



CLINICAL SPECTRUM OF PRECIPITATING FACTORS OF HEPATIC ENCEPHALOPATHY IN CIRRHOSIS OF LIVER IN A TERTIARY CARE HOSPITAL : A CROSS SECTIONAL STUDY

General Medicine

**Dr.Melangi
Gowthami**

Final year Postgraduate Department of General Medicine

**Dr. Leela Sree
Barabari***

M.D Assistant Professor Department of General Medicine Santhiram Medical College
And General Hospital.*Corresponding Author

ABSTRACT

BACKGROUND: Hepatic encephalopathy is an extra hepatic complication of impaired liver function and is manifested as neuropsychiatric signs and symptoms associated with acute or chronic liver disease in the absence of other neurological disorders. This study aims to ascertain the spectrum of precipitating factors of hepatic encephalopathy in patients with cirrhosis of the liver. **AIM:** To assess the clinical spectrum of precipitating factors of hepatic encephalopathy in patients with cirrhosis of liver. **MATERIALS AND METHODS:** This is a cross sectional study conducted in cirrhotic patients with Hepatic encephalopathy over a period of six months admitted in Santhiram hospital with a sample size of 50.

RESULTS:

- Out of 50 patients infection [44%],gastro intestinal bleeding [38%], constipation [30%], and electrolyte disturbance [28%] stood out as the most common precipitating factors.
- Usage of diuretics, sedatives and excess dietary protein were the other factors. Most patients were in grade 2 [30%] and grade 3[36%] of hepatic encephalopathy.
- Other common associations were Child Pugh Class C [56%], mortality[22%], and alcoholism[64%].

CONCLUSION: Infections, gastrointestinal bleeding, constipation, electrolyte disturbances, and diuretic therapy are major precipitating factors for hepatic encephalopathy in cirrhotic patients. Early recognition and prompt correction of these factors can significantly improve patient outcomes and reduce mortality.

KEYWORDS

INTRODUCTION:

Hepatic encephalopathy (HE) is a complex neuropsychiatric syndrome that occurs in patients with advanced liver dysfunction and portosystemic shunting. It represents a spectrum of potentially reversible neurological and psychiatric abnormalities ranging from subtle cognitive impairment to deep coma. HE is most commonly seen in individuals with Liver cirrhosis and is associated with significant morbidity, impaired quality of life, frequent hospitalizations, and increased mortality.The pathogenesis of hepatic encephalopathy is multifactorial, with Hyperammonemia playing a central role.

In cirrhosis, impaired hepatic detoxification and the presence of portosystemic shunts allow neurotoxic substances such as ammonia and inflammatory mediators to accumulate in the systemic circulation and disrupt neurotransmission, astrocyte function, and cerebral metabolism, leading to characteristic neurocognitive manifestations.Although hepatic encephalopathy may occur spontaneously, it is frequently triggered by identifiable precipitating factors. Recognition and correction of these factors are crucial in the management of affected patients, as many episodes are potentially preventable and reversible.Common precipitating factors include Gastrointestinal bleeding, Infections (particularly spontaneous bacterial peritonitis and urinary tract infections), Electrolyte imbalance such as hypokalemia or hyponatremia, excessive use of Diuretics, constipation, dehydration, high dietary protein intake, and sedative medications including Benzodiazepines. These factors increase ammonia production, impair its metabolism, or enhance the sensitivity of the brain to neurotoxins, thereby precipitating episodes of encephalopathy.The present study aims to evaluate the various precipitating factors to analyze their relative contribution in triggering episodes of encephalopathy to facilitate early intervention and help in reducing morbidity and mortality among cirrhotic patients.

AIMS

To assess the clinical spectrum of precipitating factors of hepatic encephalopathy in patients with cirrhosis of liver.

OBJECTIVES

To assess the clinical profile of patients with hepatic encephalopathy in cirrhosis.To assess the clinical spectrum of precipitating factors of hepatic encephalopathy in patients with cirrhosis of liver.

MATERIALS AND METHODS: Study was conducted over a period

of six months at our institute on 50 adult patients with cirrhosis of liver with hepatic encephalopathy admitted in the wards of general medicine in Santhiram medical College and general hospital,Nandyal

DURATION OF STUDY:

From November 2025 to April 2026

SAMPLE SIZE: 50

METHODS OF DATA COLLECTION:

This is a hospital based cross sectional study.

Patients with signs and symptoms of hepatic encephalopathy associated with cirrhosis of liver depending on past medical records, clinical signs of cirrhosis of liver and an ultrasound report who attended Santhiram medical college and general hospital, Nandyal, fulfilling the inclusion criteria, were taken for study after taking prior informed consent.

- Information is collected through a pre-structured proforma for each study subject
- Qualifying study subjects will be undergoing detailed history, clinical examination, and laboratory investigations.

SAMPLING TECHNIQUE: Simple Random Sampling

INCLUSION CRITERIA:

1.Patients with age more than 18 years irrespective of sex 2 . Patients with clinical symptoms and signs of hepatic encephalopathy associated with cirrhosis of liver. 3 .Patients who are willing to participate and willing to give informed and written consent.

EXCLUSION CRITERIA:

1. Patients with acute liver failure or non-cirrhotic portal hypertension.
2. Patients with hepatic encephalopathy not related to liver cirrhosis.
3. Patients with intracranial pathologies such as stroke, intracranial hemorrhage, brain tumor, or meningitis causing altered sensorium.
4. Patients with metabolic encephalopathy due to causes such as severe hypoglycemia, hyperglycemia, uremia, or electrolyte disturbances unrelated to cirrhosis.
5. Patients with history of recent head injury or trauma.

6. Patients with known psychiatric illness or neurological disorders affecting cognition.
7. Patients who have received sedative drugs, narcotics, or alcohol intoxication causing altered mental status.
8. Patients unwilling to participate or who do not provide informed consent

INVESTIGATIONS Complete hemogram Random blood sugar Blood urea and Serum creatinine Liver function tests Serum electrolytes BT, CT, PT, INR Urine routine and microscopy Chest radiograph Ultrasound abdomen

DATAANALYSIS:

1. Data was collected using a pretested proforma meeting the study's objectives. Detailed history, physical examination, and necessary investigations were undertaken.
2. West Haven criteria for grading of hepatic encephalopathy
3. Child pugh score for assessing severity and prognosis for cirrhosis of liver.

RESULTS:

Table 1: - GENDER DISTRIBUTION

Gender	No. of cases	Percentage
male	38	76%
female	12	24%
Total	50	100.0 %

The majority of our patients in the sample were males(76%) rest females were(24%).

Table 2: -CHILD PUGH SCORE AMONG PATIENTS

CHILD PUGH SCORE	NUMBER OF PATIENTS (n)	PERCENTAGE (%)
CLASS A	6	12
CLASS B	16	32
CLASS C	28	56
TOTAL	50	100

In this study majority of patients were in class C upto 28 patients (56%), followed by class B 16 patients (32%) and class A 6 patients (12%).

TABLE 3 : PRECIPITATING FACTORS OF HEPATIC ENCEPHALOPATHY

PRECIPITATING FACTORS	NUMBER OF PATIENTS (n)	PERCENTAGE (%)
INFECTION	22	44
GASTROINTESTINAL BLEEDING	19	38
CONSTIPATION	15	30
ELECTROLYTE DISTURBANCES	14	28
DIURETICS	10	20
SEDATIVE USE	6	12
EXCESS DIETARY PROTEIN	5	10

In our study the most common precipitating factor is Infections seen in almost 22 patients (44%),second most common being Gastrointestinal bleeding in 19 patients (38%), followed by Constipation (15%), Electrolyte disturbance (28%), Diuretics (20%),Sedatives (12%),excess dietary protein 10%).

Table 4: WEST HAVEN GRADING AMONG PATIENTS

WEST HAVEN GRADE	NUMBER OF PATIENTS	PERCENTAGE
GRADE 1	8	16
GRADE2	15	30
GRADE3	18	38
GRADE4	9	18
TOTAL	50	100

In our study most of the patients come under grade 3 of almost (38%) 18 patients,15 patients werein grade 2(30%), 9 patients(18%) in grade 4 followed by 8 patients in grade 1.

TABLE 5 : MORTALITY ACCORDING TO PRECIPITATING FACTORS

PRECIPITATING FACTORS	TOTAL PATIENTS(n)	DEATHS(n)	MORTALITY (%)
INFECTION	22	8	36.4
GASTROINTESTINAL BLEEDING	19	6	31.6
ELECTROLYTE DISTURBANCES	14	5	35.7
CONSTIPATION	15	2	13.3
DIURETIC THERAPY	10	2	20
SEDATIVE USE	6	1	16.7
EXCESS DIETARY PROTEIN	5	1	20

The overall mortality rate was 22 %, mortality was significantly associated with infection , Gastrointestinal bleeding and electrolyte disturbances (p <0.05) .

DISCUSSION:

Hepatic encephalopathy is a serious complication of liver cirrhosis associated with significant morbidity and mortality. In the present study, infection (44%) was the most common precipitating factor, followed by gastrointestinal bleeding (38%), constipation (30%), and electrolyte disturbances (28%). Similar findings have been reported in previous studies, highlighting the importance of identifying reversible precipitating factors. The majority of patients belonged to Child-Pugh Class C (56%), indicating advanced liver disease and poor hepatic reserve. According to the West Haven grading system, Grade III encephalopathy (36%) was the most common presentation, followed by Grade II (30%), suggesting that most patients presented with moderate to severe encephalopathy. The overall mortality rate was 22%. Mortality was significantly associated with infection, gastrointestinal bleeding, and electrolyte disturbances (p < 0.05), emphasizing their role as major determinants of outcome. Constipation, diuretic use, sedative intake, and excess dietary protein intake were common but did not show a significant association with mortality. Early recognition and prompt correction of precipitating factors can improve prognosis and reduce mortality. The findings of the present study underscore the need for comprehensive evaluation and timely management of cirrhotic patients presenting with hepatic encephalopathy.

CONCLUSION:

- Infection, gastrointestinal bleeding, constipation, and electrolyte disturbances were the most common precipitating factors of hepatic encephalopathy in cirrhotic patients.
- Most patients presented with advanced liver disease (Child-Pugh Class C) and moderate-to-severe encephalopathy. Infection, gastrointestinal bleeding, and electrolyte disturbances were significantly associated with increased mortality.
- Early identification and prompt management of these precipitating factors can improve outcomes and reduce mortality in hepatic encephalopathy.

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