Freiburg index of post-TIPS survival (FIPS) identifies patients at risk of further decompensation and ACLF after TIPS

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Abstract

Background & aims: The Freiburg index of post-TIPS survival (FIPS) defines a high-risk group of patients with significantly reduced survival following transjugular intrahepatic portosystemic shunt (TIPS) implantation. However, the clinical hallmarks responsible for these patients' unfavorable outcome remain to be identified. Therefore, the present study aimed to characterize the clinical course after TIPS implantation according to the FIPS.

Methods: A total of 1,359 patients with cirrhosis allocated to TIPS implantation for treatment of recurrent or refractory ascites or secondary prophylaxis of variceal bleeding from eight tertiary centers were retrospectively included. The patients' clinical course following TIPS placement was analyzed, stratified according to the FIPS. The primary study outcome was further decompensation within 90 days after TIPS; secondary outcomes were acute-on-chronic liver failure (ACLF) within 90 days and 1-year transplant-free survival.

Results: Further decompensation after TIPS implantation was significantly more frequent in FIPS high-risk patients compared to low-risk patients (cumulative incidence function 0.58 vs. 0.38, p <0.001). Moreover, FIPS high-risk patients developed ACLF significantly more often (0.18 vs. 0.08; p = 0.008). Uni- and multivariable competing risk regression analyses confirmed that high-risk FIPS independently predicted further decompensation (subdistribution hazard ratio 1.974; 95% CI 1.531-2.544; p <0.001) and ACLF

(subdistribution hazard ratio 2.586; 95% CI 1.449-4.616; p = 0.001) after TIPS. Importantly, further decompensation and ACLF after TIPS were associated with significantly reduced transplant-free survival.

Conclusions: The present study reveals that the FIPS predicts development of further decompensation and ACLF after TIPS implantation. These events are responsible for impaired transplant-free survival in FIPS high-risk patients. These results pave the way for the development of tailored clinical management strategies.

Impact and implications: Prognostication after transjugular intrahepatic portosystemic shunt (TIPS) implantation is challenging. Several clinical scores have been proposed in this context, such as the Freiburg index of post-TIPS survival (FIPS). The FIPS can identify a high-risk group of patients with significantly reduced survival after TIPS. However, to understand the reasons for these patients' unfavorable outcome, their clinical course after TIPS needs to be characterized. This study reveals that the FIPS predicts development of further decompensation and acute-on-chronic liver failure after TIPS implantation, which are responsible for the poor prognosis of FIPS high-risk patients. Therefore, the present results may be useful for tailored decision making in patients allocated to TIPS implantation.

Keywords: acute-on-chronic liver failure; cirrhosis; portal hypertension; transjugular intrahepatic portosystemic shunt.