



“A STUDY OF SUBCLINICAL HEPATIC ENCEPHALOPATHY IN PATIENTS WITH CIRRHOSIS OF LIVER-A HOSPITAL BASED STUDY”

General Medicine

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ABSTRACT

Introduction: Hepatic Encephalopathy (HE) is a complex, potentially reversible neuropsychiatric condition that occurs as a consequence of acute or chronic liver disease. Cirrhosis of liver is more common in our day to day clinical practice as in our Sub-continent there is high prevalence of Hepatitis B as well as Hepatitis C. Minimal hepatic encephalopathy (MHE) impairs daily functioning or health-related quality of life (HRQoL). **Aims:** This study aims at studying the Sub hepatic Encephalopathy in cirrhosis of liver, hence identifying them and initiating the appropriate treatment can bring down the morbidity and mortality. **Methods:** The study will be conducted on patients suffering from cirrhosis of liver. All the data of the patients will be recorded on a pretested Performa. All data will be statistically analysed. **Results:** In our study mean age of cases is 44.17, 58 males and 20 females there is no significant difference present. In NCT-A 39 cases were PHES positive, 39 were PHES negative the mean value in cases were 50. In FCT-A 46 cases were PHES positive, 32 were PHES negative. In DST 100 case were PHES positive, no cases were PHES negative. In LTT 55 cases were PHES positive, 23 cases were PHES negative. In SDT 47 cases were PHES positive and 31 cases were PHES negative. From this PHES is positive in 44 cases. PHES negative in 34 cases. p value is <0.001. so MHE is present in 44 cases [56.4%] out of 78. **Conclusion:** To need for health education in patients who are diagnosed with cirrhosis of liver regarding the risk of hepatic encephalopathy and its precipitating factors. Early detection and diagnosis of these precipitating factors helps in starting treatment of this fatal condition hence reducing the mortality.

KEYWORDS

Hepatic Encephalopathy, PHES, MHE, Cirrhosis of liver.

INTRODUCTION:

Hepatic Encephalopathy (HE) is a complex, potentially reversible neuropsychiatric condition that occurs as a consequence of acute or chronic liver disease¹. It is a well recognized clinical complication of cirrhosis of liver and the presence and prompt identification of well defined precipitating factors is extremely important in diagnosis and treatment of this fatal condition.

Cirrhosis of liver is more common in our day to day clinical practice as in our Sub-continent there is high prevalence of Hepatitis B as well as Hepatitis C.

In the management of patients with HE in cirrhosis of liver it is important to stage the encephalopathy into four clinical stages and then try to identify and treat the precipitating factors. In the presence of the precipitating factors the neurological deficits are usually completely reversible upon their correction and the prognosis is better if the precipitant can be treated².

The subject of Subclinical (Minimal) Hepatic Encephalopathy—also known as covert hepatic encephalopathy—has attracted increasing attention. Minimal hepatic encephalopathy describes a state of low-level cognitive dysfunction. It may be marked by decreased attention and executive function, as well as depressed psychomotor speed and visuomotor activity.

Minimal hepatic encephalopathy (MHE) represents a portion of the spectrum of hepatic encephalopathy (HE) and is the mildest form¹. While patients with HE have impaired intellectual functioning, personality changes, altered level of consciousness, and neuromuscular dysfunction, patients with MHE have no recognizable clinical symptoms of HE but have mild cognitive and psychomotor deficits. Standard neurological examination is not sufficient to recognize subtle cognitive function abnormalities, which mainly affect attention, speed of information processing, motor abilities and coordination. In the absence of a "gold standard", psychometric methods have been the most trusted and widely used tests to diagnose this condition.¹⁻²

Minimal hepatic encephalopathy (MHE) impairs daily functioning or health-related quality of life (HRQoL).

AIMS:

This study aims at studying the Sub hepatic Encephalopathy in cirrhosis of liver, hence identifying them and initiating the appropriate treatment can bring down the morbidity and mortality.

MATERIAL AND METHODS:

The cross sectional and observational study will be carried out at R.D. Gardi Medical College and C R Gardi Hospital, Ujjain subject to approval by ethical committee, in the department of General Medicine. The study will be conducted on patients suffering from Cirrhosis Of Liver. A written informed consent will be taken from all the patients who are included in study group. All the data of the patients will be recorded on a pretested Performa. Preliminary data like name, age, sex, occupation, residence, date will be recorded. Detailed biochemical Psychometric hepatic Encephalopathy Study (PHES) and ultrasonographic or histology of liver will be done to find the correlation in patients with cirrhosis of liver.

INCLUSION CRITERIA:-

1. Diagnosed having as cirrhosis of liver
2. Patients providing written informed consent
3. Between the age of 20-65 year
4. Sex: Both male and female

EXCLUSION CRITERIA:-

- Patients with
1. Hepatic encephalopathy
 2. H/O continuous alcohol intake ganja bhang charas abuse.
 3. Infective encephalopathy
 4. Gastrointestinal bleeding
 5. Recent use of drugs affecting psychometric performance like antiepileptic drugs, anti psychotropic drugs.

STATISTICAL ANALYSIS:

All statistical analysis was done in SPSS 23 version software. For descriptive analysis descriptive statistics was applied. For comparing various categorical variables chi square test and for comparing various quantitative variables student T-test was applied. A 'p' value of less than 0.05 was considered to be statistically significant.

RESULTS:**Table 1 : Demographic characteristic of cases**

Age Group	Frequency	Percentage
20 - 30	12	15.4
31 - 40	24	30.8
41 - 50	25	32.1
51 - 60	8	10.3
> 60	9	11.5
Sex		
Male	58	74.4
Female	20	25.6
Child Pugh Score		
Class A	53	67.9
Class B	24	30.8
Class C	1	1.3

Table 1 shows that 58 (74%) patients of present clinical study are male and 20 (26%) patients are female. And 61 (78%) patients are below 50 years and 17 (22%) are above 50 years. Almost 90% patients of male subgroup are below the age of 60 years. In all age groups a male preponderance is observed. This study shows various grading according to child pugh score. 53 (68%) patients are of class A in which child pugh score is 5 to 6. Whereas 24 (31%) patients are of class B having child pugh score between 7 to 9 and 1 (2%) patients have child pugh score more than 10.

Table 2 : Clinical characteristic of cases

Bilirubin level	Child Pugh Score			Total
	Class A	Class B	Class C	
<2	0 0%	0 0%	0 0%	0 0%
2--5	15 28.30%	9 37.50%	0 0.00%	24 30.80%
>5	38 71.70%	15 63.50%	1 100.0%	54 69.20%
Icterus				
Absent	4	2	1	7
Present	49	22	0	71
Addictions				
None	19	15	1	35
Alcoholic	34	9	0	43

Table 2 shows that out of 78 patients, patients with class A child pugh score 49 (92%) had icterus, in class B 22 (92%) had icterus and in class C 1 (100%) patients had icterus.

Table 3 : Distribution of the Patients according to Clinical Diagnosis

Clinical Diagnosis	Frequency	Percentage
Alcoholic Liver Disease	35	44.9
Alcoholic Liver Disease+ HBsAg	6	7.7
HBsAg	16	20.5
Other	21	26.9

Table 3 showed most common cause of cirrhosis is alcoholism (44.9%), of which 100 % are males and 0% females. In our study 20.5% cirrhosis are due to viral hepatitis, of which 62.5% are males and 37.5% females. In 7.7% cirrhosis is caused by both alcoholism and Viral hepatitis. In 26.9% case cirrhosis is caused by other like cryptogenic, autoimmune hepatitis and Non-alcoholic steatohepatitis etc.

Table 4 : Distribution of the Child Pugh Score according to various clinical features

NCT A	Child Pugh Score			Total
	Class A	Class B	Class C	
Negative	33 62.30%	6 25.00%	0 0.00%	39 50.00%
Positive	20 37.70%	18 75.00%	1 100.00%	39 50.00%
FCT A				
Negative	28 52.80%	4 16.70%	0 0.00%	32 41.00%
Positive	25 47.20%	20 83.30%	1 100.00%	46 59.00%
SERIAL DOTING TEST				

Negative	25 47.20%	6 25.00%	0 0.00%	31 39.70%
Positive	28 52.80%	18 75.00%	1 100.00%	47 60.30%
Line tracing test				
Negative	20 37.70%	3 12.50%	0 0.00%	23 29.50%
Positive	33 62.30%	21 87.50%	1 100.00%	55 70.50%
DST				
Negative	0 0.00%	0 0.00%	0 0.00%	0 0
Positive	53 100.00%	24 100.00%	1 100.00%	78 100.00%
TOTAL PHES				
Negative	30 56.60%	4 16.70%	0 0.00%	34 43.60%
Positive	23 43.40%	20 83.30%	1 100.00%	44 56.40%

In our study mean age of cases is 44.17 there is no age wise significant difference present. In our study in cases 58 males and 20 females were present. p value is 0.785. Table 4 NCT-A 39 cases were PHES positive, 39 were PHES negative, the mean value in cases were 50. In FCT-A 46 cases were PHES positive, 32 were PHES negative. In DST 100 case were PHES positive, no cases were PHES negative. In LTT 55 cases were PHES positive, 23 cases were PHES negative. In SDT 47 cases were PHES positive and 31 cases were PHES negative. From this PHES is positive in 44 cases. PHES negative in 34 cases. p value is <0.001. so MHE is present in 44 cases [56.4%] out of 78.

DISCUSSION:

Minimal hepatic encephalopathy (MHE) represents the middle form of hepatic encephalopathy (HE) seen in patients of cirrhosis of liver. The prevalence of MHE has been reported to vary between 30%-84% in patients of cirrhosis of liver. Reason for large variation include presence of prior overt HE, age, severity of liver disease, alcohol etiology, TIPS, surgical porto-systemic presence of oesophageal varices.

Age and Gender

The present study included 78 patients with cirrhosis of liver out of which 58 (74.4%) were males and 20 (25.6%) were females; with a male:female ratio of 2.9:1 which shows cirrhosis of liver to be more common in males as compared to females which is quite similar to findings of the other studies by various authors.

Dhiman et al⁵ in the year 2010 in their study reported that out of 104 patients studied there were 83 (81.3%) males and 21 (18.7%) females with a male:female ratio 3.9:1 which also shows cirrhosis of liver to be common in males: females to this Seo YS et al⁶ In the year 2012, reported that out of 160 patients studied there were 102 (63.8%) males and 58 (36.2%) females with a male:female ratio 1.76:1 and in the year 2013. Su Wen li et al⁷ reported that out of total 53 patients studied 50 (94.3%) were males. The mean age of the patients in the present study is 44.17 ± 13.3 years with maximum number of patients in third and fourth decade 49 (62.9%), which is similar to the study done by Dhiman et al⁵ in which the mean age was 48.4 ± 2.25 years, in study of Su Wen li et al⁷ the mean age was 45.6 ± 8.2 years and in the study done by Seo YS et al⁶ the mean age was 55 ± 8 years.

Cause of cirrhosis

In the present study Alcoholism in 35 (44.9%) patients of which all are males is the most common cause of cirrhosis of liver. The second most common cause of cirrhosis is Viral hepatitis in 16 (20.5%) patients, of which 62.5% were males and 37.5% females; while both Alcoholism and Viral hepatitis is seen in 6 (7.7%) patients and in the rest 21 (26.9%) patients there are various other cause of cirrhosis like cryptogenic, autoimmune hepatitis and Non alcoholic steatohepatitis etc.

The study done by Dhiman et al⁵ in the year 2010 reported that out of 104 patients studied 51 (49%) cases of cirrhosis of liver were due to alcoholism and 21 (20.2%) were due to viral hepatitis, rest 32 (30.8%) were due to various other causes.

L. Hameed et al⁸ in the year 2011 reported that out of 21 patients

studied 10 (48%) cases of cirrhosis of liver were due to alcoholism and 9 (43%) were due to viral hepatitis and the rest 2 (9%) were due to other causes.

While the study done by Khalid Mumtaj et al showed a higher incidence of viral hepatitis 80% as compared to the alcoholism which was seen in 18% cases, rest 2% were due to other cause.

PHES Score

In the present study diagnosis of MHE was made by applying PHES score, and out of 78 (100%) studied we found 44 (56.4%) patients having MHE, which is similar to the other studies done by various authors like Dhiman et al found 48 (48%) patients, Seo YS et al⁶ found 41 (25.6%) patients and Su Wen li et al⁷ found 26 (49.1%) patients having MHE on the basis of PHES score.

NCT-A was positive in 39 patients ($p < 0.006$) in which CPS class A 28 (37.7%) patients were positive, 33 (62.3%) were negative, class B 18 (75%) were positive 4 (16.7%) negative and class C 1 (100%) was positive.

STD was positive in 47 patients which patients in CPS class A 28 (52.8%) were positive, 25 (47.2%) were negative, in class B 18 (75%) were positive 6 (25%) negative and class C 1 (100%) was positive.

LTT was positive in 55 patients of which patients in CPS class A 33 (62.3%) were positive, 20 (37.7%) patients were negative, in class B 21 (87.5%) patients were positive and 3 (12.5%) were negative and in class C only 1 (100%) patient was positive. DST was positive in all 78 (100%) patients.

In present study we found that PHES score was positive in 44 (56.4%) patients with p value < 0.001 and negative in 34 (43.6%) patients, in which out of 53 patients of class A 23 (43.4%) were positive, out of 24 patients of class B 20 (83.3%) were positive and in class C all patients were positive.

Dhiman et al⁵ in the year 2010 reported that out of 100 patients 48 (48%) patients were PHES positive and 52 (52%) were negative, in which 8 out of 22 (36.4%) patients with CPS class A 27 out of 60 (45%) patients with CPS class B, 13/18 (72.2%) patients with CPS class C had MHE.

Seo YS et al⁶ in the year 2012 in their study reported 41 patients (25.6%) were PHES positive rest were negative.

Su Wen li et al⁷ in the year 2013 reported that out of 53 patients studied 26 patients (49.1%) were PHES positive while rest were negative. In the study 7 patients were in CPS class A 7/24 (29.2%), 14 patients were in CPS class B 14/22 (63.6%) and 5 patients were in CPS class C 5/7 (71.4%).

CORRELATION WITH SEVERITY OF LIVER DISEASE:

In the study by Su Wen li et al⁷, cases with child Pugh B, C had a higher proportion of PHES positivity, MHE. In the present study cases with ascites had a higher proportion of PHES positivity. So PHES correlate well with decompensated liver disease. And decompensated liver disease patients are more prone for MHE.

CONCLUSION:

From this study it was concluded that in most of the cases there are different factors which play a key role in precipitating hepatic encephalopathy which is a common phenomenon in patients with cirrhosis of liver. Upper GI bleed, infections, diuretics, electrolyte imbalance and constipation were the most common precipitating factors. There is a definite need for health education in patients who are diagnosed with cirrhosis of liver regarding the risk of hepatic encephalopathy and its precipitating factors. 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 all counseling protocol to cirrhotic patients. Hence the early detection and diagnosis of these precipitating factors helps in starting treatment of this fatal condition hence reducing the mortality. PHES score is statistically significant in detecting minimal hepatic encephalopathy in cirrhotic patients. Incidence of MHE is more with severe liver dysfunction.

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