ACUTE KIDNEY INJURY AND ITS OUTCOME IN PATIENTS WITH LIVER CIRRHOSIS

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Background

- Renal failure is a common challenging complication in patients with chronic liver disease patients.

- It is one of the most important risk factors associated with increased mortality.

- AKI in patients with liver cirrhosis is often precipitated by factors such as infections, hypovolemia from GI bleeding, use of nephrotoxic drugs, or development of HRS.

Aims

- To determine the prevalence of Acute Kidney Injury (AKI) & its impact on clinical outcome in patients with liver cirrhosis.

- To study the impact of liver cirrhosis stage on renal function.

Methodology

- Cross sectional study done in a tertiary care center in Southern India

- Diagnosis of cirrhosis liver was confirmed by clinical, liver biochemistry and imaging (computed tomography and or ultrasound).

- Patient details included age, gender, etiology, details of previous admissions, current medication, CTP score, MELD Na score and information on cirrhosis related complications.

- Overall prevalence of AKI in the study group was determined.

- **Power Calculations** : Precision requires the assessment of the optimal information size (OIS; the number of patients generated by a conventional sample size calculation for a single trial) and the width of the 95% CIs.

- Data were coded and recorded in MS Excel spreadsheet program. SPSS v23 (IBM Corp.) was used for data analysis.

Results

- The overall prevalence of AKI was 27.7%.

- There were no significant differences in the baseline demographic profile such as gender, etiology, co-morbidity between patients with and without AKI.

- However, age (p 0.002), hepatic encephalopathy (p 0.02), SBP (p value 0.02), sepsis (p <0.001), shock (p-0.002) and mortality (p<0.001) were statistically significant compared to those without AKI.

- Patients with AKI belonged to CTP –C (p 0.016) and with a high MELD Na score (p <0.001).

- Patients with AKI had high serum sodium (p 0.025), low serum potassium (p< 0.001),low serum bicarbonate (p < 0.001), urine culture positive (p-0.022) and these were statistically significant compared to those without AKI.

- Patients with AKI stage 3 received terlipressin infusion for longer number of days than stage 1 and 2 and it was statistically significant (p value 0.0409).

- Stage 3 patients have significant higher number of deaths (p value <0.001) and non recovery of renal function (p value 0.008).

Table 4.8: AKI and patient outcome

Parameter		AKI n=36(%)	No AKI n=94 (%)	P value
Patient Outcome	Alive	27 (75.0)	91 (96.8)	<0.001
	Dead	9 (25.0)	3 (3.2)	

Mortality was significantly higher in those with AKI 25.0% of the patients in the AKI group and 3.2% in the group with No AKI (p = <0.001). Patient recovery was higher 96.8% in patients without AKI and 75.0% in those patients with AKI.

Conclusion

- The prevalence of AKI in liver cirrhosis patients in this study was 27.7%

- The factors significantly associated with AKI were older age, hepatic encephalopathy, sepsis, Spontaneous Bacterial Peritonitis, Urinary tract infection, shock and the degree of severity of liver disease.

- AKI stage 3 was significantly associated with older age, sepsis ,shock, higher MELD Na score, mortality as compared to AKI stage 1 .