

94940_Auto_Edited_022430.docx

WORD COUNT

1651

TIME SUBMITTED

17-JUL-2024 02:03PM

PAPER ID

110504073

Name of Journal: *World Journal of Gastroenterology*

Manuscript NO: 94940

Manuscript Type: EDITORIAL

“Road to recompensation: Baveno VII criteria and TIPS in liver cirrhosis”

Anis MA *et al* Recompensation in liver cirrhosis with TIPS

Muhammad Aarish Anis, Ammara Abdul Majeed, Shahab Abid

Abstract

Liver cirrhosis has long been considered a point of no return, with limited hope for recovery. However, recent advancements, particularly the Baveno VII criteria and the utilization of Transjugular Intrahepatic Portosystemic Shunt (TIPS), have illuminated the concept of hepatic recompensation. In this editorial we comment on the article by Gao L published in the recent issue of *World Journal of Gastroenterology* (2023 Oct 14; 29(38): 5383–5394). This editorial provides a comprehensive overview of the evolution of understanding cirrhosis, the criteria for recompensation, and the efficacy of TIPS in achieving recompensation. We discuss key findings from recent studies, including the promising outcomes observed in patients who achieved recompensation post-TIPS insertion. While further research is needed to validate these findings and elucidate the mechanisms underlying recompensation, the insights presented here offer renewed hope for patients with decompensated cirrhosis and highlight the potential of TIPS as a therapeutic option in their management.

Key Words: Decompensated hepatic cirrhosis; Hepatic recompensation; Transjugular Intrahepatic Portosystemic Shunt (TIPS); Variceal bleeding; Refractory ascites

Anis MA, Majeed AA, Abid S. "Road to recompensation: Baveno VII criteria and TIPS in liver cirrhosis" . *World J Gastroenterol* 2024; In press

Core Tip: Advancements in the understanding of hepatic recompensation and the use of TIPS offer new hope for patients with decompensated liver cirrhosis. Studies have shown promising results in achieving recompensation according to Baveno VII criteria post-TIPS insertion, highlighting the potential of TIPS as a therapeutic option. Further research is warranted to better understand the mechanisms of recompensation and optimize treatment strategies for patients with decompensated cirrhosis.

INTRODUCTION

Previously, liver cirrhosis seemed like a dead end, offering little hope for recovery. The progression of cirrhosis typically unfolds silently, remaining asymptomatic until rising portal pressure and deteriorating liver function manifest in a clinical phenotype. As the disease progresses, hepatic decompensation occurs, which transforms cirrhosis into a systemic condition, leading to dysfunction across multiple organs or systems[1]. Hepatic decompensation is characterized by the occurrence of portal hypertension leading to ascites or variceal bleeding, which may progress to hepatic encephalopathy[2]. The median survival rate is estimated to decline from more than 12 years in cases of compensated cirrhosis to around two years in cases of decompensated cirrhosis[3].

With the pursuit of effective interventions for portal hypertension, Baveno VII in October 2021, illuminated the concept of hepatic 'recompensation'. It implied the occurrence of at least a partial reversal of the structural and functional alterations associated with cirrhosis following the elimination of the underlying cause. According to the Baveno VII criteria, recompensation was defined as fulfillment of all of the following: (1) Removal of the etiological factor of cirrhosis; (2) Resolution of ascites and hepatic encephalopathy (indicated by the cessation of diuretics and lactulose/rifaximin

use, respectively) along with no recurrence of variceal hemorrhage for a minimum of 12 months; and (3) Stable enhancement of liver function tests (albumin, INR, bilirubin)[4].

The possibility of recompensation brought a newfound hope for both patients and clinicians who had previously perceived the decompensated stage of liver cirrhosis as irreversible. Several studies have showed that removal of the etiological factor may lead to recompensation in the liver. Such as, an observational study on decompensated alcohol-related cirrhosis showed that abstinence of alcohol led to recompensation in 18.1% of patients as seen by the changes in hepatic venous pressure gradient (HVPG) measurement[5]. Similarly, in patients with decompensated cirrhosis due to Hepatitis-B virus infection, 12-months long treatment with Entecavir resulted in improvement of liver function as seen by the improved Child-Turcotte-Pugh (CTP) and model for end-stage liver disease (MELD) scores[6, 7]. Likewise, a prospective study in patients with decompensated cirrhosis due to Hepatitis C infection saw an improvement in MELD scores after 15 months of treatment with anti-viral therapy[8]. Even though these studies do show that etiological factor removal does lead to improvement in liver function and patient outcome, the results could not be generalized to all the patients treated.

Another crucial tool in the treatment of the complications associated with decompensated liver cirrhosis such as variceal bleeding and refractory ascites is Transjugular Intrahepatic Portosystemic Shunt (TIPS). TIPS is a minimally invasive radiological procedure designed to alleviate portal hypertension by establishing a shunt between the portal venous system and the hepatic venous system. TIPS is considered as the second line therapy for the complications of decompensated cirrhosis which fail to improve after the trial of standard medical/endoscopic therapy and seen as a transitional measure prior to liver transplantation. A major complication after TIPS insertion with bare stent grafts is the development of hepatic encephalopathy, potentially impacting up to 50% of patients[9, 10]. However, the occurrence of this complication can be significantly decreased to around 18% by employing polytetrafluoroethylene (PTFE)-covered stent grafts of 8 mm[11]. This outcome was

validated by a randomized trial that compared the effectiveness of 8 mm and 10 mm stent grafts[12].

EFFICACY OF TIPS FOR TREATMENT OF VARICEAL BLEEDING AND/OR REFRACTORY ASCITES IN DECOMPENSATED LIVER CIRRHOSIS

Various studies have been conducted to assess the effectiveness of TIPS given earlier or pre-emptively in the disease process as compared to the standard treatment. One such retrospective study assessed the difference in control of variceal bleed in patients who received TIPS as the first line treatment compared to its administration as a second line therapy. It showed a significant difference ($P = 0.009$) in the cumulative rate of survival amongst the two groups[13]. Moreover, a multicenter observational study showed that in patients with acute-on-chronic liver failure, mortality was significantly lower in the patients who received TIPS pre-emptively (pTIPS) compared to the non-pTIPS group of patients (42-day: 13.6% vs. 51.0%, $p = 0.002$; 1 year: 22.7% vs. 56.5%, $p = 0.002$)[14]. Similarly, studies have shown significantly decreased 1-year mortality in patients with cirrhosis who received early TIPS for control of variceal bleed and refractory ascites[15, 16].

Multiple Randomized Control Trials (RCT) have compared the effectiveness of early TIPS vs standard treatment for control of acute variceal bleed or ascites in patients with advanced liver cirrhosis. RCTs assessing the performance of TIPS compared to the standard therapy and the difference in complications are mentioned in Table 1.

It is evident from such studies that TIPS is effective in controlling the variceal bleeding and refractory ascites associated with decompensated liver cirrhosis. However, limited literature is available on the potential of TIPS to lead further recompensation as per the Baveno VII criteria. One such study was published in the recent issue of World Journal of Gastroenterology (2023 Oct 14; 29(38): 5383–5394) titled 'Impressive recompensation in Transjugular intrahepatic portosystemic shunt-treated individuals with complications of decompensated cirrhosis based on Baveno VII criteria'[23]. This

retrospective analysis of 64 patients showed that 31% of patients achieved recompensation post receiving TIPS. In this study, along with TIPS, patients were also provided with the required medication or lifestyle modifications to address their individual underlying etiologies of cirrhosis (for example: Hepatitis B or C, alcoholic liver disease, non-alcoholic liver disease etc). Furthermore, the criteria for stable improvement in liver function tests were derived from a recent study that validated the Baveno VII definition of recompensation. These values are defined as a MELD score below 10 and/or liver function tests within the Child-Pugh A range (Albumin > 35 g/L, INR < 1.50, and total bilirubin (TBIL) < 34 μ mol/L)[7]. The study also looked into the baseline and on-treatment characteristics of patients who had recompensation and those without recompensation. There was no statistically significant difference in the Child-Pugh scores of the two groups at baseline, however, patients without recompensation had elevated MELD scores than patients with recompensation at baseline (p=0.019). Age and post-TIPS PPG of less than 12 mmHg were also seen as independent predictors of recompensation.

Though this study showed encouraging results, the limited sample size compromised its credibility. Moreover, inaccuracy of laboratory cutoffs is possible since not all enrolled patients had Hepatitis B as the etiology of cirrhosis like the study[7] from which these cutoffs were adopted. However, it should be appreciated that the said article[23] focused on all the parameters of recompensation according to the Baveno VII criteria post-employment of TIPS, whereas, most previous studies only focused on the resolution of ascites and/or variceal bleeding post-TIPS, as seen by the studies mentioned above. It is unclear however, whether the re-compensation was due to TIPS or control of the primary etiology of liver cirrhosis. Further, the patients who recompensate, already had MELD < 10 and Child < 7/B at baseline, suggesting that liver synthetic functions were well preserved. Moreover, it is unclear that how many of the patients received TIPS for variceal bleed *vs* ascites, and was there any difference in the outcome based on the indication of TIPS. Furthermore, lack of control arm limits its generalizability.

CONCLUSION

While the benefits and efficacy of TIPS in controlling variceal bleed and recurrent ascites in patients with cirrhosis is quite well established in previous studies, the elaborate mechanisms to achieve recompensation have not been studied yet. The study recently published in World Journal of Gastroenterology (2023 Oct 14; 29(38): 5383-5394) [23] is the first study to evaluate recompensation and successfully demonstrated that almost one-third of the patients achieved recompensation according to the Baveno VII criteria *via* TIPS. This is a promising start for clinicians in understanding the efficacy of TIPS in achieving recompensation which can open doors to improved quality of life and prolonged survival in patients with decompensated cirrhosis, once considered a deadlock. However, further prospective trials are necessary to understand the extent to which recompensation could be achieved. Enough literary evidence could then help us consider the modification of treatment guidelines for early employment of TIPS or as a possible first-line therapy for patients with decompensated liver cirrhosis.

13%

SIMILARITY INDEX

PRIMARY SOURCES

1	www.wjgnet.com Internet	74 words — 4%
2	discovery.ucl.ac.uk Internet	55 words — 3%
3	lirias.kuleuven.be Internet	29 words — 2%
4	www.nature.com Internet	15 words — 1%
5	www.ncbi.nlm.nih.gov Internet	15 words — 1%
6	Hossam Eldin Shaaban, Abeer Abdellatef, Hussein Hassan Okasha. " Hepatic recompensation according to Baveno VII criteria transjugular intrahepatic portosystemic shunt ", World Journal of Gastroenterology, 2024 Crossref	14 words — 1%
7	"Portal Hypertension VII", Springer Science and Business Media LLC, 2022 Crossref	12 words — 1%
8	123docz.net Internet	12 words — 1%

EXCLUDE QUOTES ON

EXCLUDE BIBLIOGRAPHY ON

EXCLUDE SOURCES < 12 WORDS

EXCLUDE MATCHES < 12 WORDS