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Non-invasive Biomarkers, FIB-4 And APRI Index, As Predictors For Prognosis Of Hepatocellular Carcinoma Patients After Curative Hepatectomy

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Background : Although many staging systems and liver reserve models were not developed to predict HCC recurrence and overall survival, the few studies, which have investigated their prognostic values in predicting prognosis of HCC patients after curative hepatic resection. Among those non-invasive biomarkers, we try to evaluate the value of FIB-4 and APRI as prognostic predictors.

Methods : Between 2006 and 2013, 973 patients were diagnosed with HCC and underwent hepatic resection at the Department of General Surgery of Samsung Medical Center, Korea. All biomarkers were calculated at the time of HCC diagnosis (FIB-4, APRI, AAR, AARPRI and ALBI). For all biomarkers , univariable and multivariable analysis was performed on recurrence free survival and overall survival by binary division by the cut-off value of the ROC curve.

Results : FIB-4 and APRI, which had higher AUC values for RFS and OS, compared to other biomarkers, were included in multivariable analysis. The AUROC values for APRI were the largest for RFS and OS, 0.607 (95% CI, 0.572-0.640) and 0.623 (95% CI, 0.575-0.676), respectively. For FIB-4, they were 0.573 (95% CI, 0.536-0.612) and 0.568 (95% CI, 0.505-0.613), respectively. Those two indices are considered statistically significant risk factors for prognosis of HCC patients after hepatic resection. For APRI, HR for OS and RFS were 1.846 (95% CI 1.190-2.862, P=0.006) and 1.762 (95% CI 1.357-2.287, P=0.000), respectively, and for FIB-4, 1.559 (95% CI 1.002-2.425, P=0.049) and 1.315 (95% CI 0.996-1.737, P=0.053)

Conclusions : In our study, non-invasive biomarkers such as FIB-4 and APRI were statistically significant and meaningful as a predictor of prognosis after curative hepatectomy in HCC patients. Because post-operative complications, other models representing liver function reserve, and pathologic findings of HCC itself also influence the prognosis, rather than simply judging based on the above two indices, the significance of this study can be found in emphasizing the significance of a method that can be used as a reference when there is difficulty in predicting or making a decision using the conventional method in curative hepatectomy.

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