

Spectrum of Precipitating Factors of Hepatic Encephalopathy in Patients with Liver Cirrhosis in Tertiary Care Hospital in North India

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Abstract: Cirrhosis of liver is a common chronic clinical entity. Hepatic encephalopathy is one of its frequent complication. Often there is an underlying precipitating factor which leads on to encephalopathy. Identifying and managing these factors will improve the quality of life of such patients. **Aim:** To study patients admitted with hepatic encephalopathy secondary to cirrhosis of liver and to evaluate for the known precipitants. **Material and methods:** Over a period of one and half year various factors precipitating hepatic encephalopathy in 50 patients with liver cirrhosis were evaluated. Patients were verified for fulfilling inclusion criteria and ruled out for presence of exclusion criteria. Grading of hepatic encephalopathy was done by West Haven Classification and prognostic stratification through Child Pugh score. **Results:** Gastrointestinal bleed as a precipitant of hepatic encephalopathy was noted among 60% of patients. Other precipitants include constipation, binge alcohol intake, electrolyte imbalance, infections, overzealous diuretic use, massive paracentesis and use of sedative/psychotropic/hepatotoxic drugs. Most common cause of cirrhosis in this study was alcoholism (66%). 48% of subjects were grouped in Child Pugh Class C. **Conclusion:** The result of this study indicates that patients with increased precipitants of hepatic encephalopathy and those who have higher Child Pugh score tend to have worse prognosis. Thus early identification of such precipitating factors and treatment can result in better outcomes. Alcohol emerged as a common cause of cirrhosis of liver and an important precipitating factor for hepatic encephalopathy.

Keywords: hepatic encephalopathy, precipitating factors, liver cirrhosis

1. Introduction

Cirrhosis, a final pathway for a wide variety of chronic liver diseases, is a pathologic entity defined as diffuse hepatic fibrosis with the replacement of the normal liver architecture by nodules. The rate of progression of chronic liver disease to cirrhosis may be quite variable, from weeks in patients with complete biliary obstruction to decades in patients with chronic hepatitis C[1]. Hepatic encephalopathy is one of the most disabling complications of liver cirrhosis and the presence and prompt identification of well defined precipitating factors is extremely important in diagnosis and treatment of this fatal condition[2].

Cirrhosis may be classified broadly as compensated or decompensated. The development of complications of variceal hemorrhage, ascites, encephalopathy, jaundice, or hepatocellular carcinoma characterizes decompensated cirrhosis. In compensated cirrhosis, these complications are absent. Cirrhosis often is a silent disease with most patients remaining asymptomatic until decompensation occurs.

In India, the etiology of cirrhosis of liver is varied - 50% of cases include Hepatitis B, 35% are alcoholic, 5-10% are HCV[3,4]. Prevalence of hepatitis B varies from country to country. It is estimated that there are about 350 million carriers in the world. Many of them lead to cirrhosis of liver or hepatocellular carcinoma. The prevalence of hepatitis B infection in India is 4.7%[5].

In patients with liver cirrhosis most deaths occur as a result of hepatic decompensation; however, in the compensated stages the most common cause of death is cardiovascular disease, followed by stroke, malignancy, and renal disease[6]. Complications of portal hypertension,

hepatocellular carcinoma (HCC), and sepsis are the usual causes of mortality in patients with decompensated cirrhosis[7].

The impact of alcoholic cirrhosis, leading on to hepatic encephalopathy, on the physical, mental and social aspect of a person and his family on a broad spectrum entitles for elimination of any precipitating factors for the same. In this study we analyzed various factors precipitating hepatic encephalopathy in cirrhosis of liver, hence identifying them and initiating the appropriate treatment can result in better prognosis.

2. Aims and Objectives

To evaluate various factors precipitating hepatic encephalopathy among patients with liver cirrhosis.

3. Material and Methods

Study Design:

The study was conducted among 50 patients admitted from December 2014 to July 2016 in Emergency department (ED), Inpatient department (IPD) and Intensive cardiac care unit (ICCU) with a diagnosis of hepatic encephalopathy due to cirrhosis of liver.

Inclusion Criteria:

- 1) Patients in the age group of 18 years or more.
- 2) Patients with diagnosed Cirrhosis of liver (ultrasound showing shrunken liver with surface irregularity ± Ascites with portal hypertension)
- 3) Patients manifesting symptoms and signs of Hepatic encephalopathy secondary to cirrhosis either at presentation or during the hospital stay were included.

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Exclusion criteria

- 1) Patients with age less than 18 years.
- 2) Patients in hepatic encephalopathy without evidence of cirrhosis of liver were excluded.
- 3) Patients with acute fulminant hepatitis or who had non cirrhotic portal hypertension.
- 4) Patients with hepatic encephalopathy due to other causes like intracranial lesions such as subdural hematoma, intracranial bleeding, stroke, tumours, brain abscess; post seizure encephalopathy; infections such as meningitis, encephalitis were excluded.

Patients verified for fulfilling inclusion criteria and ruled out for presence of exclusion criteria. A detailed history and examination of the patient was carried out. All patients were subjected to routine blood investigations, ultrasound whole abdomen, upper gastrointestinal endoscopy and diagnostic ascitic tapping (if ascites).

Tools:

- West Haven Classification for grading of hepatic encephalopathy
- Child- Pugh scoring to assess the severity and prognosis in cirrhosis of liver.

4. Observation and Results

In this study 50 subjects of cirrhosis of liver who presented with hepatic encephalopathy were studied for precipitating factors of hepatic encephalopathy. Majority of patients in our study were from rural areas and belonged to poor socioeconomic group. Males predominated in this study as 42 (84%) were males and remaining 8 (16%) were females. The commonest cause of cirrhosis in this study was alcoholism 33 (66%), followed by hepatitis B infection (16%) and hepatitis C infection (8%). Grading of encephalopathy was done by West Haven classification: Grade I (24%), Grade II (38%), Grade III (22%), Grade IV (16%). The subjects were grouped using Child Pugh Classification. 12% of subjects were included in class A, 40% in class B and 48% in class C. Among various precipitating factors of hepatic encephalopathy in our study gastrointestinal bleed (haematmesis and malena) as a major precipitant was noted in 30 (60%) of the patients. Constipation 26 (52%) claimed the second spot. Binge alcohol drinking 21 (42%), electrolyte imbalance (hypokalemia and hyponatremia) 15 (30%), infections including spontaneous bacterial peritonitis and urinary tract infections 10 (20%) and overzealous diuretic use 6 (12%) were the other major contributors. Other precipitants include massive paracentesis 5(10%) and use of sedative/psychotropic/hepatotoxic drugs 3 (6%). (figure 1)

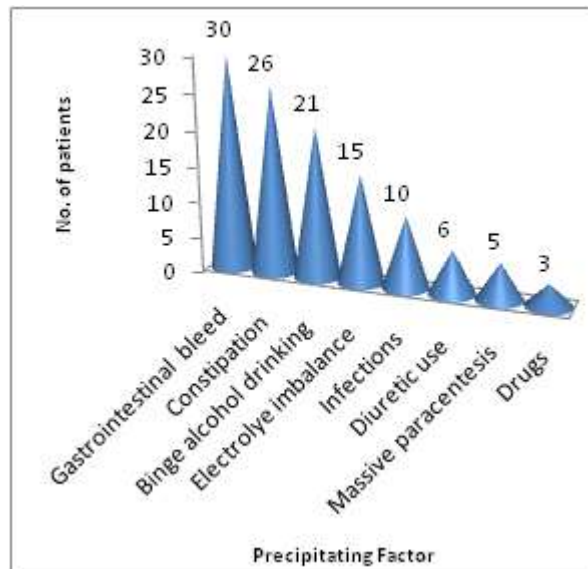


Figure 1: Bar diagram showing precipitating factors of hepatic encephalopathy.

In this study 23 subjects had one whereas 17 subjects had two and 10 subjects had more than two precipitating factors. Present study of 50 patients in hepatic encephalopathy 36 patients improved from encephalopathy and were discharge, 8 patients left against medical advice and 6 patients expired during course of treatment in hospital. Most of the patients who improved from encephalopathy had low grade of encephalopathy (usually Grade I and Grade II) upon admission as graded by West Haven classification and had lesser number of precipitating factors. Present study identified that 12 % of patients who expired had two or more precipitating factors. Gastrointestinal bleed as a precipitant of hepatic encephalopathy was noted in all 12% of patients who expired. Among patients with hepatic encephalopathy who succumbed to death, alcoholism as a cause of liver cirrhosis was present in 83.33 % of patients, whereas viral hepatitis in 16.66% patients. History of binge alcohol drinking was present in all 83.33% of patients who expired due to alcoholic liver disease. The number of patients who expired according to Child Pugh score were 4 (16.6%) from Class C and 2 (10%) from class B. No mortality was noted among the patients in Class A. According to West Haven classification, 18.2% patients in Grade III and 50% patients in Grade IV hepatic encephalopathy expired. There was no mortality in patients admitted in Grade I and Grade II hepatic encephalopathy. (figure 2 and 3)

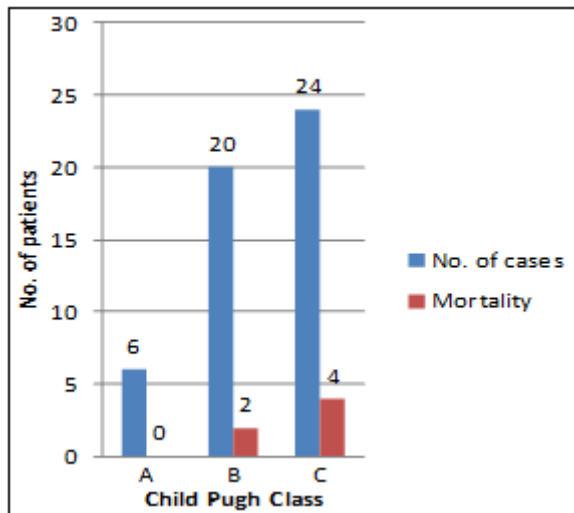


Figure 2: Bar diagram showing Child Pugh score and associated mortality.

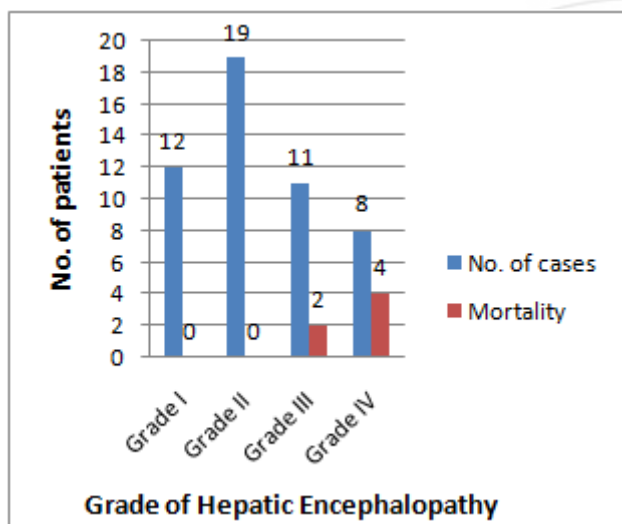


Figure 3: Bar diagram showing different grades of hepatic encephalopathy and associated mortality

5. Discussion

Patients with chronic liver disease (CLD) constitute a significant burden on the economy of the country. Patients with CLD frequently experience episodes of exacerbations including hepatic encephalopathy precipitated by variety of established precipitants. In majority of patients with hepatic encephalopathy a clearly defined precipitating factor is usually identified and the reversal or control of these factors remains the corner stone in the management. Majority of patients in our study were from rural areas and belonged to poor socioeconomic group. The negative aspect for rural population is that the patients reached tertiary care hospital in late phase.

Majority (70%) of the patients were in the age group of 31-50 years. Most common cause of cirrhosis in the present study was alcoholic liver disease (66%) leading on to cirrhosis. Contemporary literature reported alcoholic liver disease as most common cause[8,9]. In present study gastrointestinal bleed as a major precipitant of hepatic encephalopathy was noted in 60% of the patients, followed by other precipitants like constipation, binge alcohol intake

and electrolyte imbalance. Various authors similarly noted high frequency of these precipitating factors[10,11,12,13]. Present study identified 12 % of patients who expired had two or more precipitating factors. Similarly patients with two or more precipitants who expired were mostly suffering from grade III or grade IV hepatic encephalopathy on initial presentation and had Child Pugh class B and C. In a similar study higher mortality rates were noted in patients suffering with grade III and grade IV of hepatic encephalopathy and more precipitating factors[14]. This indicates that patients with increased number of precipitants tend to have a worse outcome in terms of both duration of hospital stay and mortality. Moreover the improvement in hepatic encephalopathy was better in patients with less number of precipitants and early grades of hepatic encephalopathy.

6. Conclusion

From this study it was concluded that hepatic encephalopathy is most fatal complication of cirrhosis. Gastrointestinal bleed, constipation, binge alcohol drinking, electrolyte imbalance and infections were the most common precipitating factors.

There is a definite need to educate the patients and their families about these precipitants to ensure earlier presentation, diagnosis, and management of hepatic encephalopathy. Prompt control of infections, routine upper GI endoscopy and follow up, correction of electrolyte imbalance, prevention of constipation by laxatives, judicious use of diuretics, abstinence from alcohol and dietary advice must be explained to a patient with liver cirrhosis.

It is therefore crucial that precipitating factors are identified earlier especially in patients with severe liver disease, and appropriate treatment initiated soon, with an aim to treat and manage them, and subsequently ensuring better outcome.

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