

Prothrombin Induced By Vitamin K Absence-II Versus Alpha-fetoprotein In Detection Of Both Resectable Hepatocellular Carcinoma And Early Recurrence After Curative Liver Resection

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Background : Alpha-fetoprotein (AFP) and prothrombin induced by vitamin K absence-II (PIVKA-II) are two commonly used biomarkers for detection and prognostic prediction of hepatocellular carcinoma (HCC). This study sought to evaluate and compare the use of these values to detect HCC, as well as predict postoperative early recurrence (within 2 years after HCC resection).

Methods : Data on patients who underwent curative resection for HCC between 2014 and 2020 was prospectively collected and reviewed. Serum AFP and PIVKA-II levels within one week before surgery or at the time of detection of early recurrence were assessed; the AFP ≥ 20 ng/ml and PIVKA-II ≥ 40 mAU/ml were examined relative to recurrence using univariate and multivariate Cox-regression analyses.

Results : Among 751 patients who underwent curative HCC resection, 589 (78.4%) patients had a preoperative PIVKA-II ≥ 40 mAU/ml versus 498 (66.3%) patients had an AFP ≥ 20 ng/ml ($P < 0.001$). With a median follow-up of 41.6 months, 370 (50.1%) patients had an early HCC recurrence; among patients with an early recurrence, the proportion of patients with PIVKA-II ≥ 40 mAU/ml versus AFP ≥ 20 ng/ml (76.5% vs. 60.0%, $P = 0.002$) was higher. On multivariate analysis, preoperative PIVKA-II ≥ 40 mAU/ml, yet not preoperative AFP ≥ 20 ng/ml was an independent risk factor to predict early recurrence after HCC resection.

Conclusions : AFP and PIVKA-II are useful biomarkers to detect resectable HCC and predict early recurrence after HCC resection, with the latter showing higher positive rates. Preoperative PIVKA-II ≥ 40 mAU/ml was independently associated with early recurrence following curative HCC resection.

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