

INPLASY

Comparison of the functional outcome between craniotomy versus decompressive craniectomy for acute subdural hematoma: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202430122

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 March 2024 and was last updated on 28 March 2024.

INTRODUCTION

Review question / Objective Population: patient with traumatic acute subdural hematoma. Intervention: decompressive craniectomy. Comparison: craniotomy. Outcome: patient's Glasgow Outcome Scale-Extended (GOSE).

Rationale Traumatic acute subdural hematoma contributes to a large proportion of traumatic brain injury patients. Patient with traumatic acute subdural hematoma tends to have high mortality rates and poor functional outcomes. Decompressive craniectomy and craniotomy were two common surgical treatments for traumatic acute subdural hematoma. This meta-analysis aimed to compare patient's outcomes after receiving the two surgery treatments.

Condition being studied The patients included in the study were patients who arrived at hospitals with traumatic brain injury causing acute subdural hematoma.

METHODS

Search strategy Database: Ovid MEDLINE, PubMed, the Cochrane Central Register of Controlled Trials, the Cochrane Database of Systematic Reviews, and clinicaltrial.gov Mesh terms: 'acute subdural hematoma,' 'craniotomy,' and 'craniectomy'.

Participant or population Patient with acute subdural hematoma.

Intervention Decompressive craniectomy.

Comparator Craniotomy.

Study designs to be included Retrospective study, randomized controlled trial.

Eligibility criteria Exclude: non-traumatic cause of acute subdural hematoma.

Information sources Database: Ovid MEDLINE, PubMed, the Cochrane Central Register of

Controlled Trials, the Cochrane Database of Systematic Reviews, and clinicaltrial.gov And the reference of selected research found by aboved database.

Main outcome(s) Glasgow Outcome Scale-Extended (GOSE) at 6 months.

Additional outcome(s) Glasgow Outcome Scale-Extended (GOSE) at 1 year; mortality at 6 month and 1 year; GCS at admission; midline shift at admission; SDH thickness at admission; re-operation rate; infection rate; seizure rate.

Data management Google Sheets and Google Docs store and share data; Endnote was used to remove duplication of the research.

Quality assessment / Risk of bias analysis Risk Of Bias In Non-randomized Studies - of Interventions (ROBINS-I) tool; ROB 2.0 for randomized control trial.

Strategy of data synthesis The data was analyzed with review manager 5.3. If the RCT was included in the analysis, generic inverse variance data would generate an odds ratio with a random-effects model . If the RCT was not included in the analysis, dichotomous or continuous data would generate an odds ratio with the random-effects model. A forest plot would be generate and evaluated outcome.

Subgroup analysis The data was analyzed with review manager 5.3. If the RCT was included in the analysis, generic inverse variance data would generate an odds ratio with a random-effects model . If the RCT was not included in the analysis, dichotomous or continuous data would generate an odds ratio with the random-effects model. A forest plot would be generate and evaluated outcome..

Sensitivity analysis Effect sizes were presented with their corresponding 95% confidence intervals. Heterogeneity was assessed using the I2 statistics.

Language restriction English.

Country(ies) involved Taiwan.

Other relevant information No

Keywords " acute subdural hematoma", " craniectomy", " craniotomy".

Dissemination plans Yes.

Contributions of each author

Author 1 - Yi-Hsuan Chien - data extraction, data analysis, drafted the manuscript.

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Author 2 - Sheng-Tzung Tsai - Topic selection, Neurosurgery expertise, search and correction of the data.

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