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Tumor marker-based risk assessment of hepatocellular carcinoma recurrence after liver transplantation

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Introduction : We assessed the prognostic power of tumor markers in predicting risk of hepatocellular carcinoma (HCC) recurrence after liver transplantation (LT).

Methods : This study include 937 recipients who underwent LT for HCC between 2007 and 2013 and followed up until 2018. Tumor recurrence rate (TRR) and patient survival rate (PSR) were assessed according to pretransplant alpha-fetoprotein (AFP) and PIVKA-II.

Results : During follow-up, 174 patients (16.2%) showed HCC recurrence and 1-, 3- and 5-year TRRs were 10.8%, 17.0% and 18.8%, respectively. 1-, 3-, 5- and 10-year PSRs were 94.8%, 85.5%, 82.0% and 79.8%, respectively. AFP and PIVKA-II were multiplied to make AP score in log10 scale. 3-year TRR were 8.5% in 265 patients with AP score <=2log, 11.8% in 345 patients with AP score 2-3, 18.5% in 202 patients with AP score 3-4, 33.8% in 80 patients with AP score 4-5, and 72.3% in 45 patients with AP score >5. 3-year TRRs were 10.4% in 610 patients with AP score <=2.5 log and 29.7% in 327 patients with AP score >2.5log. 3-year TRRs were 10.4% in 610 patients with AP score <=2.5 log and 29.7% in 327 patients with AP score >2.5log ($p < 0.001$). 3-year TRRs were 14.9% in 890 patients with low MoRAL score and 58.4% in 47 patients with high MoRAL score ($p < 0.001$).

Conclusions : Tumor maker-based prognostic cutoff should be determined by the balance between patient prevalence and prognostic contrast, thus AP score of 2.5log (or up to 4log) appears to be more widely applicable than MoRAL score.

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