

INPLASY PROTOCOL

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None declared.

Direct endovascular thrombectomy versus bridging therapy in patients with posterior ischemic stroke: a systematic review and meta-analysis

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Review question / Objective: 1.Population: adult patients with posterior ischemic stroke caused by basilar, cerebellar, or vertebral artery occlusion undergoing EVT with or without IVTpreviously 2.Intervention: patients with posterior ischemic stroke treated by bridging therapy (EVT+IVT) 3.Control: patients undergoing direct EVT (including mechanical thrombectomy, stent retrieval, thromboaspiration, or combination of these strategies) 4.Outcomes: the primary efficacy outcome was the rate of patients achieving functional independence defined as modified Rankin Scale (mRS). The secondary efficacy outcome was assessed through the degree of revascularization defined by Thrombolysis in Cerebral Infarction (mTICI) scale score of 2b or 3. Other efficacy outcomes include time from stroke onset to groin puncture, time from groin puncture to reperfusion. 5.Study type: the study design includes RCTs, retrospective, and prospective cohort study.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 August 2022 and was last updated on 13 August 2022 (registration number INPLASY202280047).

INTRODUCTION

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Condition being studied: It remains unclear whether bridging therapy could achieve better neurological outcome comparing with direct endovascular thrombectomy (EVT) in patients with posterior ischemic stroke. In this meta-analysis we aimed to compare the safety and efficacy of EVT and bridging therapy in this population.

METHODS

Search strategy: (posterior circulation OR basilar OR vertebral OR vertebrobasilar) AND (bridging OR bridge OR thrombolysis OR thrombectomy OR thrombolytic OR thrombolytic OR revascularization OR recanalization) AND (ischemic stroke OR stroke OR brain infarction).

Participant or population: Patient population includes adult patients with posterior ischemic stroke caused by basilar, cerebellar, or vertebral artery occlusion undergoing EVT with or without IVT previously.

Intervention: Patients with posterior ischemic stroke treated by bridging therapy (EVT+IVT).

Comparator: Patients undergoing direct EVT (including mechanical thrombectomy, stent retrieval, thromboaspiration, or combination of these strategies).

Study designs to be included: The study design includes RCTs, retrospective, and prospective cohort study.

Eligibility criteria: Unpublished studies, review, commentary, conference abstract,

letter, or case reports were excluded. Studies were also excluded if the raw data of the patients with posterior ischemic stroke undergoing bridging therapy or EVT failed to be derived from them.

Information sources: Two independent reviewers systematically searched PubMed, EMBASE, the Cochrane Central Register of Controlled Trials (CENTRAL), and ClinicalTrials.gov to identify relevant studies published up to April 07, 2022.

Main outcome(s): Patients who received bridging therapy seemed to have better functional independence comparing with those with direct EVT; However, no difference was found in successful recanalization (OR 1.04, 95% CI 0.67 to 1.61, P = 0.859), mortality (OR 1.50, 95% CI 0.99 to 2.26, P = 0.054), sICH (OR 1.03, 95% CI 0.57 to 1.88, P = 0.917) and any hemorrhage (OR 0.82, 95% CI 0.40 to 1.69, P = 0.593) between 2 groups.

Quality assessment / Risk of bias analysis: The Cochrane Collaboration tool [16] was used to assess the risk of bias for included RCT, including selection bias, performance bias, detection bias, attrition bias, reporting bias, and other potential biases. The bias criteria were categorized as "low," "high," or "unclear." The risk of bias of included non-randomized studies was assessed using the Methodological Index for Non-randomized Studies (MINORS). MINORS contains 12 items relating to potential areas of bias. Each item receives a score from 0 to 2, resulting in overall scores ranging from 0 to 24. Disagreements were solved between the two investigators by consensus or by another independent investigator (Z. Chen).

Strategy of data synthesis: All statistical analysis were performed with STATA software 12.0 (STATA Corp., College Station, Texas, USA). The Meta-Analyses were based on a random-effects model. Weighted mean difference (WMD) and 95% confidence interval (CI) were calculated for the continuous outcomes. Odds ratio (OR) and 95% CI values were calculated for the dichotomous outcomes. Cochrane's Q test

and I2 were used to evaluate outcome heterogeneity. Sensitivity analysis was also performed to explore the stability of the consolidated results. For all the analyses, two-tailed tests were performed, and $P < 0.05$ was considered to be statistically significant.

Subgroup analysis: There was no subgroup analysis in our study.

Sensitivity analysis: Sensitivity analysis was also performed to explore the stability of the consolidated results. For all the analyses, two-tailed tests were performed, and $P < 0.05$ was considered to be statistically significant.

Language restriction: English.

Country(ies) involved: China.

Keywords: posterior ischemic stroke, bridging therapy, endovascular treatment.

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