EP 024

Performance Comparisons Of Two Biomarker-based Panels For Early Diagnosis Of Hepatocellular Carcinoma In Nonalcoholic Fatty Liver Disease: A Multi-institutional Case-Control Analysis

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Background : The strategy of a combination of several serological biomarkers can enhance predictions. Based on serum-panels plus age and sex, diagnostic algorithm ASAP model and GALAD score have been proposed for hepatocellular carcinoma (HCC) diagnosis and screening. We aimed to compare the diagnostic performance between ASAP model and GALAD model for early diagnosis of HCC in nonalcoholic fatty liver disease (NAFLD).

Methods : A case-control study of 147 patients with NAFLD-HCC and 460 subjects with NAFLD from multi-centers were enrolled. Serums were measured and by using receiver operating characteristic curves (ROC) and corresponding area under the curve (AUC) analyses, the diagnostic performances of each biomarker alone, as well as ASAP model and GALAD score for the diagnosis of any-stage and early-stage NAFLD-HCC (defined by BCLC stage 0/A and TNM stage I) were compared.

Results : Both ASAP model and GALAD score had significantly higher AUCs than each biomarker alone (AFP, PIVKA-II, and AFP-L3) for the diagnosis of any-stage or early-stage NAFLD-HCC. Meanwhile, ASAP model yielded a significantly higher AUC than GALAD score for the diagnosis of any-stage NAFLD-HCC (0.910 vs. 0.879, P = 0.008), with a sensitivity of 80.3% and specificity of 92.8%. In subgroup analyses of early-stage NAFLD-HCC, the AUC of ASAP model exhibit comparable performance to that of GALAD score (BCLC stage 0/A: 0.898 vs. 0.874, and TNM stage I: 0.887 vs. 0.625, P = 0.070 and 0.052 respectively).

Conclusions : ASAP model has more diagnostic accuracy than GALAD score for the diagnosis of any-stage or early-stage HCC in patients with NAFLD.

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