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Development And Validation Of Prealbumin-Bilirubin Score (preALBI Score) For Predicting Long-term Prognosis After Hepatectomy For Hepatocellular Carcinoma: A Multicenter Analysis Versus ALBI Score

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Background : The albumin-bilirubin (ALBI) grade, a recently described novel index of liver functional reserve based solely on albumin and bilirubin levels, has been shown to be independently predicted long-term prognosis after hepatectomy for hepatocellular carcinoma (HCC). However, serum albumin level is unstable and susceptible to peripheral albumin infusion or blood transfusion. In this study, given the stability of serum prealbumin level, we aimed to develop a modified ALBI grade (preALBI grade) by substituting prealbumin for albumin

Methods : From a multi-institutional database, 2590 eligible patients were enrolled, and randomly assigned to the training and validation cohorts. Prealbumin as the independent survival predictor was identified and used to modify the ALBI grade in the training cohort. The predictive performance was assessed using Akaike's information criterion (AIC), concordance index (C-index), and time-dependent receiver operating characteristic, which was further validated by the validation cohort and compared with conventional scores

Results : The equation used to calculate the prealbumin-bilirubin (preALBI) score was as follows: preALBI score = $0.452 [\log_{10} \text{bilirubin (umol/L)}] - 0.397 [\text{prealbumin (g/dl)}]$. The median OS times of preALBI grade 1 and 2 were 102.6 and 44.7 months ($P < 0.001$), respectively. The stratifying ability of preALBI grade was excellent and its AIC and C-index was better as compared to those of ALBI and Child-Pugh grade in the training and validation cohorts (11325.64/0.615 and 5769.781/0.632). In addition, the 1-, 3-, and 5-year area under curve (AUC) of ROC in the training cohort were 0.615, 0.663, and 0.644, respectively, and 0.686, 0.664, and 0.666 in the validation cohort

Conclusions : The preALBI score, including prealbumin and bilirubin, showed satisfactory performance of individualized prediction for patients with HCC after hepatectomy, which might replace the conventional ALBI grade in the future

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