Topic : Liver

## TEN YEAR EFFICACY: THE ENDURING ROLE OF AFP AND PIVKA-II IN HCC AFTER LIVING DONOR LIVER TRANSPLANTATION

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**Background**: We sought to validate and compare the efficacy of AFP and PIVKA-II with complex prognostic models for predicting HCC recurrence and survival in living donor liver transplantation (LDLT) over 10 years.

**Methods** : A single-center retrospective analysis of 793 adult HCC patients undergoing LDLT from 2003.01 to 2022.06 was performed. Patients were categorized into Milan and beyond Milan groups. HCC recurrence and mortality prediction scores and criteria (RETREAT, SNAPP, MoRAL, R3-AFP, METROTICKET 2.0, SALT), along with AFP and PIVKA-II levels, were assessed using time-dependent receiver operating characteristic curve analysis and C-index.

**Results** : In the Milan group, AFP achieved an iAUC of 0.59 (95%CI: 0.51-0.69) and a C-index of 0.61 for recurrence prediction (95%CI: 0.53-0.68). PIVKA-II non-significantly outperformed AFP (iAUC: 0.69 [0.62-0.76]; C-index: 0.68 [0.61-0.75]; p = 0.44). Integrated models, such as SNAPP $\geq$ 5 (C-index: 0.94 [0.84-1.00]) and R3-AFP (C-index: 0.77 [0.49-1.00]) yielded higher C-indices, but did not outperform AFP or PIVKA-II in iAUC (p > 0.05). In the Beyond Milan group, AFP (iAUC: 0.66 [0.58-0.74]) and PIVKA-II (iAUC: 0.69 [0.61-0.77]) performed similarly (p = 0.56). Integrated models, such as PIVKA-II (iAUC, 0.71; [0.63-0.79]) and SNAPP did not significantly outperform AFP or PIVKA-II alone (p > 0.54). Mortality prediction models, such as MoRAL and METROTICKET 2.0, performed similar to AFP alone (p > 0.05).

**Conclusions** : AFP and PIVKA-II levels demonstrated similar efficacy to complex models in predicting 5-year post-LDLT recurrence. Both tumor markers are validated as reliable indicators for assessing recurrence risk independently, providing valuable insights in resource-limited settings over 5 years or more.

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