



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1889080>Available online at: <http://www.iajps.com>

Research Article

**STUDY TO KNOW THE PREVALENCE OF HYPONATREMIA  
IN PATIENTS OF HEPATIC ENCEPHALOPATHY HAVING  
CHRONIC LIVER DISEASE**<sup>1</sup>Dr. Syeda Saba Sohail, <sup>2</sup>Dr. Naila Mughal, <sup>3</sup>Dr. Sania Khan<sup>1</sup>Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad<sup>2</sup>Rawalpindi Medical College, Rawalpindi<sup>3</sup>Azad Jammu Kashmir Medical College, Muzaffarabad**Abstract:**

**Objective:** To determine the incidence of hyponatremia in hepatic encephalopathy in patients with chronic liver disease.

**Study plan:** A Cross-Sectional Study.

**Place and Duration:** In the Medical Unit II of Holy Family Hospital Rawalpindi for one year duration from April 2017 to April 2018.

**Results:** The majority of the patients were between the ages of 41 and 50, 83 (33.2%) and 72 (8.8%) were between 51 and 60 years of age. The mean age was  $44.56 \pm 3.63$  years of age. Male were 172 (68.8%) and 78 (31.2%) were females. The prevalence of hyponatremia in liver encephalopathy in patients was 129 (51.6%) with chronic liver disease while no findings in 121(47.99%) of patients.

**Conclusion:** Hyponatremia prevalence is higher in people with hepatic encephalopathy who have chronic liver disease in a tertiary hospital. Therefore, it is recommended to classify all patients with hepatic encephalopathy for hyponatremia. However, each configuration must have supervision to know the frequency of the problem.

**Key words:** Hyponatremia, Hepatic Encephalopathy, Chronic liver disease.

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Please cite this article in press Syeda Saba Sohail et al., Study to Know the Prevalence of Hyponatremia in Patients of Hepatic Encephalopathy Having Chronic Liver Disease., Indo Am. J. P. Sci, 2018; 05(12).

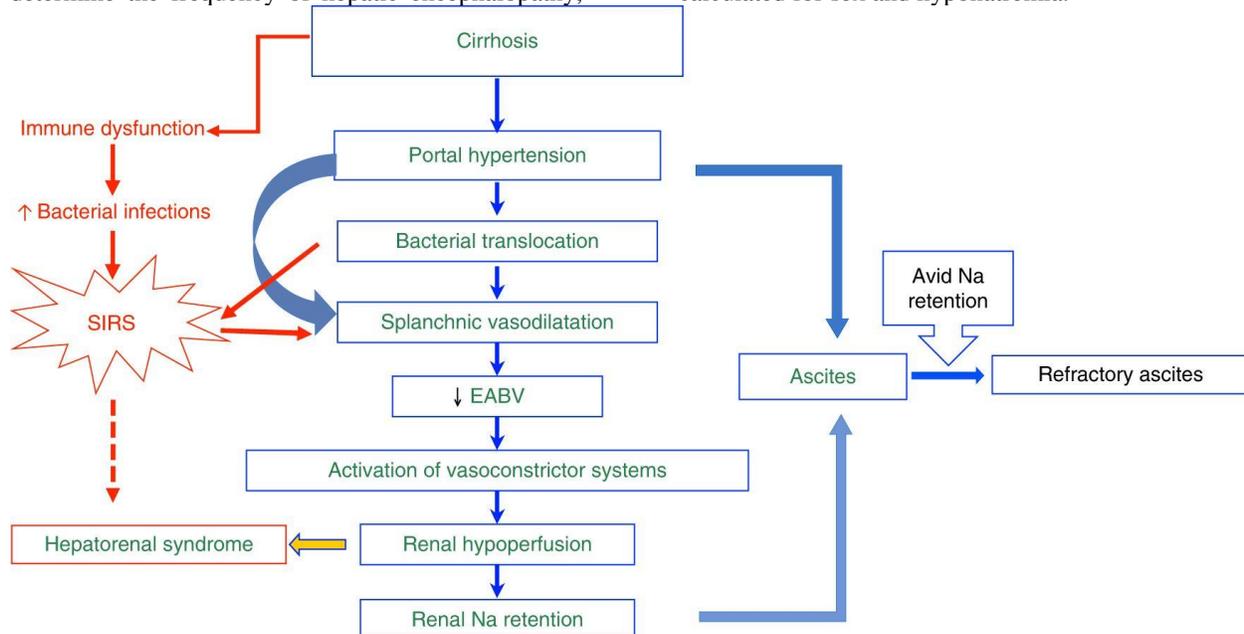
**INTRODUCTION:**

Hepatic encephalopathy disease shows a spectrum of neuro-psychiatric abnormalities observed in patients with liver failure after removal of other known causes of cerebrum. It is characterized by personality changes, intellectual distortion, asthma and depressive consciousness. Hepatic encephalopathy is a frequent and serious complication of chronic liver disease with prognostic consequences. It occurs in approximately 30 to 45% of patients with chronic liver disease. Hyponatremia is a common feature in patients with advanced liver disease. High serum rennin / aldosterone occur as a result of portal hypertension, low vascular response to drugs, and low free water clearance. Patients with chronic liver disease have multiple abnormalities in cardiovascular and renal systems. Failure to adjust the amount of water excreted in the urine to the amount of water taken leads to hyponatremia with dilution. One of the most common abnormalities in patients with chronic liver disease is the development of hyponatremia, especially in patients with acidic diuretics. Hyponatremia with chronic liver disease has been shown to be independent when compared with the absence of hyponatremia. The presence of hyponatremia also describes patients with hepatic encephalopathy who are more resistant to treatment with lactose. However, its frequency and clinical significance are not clear. According to one study, the frequency of hyponatremia in hepatic encephalopathy is 53.6%. The aim of the study is to determine the frequency of hepatic encephalopathy,

hyponatremia, since the regular interpretation of patients with chronic liver disease, with prophylactic hyponatremia during the stay in hospital or presentation predicted the development of hepatic encephalopathy. Early diagnosis and rapid treatment may be a new treatment modality for patients with hepatic encephalopathy in chronic liver disease.

**MATERIALS AND METHODS:**

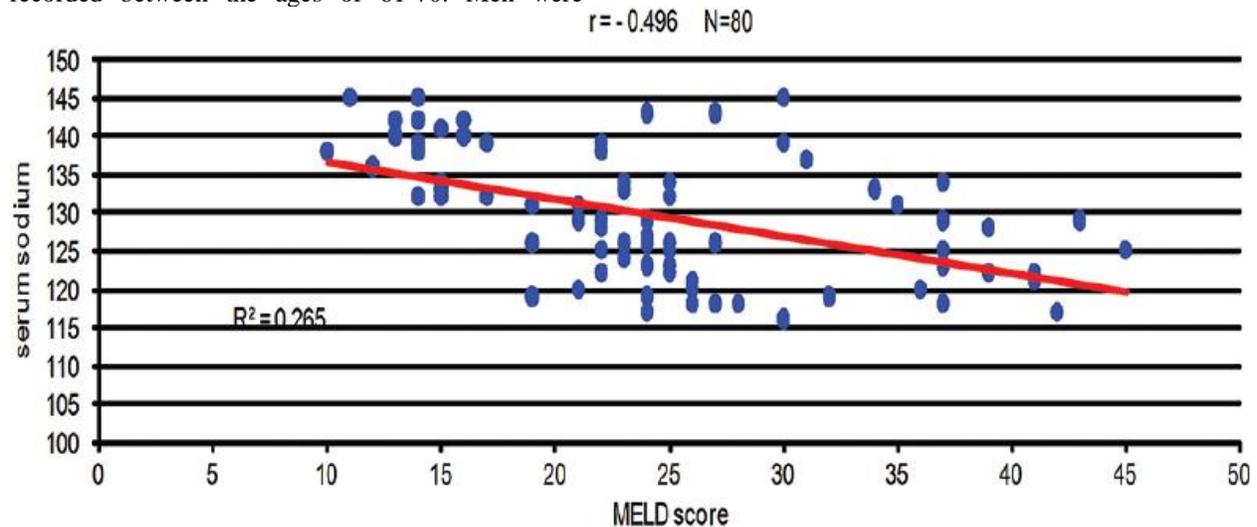
This Cross-Sectional Study was held in the Medical Unit II of Holy Family Hospital Rawalpindi for one year duration from April 2017 to April 2018. We had an error margin of 5.7%, 250 cases with a 95% confidence level, and the expected percentage of hyponatremia in 26.7%. Sampling was an unintentional probabilistic example. It was a cross-sectional survey. All patients with chronic liver disease between the ages of 20 and 70 in both sexes were included. With some patients having any degree of encephalopathy, under 20 years of age and over 70 years of age, with hypoglycemia, ie, a sugar level, cerebrovascular accidents with blood <60 mg / dl, uremic encephalopathy, ie blood urea 200 mg / dl and serum creatinine > 5 mg / dl were excluded from analysis. After consent was obtained, hepatic encephalopathy was graded according to West Haven criteria. Serum sodium levels were performed at laboratory. All values were saved in a specially designed format. The data were entered in SPSS version 18.0. Mean and standard deviations were calculated for age. Frequency and percentage were calculated for sex and hyponatremia.



**RESULTS:**

A total of 250 patients were included to determine the incidence of hyponatremia in hepatic encephalopathy in patients with chronic liver disease. The majority of the patients were between 41-50 years old, 83 (33.2%), 23 (9.2%) were between 31-40 years old, 72 (28.8%) were between 51 and 60, 33 (13.2%) It was recorded between the ages of 61-70. Men were

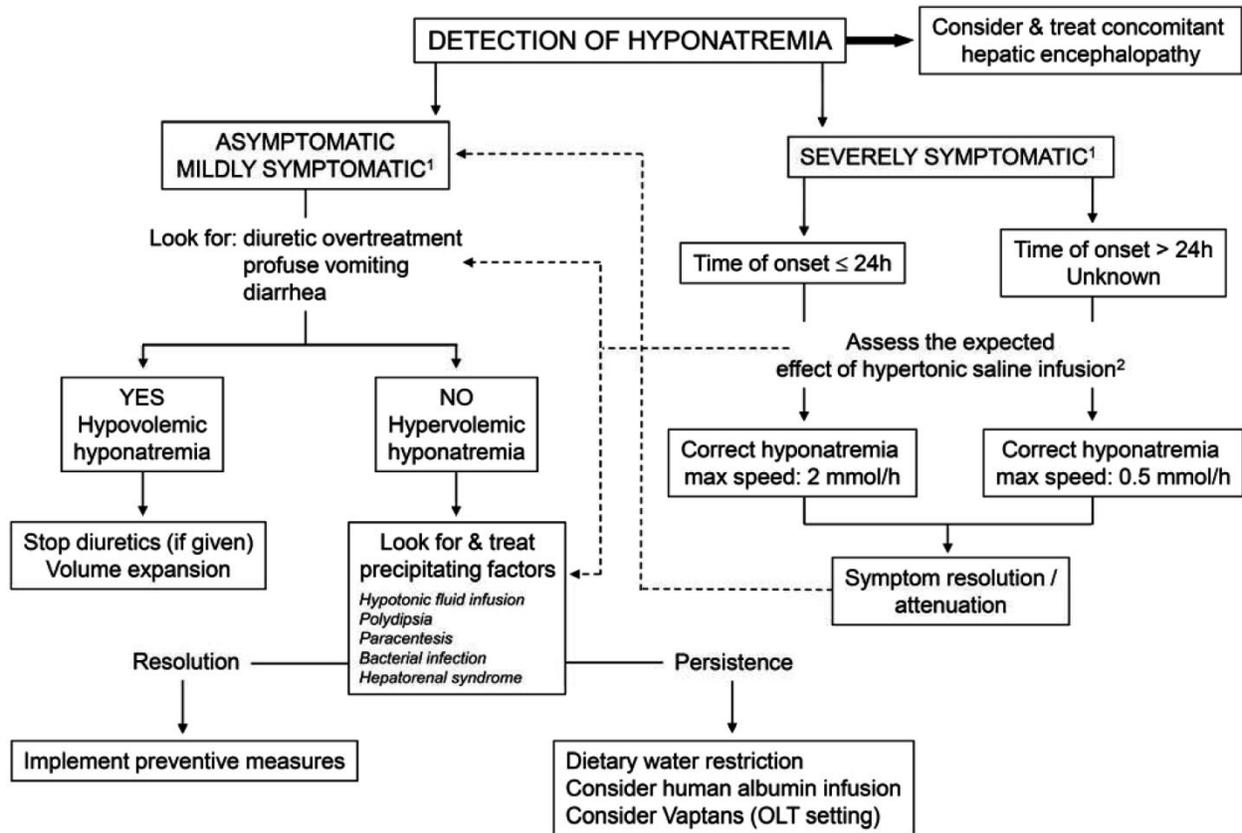
mostly registered, ie 172 (68.8%) and 78 (31.2%) women. The incidence of hyponatremia in patients with chronic liver disease was 129 (51.6%), while 121 (48.4%) did not reveal hyponatremia. Of 129 patients with hyponatremia, 16 (12.4%) had grade I, 24 (18.6%) had grade II, 38 (9.46%) had grade III and 51 (39.54%) had hepatic encephalopathy. IV.

**DISCUSSION:**

Liver diseases affect millions of people around the world every day. However, in developing countries where cost of medical care is always a problem, long-term illnesses such as CLD and its complications are a major health problem and are a major challenge for the country's economy. Because of poverty, poor hygienic conditions, insufficient education and lack of counseling, the number of cirrhosis patients increases and most of them enter medical services with different complications. Hepatic encephalopathy (HE) syndrome describes neuropsychiatric symptoms in patients with acute or chronic liver disease (CLD) in the absence of other neurological disorders. Approximately 30% of patients with CLD die in hepatic coma. EPC is becoming an epidemic in Pakistan because of the high prevalence of hepatitis B and C in our society. Hyponatremia in hepatic encephalopathy is one of the most common causes of metabolic encephalopathy and may be associated

with these patients. In our study, the majority of the patients were between the ages of 41-50, ie 83 (33.2%) and 72 (28.8%), with a mean age of  $44.56 \pm 3.63$  years. 172 (68.8%) male and 78 female (31.2%), liver encephalopathy in patients with chronic liver disease and hyponatremia were found to be 126 (51.6%) whereas 121 (8.4%) did not show any hyponatremia findings. Samiullah Shaikh evaluated the frequency, clinical association and prognostic effect of hyponatremia on CLD related complications and the incidence of hyponatremia in hepatic

encephalopathy was 53.611. The findings of this study are consistent with the results of the present study. In recent years, some progress has led to the recognition of an important role for the stage of cellular hydration in the pathogenesis of both pathologies. Changes in hydration of astrocytes and compensatory osmotic regulation alter multiple metabolic pathways that can affect neuronal function.



### CONCLUSION:

The incidence of hyponatremia is higher in people with hepatic encephalopathy who have chronic liver disease in a tertiary hospital. Therefore, it is recommended to classify all patients with hepatic encephalopathy for hyponatremia. However, each configuration must have supervision to know the frequency of the problem.

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