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Prognostic Performance of the China Liver Cancer Staging System in Hepatocellular Carcinoma Following Transarterial Chemoembolization

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Background and Objectives

To validate prognostic performance of the China liver cancer (CNLC) staging system as well as to compare these parameters with those of the Barcelona Clinic Liver Cancer (BCLC) staging system for Chinese hepatocellular carcinoma (HCC) treated with transarterial chemoembolization (TACE).

Methods

This multicentric retrospective study included 1124 patients with HCC between January 2012 and December 2020 from six Chinese hospitals. Based on overall survival (OS), the prognostic performance outcomes for the CNLC and BCLC staging systems were compared according to model discrimination [C statistic and Akaike information criterion (AIC)], monotonicity of the gradient (linear trend chi-square test), homogeneity (likelihood ratio chi-square test), and calibration (calibration plots).

Results

The median OS was 19.1 (18.2-20.0) months, with significant differences in OS between stages defined by the CNLC and BCLC observed ($P < 0.001$). The CNLC performed better than the BCLC regarding model discrimination (C-index: 0.661 vs. 0.644; AIC: 10583.28 vs. 10583.72), model monotonicity of the gradient (linear trend chi-square test: 66.107 vs. 57.418; $P < 0.001$), model homogeneity (159.2 vs. 158.7; $P < 0.001$). Both staging systems demonstrated good model calibration.

Conclusions

Combining model discrimination, gradient monotonicity, homogeneity, and calibration, the CNLC performs better than that of the BCLC for Chinese HCC receiving TACE.