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Research Article

LIVER FAILURE DUE TO ACUTE VIRAL HEPATITIS (A-E)Dr Moazza Latif¹, Dr Maryam Amir², Dr Vallail Shahbaz³²Rawalpindi Medical College

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Abstract:

Introduction: Liver is a pivotal organ of the body and play very important role in the metabolism. If there is any problem in the liver then the herbs or different plants play an important role for the treatment of liver disorders.

Objectives: The main objective of the study is to analyse the liver failure due to acute viral hepatitis. **Material and methods:** This descriptive study was conducted in RMC during June 2018 to June 2019. The data was collected from both genders. The age range for this study was 18 to 50 years. Detailed history was taken from all patients with special reference to duration of hepatitis, mode of infection, previous history of jaundice, HBV or HCV infection. **Results:** The data was collected from 100 patients. The mean age was 35.16 ± 24.8 years. The data suggest clearly that CD4 count decreases in abnormal liver function. The results shown the table 02 demonstrates the multiple comparison of ALT, AST and ALP level among different treatments and normal group. There were non-significant relationship present in diseased group treated with different therapies like interferon and glutathione as $p < 0.05$. **Conclusion:** It is concluded that HEV infection goes to liver failure in acute hepatitis condition. Acute liver failure is an uncommon condition in which rapid deterioration of liver function results in coagulopathy.

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INTRODUCTION:

Liver is a pivotal organ of the body and play very important role in the metabolism. If there is any problem in the liver then the herbs or different plants play an important role for the treatment of liver disorders¹. There are a number of plants which shows hepatoprotective property. Hepatitis B and C viruses can lead to hepatocellular carcinoma and cirrhosis-related end-stage liver disease, which are potentially life-threatening liver diseases. Hepatitis B and C need immediate worldwide attention as the infection rates are too high. More than 240 million people globally have chronic (long-term) liver infections². Every year, about 600,000 people die because of the acute or chronic consequences of hepatitis B, and more than 350,000 people die from hepatitis C-related liver diseases worldwide².

Hepatitis is a major public health problem and is endemic throughout the world especially in tropical and developing countries. Hepatitis means inflammation of the liver. The liver is indispensable to our survival³. It has synthetic, storage and detoxification functions. An abnormal LFT may signify a serious disease that can be identified only through further testing. These conditions include liver diseases, such as primary biliary cirrhosis (PBC), diseases of other organs such as Paget's disease of bone, and multi-organ diseases such as haemochromatosis. However, the majority of people with an abnormal LFT in primary care settings will not have any such previously undetected disease⁴. They will have either no disease at all, or will be manifesting the effects of alcohol abuse or obesity. The doctor is likely to be aware, or at least suspicious, of these behaviours when ordering LFTs, but this does not exclude the presence of other diseases that may aggravate liver damage. There is thus a real question about which specific further tests, if any, a GP should order when an abnormal LFT result is obtained in a patient with non-specific symptoms, or as a result of routine testing⁵. In some cases there may be a clear indication for further tests. For example, if the patient has a family history of haemochromatosis then their iron saturation should be measured⁶. Acute liver failure (ALF) is a devastating clinical syndrome associated with high mortality in the absence of immediate state-of-the-art intensive care, specific treatment, or liver transplantation. It is partly accompanied by the onset of hepatic encephalopathy within 8 weeks of the first symptoms. The American

Association for the Study of Liver Disease (AASLD) position paper recommends that all patients with clinical or laboratory evidence of acute hepatitis should have immediate measurement of prothrombin time and careful evaluation for subtle alterations in mentation⁷.

Objectives

The main objective of the study is to analyse the liver failure due to acute viral hepatitis.

MATERIAL AND METHODS:

This descriptive study was conducted in RMC during June 2018 to June 2019. The data was collected from both genders. The age range for this study was 18 to 50 years. Detailed history was taken from all patients with special reference to duration of hepatitis, mode of infection, previous history of jaundice, HBV or HCV infection. A thorough clinical examination was carried out and stigmata of chronic liver disease, hepatosplenomegaly, ascites, etc. if present were noted.

Blood investigation including Hemoglobin (Hb), total leucocytes count (TLC), differential leucocytes count (DLC), platelet count, X-ray chest, ultrasound abdomen and LFT were done in all patients. The LFT included serum bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), serum alkaline phosphatase (SAP) and serum albumin. Abnormal values were defined as serum Bilirubin ≥ 1.5 mg/dl, ALT/AST ≥ 50 IU/ml.

Statistical analysis

Each experiment was repeated three times and all data were displayed in mean \pm SD and analysed through SPSS 19.0 (IBM, USA). T-test and one-way ANOVA were applied for measuring comparison among groups. $P < 0.05$ was considered to have statistical meaning.

RESULTS:

The data was collected from 100 patients. The mean age was 35.16 ± 24.8 years. The data suggest clearly that CD4 count decreases in abnormal liver function. The results shown the table 02 demonstrates the multiple comparison of ALT, AST and ALP level among different treatments and normal group. There were non-significant relationship present in diseased group treated with different therapies like interferon and glutathione as as $p < 0.05$.

Table 01: Associations of Clinical Parameters with Abnormal Liver Function Tests

Variable	Summary
Total	100
Hepatomegaly	
No	65 (61.3)
Yes	35 (38.7)
Splenomegaly	
No	89 (89.7)
Yes	10 (10.3)
Diagnosis	
Acute liver disease	10 (7.2)
chronic liver disease	59 (42.8)
hepatic encephalopathy	9 (6.5)
Hepatocellular carcinoma	2 (3.2)
Liver cirrhosis	6 (11.6)
Others	12 (8.7)
Upper Gastrointestinal Bleeding	
No	84 (86.5)
Yes	16 (13.5)
Respiratory rate	
mean(SD)	28.1 (12.1)
Heart rate	
mean(SD)	100.4 (22.8)
Clinical outcome	
Died	5 (3.2)
Discharged	95 (96.8)

Table 02: LFTs of acute hepatitis patients in HAV

S.O.V	Sum of Squares	df	Mean Squares	F	Sig.
ALP	15292.855	4	3823.214	18.288	.000
AST	4181.198	20	209.060	23.794	
ALT	19474.054	24		35.391	.000

Table 03: Biochemical analysis of patients in HEV

	Mean ± SD
AST (U/L)	12 - 66 (35.2 ± 11.1)
ALT (U/L)	9 - 113 (37.6 ± 21)
GGT (U/L)	6 - 29 (11.7 ± 3.8)
ALP (U/L)	71 - 491 (259.27 ± 81.06)
Total bilirubin (mg/dL)	0.2 - 1.3 (0.22 ± 0.1)
Direct bilirubin (mg/dL)	0.1 - 0.5 (0.22 ± 0.1)
AFP (IU/mL)	0 - 5.4 (1.5 ± 1.14)
IGF-1 SDS (ng/mL)	-2.27 - 6.81 (0.5 ± 1.94)
IGFBP-3 SDS (ng/mL)	-3.83 - 2.59 (0.16 ± 1.40)

DISCUSSION:

This study demonstrated that host and environmental factors affect the severity of liver disease in patients

with acute hepatitis A. Acute hepatitis A is mostly self-limited, thus in the past, fulminant hepatitis due to hepatitis A was considered rare. However, fulminant

hepatitis from HAV is increasing constantly because of low anti-HAV positivity resulting in increased number of the patients in adolescents and young adults⁷. On the other hand, prevalence of fulminant hepatitis from hepatitis B is decreasing; therefore fulminant hepatitis from hepatitis A is increasing relatively⁸.

Damage to the structural integrity of liver is reflected by an increase in the level of serum transaminase because these are cytoplasmic in location and are released into circulation after cellular damage⁹. It is generally accepted that the toxicity of carbon tetrachloride depends on the cleavage of the carbon-chlorine bond to generate a trichloromethyl free radical, and this free radical reacts rapidly with oxygen to form a trichloro methyl peroxy radical, which may contribute to the hepatotoxicity and subsequent increase in hepatic enzymes¹⁰.

CONCLUSION:

It is concluded that HEV infection goes to liver failure in acute hepatitis condition. Acute liver failure is an uncommon condition in which rapid deterioration of liver function results in coagulopathy. Acute liver failure often affects young people and carries a very high mortality.

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