

## Hepatic venous pressure gradient measurement before TIPS for acute variceal bleeding

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### Abstract

Hepatic venous pressure gradient (HVPG) is an independent predictor of variceal rebleeding in patients with cirrhosis. After pharmacological and/or endoscopic therapy, the use of a transjugular intrahepatic portosystemic shunt (TIPS) may be necessary in HVPG non-responders, but not in responders. Thus, HVPG measurement may be incorporated into the treatment algorithm for acute variceal bleeding, which further identifies the candidates that should undergo early insertion of TIPS or maintain the traditional pharmacological and/or endoscopic therapy. The potential benefits are to reduce the cost and prevent TIPS-related complications.

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**Key words:** Acute variceal bleeding; Transjugular intrahepatic portosystemic shunt; Hepatic venous pressure gradient; Liver cirrhosis

**Core tip:** If hepatic venous pressure gradient could be measured before a transjugular intrahepatic portosystemic shunt for the treatment of acute variceal bleeding, the invasiveness of treatment strategy would be

further decreased.

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### TO THE EDITOR

In spite of increasing advances in the management of acute variceal bleeding in patients with cirrhosis, it often remains fatal with a 6-wk and 1-year mortality rate of approximately 20% and 60%, respectively<sup>[1]</sup>. In a comprehensive review recently published in the *World Journal of Gastroenterology*, Loffroy *et al*<sup>[2]</sup> summarized the key role of transjugular intrahepatic portosystemic shunt (TIPS) for the treatment of acute variceal bleeding. Notably, a randomized controlled trial indicated that an early decision for TIPS with polytetrafluoroethylene-covered stents could significantly reduce the incidence of variceal rebleeding and improve survival in cirrhosis patients with a Child-Pugh score of 7-13 (*i.e.*, high-risk patients) and acute variceal bleeding<sup>[3]</sup>. The survival benefit of the early use of TIPS was mainly because no fatal episode of early rebleeding occurred in the TIPS group, as compared with the pharmacotherapy-endoscopy group in which five patients died of recurrent variceal bleeding<sup>[3]</sup>. This remarkable finding has potentially challenged the therapeutic strategy recommended by the current practice guidelines that a combination of pharmacological and endoscopic therapy is the most rational approach in the treatment of acute variceal hemorrhage<sup>[4]</sup>. However, as described by Loffroy *et al*<sup>[2]</sup>, TIPS is still not considered as a primary treatment option due to the limited evidence, but as a rescue treatment for bleeding esophageal varices that have failed pharmacological and endoscopic treatments. In line with their comments, the application of early TIPS in all

patients with acute variceal bleeding may be excessive, and combined drug and endoscopic treatment may be effective in a proportion of high-risk patients with acute variceal bleeding. Furthermore, hepatic venous pressure gradient (HVPG) measurement can be incorporated into the algorithm for identifying the candidates for early TIPS in the treatment of acute variceal bleeding.

HVPG measurement within 24 h after admission has been recommended as the best predictor of a poor outcome in patients with cirrhosis with variceal bleeding<sup>[1]</sup>. Patients with acute variceal bleeding are treated with pharmacological and endoscopic therapy, therefore, the risk of variceal rebleeding with the first 5 d of admission is four times greater in patients with HVPG  $\geq 20$  mmHg than in those with HVPG  $< 20$  mmHg<sup>[5]</sup>. Based on these findings, the patients who experience rebleeding after combined drug and endoscopic therapy are considered HVPG non-responders and may be appropriate for early use of TIPS. By contrast, patients without rebleeding may be HVPG responders and inappropriate for early TIPS insertion. Accordingly, to achieve the goal of a minimally invasive treatment strategy, HVPG should be measured before TIPS placement is considered for the treatment of acute variceal bleeding. In this setting, the candidates for the early use of TIPS may be further identified, thereby

decreasing the cost and avoiding the long-term complications of portosystemic shunting.

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