INPLASY PROTOCOL

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None declared.

Effects of pre-operative fluid infusion on post-operative complications in patients under general anesthesia

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Review question / Objective: Whether pre-operative fluid infusion can reduce the incidence of post-operative complications by preventing post induction hypotension. The patients who was 18 years or older and underwent elective surgery under general anesthsia will be enrolled. The intervention was intravenous infusion of fluid before induction. The primary outcome is the incidence of post-operative complications.

Condition being studied: Hypotension is associated with postoperative complication. Preoperative fluid infusion can effectively prevent post-induction hypotension of general anesthesia. Previous studies only focused on the hemodynamics after preoperative fluid infusion, MAP, SV, CI, SVV.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 December 2022 and was last updated on 26 December 2022 (registration number INPLASY2022120100).

INTRODUCTION

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METHODS

Participant or population: Inclusion: 18 years or older; Undergoing elective non-cardiac surgery under general aneathesia.

Intervention: Pre-induction fluid infusion was used as intervention treatment, which was defined as pre-anesthesia administration (initiated before anesthesai) of fluids.

Comparator: Patients were treated conventional fluid therapy, which performed according to the institution's standard of care, using fluids and vasoactive drugs at the discretion of the anesthesiologist.

Study designs to be included: Only randomized controlled trials (RCTs) will be included.

Eligibility criteria: Exclusion: Pediatric patients, patients undergoing cardiac surgery, or non-surgical patients were excluded.

Information sources: We will search the following electronic bibliographic databases: MEDLINE, EMBASE, The Cochrane Library, Web of Science

Main outcome(s): Studies reporting the incidence of the postoperative complications.

Additional outcome(s): Studies reporting the incidence of the postoperative mortality or length of hospital stay(LOS).

Data management: We will obtain the following items: comparison, number of patients included, type of fluids, incidence of hypotension, ephedrine use, phenylephrine use, nausea and vomiting, vasopressor use, definition of hypotension. Two authors will independently extract and enter the data in a Revman file.

Quality assessment / Risk of bias analysis: The quality of the included studies will be assessed by a revised version of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement for observational studies and the principle of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system for RCTs.

Strategy of data synthesis: The pooled risks ratios (RR) and 95% CI were calculated to measure the strength of the association between postoperative complications and fluid treatment before induction of anesthesia. Z test were used to determine the significance of the pooled effect size and $P<0.05$ was considered statistically significant. The heterogeneity test was analyzed using the Q-test and I^2 statistic. A P value of the Q-test more than 0.10 showed there was no heterogeneity among the included studies, and the Mantel-Haenszel fixed-effect model could be performed as the pooling method, otherwise the random-effects model was accepted. I^2 statistic (between 0% and 100%), defined as the proportion of the observed study variability owing to heterogeneity instead of chance, was also used to evaluate the heterogeneity.

Subgroup analysis: Subgroup analyses are planned for 1) Emergency vs elective surgery; 2) colloids vs crystalloids; 3) Study quality (low vs unclear/ high risk of bias).

Sensitivity analysis: We will use a fixed effect model, unless overt clinical or residual statistical heterogeneity is present.

Country(ies) involved: China.

Keywords: postoperative complications; pre-operative fluid infusion; general anesthesia; colloids; crystalloids.

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