

Original Research Article

## **Bedside Diagnosis of Minimal Hepatic Encephalopathy in Patients with Cirrhosis of Varied Etiology**

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**Abstract:** Minimal hepatic encephalopathy (MHE) is a condition in which patients with cirrhosis of liver that has normal mental and neurological status on standard clinical examination, exhibit a number of neuropsychiatric and neurophysiological defects. It has no recognizable clinical symptoms but have mild cognitive and psychomotor deficits which cannot be diagnosed by the clinical examination. PHES (Psychometric Hepatic encephalopathy Scores) is a useful bedside test for detecting patients with MHE. Early diagnosis and treatment has a favourable outcome. The study was a prospective observational study, conducted in all consecutive cirrhotic patients without overt HE (evaluated by the West-Haven criteria) the clinical HE staging scale admitted to the Medicine department PHES was determined for thirty cirrhosis patients and compared with thirty age and education matched controls. Cases who had abnormal PHES (> two standard deviation from the normal) were treated with lactulose and follow up PHES was done after 15 days. Among thirty cases, PHES was abnormal in 14 (46.66%) and hence diagnosed to have MHE. Among 14, 2 of them were lost for follow up (cause not known), 12 of them had improvement in PHES. PHES is a useful bedside test for detecting patients with MHE. A significant proportion of patients with liver cirrhosis suffer from MHE. Early diagnosis and treatment has a favourable outcome.

**Keywords:** Minimal hepatic encephalopathy, Psychometric Hepatic encephalopathy Scores, Cirrhosis, Lactulose

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### **INTRODUCTION**

- Minimal hepatic encephalopathy (MHE) is a condition in which patients with cirrhosis of liver that has normal mental and neurological status on standard clinical examination, exhibit a number of neuropsychiatric and neurophysiological defects [1].
- Hepatic Encephalopathy (HE) is clinically divided into normal or overt HE using West-Haven criteria.
- However when psychometric or neurophysiological test are also used, it can be divided into normal, minimal HE (MHE), and overt HE.
- This is because minimal HE cannot be diagnosed without these specialized tests using just the clinical examination.
- Minimal hepatic encephalopathy (MHE) is the mildest form of spectrum of hepatic encephalopathy (HE) [2].
- Patients with MHE have no recognizable clinical symptoms of HE but have mild cognitive and psychomotor deficits [3].
- The psychometric hepatic encephalopathy score (PHES), which includes 5 psychometric tests, is a standard for the diagnosis of minimal hepatic encephalopathy (HE) [4].
- The prevalence of MHE is high in patients with cirrhosis of liver and varies between 30% and 84%.
- MHE is associated with impaired health-related quality of life, increases the risk of suffering accidents, predicts the development of overt HE and is associated with poor survival [5].
- Ammonia-induced alterations in cerebral blood flow and glucose metabolism have shown that there is a significant decrease of glucose utilization of various cortical regions that correlate with the patients cognitive functions.

- Hence, screening all patients with cirrhosis for MHE using psychometric tests, and treatment of those patients diagnosed to have MHE has been recommended.
- Empiric therapy is based on the principle of reducing the production and absorption of ammonia in the gut—a number of agents are beneficial for this purpose [6].

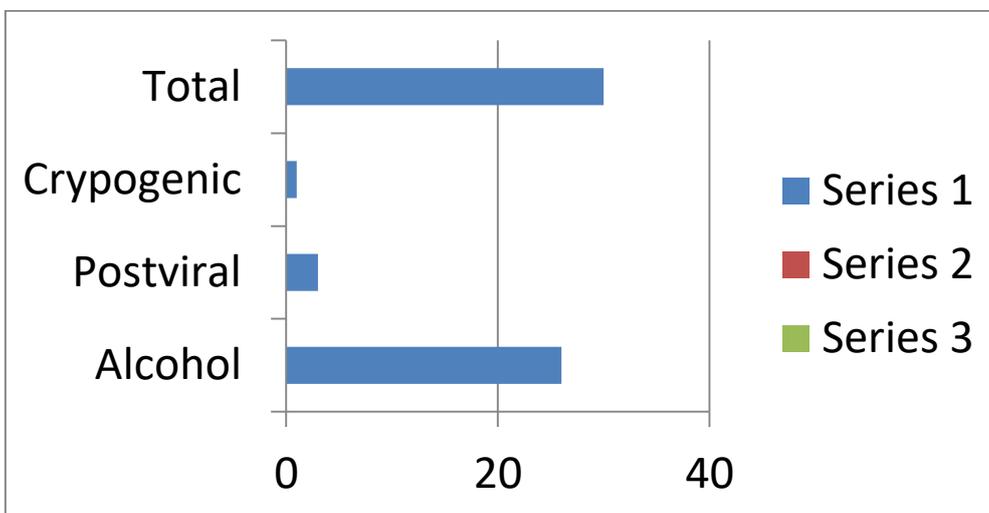
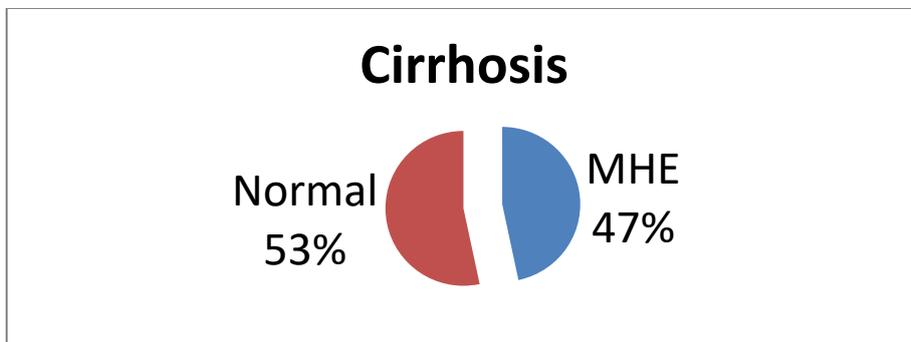
**METHODOLOGY**

- Prospective study all consecutive cirrhotic patients without overt HE (evaluated by the West–Haven criteria) the clinical HE staging scale admitted to the Medicine department were eligible for the study [7].
- Exclusion criteria were overt HE, Mini-Mental Status Examination less than twenty three and unrelated neurologic disease.
- Diagnosis of Cirrhosis was made using ultrasound abdomen and clinical findings consistent with the disease.
- At inclusion, none of the patients was taking lactulose or nonabsorbable antibiotics.
- Informed written consent to participate in the study was obtained.
- History and clinical findings were noted for each patient.

- Other hematological, biochemical and radiological investigations were performed as indicated in every patient.
- PHES (Psychometric Hepatic encephalopathy Scores) was determined for thirty cirrhosis patients and compared with thirty age and education matched controls [8].
- PHES included Number connection Test A and B, Serial Dotting Test, Line Drawing Test, Digit symbol test [9].
- Cases who had abnormal PHES (> two standard deviation from the normal ) were treated with lactulose and follow up PHES was done after 15 days [10].

**RESULTS:**

- PHES was determined for thirty cirrhosis patients and compared with thirty age and education matched controls
- Cases who had abnormal PHES (> two standard deviation from the normal ) were treated with lactulose and follow up PHES was done after 15 days.
- Among thirty cases, PHES was abnormal in 14 (46.66%) and hence diagnosed to have MHE.
- MHE group was treated with lactulose for 15 days and was asked to come for follow up after 15 days.



## CONCLUSION

- PHES is a useful bedside test for detecting patients with MHE.
- A significant proportion of patients with liver cirrhosis suffer from MHE.
- Use of age- and education-adjusted PHES is recommended for diagnosing and monitoring MHE.
- Early diagnosis and treatment has a favourable outcome.

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