Original Research Article

To Study the Clinical and Etiological Profile of Patients with Hepatic Encephalopathy

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Abstract

Hepatic encephalopathy (HE) is a term used to describe a reversible syndrome of impaired brain function involving a complex spectrum of nonspecific neurological and psychiatric manifestations occurring in patients of severe acute or chronic liver insufficiency. Hepatic encephalopathy (HE) is one of the most devastating complication of cirrhosis having high morbidity and mortality. There is very limited data regarding the incidence and risk factors of hepatic encephalopathy so this study is to find the clinical and etiological profile of hepatic encephalopathy.

Methodology: The study was conducted in patients visited in OPD/IPD of medicine department, SGRDIMSR, Amritsar (Punjab) in the time period from 1 April 2021 to 31 July 2022. A total of 150 patients were taken up for this study. All the diagnosed patients of liver cirrhosis of any etiology (Recently detected or old patients) were included in the study.

Findings

In this study most of patients were males (81%) in the age group of 31 to 60 yrs (65%). Most common etiology found to be alcoholic (53%) with presenting symptoms of altered talks(51%).

Conclusion: Education of the society about the precipitating factors can lead to early detection of hepatic encephalopathy and thus decrease the morbidity and mortality related to it. So there is need for Screening programs and education.

Key Words: Hepatic encephalopathy, complication of cirrhosis, alcoholic cirrhosis

Introduction

Hepatic encephalopathy (HE) is a term used to describe a reversible syndrome of impaired brain function involving a complex spectrum of nonspecific neurological and psychiatric manifestations occurring in patients of severe acute or chronic liver insufficiency.[1]

There are three types of hepatic encephalopathy based on etiology. Type A is a component of acute liver failure. Type B occurs due to Porto-systemic shunting in the absence of liver dysfunction and Type C is associated with liver cirrhosis[2]

The first step to diagnose hepatic encephalopathy is to establish that patient has neuropsychiatric

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dysfunction and carefully exclude other conditions which may mimic the features.[3] There is change in personality include increased irritability, lack of restraint with poor risk assessment. Subtle but apparent intellectual decline. Inability to draw/ construct and difficulty in writing are common. Reduced spontaneous movement, slowness, a fixed stare, loss of enthusiasm /interest and altered sleep pattern with increased day time sleepiness are early evidences of disturbed consciousness.[4]

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Methodology

The study was conducted in patients visited in OPD/IPD of medicine department, SGRDIMSR, Amritsar (Punjab) in the time period from 1 April 2021 to 31 July 2022. A total of 150 patients were taken up for this study. All the diagnosed patients of liver cirrhosis of any etiology (Recently detected or old patients) were included in the study.

Exclusion criteria for the study was setup which included the patients who presented with High grade of encephalopathy (Grade 4 of West Haven criteria), Severe malnutrition, Neurological diseases/ Any Psychiatric illness, Presence of renal failure, Respiratory failure, Cardiac failure diseases, Sepsis, History of Substance abuse / Alcohol in past 2 weeks.

After screening the patients of cirrhosis on the basis of the above exclusion criteria, they were subjected to a battery of 5 pen and paper tests which constitute the Psychometric testing and calculate the PHES Score

After informed consent, a detailed history of patients about symptoms of jaundice, upper gastrointestinal bleed, altered senses and other relevant complaints were asked. All patients were examined for fever, jaundice, anemia, pedal edema, tremors, and ascites. Past history of alcohol intake, any drug intake, blood transfusions and prior hospitalization were taken. The relevant investigations such as complete blood count, liver function tests, random blood sugar, renal function tests, serum electrolytes, BT, CT, PT, Urine –routine, microscopy, ascitic fluid studies, viral markers (HBsAg, HCV), HIV, Ultrasound (abdomen + pelvis), Chest radiograph and ECG were done.

Statistical analysis

All distribution values among the study population were tested for significance and P values were calculated. The distribution of parameters among the various groups of the study population, were subjected to One-Way Analysis of Variance -ANNOVA Score for calculation of mean, Standard deviation, P value. The Significance of correlation among various parameters, the r value was calculated by Pearson Coefficient of correlation. The Receiver Operating Characteristic curve ROC analysis was done to obtain the sensitivity and specificity of tests used to establish the encephalopathy.

Findings

Table 1

Age (Years)	No.	%age	Mean	SD
1-30	7	4.67	26 $\pm$ 5.164	5.164
31-60	98	65.33	48.82 $\pm$ 7.122	7.122
61-90	45	30	67.311$\pm$ 6.138	6.138

Table 1 shows the distribution of age of the study population. Age group (1-30y) made 4.67%(n=7) of the population; Age group (31-60y) made 65.33% (n=98) of the population and Age group (61-90y) made 30% (n=45) of the population.

Table 2

	Males	Females
Study population	122(81.33%)	28(18.67%)

Table 2 shows distribution as per Sex. 81.33%(n=122) of the study population were males and 18.67% (n=28) of the population were females.

Table 3

Years of Education	Cases
5 years	24(16%)
8 years	67(44.67%)
10 years	24(16%)
$\geq$12 years	35(23.33%)

Table 3 shows distribution as per number of years of education in the study population. The maximum education years were taken to be 12, for there was no significant improvement in psychometric scoring seen in higher number of years of education. 16%(n=24) of the population was educated up to 5 years of age, 44.67%(n=67) of the population was educated upto 8 years and 16%(n=24) of the population was educated upto 10 years and 23.33%(n=35) had ≥ 12 years of education.

Table 4

Etiology	No. of Cases	Percentage (%)
Alcoholic	80	53.33
NASH	21	14
HBV	5	3.33
HBV± Alcoholic	4	2.67
HCV	16	10.67
HCV± Alcoholic	8	5.33
Others	16	10.67

Table no 4 shows the distribution of cases as per the etiology of the disease. 53.33% (n=80) patients were chronic alcohol consumers, 14%(n=21) were diabetics and classified as NASH. 10.67% (n=16) patients were HCV reactive and 3.33%(n=5) patients were hepatitis B positive.

Table 5

Chief Complaint	No.	Percentage (%)
Yellow Discolouration of Eyes	54	36
Fatigue	40	26.67
Altered Talks	77	51.33
Abdominal Distention	65	43.33
Hematemesis	14	9.33

Table no 5 shows distribution of various complaints in the study population. 51.33% (n=77) patients presented with altered talks, abdominal distention in 43.3%(n=65), fatigue in 43.33%(n=65) and yellow discoloration of eyes in 26.67%. (n=40)

Table 6

Chief Complaint	No.	%Age
Liver Cirrhosis	150	100.00
Splenomegaly	58	38.67
Ascites	92	61.33
Portal Vein Thrombosis	4	2.67

Table 6 shows the distribution of features of ultrasound abdomen in the study population. All (n=150) patients had liver cirrhosis, 61.33 % (n=92) patients had ascites and 38.67% (n=58) had splenomegaly. 2.67% (n=4) of patients had portal vein thrombosis.

Table 7

GROUPS	No. of Patients	PHES Score	
		Mean (Range)	Mean (Range)
Group A	46	-2.39(-1 to -4) ± 1.22	1.22
Group B	41	-6.41(-5 to-8) ± 0.97	0.97
Group C	63	-8.69(-6 to -13) ±2.69	2.69

Table 7 shows progressive deterioration of the PHES score with worsening of degree of encephalopathy. Group A has a mean of 2.39±1.22, Group B has a mean of 6.41±0.97 and Group C has a mean PHES score of 8.69±2.69. The Analysis of variance calculator showed P value <0.001 and was statistically significant.

Discussion

This study was an observational study consisting of 150 patients of cirrhosis of liver. The study population had a mean of age of 40 years, with the majority of the population in the age group of (31-60) years. Similar observations were seen in the PREDICT study[5], which was a nationwide clinic epidemiological study in India, conducted to study the prevalence of MHE in patients of cirrhosis,in which the mean age was 49.5 years. Also, in a study by Awad MM et al[6], the mean age was 52.0±7.47 in MHE patients, by Das A et al[7], mean age was 51.5 years and the mean age was 52.2 years in a study by Saleh A et al[8].

The males constitute 81.33% of the population and females were 18.67%. The demographic profile matched the PREDICT study, in which the mean age of study population (n=1114) was 49.5 years and majority of them were males (n=901) (81%).[5] Similarly in Studies by Duarte-Rojo A et al[9], MM et a6[4] and Das et al[7], males were in majority.

Almost in all the patients with hepatic encephalopathy, there is a well defined underlying

etiological factor. Most common etiology found to be alcohol related liver disease, present in 50.33% (n=80) of the population followed by viral infection which was present in 21.45% (n=32). This distribution matched the PREDICT study which also showed alcohol-related liver disease as the most common etiology (482 [43.27%]) followed by viral infection (Hepatitis C and B) (239 [21.45%]).[5] In a study by Mishra D et al[10], out of 4,331 patients of cirrhosis of liver; 2,742 (63.3%) had alcohol as etiology, 858 (19.8%) had viral hepatitis-related cirrhosis and in a study by Goyal P et al[11], the etiological distribution of cirrhosis of liver in North India was alcohol (49.2%; n = 352), hepatitis C virusinfection (29.4%;), and non-alcoholic fatty liver disease (NAFLD) (13.6%).

Conclusion

This study concluded that in patients presenting with hepatic encephalopathy, there are various factors which plays in precipitating it, and cirrhosis of liver is the most common among them. In later stages of hepatic encephalopathy, mortality rate was high.Early detection of the precipitating factors of liver failure leads to early diagnosis of hepatic encephalopathy and thus decreasing the mortality. So education of the society about the precipitating factors can lead to early detection of hepatic encephalopathy.

Conflict of interest: No

Sourse of funding: Self

Ethical Clearance: Ethical Clearance was given by committee.

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