



STUDY OF HYPONATREMIA IN PATIENTS WITH ALCOHOL INDUCED CIRRHOSIS OF LIVER AND IT'S PROGNOSTIC VALUE

Internal Medicine

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ABSTRACT

Background: The incidence of alcohol induced liver cirrhosis is rising in India, the subject presents late with short survival. Hyponatremia is seen in patients with liver cirrhosis & portal hypertension due to excessive renal retention of water relative to sodium & increased release of vasopressin. Liver cirrhosis with hyponatremia is associated with increased mortality and morbidity. **Aims & Objectives:** To assess the prevalence of hyponatremia among alcohol induced liver cirrhosis & evaluate association between hyponatremia and complications in it. **Materials & Methods:** A hospital based prospective study - 200 patients clinically diagnosed as alcohol induced cirrhosis of liver, recruited for 18 months. **Results:** Hyponatremia <130meq/L was seen in 28% and 131 to 135 meq/L was seen in 32% of them at admission time and as the duration of alcohol consumption increased, there was a significant fall in serum sodium levels, Bilirubin values were significantly deranged, coagulation profile was affected, prolonged PT and INR. **Conclusion:** Hyponatremia was prevalent in 28% of the cases during admission time & positively associated with longer duration of alcoholism. Hyponatremia was significantly associated with increased risk of complications like portal hypertension, hepatic encephalopathy and upper GI bleeding.

KEYWORDS

INTRODUCTION

The incidence of alcohol induced liver cirrhosis is rising alarmingly in India, the subject presents late with short survival. Hyponatremia is seen in patients with liver cirrhosis and portal hypertension due to excessive renal retention of water relative to sodium and also due to increased release of arginine vasopressin.

In liver cirrhosis, hyponatremia is defined as serum sodium levels less than 130 meq/l. Liver cirrhosis with hyponatremia is associated with increased mortality and morbidity.

Studies have also shown that hyponatremia may affect the brain function leading to hepatic encephalopathy. It is challenging to treat subjects of hyponatremia in cirrhosis, because the conventional therapy of hyponatremia includes fluid restriction and loop diuretics.

Drugs like vaptans which selectively antagonize the effect of arginine vasopressin on the V2 receptors in kidney tubules, helps in the treatment of hyponatremia. But the available vaptans are not used in subjects with cirrhosis due to increased risk of hepatic failure and mortality.

Aims And Objectives

- Our study aimed at assessing the prevalence of hyponatremia among alcohol induced cirrhosis of liver and to assess its prognostic value.
- Objectives: To evaluate association between hyponatremia and complications in alcohol induced cirrhosis of liver and its prognostic value.

MATERIALS AND METHODS STUDY CENTRE:

Patients admitted in the wards, OPD of General Medicine department of Navodaya Medical College Hospital and Research Centre, Raichur with signs clinically diagnosed cases of alcohol induced cirrhosis of liver

Study Duration: 18 months

Study Design: Hospital Based Prospective Study

Sample Size: 200 patients

Inclusion Criteria:

1. Patients diagnosed with alcohol induced cirrhosis of liver.
2. Age of the subjects more than 18 years

Exclusion Criteria:

1. Patients who are a known case of cirrhosis of liver due to infection (Hepatitis B, Hepatitis C), haemochromatosis, Wilsons disease, alpha 1 antitrypsin deficiency, autoimmune, sclerosing cholangitis.
2. Patients who are on diuretics.
3. Patients with chronic kidney disease / cardiac failure

RESULTS

Prevalence of hyponatremia	<130 mEq/L	28%
	131-135 mEq/L	32%
	>135mEq/L	40%

Table shows that prevalence of hyponatremia (<130meq/L) among patients with alcohol induced liver cirrhosis was 28% at admission, and prevalence of hyponatremia (131-135meq/L) was 32%, while prevalence of normal sodium levels was 40%

- **Results:** Among the study population, the mean duration of alcohol consumption noted was 18.17 ± 6.36 years. Hyponatremia <130meq/L was seen in 28% and 131 to 135 meq/L was seen in 32% of them at admission time and as the duration of alcohol consumption increased, there was a significant fall in serum sodium levels, Bilirubin values were significantly deranged, also coagulation profile was affected with prolonged PT and INR, moreover, low sodium levels were associated with hepatic encephalopathy and upper GI bleeding.

Frequency of complications according to sodium levels

Sl. No	Complications	Number	Serum sodium levels			p value
			<130meq/L (n=56)	131-135meq/L (n=64)	≥136mEq/L (n=80)	
01	Ascites	191	55	60	76	0.4811 NS
02	Portal Hypertension	186	54	62	70	0.0449 *
03	Hepatic encephalopathy	62	32	14	16	0.000003 *
04	GI bleeding	44	19	13	12	0.0296 *
05	Coagulopathy	21	06	05	10	0.436 NS
06	Hepatorenal syndrome	19	04	03	12	0.086 NS

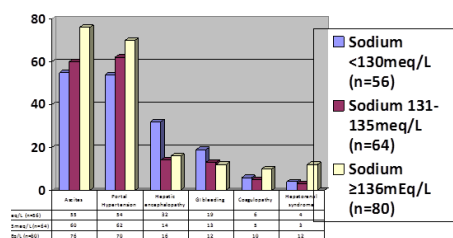


Figure shows that serum sodium levels were lower among patients who had complications compared to those who did not present with any complications, indicating complications had a role in lowering sodium levels or vice versa and was proven statistically significant for portal hypertension, hepatic encephalopathy and GI bleeding, indicating very poor prognosis.

DISCUSSION

The study was conducted in order to study prevalence of hyponatremia among alcohol induced liver cirrhotic patients and to assess its prognostic value.

200 patients diagnosed with alcohol induced liver cirrhosis were recruited for our study. Almost 50% patients are less than 50 years of age and mean age of the patients was 52.67 ± 6.35 years. Almost all (90%) of the patients were males, indicating high male predominance. Among the presenting symptoms, Jaundice, Abdominal distension, altered sensorium and pain abdomen were predominant ones. 62.50% of them had history of alcoholism for a duration more than 11 to 20 years and 19% of them had duration more than 21 years. The mean duration of alcoholism was 18.175 ± 6.356 years.

Duration of alcoholism did establish statistically significant difference in serum sodium levels, where significant decline in serum sodium levels was observed as duration of alcoholism increased.

Serum sodium levels were statistically significantly lower among those who presented with history of altered sensorium. Similarly, serum sodium levels were not statistically significantly lower among those who presented with history of ascites at 1 year follow up. Serum sodium levels and complications relationship indicated that more than 50% of the complications occurred among those who had hyponatremia.

Patients with hyponatremia (<130mEq/L) had complications of portal hypertension, GI bleed and hepatic encephalopathy and the difference was proven statistically significant as well.

CONCLUSION

Hyponatremia (<130meq/L) was prevalent in 28% of the cases during admission time and was positively associated with longer duration of alcoholism. Also, hyponatremia was significantly associated with increased risk of complication like portal hypertension, hepatic encephalopathy and upper GI bleeding.