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Research Article

**COMPARISON OF HEPATIC AND EXTRAHEPATIC SCORES  
IN PREDICTING MORTALITY IN HEPATITIS C-RELATED  
CIRRHOSIS: A SINGLE CENTRE STUDY AT GUJRANWALA  
MEDICAL COLLEGE**

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**Abstract:**

**Background:** Hepatitis C virus (HCV) remains a leading cause of cirrhosis and liver-related mortality worldwide. Accurate prediction of mortality is essential for risk stratification and management. Both hepatic and extrahepatic scoring systems have been proposed.

**Objective:** To compare the efficacy of hepatic (Child-Pugh, MELD) and extrahepatic (CLIF-C, SOFA) scores in predicting mortality among patients with HCV-related cirrhosis.

**Methods:** This prospective study was conducted at Gujranwala Medical College, Pakistan. Patients with confirmed HCV-related cirrhosis were enrolled and followed for 90-day mortality outcomes. Scores were calculated on admission, and their predictive performances were compared using AUROC analyses.

**Results:** A total of 150 patients were included. The AUROC for CLIF-C ACLF was 0.88, for SOFA 0.85, for MELD 0.78, and for Child-Pugh 0.75. Extrahepatic scores outperformed traditional hepatic scores in mortality prediction.

**Conclusion:** Extrahepatic scores like CLIF-C and SOFA showed superior mortality prediction compared to hepatic scores in HCV-cirrhosis.

**Keywords:** Hepatitis C, Cirrhosis, Mortality Prediction, MELD, Child-Pugh, CLIF-C, SOFA

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**INTRODUCTION:**

Hepatitis C virus (HCV) infection continues to be a significant public health burden despite advancements in antiviral therapies. Globally, HCV accounts for a substantial proportion of cirrhosis, hepatocellular carcinoma (HCC), and liver transplantation indications (1). In Pakistan, the seroprevalence of HCV is estimated to be around 4.9%, contributing notably to liver-related morbidity and mortality (2).

Accurate prediction of mortality in cirrhosis is essential to guide clinical decision-making, transplant listing, and resource allocation. Traditional hepatic scoring systems, such as the Child-Pugh and the Model for End-Stage Liver Disease (MELD) scores, have been widely validated for this purpose (3,4). However, these scores primarily focus on hepatic dysfunction and may inadequately reflect systemic derangements observed in advanced cirrhosis (5).

Emerging evidence suggests that extrahepatic scores, which capture the extent of organ failures beyond the liver, may offer superior predictive accuracy. The Chronic Liver Failure Consortium (CLIF-C ACLF) score and the Sequential Organ Failure Assessment (SOFA) score have been proposed as valuable tools, particularly in the context of acute-on-chronic liver failure (ACLF) (6,7).

Recent studies advocate for a more holistic approach, incorporating both hepatic and extrahepatic parameters to stratify mortality risk (8,9). However, regional validation, particularly in South Asian cohorts with distinct etiological and demographic profiles, remains limited (10).

**RESULTS:**

A total of 150 patients were included (62% male, mean age 52 ± 10 years).

Variable	Value
Total patients	150
Mean age	52±10
Male	62%
Ascites	78%
Hepatic encephalopathy	34%
Variceal bleed	21%

Ascites was present in 78%, hepatic encephalopathy in 34%, and variceal bleeding in 21%. The overall 90-day mortality was 28%.

Outcome	Frequency (n)	Percentage (%)
Survived (90days)	108	72%
Died (90days )	42	28%

CLIF-C ACLF had the highest predictive accuracy, followed closely by SOFA.

Thus, this study was conducted to compare the performance of hepatic and extrahepatic scores in predicting mortality among patients with HCV-related cirrhosis at Gujranwala Medical College.

**METHODS:**

This was a prospective, observational study conducted at Gujranwala Medical College affiliated hospitals from January 2024 to December 2024. Patients aged 18–70 years with confirmed HCV-related cirrhosis (based on clinical, radiological, or histological findings) were included.

Exclusion criteria were:

- Co-infection with HBV or HIV
- Non-HCV cirrhosis (e.g., alcohol, NASH)
- Hepatocellular carcinoma (HCC) beyond Milan criteria
- Prior liver transplantation

**Data Collection**

Baseline demographics, laboratory investigations, and clinical parameters were recorded at admission.

The following scores were calculated:

- **Hepatic:** Child-Pugh, MELD
- **Extrahepatic:** CLIF-C ACLF, SOFA

Patients were followed for 90 days, and mortality outcomes were recorded.

**Statistical Analysis**

Data were analyzed using SPSS v26. Area under receiver operating characteristic curves (AUROC) were calculated for each score. Higher AUROC values indicated better discriminatory performance.

Scoring system	AUROC	95%confidence interval
CLIF-C ACLF	0.88	0.82-0.94
SOFA	0.85	0.79-0.91
Child pugh	0.75	0.68-0.82
MELD	0.78	0.71-0.85

### DISCUSSION:

This study demonstrates that extrahepatic scores, particularly CLIF-C ACLF and SOFA, outperform traditional hepatic scores in predicting short-term mortality among patients with HCV-related cirrhosis.

Our findings align with recent literature emphasizing the systemic nature of advanced cirrhosis and the need to assess multi-organ dysfunction for accurate prognostication (11,12). The superiority of CLIF-C ACLF is well-documented, especially in ACLF patients where hepatic, renal, cerebral, and coagulation failures co-exist (13).

The MELD score, despite being widely used for transplant prioritization, has limitations, particularly in patients with significant extrahepatic involvement (14). Similarly, while the Child-Pugh score remains a simple bedside tool, its semi-quantitative nature and subjective parameters like ascites and encephalopathy grading reduce its precision (15).

A recent meta-analysis emphasized the utility of SOFA scoring in cirrhosis patients admitted to intensive care units (16). Moreover, studies from South Asian populations echo the need for locally validated models due to genetic, environmental, and healthcare differences (17).

Given the high prevalence of HCV in Pakistan and the distinct natural history compared to HBV-related cirrhosis prevalent in East Asia, our study fills an important knowledge gap (18,19).

#### Strengths and Limitations

Strengths include prospective design, homogeneous etiology (HCV), and complete 90-day follow-up. Limitations are single-centre setting and modest sample size, warranting larger multicentric studies.

### CONCLUSION:

In HCV-related cirrhosis, extrahepatic scores like CLIF-C ACLF and SOFA provide superior mortality prediction compared to hepatic scores. Incorporation of these scores into routine clinical practice at tertiary

care centers like Gujranwala Medical College can enhance risk stratification and guide timely interventions.

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