Predictability of noninvasive liver fibrosis score for cardiac events in patients with nonalcoholic fatty liver disease

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Background: Patients with nonalcoholic fatty liver disease (NAFLD) have a higher risk of cardiac events. Although the severity of liver fibrosis is related to worsening prognosis in patients with NAFLD, it is unclear whether the noninvasive liver fibrosis score has a predictive value for cardiac events.

Purpose: To investigate the relationship between noninvasive liver fibrosis score and the future risk of cardiac events.

Methods: Among 13,368 patients with NAFLD diagnosed using ultrasonography, 4,071 patients were evaluated. Liver fibrosis was assessed and divided into three groups based on the Fibrosis-4 (FIB4) index (cut-off value of 1.30 and 2.67) and NAFLD fibrosis score (NFS) (cut-off values of -1.455 and 0.676), respectively. The primary outcome of this study was major adverse cardiac events (MACE), including cardiac death, nonfatal myocardial infarction, and revascularization due to coronary artery disease.

Results: The median age of the evaluated patients was 61 [52–69] years, and 2,201 [54.1%] were male. After a median follow-up period of 6.6 years, 179 (4.4%) patients experienced MACE. Kaplan–Meier survival analysis demonstrated that MACE increased progressively with the FIB4 index (log-rank, p < 0.001) and NFS (log-rank, p < 0.001). Multivariable analysis showed that the higher the FIB4 index, the higher the risk for MACE (compared to the group [reference] with low FIB4 index values, hazard ratio [HR] was 1.860 for the group with intermediate FIB4 index values [95% confidence interval (CI), 1.326–2.610; p < 0.001] and 3.325 for the group with high FIB4 index values [95% CI, 2.017–5.479; p < 0.001]), and the higher the NFS, the higher the risk for MACE (compared to the group [reference] with low NFS values, HR was 1.938 for the group with intermediate NFS values [95% CI, 1.391–2.699; p < 0.001] and 3.492 for the group with high NFS values [95% CI, 1.997–6.105; p < 0.001]).

Conclusions: The FIB4 index and NFS impacted the predictability of MACE in patients with NAFLD.