

## To Study The Incidence and Prognosis of The Hepatorenal Syndrome in Chronic Cirrhosis Patients in A Tertiary Care Hospital.



### Medical Science

KEYWORDS : Hepato-renal syndrome, liver failure

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### ABSTRACT

*Introduction :Hepato-renal syndrome (HRS) is one of the most detrimental conditions in patients with end stage liver failure. It was termed "liver-death syndrome"[4]. HRS is a functional renal disorder without underlying abnormalities in kidney structure. The median survival of untreated HRS type 1 is 2 weeks while that of type 2 is approximately 4 to 6 months[5]. The aims and objectives was to study the Incidence and prognosis of the hepatorenal syndrome in chronic cirrhosis patients.. Methodology: This is a continuous prospective follow up study of 50 patients, 48 (96%) were males & 2 (4%) were females. Materials and methods All adult Hospitalized patients of chronic Liver Disease on USG and with serum creatinine >1.5 mg/dl. were recruited in this study.. Result: Most common cause of Acute Renal Failure is infection secondary to Hypotension As Patient's Creatinine , Bilirubin ,INR value increases, there is increased in mortality of the patient.*

### 2. Materials and Methods: All adult\_Hospitalized patients were recruited in this study

2.1. Inclusion Criteria: Coarse echo-structure of liver as evident on USG Abdomen suggestive of Chronic Liver Disease.2.Patients with serum creatinine >1.5 mg/dl.

Exclusion Criteria: Age<18 years &Patients with underlying Kidney Disease

2.3. Statistical Analysis: Study will be analyzed by Chi square test in consultation with statistician.2.4 .STUDY DESIGN: Prospective study design.2.5 SETTING : T. N. Medical College &B. Y. L. Nair Ch. Hospital, Mumbai..Ethics committee approval taken. Detailed clinical history including past records, treatments & clinical examination will be done in each patient.Routine investigation like Hb, CBC, LFT, RFT, RBS etc will be done on each patient from Nair Hospital.Chest X-ray, USG,OGD Scopy will be done as per individual patient. Patients will be followed up to 3 months.

2.6 STUDY PERIOD& SAMPLE SIZE:The study was carried out from February 2013 to November 2013 on 50 patients of Acute Renal Failure in Chronic Liver Disease.

**3.RESULTS:** In our study , out of 50 patients, 48 (96%) were males & 2 (4%) were females.Therefore maximum number of patients were in the age group of 31-50 yrs. Mean age 46 yrs with standard deviation of 11 yrs.In our study, patients presented with following complaints : Abdominal distention 43 patients (86%), Edema feet 43 patients (86%), Jaundice 38 patients (76%), Fever 41 Patients (82%), Bleeding 21 patients (42%), Altered sensorium 21 patients (42%), Decreased urine output 14 patients (28%), Abdominal pain 6 patients (12%), Cough 12 patients (24%), Breathlessness 13 patients (26%), Hematuria 3 patients (6%), Convulsions 3 patients (6%), Excess Vomiting 1 patient (2%), Right lower limb swelling 1 patient (2%).

In our study the etiology of Acute Renal Failure in patients of Chronic Liver Disease were as follows : Lower respiratory tract infection with sepsis 16 patients (32%), Spontaneous Bacterial Peritonitis with sepsis 10 patients (20%), Lower respiratory tract infection with Spontaneous Bacterial Peritonitis with sepsis 4 patients (8%), Urinary tract infection with sepsis 2 patients (4%), Urinary tract infection with Lower respiratory tract infection

with sepsis 1 patient (2%), Obstructive uropathy with Urinary tract infection with sepsis 1 patient (2%), Hypotension with sepsis of unknown cause 5 patients (10%), Hypotension with Lower respiratory tract infection with sepsis 3 patient (6%), Hypotension with Spontaneous Bacterial Peritonitis with sepsis 2 patient (4%), Cellulitis with sepsis 1 patient (2%), Lower respiratory tract infection with Spontaneous Bacterial Peritonitis with Urinary tract infection & sepsis 1 patient (2%), Sepsis of unknown cause 3 patients (6%), Hypotension with Lower respiratory tract infection & Spontaneous Bacterial Peritonitis with sepsis 1 patient (2%).

In our study, there were 15 patients having creatinine value between 1-2mg/dl. All patients (100%) were discharged, there were no death. There were 18 patients having creatinine value between 2-3 mg/dl. Out of these 11(61.11%) were discharged & 7(38.89%) patients died. There were 4 patients having creatinine value between 3-4 mg/dl. Out of these 1(25%) was discharged & 3(75%) patients died. There were 6 patients having creatinine value between 4-5 mg/dl. Out of these 1(16.66%) was discharged & 5(83.34%) patients died. There were 7 patients having creatinine value between more than 5 mg/dl. All 7 patients (100%) died, none survived.**TABLE 1**

In our study, there were 27 patients having Bilirubin value between 1-10 mg/dl. Out of these 22(81.48%) were discharged & 5(18.52%) patients died. There were 6 patients having Bilirubin value between 10-20 mg/dl. Out of these 3(50%) were discharged & 3(50%) patients died. There were 6 patients having Bilirubin value between 20-30 mg/dl. Out of these 2(33.33%) were discharged & 4(66.67%) patients died. There were 8 patients having Bilirubin value between 30-40 mg/dl. Out of these 1(12.5%) was discharged & 7(27.5%) patients died. There were 3 patients having Bilirubin value between 40-50 mg/dl. All 3 patients(100%) died, none survived.**TABLE 2**

In our study, there were 26 patients having INR value between 1.0-1.5. Out of these 19(70.37%) were discharged & 7(29.63%) patients died. There were 10 patients having INR value between 1.5-2.0. Out of these 6(60%) were discharged & 4(40%) patients died. There were 4 patients having INR value between 2.0-2.5 mg/dl. Out of these 2(50%) were discharged & 2(50%) patients died. There were 5 patients having INR value between 2.5-3.0. All 5(100%) patients died, none survived. There were 4 patients hav-

ing INR value between 3.0-3.5. All 4(100%) patients died, none survived.

In our study, there were 13 patients having Serum Albumin value between 2.5-3.0 g/dl. Out of these 8(61.53%) were discharged & 5(38.47%) patients died. There were 30 patients having Serum Albumin value between 2.0-2.5 g/dl. Out of these 19(63.33%) were discharged & 11(36.67) patients died. There were 6 patients having Serum Albumin value between 1.5-2.0 g/dl. Out of these 1(16.66%) was discharged & 5(83.34%) patients died.

**4.DISCUSSION**

This is a prospective & observational study, conducted in a tertiary care hospital. We have recruited 50 patients above the age of 18 years of chronic liver disease having acute renal failure. In this study we assessed various clinical presentations of acute renal failure, various etiologies of acute renal failure in chronic liver disease & correlated the biochemical factors (creatinine, PT-INR, total bilirubin level, serum albumin level) with outcome of patients. This finding is in accordance with our study suggesting male preponderance of cases of acute renal failure in chronic liver disease. Therefore maximum number of patients were in the age group of 31-50 yrs.

Gastrointestinal hemorrhage, common in decompensated cirrhosis, leads to AKI in 26% of cases via hypotension and further diminution of effective circulating volume. So this finding is in concordance with our study.

All the 50 patients (100%) have infection as the precipitating cause for Acute Renal Failure. Hypotension as the precipitating cause for Acute Renal Failure is present in 11 patients (22%) & only 1 patient (2%) has Obstructive uropathy.

There were 7 patients having creatinine value between more than 5 mg/dl. All 7 patients (100%) died, none survived. This finding suggests that, there is increased mortality as patients creatinine increases above 3 mg/dl. This finding is statistically significant as 'p' value is 0.00003.

Mean creatinine of survived patients was 2.12 mg/dl & in non survived patients was 4.6 mg/dl in our study. In our study there were 13 patients having creatinine >4mg/dl, out of which 12 patients(92.3%) died. So all these findings suggest that as patient's Creatinine value increases, there is increased in mortality of the patient.

There were 3 patients having Bilirubin value between 40-50 mg/dl. All 3 patients(100%) died, none survived. This finding suggest that, as patient's Bilirubin value increases above 20 mg/dl, there is increased in mortality of the patient. This finding is statistically significant as 'p' value is 0.001023.

Mean Bilirubin of survived patients was 8.55 mg/dl & in non survived patients was 25.48 mg/dl in our study. This suggests that the mean Bilirubin level is more in non survived patients than in survived patients. Thus as patient's Bilirubin value increases, there is increased in mortality of the patient.

There were 4 patients having INR value between 3.0-3.5. All 4(100%) patients died, none survived. This finding suggest that, as patient's INR value increases above 2.5, there is increased in mortality of the patient. This finding is statistically significant as 'p' value is 0.008636. Mean INR of survived patients was 1.45 & in non survived patients was 2.16 in our study. This suggest that the mean INR level is more in non survived patients than in survived patients.

In our study, there were 13 patients having Serum Albumin value between 2.5-3.0 g/dl. Out of these 8(61.53%) were discharged &

5(38.47%) patients died. There was 1 patient having Serum Albumin value between 1.0-1.5 g/dl. That patient died. This indicate that, as patients Serum Albumin decreases there is increase in mortality of the patient. But this finding is not statistically significant as 'p' value is 0.1188.

Mean Serum Albumin of survived patients was 2.28 g/dl & in non survived patients was 2.16 g/dl in our study. This indicates that Serum Albumin has no correlation with mortality of the patient. On follow up of survived patients, there were no re-admission for acute renal failure.

**5.SUMMARY**

Maximum number of patients of Acute Renal Failure in Chronic Liver Disease affect age group of 31-50 yrs i.e. economically productive age group.

Most of patients are presents with features suggestive of infection.

Most common cause of Acute Renal Failure is infection induced renal failure; next common cause is pre-renal failure secondary to Hypotension.

As Patient's Creatinine , Bilirubin ,INR value increases, there is increased in mortality of the patient.

Serum Albumin has no correlation with the outcome of the patient.

**6.CONCLUSIONS:** Hepatorenal syndrome (HRS) is defined as a potentially reversible kidney failure in patients with liver cirrhosis, acute liver failure, or alcoholic hepatitis [1, 2]. Due to its very high short-term mortality [3], HRS is a life-threatening condition that has to be diagnosed and treated rapidly in order to improve the patient's clinical outcome. About 40% of patients with liver cirrhosis, ascites, and normal retention parameters will develop HRS within five years [6]. Liver size, plasma renin activity, and serum sodium concentration are predictors of hepatorenal syndrome occurrence in these patients[7].

**TABLE 1:Co-relation of Creatinine with outcome of patients**

Creatinine level	Number of Patients	Discharges	Death
1.0 - 2.0	15	15	0
2.0 - 3.0	18	11	7
3.0 - 4.0	4	1	3
4.0 - 5.0	6	1	5
> 5.0	7	0	7
3.0 - 4.0	4	1	3
4.0 - 5.0	6	1	5
> 5.0	7	0	7
Chi-Square	26.21		
df	4		
P value	0.00003		

1 As Patient's Creatinine value increases there is increased in mortality of the patient.

**TABLE 2: Co-relation of Bilirubin with outcome of patients**

Bilirubin level (mg/dl)	Number of Patients	Discharges
1.0 - 10.0	27	22
10.1 - 20.0	6	3
20.1 - 30.0	6	2
30.1 - 40.0	8	1
40.1 - 50.0	3	0
Chi-Square	18.42	
df	4	
P value	0.001023	

As Patient's Bilirubin value increases there is increased in mortality of the patient.

**References:**

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