

INPLASY PROTOCOL

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Corresponding author:
Ming Yang

263805652@qq.com

Author Affiliation:
West China Hospital of
Sichuan University.

Support: 81770566, 82000599.

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None declared.

Concurrent spontaneous portosystemic shunt embolization for the prevention of overt hepatic encephalopathy after TIPS: A systematic review and meta-analysis

Yang, M¹; Qiu, YW²; Wang, WT³.

Review question / Objective: Patients with cirrhosis and variceal bleeding.

Condition being studied: Overt hepatic encephalopathy remains a serious complication after TIPS. Concomitant SPSS is associated with an increased risk of HE in patients treated with TIPS.

Eligibility criteria: (1) population—patients with cirrhosis with or without SPSS; (2) intervention—TIPS combined with or without SPSS embolization; (3) comparison—patients with cirrhosis with SPSS treated with TIPS or patients with cirrhosis without SPSS treated with TIPS; patients with cirrhosis with SPSS treated with TIPS or patients with cirrhosis with SPSS treated with TIPS combined with SPSS embolization; (4) primary outcome—overt HE; (5) secondary outcome—rebleeding; mortality; shunt dysfunction.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 June 2023 and was last updated on 09 June 2023 (registration number INPLASY202360031).

INTRODUCTION

Review question / Objective: Patients with cirrhosis and variceal bleeding.

Condition being studied: Overt hepatic encephalopathy remains a serious complication after TIPS. Concomitant SPSS

is associated with an increased risk of HE in patients treated with TIPS.

METHODS

Search strategy: The PubMed, Embase, Cochrane Library, and Web of Science databases were searched up to April 2023, to identify studies on the association

between the antegrade embolized SPSS before TIPS placement and the incidence of post-TIPS HE.

Participant or population: Patients with cirrhosis and variceal bleeding.

Intervention: Prophylaxis SPSS embolization.

Comparator: Without prophylaxis SPSS embolization.

Study designs to be included: Retrospective study and randomized controlled trial.

Eligibility criteria: (1) population—patients with cirrhosis with or without SPSS; (2) intervention—TIPS combined with or without SPSS embolization; (3) comparison—patients with cirrhosis with SPSS treated with TIPS or patients with cirrhosis without SPSS treated with TIPS; patients with cirrhosis with SPSS treated with TIPS or patients with cirrhosis with SPSS treated with TIPS combined with SPSS embolization; (4) primary outcome—overt HE; (5) secondary outcome—rebleeding; mortality; shunt dysfunction.

Information sources: The PubMed, Embase, Cochrane Library, and Web of Science databases.

Main outcome(s): In a systematic review and meta-analysis of four studies in 1243 adult patients with cirrhosis and variceal bleeding, comparing the association of SPSS embolization and post-TIPS overt HE shows an overall pooled odds ratio (OR) of 2.41 ($P < 0.05$).

ORs for complications after TIPS were not higher for concurrent SPSS embolization during TIPS placement (OR: 0.79, 0.94, and 1.40 for death, variceal rebleeding, and shunt dysfunction, respectively) compared with only TIPS.

Quality assessment / Risk of bias analysis: The quality and risk of bias of the randomized controlled trial (RCT) were assessed using the Revised Cochrane Risk

of Bias Tool for Randomized Trials (RoB2). The NOS is a nine-point scale and consists of three parameters: selection, comparability, and outcome assessment. Studies scoring 7 to 9 were considered high quality; 4–6, moderate quality; and 0 to 3, low quality.

Strategy of data synthesis: For dichotomous variables, we calculated pooled odds ratio (RR) and 95% confidence intervals (95% CI) using a fixed effects model. P values less than 05 were considered as having statistical significance. Heterogeneity between studies was estimated by Cochran's Q test and I² statistics (I² > 50%, substantial heterogeneity). Potential publication bias could not assess with Egger's because of the limited number of studies (<10) in the analyses(17).

Subgroup analysis: SPSS embolization group vs no-SPSS group; SPSS embolization group +TIPS vs without SPSS embolization group+TIPS.

Sensitivity analysis: To check for publication bias, funnel plot and Begg's test were used to test.

Language restriction: English.

Country(ies) involved: China.

Keywords: Transjugular intrahepatic portosystemic shunt; spontaneous portal shunts; hepatic encephalopathy; meta-analysis.

Contributions of each author:

Author 1 - Ming Yang.

Email: 263805652@qq.com

Author 2 - Yiwen Qiu.

Email: scdxwyw@163.com

Author 3 - Wentao Wang.

Email: wwtdoctor02@163.com