

Multi-institutional Development And Validation Of Modified Albumin-Bilirubin Grade For Predicting Prognosis Of Hepatocellular Carcinoma Patients After Hepatectomy

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Background : The albumin-bilirubin (ALBI) score is acknowledged as one of the most commonly used systems for assessment of liver function in hepatocellular carcinoma (HCC) patients. However, the serum albumin level is unstable, and can be affected by many factors. Therefore, we developed a modified ALBI grade to help better predict prognosis in HCC patients after hepatectomy.

Methods : In this study, we retrospected data from 1531 patients with HCC after hepatectomy to modify the ALBI grading, that replaced the serum albumin with serum prealbumin. We tested the model using similar cohorts from other clinical centers (n = 878). The time-dependent receiver operating characteristic (ROC) were used to test the prognostic performance of this model in predicting overall survival (OS) and recurrence-free survival (RFS).

Results : The equation used to calculate the prealbumin-bilirubin (preALBI) score was as follows: preALBI score = $0.452 \times [\log_{10} \text{bilirubin (}\mu\text{mol/L)}] - 0.397 \times [\text{prealbumin (g/dl)}]$. The median OS and RFS of preALBI grades 1 and 2 were 102.6, 44.7 months and 52.6, 21.7 months ($P < 0.001$), respectively. The median OS and RFS of ALBI grades 1 and 2 were 91.6, 48.6 months and 47.6, 22.6 months ($P < 0.001$), respectively. The median OS and RFS of Child-Pugh grades A and B were 83.9, 39.4 months and 39.3, 18.9 months ($P < 0.001$), respectively. The preALBI grades showed good ability for the stratification of prognoses. Time-dependent ROC analysis showed that the area under the curve of preALBI for predicting OS was greater than that of ALBI and Child-Pugh grade at most time points.

Conclusions : The preALBI grade is a useful predictor for patients with HCC after hepatectomy, which might replace the conventional ALBI grade in the future.

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