The role of cirrhosis etiology in the development of acute kidney injury and death

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Introduction and Objectives: : Patients with hepatic cirrhosis (HC) are at risk of developing acute kidney injury (AKI) due to multiple factors. The main types of AKI are hypovolemia, acute tubular necrosis (ATN), and urinary obstruction. Common causes of HC include MAFLD, alcohol consumption, viral and autoimmune diseases, which may have a different role in the risk for AKI and mortality. This study aims to assess the etiology of cirrhosis in the development of acute kidney injury (AKI) and mortality.

Materials and Patients: Retrospective, analytical, observational study of patients with CH, analyzing etiology, type of AKI, and mortality. Statistical analysis: Using the Log-Rank test, the Kaplan-Meier curve was performed considering death at 28 and 90 days to assess the mortality rate associated with etiology. The Chi-square test with Bonferroni correction was conducted to evaluate the association between etiology and type of AKI; a significance level of ≤ 0.05 was considered.

Results: A total of 201 patients with CH were included, 106 of them being male (52.73%), with an average age of 55 $\pm$ 10.4 years. Child-Pugh classification distribution was as follows: A: 25 (12.43%), B: 70 (34.82%), and C: 106 (52.73%). The average MELD-Na score was 21.8 $\pm$ 9.45 points. The cumulative mortality rate at 28 days was 18.4% (37); the comparison by etiology showed statistical significance with a Chi-square test of 13.23 (4), p=0.01. The mean survival for MAFLD was 27.7, alcohol-related was 23.8, autoimmune was 24.1, viral was 25.92, and dual etiology was 22.56, with an overall survival of 24.88. The comparison at 90 days was significant, with a Chi-square test of 10.46 (4), p=0.033, and a cumulative mortality rate of 24.4% (49). The mean survival for MAFLD was 86.82, alcohol-related was 70.02, autoimmune was 67.03, viral was 80.07, dual etiology was 66.56, and the overall survival was 74.84. Association tests between etiology and type of renal injury showed statistical significance, with a Chi-square test of 29.65 (8), p=<0.001. Differences were found between the alcohol-hypovolemic group and the non-renal injury and ATN groups.

Conclusions: Dual etiology and autoimmune factors confer higher mortality at 28 and 90 days, respectively, while alcohol consumption increases the risk of AKI due to hypovolemia.

Ethical statement

The protocol was registered and approved by the Ethics Committee. The identity of the patients is protected. Consentment was obtained.

Declaration of interests

None

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Figure 2. Area Under Receiver. Operating Characteristics Curve (AUROC) of renal injury and non-renal injury for predicting 28-day survival

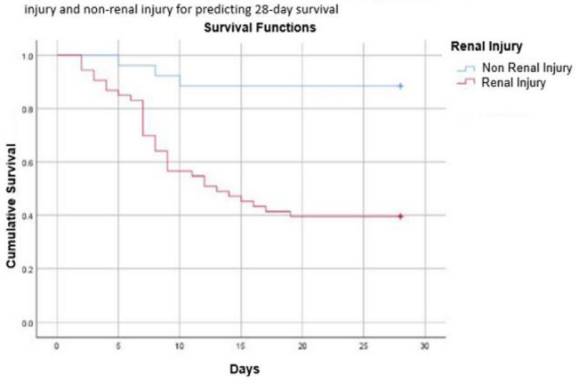

Figure 1. 28-day survival by etiology of Hepatic Cirrhosis.

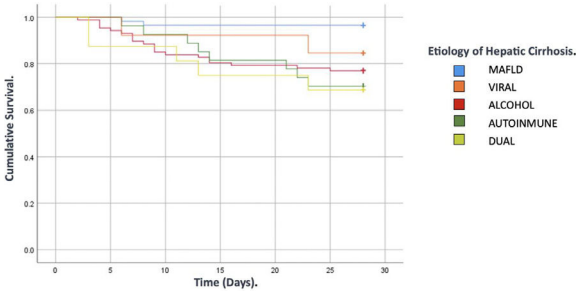

Figure 2. 90-day survival by etiology of Hepatic Cirrhosis.

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Evaluation of severity and survival scales in acute-on-chronic liver failure(ACLF) in a Mexican population sample.

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Introduction and Objectives: ACLF is a syndrome characterized by multiorgan failure due to acute decompensation in chronic liver disease, with high short-term mortality. Therefore, scales have been designed to predict prognosis and early mortality. Evaluation of MELD, MELD NA, MELD LACTATE, and MELD 3.0 scales for survival prediction in ACLF patients

Materials and Patients: Observational, retrospective, and analytical study, scales were calculated, and sensitivity (S) and specificity (E) were determined using CLIF-C-ACLF as reference through ROC curves. Cut-off points were established at the maximum values of S and E. Cumulative mortality percentage by Kaplan-Meier, and comparison of ACLF grades with the Long-Rank test with p<0.005.

Results: 233 patients were included, 165 (71%) males, with a mean age of 52 years $\pm$ 12.96. The etiology was alcohol-related in 158 (68%) cases. ACLF grade distribution, it was 1: 37%, 2: 41%, and 3: 22%. The MELD 3.0 showed the highest discriminatory power for ACLF grade 3, with AUC of 0.91 (95% CI:0.86-0.96), a cut-off point of 34.5, sensitivity of 86%, and specificity of 80% (Figures 1). The 2-year mortality rate was 123 (52%); 30 (35%), 51 (53%), and 42 (82%) for grades 1, 2, and 3, respectively, with a significant Log-Rank test, chi-square = 34.99, p