ACUTE KIDNEY INJURY IN ACUTE-ON-CHRONIC LIVER FAILURE: A PORTUGUESE SINGLE CENTER REFERENCE REVIEW

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INTRODUCTION. Acute-on-Chronic Liver Failure (ACLF) is a syndrome that occurs in patients with cirrhosis, characterized by acute decompention of the liver, and one or more extra hepatic organ dysfunction, with high 28-day mortality rate (at least 15%), up to 3 months from onset. However, kidney dysfunction alone is associated with a 28-day mortality rate higher than the pre-defined limit required for the diagnosis of ACLF. Acute kidney injury (AKI) in cirrhosis is mostly due to functional changes, induced by renal hypoperfusion; in ACLF, structural changes are more common, due to the presence of inflammation and infection in th pathophysiological mechanisms of this syndrome; "bile cast nephropathy", an entity characterized by renal tubular injury secondary to direct toxic damage due to elevated levels of bilirrubin and bile acids, has been shown to be significantly more common in ACLF. Distinction between funcional and structural AKI is of significant importance, since functional AKI may solve with hepatic transplant alone, whereas structural AKI may require simultaneous liver-kidney transplant.

AIMS: We present a retrospective study where we characterized the clinical presentation, evolution and outcome of a population of patients diagnosed with ACLF at our Center over the last 3 years; the incidence of AKI and its impact in the prognosis of ACLF was also analysed.

METHODS: Inclusion criteria: patients with known cirrhosis admitted to the intensive care unit of our Center with the diagnosis of ACLF within a period of 3 years. Exclusion criteria: age < 18 and > 85 years; those who had received liver and/or kidney transplant; patients with end-stage renal disease; pregnancy; hepatocellular carcinoma outside Milan criteria; known human immunodeficiency virus infection. Outcome of patients was evaluated at 28-day and 90-day after ICU admission. Statistical analysis performed with SPSS.

RESULTS: Twenty-nine patients were enrolled, the majority of them male (89.6%), mean age was of 53 (47.99 ± 58.01), median of 50; minimum age was of 18 and maximum of 81 years old; overall mortality of 69 % (n=20).

Etiology of Cirrhosis	
Alcoholic liver cirrhosis	N=12 (41.4%)
Alcoholic liver cirrhosis and Hepatitis C	N=7 (24.1%)
HCV infection	N=6 (20.7%)
Primary sclerosing cholangitis	N=1 (3.44%)
Hepatocellular carcinoma	N=1 (3.44%)
Hemochromatosis	N=1 (3.44%)
Cryptogenic hepatic cirrhosis	N=1 (3.44%)

ACLF was triggered by a hepatic insult in 15 (51.7%) patients, being upper gastrointestinal bleeding the most common cause in this subgroup (n=11; 37.9%); extra-hepatic injury were responsible for the development of ACLF in the remainder 14 (48.3%), mostly due to bacterial infection (n=12; 41.4%).

Twenty-four patients (83%) developed AKI and it was associated with a overall mortality rate of 65.5% at 28-day and 90-day of follow-up (n=19; p<0.022). AKI requiring renal replacement therapy (RRT) was verified in 12 patients (41.37), overall mortality rate 37.9% (p<0.043). Hepatic transplant was performed in 3 patients, with a 100% survival at 28-day and 90-day of follow-up (p<0.023).

AKI	Outcome 28 and 90-day		Total
	Alive	Deceased	
No	4	1	5
Yes	5	19	24
Total	9	20	29

Fisher's Exact test: p<0.02

AKI/RRT	Outcome 28 and 90-day		Total
	Alive	Deceased	
No	8	9	17
Yes	1	11	12
Total	9	20	29

Fisher's Exact test: p<0.043

CONCLUSIONS: ACLF is a heterogeneous syndrome, with a variety of etiologies of cirrhosis and precipitant factors. Most cases will have some degree of renal dysfunction, with an increased risk of mortality. Hepatic transplant is an efficient form of therapy for this syndrome.

References:

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