

## Transjugular intrahepatic portosystemic shunt for recompensating decompensated cirrhosis?

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### Abstract

Transjugular intrahepatic portosystemic shunt (TIPS) is a medical procedure that has been used to manage variceal bleeding and ascites in patients with cirrhosis. It can prevent further decompensation and improve the survival of high-risk decompensated patients. Recent research indicates that TIPS could increase the possibility of recompensation of decompensated cirrhosis when it is combined with adequate suppression of the causative factor of liver disease. However, the results of the studies have been based on retrospective analysis, and further validation is required by conducting randomized controlled studies. In this context, we highlight the limitations of the current studies and emphasize the issues that must be addressed before TIPS can be recommended as a potential recompensating tool.

**Key Words:** Decompensated cirrhosis; Liver recompensation; Baveno VII; Transjugular intrahepatic portosystemic shunt

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**Core Tip:** Transjugular intrahepatic portosystemic shunt (TIPS) is a procedure used to manage severe complications of liver cirrhosis, such as variceal bleeding and ascites, that characterize the decompensated state of the disease. Research has shown that TIPS can prevent further decompensation and improve the survival of high-risk cirrhotic patients. Recent studies have also suggested that TIPS may have a positive effect on recompensating decompensated cirrhosis. However, these results are based on retrospective analysis, and several issues remain unclear.

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## INTRODUCTION

Liver cirrhosis is a progressive medical condition that can result in decompensation, characterized by the emergence of complications such as variceal bleeding, ascites, and hepatic encephalopathy. The presence of decompensated cirrhosis is associated with poor outcomes, and liver transplantation is often the only curative measure available[1]. However, research suggests that the progression from compensated to decompensated cirrhosis can be prevented or even reversed to a pre-cirrhotic stage in cases where the causative factor of liver disease is suppressed or eliminated[2]. The Baveno VII group has recently addressed a new concern regarding recompensing previously decompensated cirrhosis. Current recommendations state that recompensation can be achieved by removing, suppressing, or curing the underlying cause. To verify recompensation, patients must experience a resolution of ascites, encephalopathy, and recurrent variceal bleeding for at least 12 months, in addition to a concurrent stable improvement in liver function tests[3].

The retrospective study by Gao *et al*[4] published in the *World Journal of Gastroenterology* demonstrated that patients who had a successful suppression of the causative factor and underwent a transjugular intrahepatic portosystemic shunt (TIPS) insertion had higher recompensation rates in comparison to those patients not undergoing TIPS implementation. In the present issue of *World Journal of Gastroenterology*, Shaaban *et al*[5] discussed certain limitations of Gao *et al*'s study [4]. Firstly, they noticed that the authors had not clarified the nature of chronic viral hepatitis, *i.e.*, the number of patients with chronic hepatitis B virus (HBV) or hepatitis C virus (HCV), and they had not mentioned whether patients with coinfections had also been included. Secondly, the authors failed to specify the nature of other liver diseases. Thirdly, Shaaban *et al*[5] emphasized the requirement of a controlled study to evaluate TIPS's isolated effect accurately. To prove the positive impact of TIPS on cirrhotic recompensation, it is necessary to conduct a randomized controlled study (RCT) between patients who undergo eradication of the causative factor and TIPS treatment and patients who are treated only by suppressing or eliminating the causative factor. However, other issues need to be clarified apart from conducting an RCT. First, in cases of chronic viral hepatitis, it is easy to perform a viral suppression. HBV can successfully be suppressed using a nucleos(t)ide analog, while HCV can be eradicated using the new direct-acting antivirals. However, there are concerns about the ability to control the inflammation metabolic-associated steatohepatitis (MASH) in cases of metabolic-associated steatotic liver disease, which currently constitutes the leading liver disease worldwide[6]. It is well known that the normalization of liver enzymes cannot exclude the existence of MASH, and a liver biopsy is needed[7]. In addition, it is unclear how often a liver biopsy should be repeated to confirm that inflammation remains under control during the follow-up. Furthermore, authors usually use different diagnostic criteria to ensure the resolution of liver inflammation in autoimmune or cholestatic liver disease cases. In the study of Gao *et al*[4], 22 patients (34.4%) had been stratified as "other" disease than viral hepatitis or alcoholic liver disease. Unfortunately, the authors did not provide details on the criteria used to confirm the suppression of liver inflammation in these patients. The timing of TIPS insertion and the reason behind its implementation are critical. It is widely known that patients who undergo TIPS for bleeding without any previous decompensating event have a better prognosis than those with ascites[8]. Additionally, patients who experience more than one decompensating event (further decompensation) are at a greater risk of poor outcomes compared to those who only have one decompensating feature[9]. Patients with further decompensation find it more challenging to recompensate, and in some cases, it may not be possible due to advanced liver disease. It is essential to prevent further decompensation in high-risk patients to increase their chances of survival. According to data, patients with bleeding and ascites (with or without encephalopathy) and a Child-Pugh score above seven are at the highest risk for developing further decompensation. Therefore, these patients are most likely to benefit from TIPS[10]. Based on Gao *et al*'s study findings, TIPS may have a beneficial effect in recompensating decompensated liver disease[4]. Despite the study's limitations, its results are consistent with those previously presented by Wang *et al*[11], who reported that TIPS insertion can reduce portal pressure and improve liver function, as indicated by the Child-Pugh score. The reason behind the potential positive effect of the treatment is not yet fully understood. However, it is believed that the recovery of liver function may be due to a compensatory hepatic arterial buffer response. Gülberg *et al*[12] found a decrease in the resistance of the hepatic artery in cirrhotic patients, while Walser *et al*[13] reported an increase in blood inflow from the hepatic artery after TIPS insertion from 39.9% to 48.3% ( $P < 0.05$ ).

## CONCLUSION

The potential effect of TIPS on the recompensation of decompensated cirrhosis opens a great window into the management of cirrhotic patients. Randomized controlled studies with groups composed of patients with the same causative factor, apparent and undebatable criteria for evaluating factor suppression, and equal stages of decompensated disease between patients are necessary to validate the use of TIPS for liver disease recompensation.

## FOOTNOTES

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