



Beta-Blockers Protective of Decompensated Congestive Heart Failure in Patients With Cirrhosis After Transjugular Intrahepatic Shunt

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INTRODUCTION

- Transjugular intrahepatic portosystemic shunt (TIPSS) is indicated to control complications of portal hypertension.
- Several studies have shown that hypervolemic states, including peripheral edema and decompensated congestive heart failure (dCHF), are potential complications post-TIPSS.
- The present study aims to identify risk factors for post-TIPSS dCHF among patients with cirrhosis.

METHODS

- Data were retrospectively collected for consecutive TIPSS procedures at a tertiary care center from January 2009 to December 2019 in cirrhotic patients.
- Patient demographics, medications, and echocardiographic parameters were included as part of the baseline characteristics.
- The primary outcome of dCHF was reviewed up to 6 months post-procedure. Patients lost to follow-up, prior liver transplants, and failed TIPSS insertion were excluded.
- Patient characteristics were compared using Pearson's chi-squared tests, student's t-test, or Mann-Whitney U tests.
- Univariate and multivariate Cox proportional-hazard models were performed to identify independent predictors of volume overload.

RESULTS

- One hundred sixteen patients were included, of which 56.0% (65/116 patients) were found to have dCHF post-procedure.
- The incidence of dCHF was significantly higher in those with an elevated serum creatinine (1.36 vs. 1.05 mg/dL; p=0.006), ischemic heart disease (IHD) (15.4% vs. 3.92%; p=0.044), and chronic kidney disease (CKD) (47.7% vs. 23.5%; p=0.007), and significantly lower in those on beta-blocker therapy (27.7% vs. 52.9%; p=0.006).
- On multivariate analysis, IHD was associated with increased occurrence of dCHF [hazard ratio (HR): 2.43 (1.11-5.33), p=0.026] and beta-blocker therapy with decreased occurrence of dCHF [HR: 0.47 (0.26-0.84), p=0.011].

Characteristics	HR (95% CI)	p-value
CKD	1.62 (0.96-2.74)	0.069
Beta-blocker usage	0.47 (0.26-0.84)	0.011
IHD	2.43 (1.11-5.33)	0.011
Age, mean ± SD	1.03 (0.99-1.06)	0.139
MELD-Na, median (IQR)	1.04 (0.99-1.08)	0.061

Table 1. Multivariate Cox Regression. Abbreviations: HR - hazard ratio, CI - confidence interval, CKD - chronic kidney disease, IHD - ischemic heart disease, SD - standard deviation, MELD-Na - Model for End Stage Disease-Sodium, IQR - interquartile range.

DISCUSSION

- Ischemic heart disease was a predictor of dCHF in post-TIPSS patients with cirrhosis. Interestingly, beta-blocker therapy was protective of volume overload.
- Further studies are needed to identify patients at risk for dCHF post-TIPSS and to validate the protective effect of beta-blockers in this setting.

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