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Prognostic value of preoperative protein induced vitamin K absence or antagonist II after hepatectomy for hepatitis B related hepatocellular carcinoma: Nationwide multicenter study

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Introduction: The prognostic value of PIVKA-II has been insufficiently elucidated. This study is aimed to determine the prognostic value of preoperative serum PIVKA-II after hepatectomy for hepatitis B related HCC.

Methods: The nationwide multicenter database of the Korean Liver Cancer Association was reviewed. Patients with hepatitis B related HCC who underwent liver resection as a first treatment after initial diagnosis between 2008 and 2014 were selected. Comparative analysis between low versus high PIVKA-II was performed. Survival outcomes of propensity score-matched groups were compared. Kaplan–Meier and multivariable analyses were performed to identify risk factors for disease-specific survival. Univariable and multivariable Cox proportional hazards regression were used.

Results: Among 6,770 randomly selected patients with hepatitis B related HCC, 987 patients were included. The disease-specific 5-year survival rate was 84.6% in patients with PIVKA-II of 106.5 mAU/mL or less compared with 76.3% for those with a level exceeding 106.5 mAU/mL ($p = 0.041$). After propensity score matching, the two groups were well balanced ($n = 263$, each). In univariable analysis, high PIVKA-II (> 106.5 mAU/mL) was a significant predictor for worse survival (hazard ratio [HR], 1.527; $p = 0.047$). In multivariable analysis, lymph node positivity (HR, 6.123; $p = 0.023$), hyponatremia (< 135 mEq/L) (HR, 4.187; $p = 0.002$), tumor size ≥ 5.0 cm (HR, 3.399; $p < 0.001$), preoperative ascites (HR, 3.874; $p = 0.001$), microvascular invasion (HR, 2.639; $p = 0.001$), thrombocytopenia ($< 100 \times 10^3/\mu\text{L}$) (HR, 2.620; $p = 0.001$), and multiple HCC (HR, 2.068; $p = 0.007$) were independent predictors for worse disease-specific survival, but not preoperative high PIVKA-II.

Conclusions: Preoperative high PIVKA-II is significantly associated with worse disease-specific survival after hepatectomy for hepatitis B related HCC, nonetheless, not a strong prognostic factor.

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