



Precipitating Factors and Prognosis in Patients Presenting with Hepatic Encephalopathy In Diagnosed Cases of Cirrhosis of Liver Presenting to Gandhi Hospital

KEYWORDS

hepatic encephalopathy, Child-Pugh classification, cirrhosis.

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ABSTRACT OBJECTIVE: To identify the common precipitating factors of hepatic encephalopathy and assessing the prognosis in them.

METHODS: This was a hospital based descriptive and prospective study done over 100 patients.

RESULTS: Out of 100 patients 96% were males, 92% were more than 40 years of age. Most common clinical presentation was ascites (70%). Most common precipitating factor was GI bleed (62%). Other important precipitating factors are constipation (40%), diarrhea (34%), hyponatremia (26%), infection (20%) and azotemia (20%). 18% patients had one precipitating factor for hepatic encephalopathy, 42% patients had two precipitating factors and 34% patients had more than two precipitating factors. 64% of patients were classified in class C of Child- Pugh classification. 36% of patients were in grade 2 and 32% of patient were in grade 3 of hepatic encephalopathy.

CONCLUSION: The common precipitating factors for hepatic encephalopathy are upper GI bleed, constipation, electrolyte imbalance, diarrhea and infections.

INTRODUCTION :

The syndrome of hepatic encephalopathy (HE) as defined by the European Association for the Study of the Liver (EASL), is a brain dysfunction caused by liver insufficiency and/or portosystemic shunting; it manifests as a wide spectrum of neurological or psychiatric abnormalities ranging from subclinical alterations to coma¹. Recent studies^{2,3,4} have shown an increase in the prevalence of cirrhosis and its complications. Appearance of HE in any patient is indicative of poor prognosis⁵. HE can occur either due to acute liver failure or due to one or more precipitating factors in a cirrhotic patient, or it could happen as a result of prolonged portal systemic shunting resulting in a chronic portal systemic encephalopathy⁶. Prognosis in HE can be improved if the precipitating factors are recognized early and managed accordingly⁷. Common precipitating factors include gastrointestinal bleeding, infection, azotemia, constipation, electrolyte imbalance⁸ and high protein diet. Usage of drugs such as sedatives⁹, tranquilizers, analgesics and diuretics, fulminant hepatic injury, large volume paracentesis have all been considered to precipitate encephalopathy in an otherwise stable cirrhotic patient.

AIMS AND OBJECTIVES: To identify the common precipitating factors of hepatic encephalopathy and to stratify these patients according to Child-Turcotte-Pugh's classification.

PATIENTS AND METHODS:

Study design: It is a hospital based descriptive and prospective study done in Department of General Medicine, Gandhi Hospital, Secunderabad over a period of one year from March 2014 to March 2015.

Sample size: 100 patients.

Inclusion criteria: patients with cirrhosis of liver of any etiology who developed Hepatic Encephalopathy.

Exclusion criteria:

Patients with psychiatric disorders or on treatment for psychiatric disorders

Acute alcoholic intoxication and alcoholic withdrawal state

Those with altered sensorium due to other causes like head injury, Cerebro vascular accidents.

Procedure:

For data collection, a questionnaire was developed. A detailed clinical history of the patient was taken regarding the present and past illnesses.

Questions were asked about gastrointestinal bleeding, including hematemesis and malena, constipation, vomiting, diarrhea, oliguria, fever, bleeding manifestations, high protein diet, paracentesis and any trauma or surgery. Personal history about alcohol consumption was noted along with smoking and I.V drug abuse. Use of any sedatives, diuretics, tranquilizers, analgesics and cough syrups was also enquired in detail. All patients were carefully examined with special attention to jaundice, anemia, fever, asterixis, hydration, pedal edema, and ascites. Detailed per abdominal and neurological examination was done on all patients.

Encephalopathy was graded according to West Haven criteria.

Complete blood picture, liver function tests, renal function tests, random blood sugar, serum electrolytes, serum ammonia, serum albumin and coagulation profile was done for each patient. An abdominal ultrasound was done to

look for size of liver and spleen, parenchymal echogenicity, portal vein diameter, and ascites. In case of ascites, an ascitic tap was also done to look for spontaneous bacterial peritonitis. Any evidence for the presence of other co-existent complications of cirrhosis of liver was also recorded and Child's score was assessed for each patient.

All patients were followed for the duration of their stay in hospital and whether they survived or died at the end of the stay was also recorded.

OBSERVATIONS & RESULTS

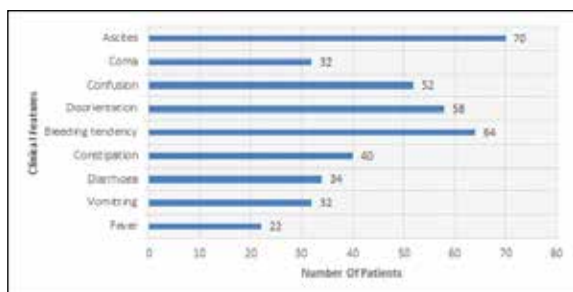
A total of 100 admitted patients, including 96 (96%) males and 04 (4%) females, presenting or complicating into hepatic encephalopathy were studied. Majority of them i.e., 92 (92%) patients were older than 40 years.

Most common presenting clinical feature in the patients was ascites. Other common presenting features are given in Table 1.

Table 1 - Common presenting features in patients with HE

Clinical features	No. of patients
Fever	22
Vomiting	32
Diarrhoea	34
Constipation	40
Bleeding tendency	64
Disorientation	58
Confusion	52
Coma	32
Ascites	70

Figure 1 - Common presenting features in patients with HE



When cirrhotic patients with HE were grouped into Child-Pugh classification, 64% of the patients were found to be in Class C, 28% of patients in Class B, 8% of patient in class A, as shown in Table 2

Table 2 - Patients in different class of encephalopathy

Child-Pugh class	No. of patients	Percentage (%)	No of patients according to age group			
			< 40 years		> 40 years	
			M	F	M	F
Class A	8	8%	4	0	0	4
Class B	28	28%	0	0	28	0
Class C	64	64%	0	0	64	0

Figure 2 - Patients in different Child-Pugh class

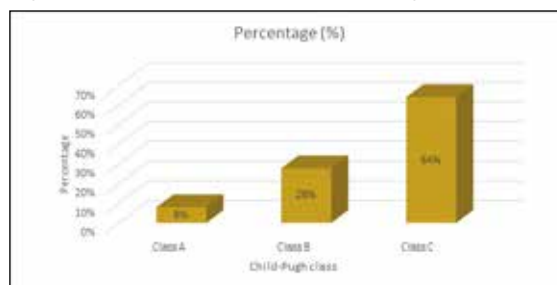
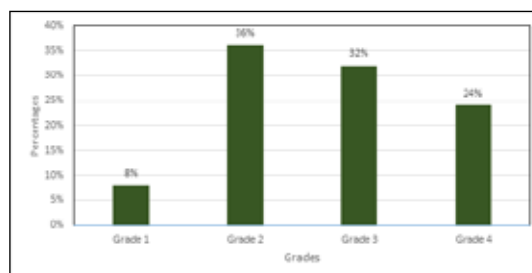


Table 3 - Patients in different grades of encephalopathy

Grade	No. of patients	Percentage (%)	No of patients according to age group			
			< 40 years		> 40 years	
			M	F	M	F
Grade 1	8	8%	2	0	2	4
Grade 2	36	36%	1	0	35	0
Grade 3	32	32%	1	0	31	0
Grade 4	24	24%	4	0	20	0

Figure 3 - Patients in different grades of encephalopathy

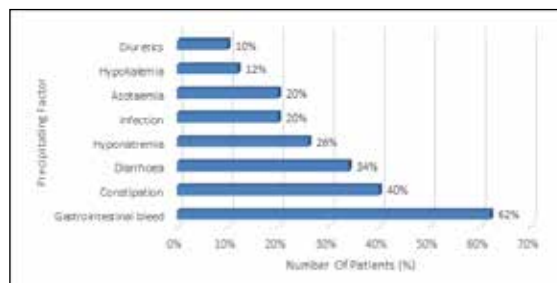


The precipitating factors of hepatic encephalopathy most commonly found in these patients are given in Table 4.

Table 5- Precipitating factors in HE

Precipitating factor	No of patients (%)
Gastrointestinal bleed	62 (62%)
Constipation	40 (40%)
Diarrhoea	34 (34%)
Hyponatremia	26 (26%)
Infection	20 (20%)
Azotaemia	20 (20%)
Hypokalemia	12 (12%)
Diuretics	10 (10%)

Figure 4 - Precipitating factors in HE



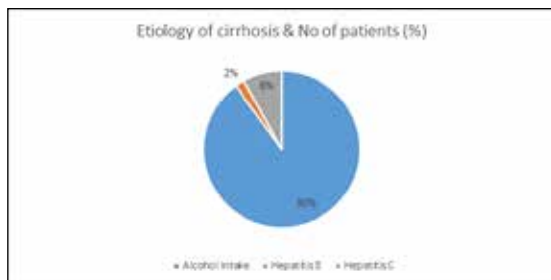
Out of a total of 100 patients of HE, 18 (18%) patients had one factor, 42 (42%) had two factors, while 34 (34%) patients had more than two precipitating factors.

HBsAg was found positive in 2 (2%), HCV antibodies were found positive in 8 (8%) patients, 90 (90%) patients were chronic alcoholics taking more than 80 mg of alcohol per day for more than twenty years.

Table 5 - Etiology of cirrhosis

Etiology of cirrhosis	No of patients (%)
Alcohol Intake	90 (90%)
Hepatitis B	2 (2%)
Hepatitis C	8 (8%)

Figure 5 - Etiology of cirrhosis



Out of all the 100 patients 48 (48%) expired, all of them were males. 6 patients were in grade 2, 24 patients were in grade 3 and 18 patients were in grade 4 of HE. Out of 48 patients who expired 44 patients were found to be in Class C and 4 patients were in class B of Child-Pugh classification.

Table 6 - Prognosis in patients with hepatic encephalopathy

Patient prognosis	No. of patients (%)
Expired	48 (48%)
Revived	52 (52%)

Figure 6 - Prognosis of patients with hepatic encephalopathy

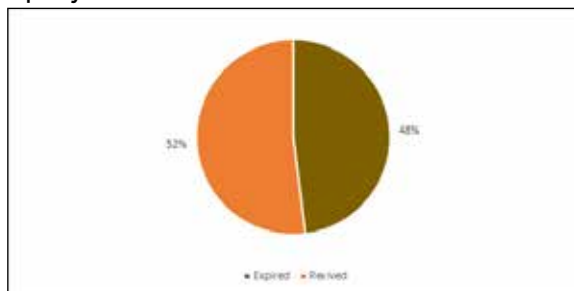


Table 7 - Mortality according to precipitating factors

Precipitating factors	No. of patients	Mortality	Percentage
G I Bleeding	62	46	74.2%
Hyponatremia	26	6	23.1%
Azotaemia	20	8	40%
Infection	20	10	50%
Hypokalemia	12	2	16.7%
Constipation	40	14	35%
Diarrhea	34	24	70.6%
Diuretics	10	4	40%

Figure 7 - Mortality according to precipitating factors

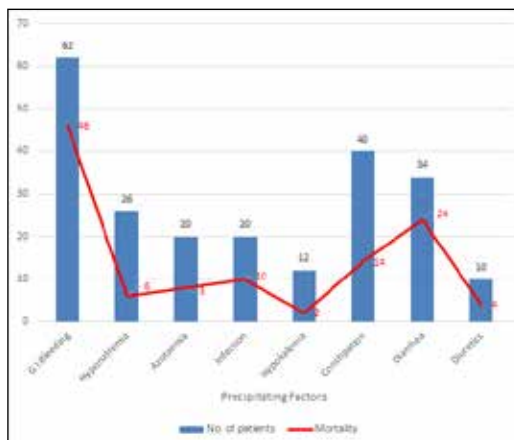


Table 8 - Child-Pugh score and mortality

Child-Pugh Score	No. of cases	Mortality	Percentage (%)
A	8	0	0
B	28	4	14.3
C	64	44	68.8

Figure 8 - Mortality according to Child-Pugh class

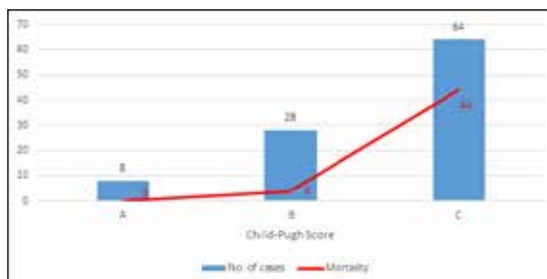
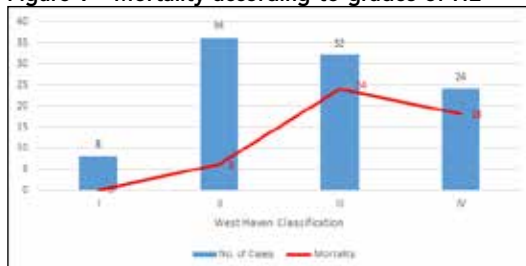


Table 9 - Mortality according to grades of HE

West Haven Classification	No. of Cases	Mortality	Percentage (%)
I	8	0	0
II	36	6	16.7
III	32	24	75
IV	24	18	75

Figure 9 - Mortality according to grades of HE



DISCUSSION

In majority of patients with Hepatic Encephalopathy, a clearly definable precipitating factor is identified and reversal or control of these factors is the key step in the management. Many times there may be more than one precipitating factor in the same patient.

In our study 92 (92%) patients were more than forty years old and 8 (8%) patients were less than forty years old. This

was similar to Durrani's¹⁰ study.

About 96 (96%) were males and 4 (4%) patients were females. All the females were more than forty years old. Al-Gindan¹¹ also reported the same pattern in a study in Saudi Arabia.

The most common cause of Cirrhosis of liver in this study was Alcohol intake. 90 (90%) patients were alcoholic compared to 10 (10%) patients who were not alcoholic. This is in conjunction with the Conn¹² Faloon¹³ and Silva MJ³ et al studies. This was in contrast to a study conducted in Southern China by Wang X⁴ et al which showed viral hepatitis as the most common cause of cirrhosis followed by alcohol.

Hepatitis C was a common cause of cirrhosis in our study when compared to Hepatitis B. A probable explanation could be that most of our patients were at end stage cirrhosis in which hepatitis C is the commonest cause. This was similar to Silva et al study³.

Gastrointestinal bleeding was the most common precipitating factor for HE in our study. The common precipitating factors in different studies are given in **table 10**

Table 10 – Precipitating factors for HE in different studies

Studies	Infection	GI bleed	Hyponatremia	Hypokalemia	Constipation	Diarrhoea
Fallon ¹³	33	-	-	18	6	-
Conn ¹²	18	4	-	9	3	12
Shaik ¹⁴	56	15	20	70	52	22
Hameed ¹⁵	56	28	28	68	52	-
Souheil ¹⁶	18	3	-	11	3	-
Aisha ¹⁷	76	52	-	-	36	-
Alam ¹⁸	22	24	24	18	32	-
Khurram ¹⁹	31	11	33	-	33	-
Present Study	20	62	26	12	40	34

26% of our patients had hyponatremia and 12% were hypokalemic. This was due to the fact that most of them were on diuretics and there was associated diarrhea or vomiting contributing to the electrolyte disturbances.

Out of 100 patients, 36 patients presented in grade 2 Hepatic encephalopathy according to West Haven grading, 32 patients presented in grade 3, 24 in grade 4, 8 patients in grade 1 hepatic encephalopathy.

Out of 100 patients 64 patients belonged to Child-Pugh class C, 28 patients belonged to Child – Pugh class B, 8 belonged to class A.

The mortality rate in our study was 48%, which was more than that reported by Sheila Sherlock²⁰.

All 48 patients who died were males. 24 patients were in grade 3, 18 patients were in grade 4 of HE in the present study.

CONCLUSIONS

In the present study 96% of patients were males and 4% of patients were females.

92% of the patients were more than 40 years of age.

Most common etiological factor for cirrhosis of liver was alcohol intake (90%).

Most common clinical presentation was ascites (70%).

Most common precipitating factor was GI bleed (62%).

Other important precipitating factors are constipation (40%), diarrhea(34%), hyponatremia (26%), infection (20%) and Azotemia (20%).

Less common precipitating factors were hypokalemia (12%) and diuretics (10%).

18% patients had one precipitating factor for hepatic encephalopathy.

42% patients had two precipitating factors for hepatic encephalopathy.

34% patients had more than two precipitating factors for hepatic encephalopathy.

Azotemia was also an important precipitating factor seen in 20% of patients.

64% of patients were classified in class C of Child- Pugh classification.

36% of patients were in grade 2 and 32% of patient were in grade 3 of hepatic encephalopathy grading.

Prompt control of infections, routine upper GI endoscopy and follow up, prevention of constipation by laxatives, judicious use of sedatives and diuretics and proper advice regarding diet must be an integral part of counseling protocol to cirrhotic patients.

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