

**Predicting Outcomes in Hepatocellular Carcinoma Surgery: ALBI is the Better Tool.  
An Observational Cohort Study**

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**Abstract**

**Background:** Hepatic resection is a key curative option for hepatocellular carcinoma (HCC), but postoperative morbidity and early mortality remain significant concerns, especially in patients with impaired liver function. Accurate preoperative risk stratification is essential to improve outcomes. This study compares the predictive value of three liver function scores – MELD, ALBI, and Child-Pugh – for postoperative morbidity and 30-day mortality.

**Methods:** A retrospective study was conducted on 55 patients who underwent hepatic resection for HCC between 2013 and 2024 at a single tertiary center. Preoperative MELD, ALBI, and Child-Pugh scores were calculated and analyzed in relation to postoperative complications and mortality. Diagnostic performance was assessed using sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and ROC curves.

**Results:** Postoperative morbidity occurred in 23.6% of patients, with a 30-day mortality rate of 9.1%. The ALBI score showed the highest specificity (73.8%) and NPV (81.6%) for morbidity prediction. It also demonstrated perfect sensitivity (100%) and NPV (100%) for post-hepatectomy liver failure (PHLF), with an AUC of 0.85. Patients with ALBI Grade 1 had fewer complications and shorter hospital stays. MELD showed moderate predictive value, particularly in ruling out mortality. The Child-Pugh score had the weakest performance, primarily due to low sensitivity.

**Conclusion:** ALBI is the most accurate and objective score for identifying high-risk patients undergoing liver resection for HCC. MELD provides additional value in mortality exclusion. The limited sensitivity of Child-Pugh suggests it should be used with caution. Incorporating ALBI into preoperative assessment may enhance surgical decision-making and risk stratification.

**Keywords:** hepatocellular carcinoma, hepatic resection, MELD, ALBI, Child-Pugh