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Mechanical thrombectomy versus medical management for mild stroke with acute anterior circulation large vessel occlusion: A Systematic Review and Meta-analysis

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Yang, WL¹.

Corresponding author:

wulan Yang

2658293348@qq.com

Author Affiliation:

None reported.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 02 December 2023 and was last updated on 05 December 2023.

INTRODUCTION

Review question / Objective Which has better clinical efficacy: mechanical thrombectomy versus medical therapy for large-vessel anterior occlusive with mild stroke.

Condition being studied When mild Acute ischemic stroke(AIS) is caused by large-vessel occlusion (LVO), patients are at higher risk of early neurological deterioration and poor functional prognosis. IVT is recommended as the first choice for most patients, Mechanical thrombectomy has become a standard therapy for moderate to severe AIS (NIHSS score ≥ 6) with LVO in proximal anterior circulation there is no consensus on whether mild AIS with LVO can benefit from mechanical thrombectomy.

METHODS

Participant or population Patients with mild ischemic stroke with anterior circulation large vessel occlusion undergoing mechanical thrombectomy or medical management.

Intervention 1. mechanical thrombectomy 2. medical management.

Comparator Effectiveness of the following therapies categorized into groups were compared: 1. mechanical thrombectomy 2. medical management.

Study designs to be included Retrospective studies, Randomized controlled studies, Prospective cohort studies.

Eligibility criteria Studies were included if they met the following criteria: (1) all patients had been diagnosed with mild AIS (NIHSS score ≤ 6); (2) all patients were with LVO (anterior circulation); (3) patients were divided into two groups, one group received mechanical thrombectomy and the other received medical management; (4) the study should provide the number of patients with excellent (or favorable) functional prognosis for each group, respectively. Functional prognosis was assessed using the modified Rankin scale (mRS) score at 90 days [11]. Furthermore, a score of 0–1 was defined as excellent functional prognosis and 0–2 as favorable. Studies were excluded when they were (1) reviews, letters, case reports, protocols, or animal studies; (2) duplicate publications of data from the same study; (3) studies providing insufficient information the meta-analysis needed.

Information sources A literature search from PubMed, Embase, Web of Science, SCOPUS and Cochrane Collaboration Database was conducted to identify all relevant studies up to January 2024.

Main outcome(s) 1. modified Rankin scale (mRS) score at 90 days. 2. Symptomatic intracranial forehead.

Quality assessment / Risk of bias analysis The Newcastle-Ottawa quality assessment scale (NOS) was utilized to evaluate the quality of included studies. The assessment scale included the following aspects: selection method of the exposed group (receiving MT) and nonexposed group (receiving MM), comparability of the two groups, and assessment of functional prognosis. The study with best quality can be awarded a score of 9, and scores ≥ 6 were considered as high quality.

Strategy of data synthesis The association between MT and functional prognosis of mild AIS with LVO was estimated by the risk ratio (RR) and 95% confidence interval (CI). I^2 and Q statistics were used to assess the heterogeneity between studies. When statistical heterogeneity was significant (p value of Q statistic < 0.05 or $I^2 \geq 50\%$), a random-effect model would be used; otherwise, a fixed-effect model would be used. Sensitivity analysis by sequentially excluding every study was performed to assess the robustness of the results. To assess the potential publication bias, Begg's correlation and Egger's regression were used. All the analyses were conducted using Stata 12.0 (Stata, College Station, TX, USA).

Subgroup analysis NIHSS score at admission, NIHSS score at discharge, middle cerebral artery M1, M2, different clinical complications.

Sensitivity analysis The sensitivity analysis was performed to evaluate the influence of each individual study on the pooled RR by omitting every single study. The analysis results reflected that the results were statistically stable and reliable.

Country(ies) involved China.

Keywords Clinical efficacy · Mechanical thrombectomy · Mild acute ischemic stroke · anterior Large-vessel occlusion · Meta-analysis.

Contributions of each author

Author 1 - wulan Yang.
Email: 2658293348@qq.com