INPLASY

Is bloodletting immediately effective for acute stroke patients with impaired consciousness?

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ADMINISTRATIVE INFORMATION

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 July 2024 and was last updated on 20 July 2024.

INTRODUCTION

Review question / Objective Can bloodletting be considered as an emergency measure for impaired consciousness in acute stroke patients?

Rationale Bloodletting is one of the oldest interventions commonly found in traditional medicine around the world. In ancient East Asian traditional medicine, bloodletting was used to puncture the skin at acupoints using an acupuncture needle and release only a few drops of blood. One of the main indications for this intervention for awakening patients with sudden loss of consciousness. In particular, cultural and traditional beliefs about the benefit of bloodletting as an emergency measure for acute stroke with consciousness disturbance are strong in Northeast Asia including Korea and China. Therefore, bloodletting, which is widely known to the local public as one of the simple first-aid measures, needs to be examined whether it is an intervention that can still provide actual benefits to acute stroke patients receiving conventional Western treatment in this modern society.

A recently published systematic review by Wu et al. suggested that acupuncture may be a promising treatment for poststroke coma and bloodletting was included as one of the broad categories of acupuncture in the article. According to the article, acupuncture as a whole was substantially effective, but subgroup analysis of bloodletting was not statistically significant. However, the topic of the article was acupuncture, not bloodletting, and this article was unable to focus on the effects of bloodletting in detail.

In acute stage of stroke, the size of the lesion greatly influences the outcome, and changes over time can be dramatic. However, these important variables were not reflected at all in previous studies.

Therefore, the purpose of this study was to evaluate the effectiveness of bloodletting in acute

stroke patients with early impairment of consciousness, and how the effectiveness varies depending on the size of the stroke lesion and the post-intervention time point.

Condition being studied Stroke is one of the leading causes of death and a leading cause of long-term disability in adults worldwide. Early impairment of consciousness is common in acute stroke patients and is known to be one of the independent predictors of long-term worse outcomes after stroke, such as increased early mortality and functional dependence. For this reason, management of early impairment of consciousness is one of the major challenges in the initial care of acute stroke patients. Intravenous thrombolysis and endovascular thrombectomy in ischemic stroke, early surgery in hemorrhagic stroke, studies have been published suggesting that it may be beneficial in reducing brain lesions and swelling, thereby reducing consciousness disorders and promoting recovery. However, these interventions can only be performed on a limited patients who meet the rigorous criteria for intervention and only at a hospital with sufficient infrastructure for these interventions. Therefore, there is a need to examine the possibility of using bloodletting as an emergency measure that can be easily performed in addition to conventional treatment of Western medicine, to a wider range of patients, during prehospital emergency care or wating for standard treatment after arriving at hospital.

METHODS

Search strategy To search studies evaluating the effectiveness of bloodletting in acute stroke patients with early consciousness disturbance, we used the following search terms as follows: (stroke OR cerebral infarction OR cerebral hemorrhage OR cerebrovascular disorder OR cerebrovascular accident OR apoplexy OR brain ischemia) AND (bloodletting OR blood pricking OR collateral pricking OR fang xue).
For Chinese database: (Medium gestation OR 卒中 OR 脑卒中 OR 脑梗死 OR 脑栓塞 OR 脑溢血 OR 脑出血 OR 血血脑卒中 OR 脑血性脑卒中 OR 腦血管疾病) AND (刺络 OR 刺血 OR 泻血 OR 放血) AND (系统 OR 随机). For Korean database: (stroke OR cerebral infarction OR cerebral hemorrhage OR stroke OR cerebrovascular disease) AND (bloodletting OR hemorrhage OR exsanguination). We searched for studies by modifying the combination of the above search terms to suit the settings and search guidelines of each database.

Participant or population Acute stroke patients with impaired consciousness diagnosed with stroke through brain imaging, with no exclusions based on age, gender, or ethnicity were allowed.

Intervention mmediate effect of additional bloodletting on patients receiving conventional Western medical treatment for acute stroke was evaluated. Bloodletting is defined as an intervention method that releases a small amount of blood by puncturing the skin at acupoints using sharp-tipped instruments such as three-pointed needles or skin needles, according to the customs of East Asian traditional medicine. Venesection, phlebotomy, hemodilution, and hijama were excluded. Bloodletting combined with other treatments was also excluded. For example, wet cupping which is combined intervention of cupping and bloodletting was excluded. For the same reason, acupuncture, massage, and herbal medicine combined with bloodletting were not included in this study.

Comparator Comparison with sham intervention, no treatment, waiting list was allowed. Because there is no specific standard treatment for awakening acute stroke patients with early impaired consciousness, comparison with active control was not regarded. Comparison with other unproven interventions (e.g. acupuncture, another type of bloodletting) was also not regarded.

Study designs to be included Randomized controlled trials (RCTs) were included.

Eligibility criteria RCTs that assessed the effectiveness of bloodletting as an adjunct to conventional Western medical treatment for acute stroke was included.

Information sources Core databases (PubMed, Embase, Cochrane library), Chinese Academic Journals, and Korean databases (Science on, KISS, RISS, OASIS) were searched. Clinical research registration platforms including International Clinical Trials Registry Platform (ICTRP), ClinicalTrials.gov, Chinese Clinical Trial Register (ChiCTR), and Clinical Research Information Service of South Korea (CRIS) was also searched. Additionally, we hand searched RCTs included in a reference list of relevant systematic reviews. Only articles published in academic journals was selected, and thesis, dissertation, and conference abstracts was excluded.

Main outcome(s) Glasgow coma scale.

Data management The retrieved publications were imported into reference management software (EndNote) and duplicate records were automatically removed. Two authors screened the retrieved articles and selected those that met predetermined exclusion criteria. Disagreements between authors were resolved through discussion. Data from the finally selected articles were extracted and entered into an Microsoft Excel spreadsheet. Review Manager (RevMan version 5.4.1) was used for meta-analysis.

Quality assessment / Risk of bias analysis Risk of bias of the included studies were assessed with the version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB 2). Quality of the evidence was assessed using GRADEpro GDT website.

Strategy of data synthesis For continuous variables, inverse variance method was used, and mean difference (MD) and 95% confidence interval (CI) were calculated. For dichotomous variables, the Mante-Haenszel method was used, and risk ratio and 95% CI were calculated.
Statistical heterogeneity was measured using Cochrane's I^2 value. If I^2 value was 50% or more, considering the possibility of substantial heterogeneity, the data were synthesized using a random effect model. the data were synthesized using a random effect model. In other cases, a fixed effect model was used.

Subgroup analysis Basically, subgroup analysis according to lesion size at baseline and time elapsed after intervention was the main finding of this study.

Sensitivity analysis If significant heterogeneity between studies was detected, the leave-one-out approach was regarded.

Language restriction Language was not restricted.

Country(ies) involved Republic of Korea.

Keywords bloodletting, acute stroke, unconsciouness, Glasgow coma scale, immediate effect, single treatment effect.

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