	Mean	P
	1	80	12.4	< 0.05
	10	80	46.57	< 0.05
	25	80	72.5	< 0.05
Control	1	20	1.3	

Table 4. Variation between patients and Control Group with ALT Level

ALT				
Patient	Day	Numbers	Mean	P
	1	80	163.39	< 0.05
	10	80	215.2	< 0.05
	25	80	52.3	< 0.05
Control	1	20	26.4	

DISCUSSION

Hepatitis is the inflammation of the liver, most commonly caused by viral infection. There are 5 main hepatitis viruses referred as A, B, C, D & E. These five types are of great concern because of burden of illness & death they cause & potential for out break & epidemic spread. In particular type B & C lead to chronic disease in hundred millions of people & together are the main common cause of liver cirrhosis & cancer. AFP , a fetal glycoprotein, normally present in very low concentration in adults(<10ng/ml)(Ref). It has no specific function in adults.

Serum concentration of AFP in the new born infant decreases rapidly to reach level typical for adults usually by the end of one year. In adults high levels of AFP (>500 ng/ml) are seen mainly in

hepatocellular carcinoma, germ cell tumors, metastatic cancer in liver (Ref). Moderate increase is seen in non malignant disease like viral hepatitis & cirrhosis, biliary tract obstruction or alcoholic liver(Ref). In about 60% liver cancer AFP levels are elevated ALT (Alanine transaminase or Serum glutamate pyruvate transaminase) along with AST (Aspartate transaminase) are most commonly used markers for hepatocyte injury(Ref). ALT levels often rise to very high level in patient with acute viral hepatitis(200 -2000 IU/L). It indicates the extent of liver damage. Significant rise of ALT also seen in other medical problems such as diabetes etc.

CONCLUSION

The serum AFP levels were found to be elevated & statistically significant in the patients

under the study. Serum ALT were found to be raised & has come back to near normal by the end of 25 days in most of the patients. In chronic hepatitis (one of the leading cause of Hepato Cellular Carcinoma) AFP can be used as routine investigation as it does not come back to near normal level.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

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