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Validation Of The French AFP Model As A Predictor Of Recurrence Following Hepatectomy For Hepatocellular Carcinoma A Large Multicenter Cohort Study

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Background : The French alpha-fetoprotein (AFP) model has showed superior value when compared to the Milan criteria in predicting recurrence after liver transplantation for hepatocellular carcinoma (HCC). This study aimed to identify the predictability of the AFP model for HCC recurrence after hepatic resection.

Methods : The multicenter data on patients who underwent hepatic resection for HCC from 2002 to 2021 were analyzed. Cumulative recurrence and overall survival (OS) rates were compared between patients within (AFP score≤2 points) and beyond (>2 points) the AFP model. Predictability of recurrence between the AFP model and the Milan criteria was compared using the Net Reclassification Improvement (NRI) and area under the receiver operating characteristic curve (AUROC) analyses.

Results : Among 1968 patients, 1058(53.8%) and 940(47.8%) patients were beyond the AFP model and the Milan criteria, respectively. After excluding confounding factors by multivariate analyses, beyond the AFP model was independently associated with increased recurrence rate (hazard ratio [HR]:1.618; P<0.001) and worse OS (HR:1.538; P<0.001). Time-dependent NRI and AUROC analyses showed superior predictability of the AFP model when compared with the Milan Criteria. Among the subgroup of patients beyond the Milan criteria, beyond the AFP model predicted the increased risks of recurrence and mortality by 50% (HR:1.505 and 1.474).

Conclusions : The AFP model predicted better HCC recurrence after hepatic resection than the Milan criteria. It also predicted oncological prognosis well for patients with HCC beyond the Milan criteria. These results are important in surgical decision-making, in planning enhanced recurrence surveillance and in considering whether to give neoadjuvant/adjuvant therapy.

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