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Original Research Article

Significance of Hyponatremia in Decompensated Chronic Liver Diseases

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Abstract: To assess the frequency of serum sodium and its correlation with the severity of chronic liver diseases. The Study Design is Prospective Study. The Place and Duration of Studyare Dr D Y Patil Hospital and Research Institute, Kolhapur Maharashtra between October2013 to May 2015. The Methodology isa total of 100 patients with decompensated alcoholic liver disease were enrolled and their serum sodium was measured. Relationship of hyponatremia was correlated with severity of decompensated chronic liver disease. In Results the Out of 100 patient, 73(73%) patients had serum sodium < 130meq/l, 17 (17%) had serum sodium levels between 130-135 meq/l and 10 patients > 135meq/l. Ascities (96%) was the most common complication in patient with hyponatraemia. Hepatic Encephalopathy was present in 34(34%) patients. Hepatorenalsyndrome (41%) and bleeding complication like variceal bleeding was present in 37(37%) patient. Mortalityrate (35%) was also on the higher side with patients having serum sodium <130meq/L. The Conclusion in this study is Hyponatraemia was the common feature in the patient with decompensated alcoholic liver disease. The existence of serum sodium concentration with <130mmol/L was associated with greater frequency of complication and mortality.
Keywords: Hyponatraemia, Hepatic Encephalopathy.Hepatorenal syndrome.

INTRODUCTION

Decompensated chronic liver disease has witnessed a major increase in last decade. Patient with decompensated chronic liver disease may present esophageal variceal bleed, ascites, hepatic encephalopathy, hepatorenal syndrome. Hyponatraemia which is dilutional -frequent complication and sequel of chronic liver disease [1]. Evidence suggests that hyponatremia is associated with high morbidity and mortality in chronic liver diseases. Recent studies have suggested that hyponatremia causes low grade cerebral edema resulting in increased osmotic pressure on astrocytes which causes many of neurological dysfunctions like seizures, coma, brain death which are the potential consequences of hyponatraemia [2]. In addition hyponatremia in cirrhosis affects the quality of life of patients because requirement of fluid intake restriction in order to prevent further dilution that is not very well tolerated. Recent study have noticed that more severe the hyponatremia greater will be the grade of hepatic encephalopathy[3,12]. Unquestionably these serious electrolyte abnormalities demand prompt diagnosis and effective therapy; on the other hand if these abnormalities are corrected too rapidly, equally devastating neurological squeal can develop. There is a lack of Indian data on clinical spectrum of hyponatremia in chronic liver disease and treatment strategies to be adapted in various clinical studies; therefore we planned to undertake this study in our tertiary care centre[4,13].

METHODOLOGY

This prospective study included 100 patients with decompensated chronic liver diseases Informed consent was taken. Data was collected in well designed proforma approved by ethical committee. Data collected included age, gender, liver function test, ultrasonograpghy finding and serum sodium. Exclusion criteria were patient on diuretic therapy, cardiac failure, and chronic kidney diseases and on therapy with SSRI, TCA, and MAO. The analyser used to find out serum sodium levels is AVL 9180 and reagent used is Snap Pack. Data was analyzed using Statistical Package for Social Sciences (SPSS).

RESULTS

The mean age of the patient was 46.02+_ 11.80(mean+SD) years. Out of 100 patients enrolled 90 patients had hyponatremiain which 73(73%)were >130meq/L,17(17%)between 130-135 meq/l patients and 10(10%) were >135meq/L. Ascities (99%)was the commonest complication observed in hpyonatrmic patients followed hepatorenal syndrome 41(41%) patient, hepatic encephalopathy in 34(34%)patients and

bleeding manifestation in37(37%)patients. On discharged out of 89, 37(41%) had mortality.

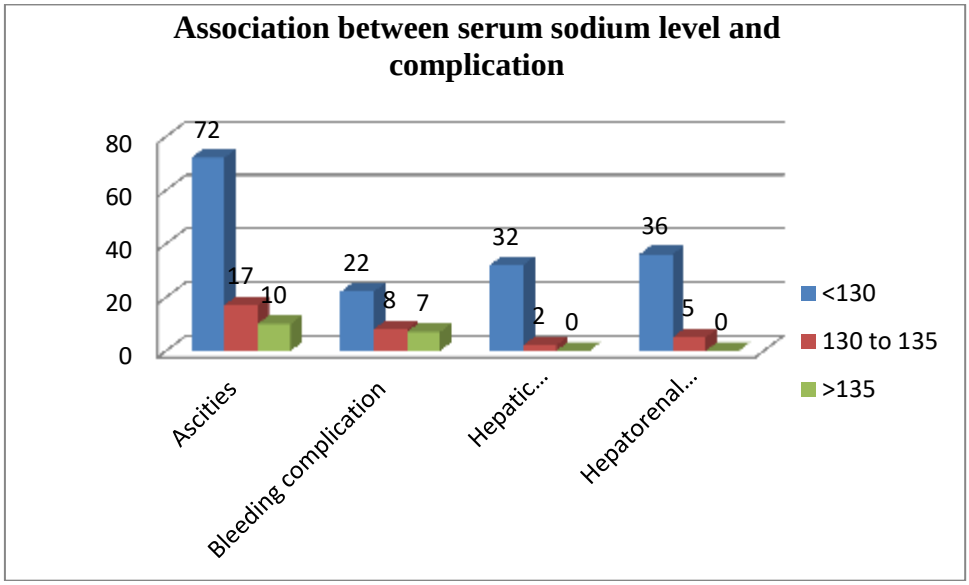

Table-1: Depicts the association between serum sodium level and complication (P<0.001, hence highly significant.)

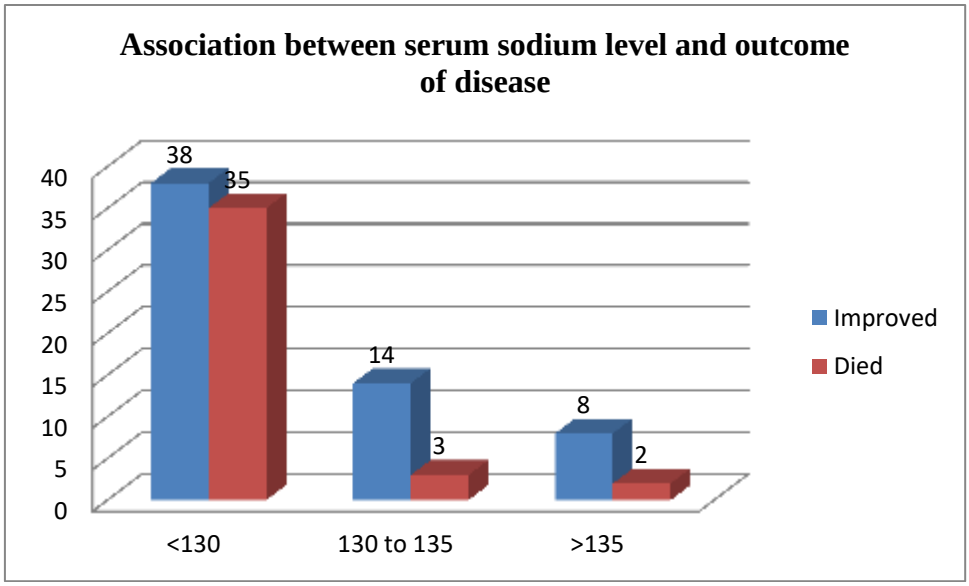

Table-2: Depicts that out of total 40 patients those died 35 had hyponatremia (.P value<0.05, shows significance.)

DISCUSSION

Hyponatremia is an electrolyte imbalance that commonly occurs in hospitalized patients. Most cases are dilutionalhyponatremia caused by the impairment of solute-free water clearance. Hyponatremia resulting from the impairment of solute-free water excretion is commonly accompanied by portal hypertension[6,7]. Studies have shown that severity of hyponatremia associated with high complications of cirrhosis. In recent years, hyponatremia has attracted interest as a possible prognostic factor for liver cirrhosis[8,9].

In present study the frequency of hepatic encephalopathy was associated with serum sodium levels in such a way that patients with serum sodium <135 meq/l had 34%. Qureshi MO *et al.*[16] showed HE was present in 34.15% of the patients with serum sodium <135 meq/l. The frequency of hepatorenal syndrome was 41 (41%) in patient with serum sodium <135 meq/L.

CONCLUSION

Hyponatremia is most common finding in patients with decompensated chronic liver diseases.The presence of serum sodium concentration <135meq/L had higher complication and greater mortality. Close monitoring of serum sodium should be done in order to prevent complication[10,11].

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