Topic : Liver

PREDICTING POST-HEPATECTOMY LIVER FAILURE IN HCC PATIENTS UNDERGOING MAJOR LIVER RESECTION AND ITS CLINICAL UTILITY: A MULTI-CENTER RETROSPECTIVE STUDY

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Background : Post-hepatectomy liver failure (PHLF) is a severe complication with a negative clinical impact. However, a reliable predictive model for PHLF has yet to be established. This study aims to predict PHLF using preoperative factors and to evaluate its impact on long-term outcomes in HCC patients undergoing major liver resection.

Methods : This study enrolled 1,037 patients undergoing liver resection exceeding sectionectomy across three high-volume centers between 2012 and 2021. PHLF was diagnosed based on the International Study Group of Liver Surgery (ISGLS) definition. After exclusion, the final study cohort of 925 patients comprised 159 (17.2%) patients in the PHLF group and 766 (82.8%) in the non-PHLF group.

Results : In the total cohort, PHLF was diagnosed in 159 patients (17.2%) by ISGLS criteria, 16 (1.7%) by 50-50 criteria, and 9 (1.0%) by peak bilirubin criteria. In multivariate regression analysis, significant risk factors for PHLF were positive HBV (odds ratio 1.97, P=0.003), ALBI grade 2 (OR 2.36, P<0.001), ICG R-15 (\geq 15%, OR 1.73, P=0.006), number of resected segments (OR 1.610, P<0.001), and transfusion (OR 1.981, P<0.001). Based on these risk factors, we developed a nomogram for predicting PHLF (AUC 0.736). The PHLF group showed worse overall and recurrence-free survival (both P<0.001). Furthermore, PHLF negatively impacted overall survival (hazard ratio 1.432, P=0.031).

Conclusions : The risk factors and novel nomogram, which adequately reflect liver function and the extent of resection, could effectively predict the risk of PHLF in HCC patients undergoing major liver resection. This approach enables preoperative risk assessment and facilitates tailored surgical planning.

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