Early Transjugular Intrahepatic Porto-systemic Shunting versus Endoscopic Therapy for Variceal Bleeding in Cirrhotic Patients: A Systematic Review and Meta-analysis

Advaith N Rao[1]; Akhil Fravis Dias[1]; Vinay C Bellur[1]; Sneha Reddy Pulkurthi[1]; Prekshitha M R[1]; Shruthi Raghunandan[2]; Adithya S[1]; Anisha D[1]; Suthanth Kashyapa[3]; Ananya Prasad[1];
[1]Ramaiah Medical College; [2]Vydehi Institute of Medical Sciences; [3]University of California San Diego

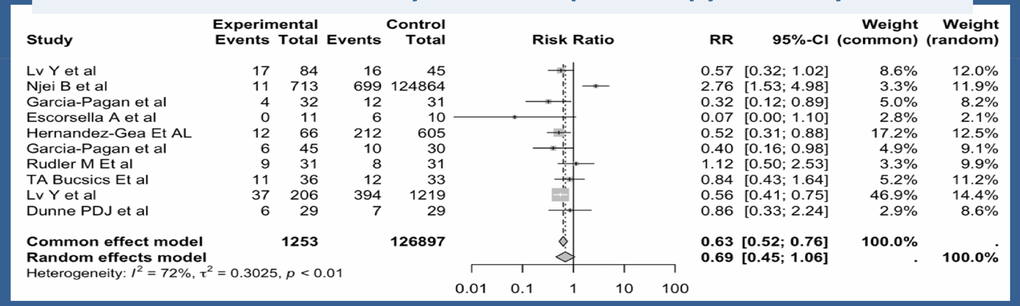
INTRODUCTION

- Variceal Hemorrhage can be a common complication of liver cirrhosis or portal hypertension. With a post-treatment mortality rate of 10-15%, it is a significant clinical problem (1,2).
- Non-selective Beta blockers are recommended as a prophylactic against variceal bleeding and endoscopic variceal banding or ligation, as an alternative.
- For varices resistant to both endoscopic and pharmacological interventions, TIPS is performed (3,4).
- Transjugular Intrahepatic portosystemic shunting (TIPS) is an image-guided procedure performed by interventional radiologists in which a shunt is passed which connects the portal vein to the hepatic vein (5).
- Advanced Liver Disease comes with a greater risk of rebleeding and subsequent treatment failure (6).
- Studies comparing the effectiveness of early TIPS (Performed within three days of diagnosis of varices) and the standard treatment (variceal banding, antibiotics and non-selective beta blockers) have been performed in the past decade (7-10).
- These studies appear to indicate that early TIPS can reduce mortality and variceal bleeding, but increase the risk of hepatic encephalopathy. The use of early TIPS remains disputed.

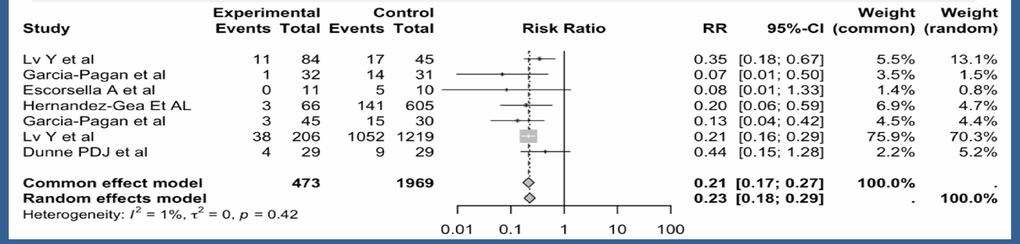
MATERIALS AND METHODS

- The systematic review and meta-analysis followed the followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. PubMed, Scopus and Web of Science were searched using a set of pre-defined search terms. Case reports, editorials, letters, reviews, and articles which did not follow the guidelines of early TIPS were excluded.
- Mortality and Rebleeding were considered the primary outcomes in the study. Transplantation and hepatic encephalopathy were the secondary outcomes.
- The extracted data from the studies was analyzed using R-Studio. The pooled risk ratio was identified by the Mantel-Haenszel method and the Inverse variance method

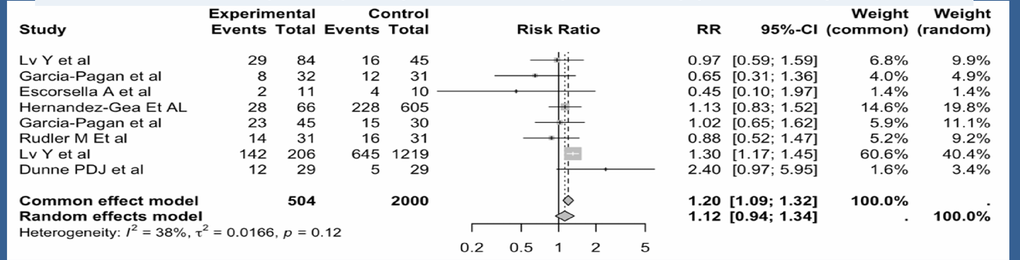
Post-treatment Mortality in Endoscopic Therapy and early TIPS



Rebleeding in Endoscopic Therapy and early TIPS



Risk of Encephalopathy in Endoscopic Therapy and early TIPS



RESULTS

- The literature search identified a total of 2025 articles from the three aforementioned databases. 1307 duplicate studies were removed and 708 studies were removed for not following the inclusion criteria. There were 146140 patients from the remaining ten studies.
- The random effects model indicated no significant differences between the post-treatment mortality of the early TIPS and endoscopic variceal therapy procedures. [RR= 0.6935, 95%CI; 0.4536 - 1.0609]
- The model also indicated a significant difference in the events of rebleeding in the endoscopic therapy and TIPS. The risk of rebleeding in endoscopic therapy was 0.22 times the risk associated with TIPS. [95%CI; 0.1677 - 0.2740]
- The risk of transplantation was not significantly different between the groups. The common effects model showed the risk of transplantation at 1.3545 [95% CI; 0.9497 - 1.9318]. The risk of developing encephalopathy was slightly elevated in the early TIPS group with the common effects model indicating a risk ratio of 1.1960 [95% CI ; 1.0856 - 1.3177]

CONCLUSIONS

Liver Cirrhosis is an irreversible chronic injury and can often result in variceal bleeding, due to portal hypertension. Our study suggests that early TIPS could be a recommended procedure for the management of variceal bleeding in cirrhotic patients. The procedure has a lower risk of rebleeding compared to that of endoscopic therapy, similar risks of transplantation and mortality and elevated risk of encephalopathy. Prior studies suggest that early TIPS would have a lowered mortality and risk of encephalopathy (11). However, our data marginally indicates no significant mortality differences between the procedures and an elevated encephalopathy risk from early TIPS. Additional studies would need to be performed to further substantiate these findings.

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