

Objective: Prognosticating outcomes in liver transplant (LT) for hepatocellular carcinoma (HCC) continues to challenge the field. Whereas adoption of the binary Milan Criteria (MC) generalized the practice of LT for HCC and improved outcomes, its predictive character has degraded with increasing candidate and tumor heterogeneity. We sought to validate and recalibrate a previously developed, preoperatively calculated risk score, the hazard associated with liver transplantation in HCC (HALTHCC) in an international cohort.

Methods: This cohort from 2002-14 consisted of 4085 patients (both MC in and out [25.2%]) across 16 centers in North America, Europe, and Asia. A continuous risk score using pre-LT levels of alpha fetoprotein, model for end stage liver disease sodium score, and tumor burden score was recalibrated amongst a randomly selected cohort (n=1016) and validated in the remainder (n=3079).

Results: This international study was used to adjust the coefficients in the HALTHCC score. Before recalibration, HALTHCC had the greatest discriminatory ability for overall survival (C-index=0.61) compared to all previously reported, preoperatively assessable scores. Following recalibration, the prognostic utility increased for both recurrence (C-index=0.71) and overall survival (C-index=0.63). Conclusion: HALTHCC can be used to assess risk of poor post-LT outcome with greater accuracy than other competing scores and is easily generalizable around the world. Allocation policy adjustment incorporating candidate risk warrants further investigation.