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INPLASY

Volatile anaesthetics versus propofol for myocardial protection in patients undergoing off-pump coronary artery bypass grafting surgery: a Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - No financial support.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 July 2023 and was last updated on 11 July 2023.

INTRODUCTION

Review question / Objective To systemically evaluate the effects of volatile anesthetics and propofol in patients undergoing off-pump coronary artery bypass grafting(OPCAB).

Condition being studied Cardiac surgery, anesthesia.

METHODS

Participant or population Adult patients undergoing off-pump coronary artery bypass (OPCAB) surgery.

Intervention Volatile anesthetics anesthesia(include sevoflurane, isoflurane and desflurane).

Comparator Propofol anesthesia.

Study designs to be included All prospective RCTs and retrospective studies will be included.

Eligibility criteria We include all prospective RCTs and retrospective studies comparing the effects of volatile anesthetics (include sevoflurane, isoflurane and desflurane) vs propofol on patients undergoing OPCAB. Eligible studies should include CABG patients randomized into RIC group and Control group.Exclusion criteria include (1) studies published as review article, case report or abstract; (2) studies based on animal models; (3) duplicate publications; (4) studies lacking information about outcomes of interest;(5)articles written in languages other than English and Chinese.

Information sources Relevant trials were identified by computerized searches of MEDLINE, Cochrane Library and EMBASE, using different combination of search words, such as sevoflurane, isoflurane, desflurane, propofol, off-pump, coronary artery bypass grafting (from inception).

No language restriction was used. We also searched Chinese BioMedical Literature & Retrieval System. Additionally, we used the bibliography of retrieved articles to further identify relevant studies.

Main outcome(s) Primary outcomes of interest include the levels of myocardial injury biomarkers(e.g cTnI, cTnT, CK-MB).

Additional outcome(s) Post-operative bleeding (chest drainage), re-operation for bleeding, transfusion and thrombosis, extubation time, the ICU stay length, postoperative recovery are to be compared between two anesthesia techniques.

Quality assessment / Risk of bias analysis Two review authors (Ma Jia-sen and Zhang cheng-hong) will independently evaluate the quality of each included study using the Cochrane Collaboration's tool. Disagreements between the two authors will be discussed until consensus was reached. A third review author (He Chang-lin) will participate in the discussion on the risk of bias in certain studies if necessary.

Strategy of data synthesis All data were analyzed by utilizing RevMan 5.3 (Cochrane Collaboration, Oxford, UK). Pooled odds ratio (OR) and 95% confidence interval(CI) were estimated for dichotomous data, and weighted mean difference (WMD) and 95% CI for continuous data, respectively. Each outcome was tested for heterogeneity, and randomized-effects or fixed-effects model was used in the presence or absence of significant heterogeneity (Q-statistical test $P<0.05$).

Subgroup analysis We will set up three subgroups(sevoflurane vs propofol, isoflurane vs propofol, desflurane vs propofol) based on different anesthetics to compare their advantages.

Sensitivity analysis Sensitivity analyses were done by examining the influence of statistical model on estimated treatment effects, and analyses which adopted the fixed-effects model were repeated again by using randomized-effects model and vice versa.

Language restriction English and Chinese.

Country(ies) involved China.

Keywords cardiac surgery; anesthesia.

Contributions of each author

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Author 3 - He Chang-lin.
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