INPLASY PROTOCOL

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None declared.

Efficacy and Safety of Recanalization Therapy for Acute Ischemic Stroke With COVID-19：A Systematic Review and Meta-Analysis

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Review question / Objective: **The objective of this meta-analysis is to evaluate the efficacy and safety of recanalization therapy for COVID-19 patients who have suffered from AIS.**
Condition being studied: **On account of the rapidly increasing number of AIS complications combined with COVID-19 infections, it is of vital importance to have an in-depth understanding of the efficacy and safety of recanalization therapy for these patients. However, the published literature was limited to case reports, case series as well as observational studies. The overall effect of COVID-19 on the outcomes of recanalization therapy for AIS patients has not been adequately assessed.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 April 2022 and was last updated on 05 April 2022 (registration number INPLASY202240022).

INTRODUCTION

Review question / Objective: **The objective of this meta-analysis is to evaluate the efficacy and safety of recanalization therapy for COVID-19 patients who have suffered from AIS.**

Condition being studied: **On account of the rapidly increasing number of AIS complications combined with COVID-19 infections, it is of vital importance to have an in-depth understanding of the efficacy and safety of recanalization therapy for these patients. However, the published literature was limited to case reports, case**

series as well as observational studies. The overall effect of COVID-19 on the outcomes of recanalization therapy for AIS patients has not been adequately assessed.

METHODS

Search strategy: The following search strategy was implemented and these key words (in the title/abstract) were used: ("COVID 19" OR "SARS-CoV-2") AND "stroke" AND ("thrombolysis" OR "thrombectomy" OR "thrombolytic" OR "thrombolytic" OR "revascularization" OR "recanalization").

Participant or population: Acute ischemic stroke patients (≥18 years) received any recanalization treatments, with or without COVID-19 infection.

Intervention: Treated with any recanalization therapy, including intravenous thrombolysis (IVT), intraarterial thrombolysis (IAT), endovascular thrombectomy (EVT) such as mechanical thrombectomy (MT), or a combination of these recanalization interventions.

Comparator: Acute ischemic stroke patients without COVID-19.

Study designs to be included: retrospective, perspective cohort study or randomized controlled trial (RCT) study design.

Eligibility criteria: (1) study type: retrospective, perspective cohort study or randomized controlled trial (RCT) study design; (2) language: published in English; (3) participants: acute ischemic stroke patients (≥18 years) received any recanalization treatments, with or without COVID-19 infection; (4) interventions: patients were categorized into those with COVID-19 versus those without COVID-19, and treated with intravenous thrombolysis (IVT), intraarterial thrombolysis (IAT), endovascular thrombectomy (EVT) such as mechanical thrombectomy (MT), or a combination of these recanalization interventions; (5) outcomes: including efficacy and safety outcomes.

Information sources: MEDLINE, EMBASE, CENTRAL, and ClinicalTrials.gov.

Main outcome(s): Functional independence on discharge (modified Rankin Scale, mRS 0-2) was the primary efficacy outcome. The second efficacy outcome was successful recanalization indicated by Thrombolysis in Cerebral Infarction (TICI) or modified TICI (mTICI) scores ≥2 b/3. The safety outcomes were in-hospital mortality and symptomatic intracranial hemorrhage (sICH).

Additional outcome(s): Other efficacy outcomes include length of hospital stay (days), time (min) from stroke onset to treatment (onset-to-needle in those who received IVT or combined therapy; onset-to-groin puncture in those who received EVT or combined therapy), and time (min) from door to treatment (door-to-needle in those who received IVT or combined therapy; door-to-groin puncture in those who received EVT or combined therapy).

Quality assessment / Risk of bias analysis: The risk of bias for each included study was assessed using the Methodological Index for Non-randomized Studies (MINORS) for all included studies: 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. The assessment was performed independently by two investigators. Disagreements were solved between the two investigators by consensus or by another independent investigator.

Strategy of data synthesis: STATA software 12.0 (STATA Corp., College Station, Texas, USA) was used for the statistical analysis. The Meta-Analyses was 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 for calculating 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: Subgroup analyses were implemented to assess the influence of admission National Institutes of Health Stroke Scale (NIHSS) and different revascularization treatments on the outcomes.

Sensitivity analysis: Sensitivity analysis was used to explore the stability of the consolidated results.

Country(ies) involved: China.

Keywords: COVID-19; Meta-Analysis; acute ischemic stroke; recanalization therapy.

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