

Intracerebral hemorrhage surgery meta-analysis

Li et al. performed a study to explore the efficacy and safety of different surgical interventions in patients with [spontaneous supratentorial intracranial hemorrhage](#) (SSICH) and determine which intervention is most suitable for such patients.

They searched the [PubMed](#), [Medline](#), [OVID](#), [Embase](#), and [Cochrane Library](#) databases. The [quality](#) of the included studies was assessed. Statistical analyses were performed using the software [Stata](#) 13.0 and [RevMan](#) 5.3.

[Endoscopic surgery](#) (ES), [minimally invasive surgery](#) combined with [urokinase](#) (MIS + UK), minimally invasive surgery combined with [recombinant tissue plasminogen activator](#) (MIS + rt-PA), and [craniotomy](#) were associated with higher survival rates and a lower risk of intracranial [rebleeding](#) than [standard medical care](#) (SMC) in patients with SSICH, especially in younger patients with few comorbidities. The order from highest to lowest survival rate was ES, MIS + UK, MIS + rt-PA, craniotomy, and SMC. The order from lowest to highest intracranial rebleeding risk was ES, MIS + UK, craniotomy, MIS + rt-PA, and SMC. Additionally, compared with SMC, all four surgical interventions (ES, MIS + rt-PA, MIS + UK, and craniotomy) improved the prognosis and reduced the proportion of patients with serious disability. The order from most to least favorable prognosis was MIS + rt-PA, ES, MIS + UK, craniotomy, and SMC. The order from highest to lowest proportion of patients with serious disability was ES, MIS + rt-PA, MIS + UK, craniotomy, and SMC.

This study revealed that the efficacy and safety of different surgical interventions (ES, MIS + UK, MIS + rt-PA, craniotomy) were superior to those of SMC in the patients with SSICH, especially in younger patients with few comorbidities. Among them, ES was the most reasonable and effective intervention. ES was found not only to improve the survival rate and prognosis but also to have the lowest risk of intracranial rebleeding and the lowest proportion of patients with serious disability ¹⁾.

The effective therapies for patients with sICH are still unclear, and the role of surgical treatment in sICH management is still controversial. Although some large trials did not show that surgery could benefit patients with sICH, some other studies suggested that some specific surgical strategies can have potential benefits to these patients. For a better understanding of the surgical treatment in patients with sICH, it is necessary to conduct a network meta-analysis to compare the effects of medical treatment and different surgical methods comprehensively.

METHODS AND ANALYSIS: This protocol has been reported following the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols. Related studies until August 2018 will be searched in the following databases: PubMed, Embase, Scopus, Web of Science, Cochrane Library, China National Knowledge Infrastructure (CNKI), VIP and Wanfang. Randomised controlled trials and non-randomised prospective studies comparing at least two different interventions in patients with sICH will be included. Quality assessment will be conducted using Cochrane Collaboration's tool or Newcastle-Ottawa Scale based on their study designs. The primary outcome will be functional outcome and the secondary outcome will be mortality. Pairwise and network meta-analysis will be conducted using STATA V.14 (StataCorp, College Station, Texas, USA). Mean ranks and the surface under the cumulative ranking curve will be used to evaluate every intervention. Statistical inconsistency assessment, subgroup analysis, sensitivity analysis and publication bias assessment will be

performed.

ETHICS AND DISSEMINATION: Ethics approval is not necessary because this study will be based on publications. The results of this study will be published in a peer-reviewed journal ²⁾.

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Li M, Mu F, Su D, Han Q, Guo Z, Chen T. Different surgical interventions for patients with spontaneous supratentorial intracranial hemorrhage: A network meta-analysis. Clin Neurol Neurosurg. 2019 Nov 20;188:105617. doi: 10.1016/j.clineuro.2019.105617. [Epub ahead of print] PubMed PMID: 31775069.

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Yu Z, Zheng J, Ma L, Guo R, You C, Li H. Comparison of surgical strategies in patients with spontaneous intracerebral haemorrhage: a protocol for a network meta-analysis. BMJ Open. 2019 Jul 3;9(7):e027658. doi: 10.1136/bmjopen-2018-027658. PubMed PMID: 31272976.

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