

Frequency of Hyponatraemia in Hepatic Encephalopathy in Chronic Liver Disease at Mayo Hospital, Lahore

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ABSTRACT

Aim: To determine frequency of hyponatraemia in hepatic encephalopathy in chronic liver disease patients

Study design: Cross sectional survey

Setting: All medical wards of Mayo Hospital, Lahore for six months

Results: Most of the patients were recorded between 41-50 years of age i.e., 83(33.2%) and 72(8.8%) were between 51-60 years, common age was recorded 44.56 ± 3.63 years, 172(68.8%) were male and 78(31.2%) were female, the frequency of hyponatraemia in hepatic encephalopathy in patients of chronic liver disease was revealed as 129(51.6%) while 121(48.4%) subjects had no findings of the hyponatraemia.

Conclusion: The frequency of hyponatraemia is higher among subjects having hepatic encephalopathy with chronic liver disease presenting in a tertiary care hospital. So it is recommended that every patient who present with hepatic encephalopathy, should be sort out for hyponatraemia. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

Keywords: Hyponatraemia, hepatic encephalopathy, chronic liver disease.

INTRODUCTION

Hepatic encephalopathy reflects a spectrum of neuropsychiatric abnormalities seen in patients with liver dysfunction, after exclusion of other known causes of brain disease¹. It is characterized by personality changes, intellectual impairment, astreixis and a depressed level of conciousness². Hepatic encephalopathy is a frequent and serious complication of chronic liver disease that carries prognostic implications. It occurs in approximately 30 to 45% of patients with chronic liver disease³. Hyponatraemia is a common feature in advanced liver disease patients⁴. It occurs as a result of high serum levels of rennin/aldosterone owing to portal hypertension, a decreased vascular response to vasoactive drugs and a reduced solute free water clearance⁵.

Patients of chronic liver disease have multiple abnormalities in their cardiovascular and renal systems. The consequent inability to adjust the amount of water excreted in urine to amount of water ingested leads to dilutional hyponatraemia. One of the most common abnormalities in patients with chronic liver disease is development of hyponatraemia especially in patients with ascites who are also taking diuretics. Hyponatraemia in chronic liver disease has been shown to be an independent

predictor of mortality in these patients⁶, as patients with hyponatraemia have poor survival compared with that of having no hyponatraemia. Furthermore presence of hyponatraemia identifies those patients with hepatic encephalopathy that are more resistant to treatment with lactulose. But its frequency and clinical significance is unclear. According to one study frequency of hyponatraemia in hepatic encephalopathy is found to be 53.6%.

The purpose of study is to determine the frequency of hyponatraemia in hepatic encephalopathy as regular screening of all patients of chronic liver disease for hyponatraemia prophylactically during their hospital stay or at presentation predicts the development of overt hepatic encephalopathy. Early recognition and prompt treatment can be a novel therapeutic approach for patients of hepatic encephalopathy in chronic liver disease.

MATERIALS & METHODS

Study was carried out in all medical wards of Mayo hospital, Lahore for six months on 250 cases, with 5.5% margin of error, 95% confidence level, taking expected percentage of hyponatraemia i.e 26.7%. Sampling was non probability purposive sampling. It was a cross sectional survey. All patients of chronic liver disease between 20-70 years of either sex, with any grade of encephalopathy were **included** while patients less than 20 and more than 70 years, with

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hypoglycemia i.e., blood sugar level <60mg/dl, Cerebrovascular accidents on CT Scan and with uremic encephalopathy i.e., blood urea >200mg/dl and serum creatinine >5mg/dl were excluded. After taking consent, hepatic encephalopathy was graded according to West Haven Criterion. Serum sodium levels were carried out in the department of Pathology, KEMU and clinical pathology, Mayo Hospital Lahore. All values were recorded on a specifically designed proforma. Data was entered in computer programme SPSS version 10. Mean and standard deviations were calculated for age. Frequency and percentage were calculated for gender and hyponatraemia.

RESULTS

A total of 250 patients were enrolled to determine the frequency of hyponatraemia in hepatic encephalopathy in patients of chronic liver disease. Most of patients were recorded between 41-50 years i.e., 83(33.2%), 23(9.2%) were between 31-40 years, 72(28.8%) were between 51-60 years while 33(13.2%) were recorded between 61-70 years. Male were recorded in majority i.e., 172(68.8%) and 78(31.2%) were females. The frequency of hyponatraemia in chronic liver disease patients was revealed as 129(51.6%) while 121(48.4%) had no hyponatraemia. Out of 129 patients with hyponatraemia, 16(12.4%) were having grade I, 24(18.6%) having grade II, 38(9.46%) having grade III and 51(39.54%) had grade IV hepatic encephalopathy.

DISCUSSION

Liver diseases affect millions of people worldwide each day. However, in developing countries where cost of health care has always been an issue, long lasting diseases such as CLD and its complications are a major health problem and pose a big challenge to the health economy. Because of poverty, poor hygienic conditions, inadequate education and lack of counselling, the number of cirrhotic patients are increasing and most of them are admitted in medical wards with different complications. The syndrome of hepatic encephalopathy (HE) describes all neurophysiologic symptoms occurring in patients with acute or chronic liver diseases (CLD) in the absence of other neurological disorders⁷. About 30% of patients of CLD die in hepatic coma⁸. CLD is becoming an epidemic in Pakistan due to a very high prevalence of hepatitis B and C in our community⁹.

Hyponatremia in hepatic encephalopathy is one of the most common causes of metabolic encephalopathy and may coexist in these patients.

Several advances in recent years have lead to recognize an important role for the stage of cell hydration in the pathogenesis of both pathologies¹⁰. Changes in astrocytes hydration and compensatory osmotic regulation modify multiple metabolic pathways that may affect neuronal function. In our study, most of the patients were recorded between 41-50 years of age i.e., 83(33.2%) and 72(28.8%) between 51-60 years, common age was recorded 44.56±3.63 years, 172(68.8%) were male and 78(31.2%) were female, the frequency of hyponatraemia in hepatic encephalopathy in patients of chronic liver disease was revealed as 126(51.6%) while 4121(8.4%) subjects had no findings of the hyponatraemia.

Samiullah Shaikh evaluated the frequency, clinical associations and prognostic impact of hyponataemia in CLD related complications and recorded frequency of hyponatraemia in hepatic encephalopathy is to be 53.6¹¹. The findings of this study are in accordance with the results of the current study.

CONCLUSION

The frequency of hyponatraemia is higher among subjects having hepatic encephalopathy with chronic liver disease presenting in a tertiary care hospital. So, it is recommended that every patient who present with hepatic encephalopathy, should be sort out for hyponatraemia. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

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