INPLASY PROTOCOL

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Review Stage at time of this submission: Piloting of the study selection process.

Conflicts of interest: None declared.

Endovascular thrombectomy for stroke due to acute basilar-artery occlusion: A systematic review and meta-analysis of randomized controlled trials

Wang, ZK[1]; Ji, KX[2]; Fang, Q[3].

Review question / Objective: The objective of this systematic review and meta-analysis was to compare the efficacy and safety of endovascular thrombectomy with best medical management for treating patients with acute basilar-artery occlusion.

Condition being studied: Posterior circulation stroke (PCS) accounts for approximately a fifth of all strokes. As an important subtype of PCS, acute basilar artery occlusion is relatively rare, causing only 1% of all ischemic strokes and 5% of strokes due to large vessel occlusion. However, acute basilar artery occlusion is assosciated with poor outcomes, high risks of mortality and disability.

INTRODUCTION

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associated with poor outcomes, high risks of mortality and disability.

METHODS

Participant or population: Adult stroke patients with acute basilar-artery occlusion.

Intervention: Endovascular thrombectomy.

Comparator: Best medical management.

Study designs to be included: Randomized clinical trials.

Eligibility criteria: We set the inclusion criteria as follows: (1) study type: randomized clinical trials; (2) language: only available in English; (3) patient population: adult patients with acute ischemic stroke due to basilar-artery occlusion; (4) intervention: endovascular thrombectomy plus best medical management versus best medical management; (5) outcomes: the primary outcome was good functional status, defined as a modified Rankin Scale (mRS) score of 0-3, at 3 months. The primary safety outcome was all-cause mortality at 3 months; (6) number of cases: at least 50 patients recruited; (7) any reviews, protocols, conference abstracts, case reports, letters, commentary, editorials and experimental animal studies were excluded.

Information sources: Three main electronic databases were searched, including PubMed, Embase and the Cochrane Library. The search strategy included the combination of subject headings and textwords using Boolean connectors (AND/OR/NOT). The search strategy followed the PICO format and similar search strategies would be used on the different databases. In addition to the electronic searches, manual searches of the references and bibliographies of the identified articles would also be conducted.

Main outcome(s): The primary outcome was good functional status, defined as a modified Rankin Scale (mRS) score of 0-3, at 3 months.

Additional outcome(s): The primary safety outcome was all-cause mortality at 3 months. The secondary outcomes of interest included 3-month excellent functional independence (mRS 0-2), 3-month functional improvement (mRS shift analysis), basilar-artery patency at 24-72 hours on CTA or MRA, Barthel index score of 95 to 100 at three months, any ICH, symptomatic intracranial hemorrhage (sICH), sICH according to ECASS-II criteria, sICH according to SITS-MOST criteria, and other serious adverse events, including pneumonia, malignant brain edema, heart failure, and cardiac ischemia.

Quality assessment / Risk of bias analysis: The risk of bias of each RCT was assessed independently by two authors using the Cochrane collaboration risk-of-bias tool-2 (RoB 2) updated in 2019.

Strategy of data synthesis: Review Manager 5.4 software was used to assess the data. Random effect model was used to estimate pooled risk ratios (RRs), odds ratios (ORs) and 95% confidence intervals (CI). Heterogeneity across different RCTs was assessed by the I2 and the Cochrane Q test. If I2 < 30%, there was no heterogeneity. If 30% < I2 < 50% or I2 > 50%, there were moderate or substantial heterogeneity separately.

Subgroup analysis: We set a prespecified subgroup analysis for the outcome events based on the year of publication (2022 and before 2022).

Sensitivity analysis: The sensitivity analyses were conducted by sequentially removing one study at a time to observe the effect of each study. The additional trial sequential analyses (TSA) of the primary outcome and the primary safety outcome were performed by TSA version 0.9 beta.

Country(ies) involved: China.

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