INPLASY PROTOCOL

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Support: NA.

Review Stage at time of this submission: Formal screening of search results against eligibility criteria.

Conflicts of interest:
None declared.

Perioperative interventions for prevention of postoperative atrial fibrillation after cardiac surgery: a systematic review and network meta-analysis

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Review question / Objective: We used network meta-analysis to compare the effect among different interventions for prophylaxis against Postoperative atrial fibrillation (POAF) after cardiac surgery.

Condition being studied: POAF is the most common complication of cardiac surgery, which increases the risk of stroke and death, the length of hospital stays (LOS), and costs. Guidelines recommendations on the use of β-blockers (BBs) have only a modest influence on overall rates of POAF. The key clinical outcomes such as stroke and death have not been improved. The best approach to prophylaxis remains obscure.

Information sources: PubMed, Embase, and the Cochrane Library databases will be searched to find eligible articles. In addition, the reference lists of the relevant articles and relevant meta-analysis will be checked with expectation for additional articles.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 April 2021 and was last updated on 06 April 2021 (registration number INPLASY202140030).

INTRODUCTION

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death, the length of hospital stays (LOS), and costs. Guidelines recommendations on the use of β-blockers (BBs) have only a modest influence on overall rates of POAF. The key clinical outcomes such as stroke and death have not been improved. The best approach to prophylaxis remains obscure.

METHODS

Participant or population: Patients (≥ 18 years old) undergoing CABG, valvular or combined surgery without history of atrial fibrillation or supraventricular tachycardia.

Intervention: Any pharmacological or non-pharmacological as monotherapy therapy regimens aimed at preventing POAF after cardiac surgery.

Comparator: Any pharmacological or non-pharmacological intervention or placebo or usual care as monotherapy therapy regimens for preventing POAF after cardiac surgery.

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

Eligibility criteria: (1) Only RCTs were included in the study. Case studies, case series, observational studies, and letters were excluded, and papers published in abstract form were reviewed but qualified only if they included sufficient information to fulfil the above criteria. (2) Any pharmacological or non-pharmacological as monotherapy therapy regimens aimed at preventing POAF after cardiac surgery , and studies examining the addition of interventions to cardioplegia solution were excluded. (3) Participants were patients undergoing CABG,valvular surgery or both. (4) Patients were over 18 years old. (5) Patients were no history AF or supraventricular tachycardia, as well as no obvious left ventricular dysfunction.

Information sources: PubMed, Embase, and the Cochrane Library databases will be searched to find eligible articles. In addition, the reference lists of the relevant articles and relevant meta-analysis will be checked with expectation for additional articles.

Main outcome(s): Main outcomes were incidence of POAF (or supraventricular tachycardia), hypotension, bradycardia, stroke (or cerebrovascular accident), mortality rate, and cardiovascular mortality rate, as well as LOS, and medical cost.

Quality assessment / Risk of bias analysis: Risk of bias of each studies will be assessed using the Cochrane Handbook V.5.1.0 which bases on the following domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting, and other sources of bias. Each study will be assigned a level of risk of bias (high risk, unclear risk, low risk) for each item.

Strategy of data synthesis: We will use random-effects pairwise meta-analyses for all direct comparisons to estimate treatment effects estimates and 95% confidence intervals. We will perform a random-effects network meta-analysis (NMA) using Bayesian framework if the transitivity hypothesis is judged reasonable. We will use both global and local inconsistency tests to assess the consistency. We will use the surface under the cumulative ranking curve (SUCRA) to rank different interventions to assess the difference in effect. Publication bias will be assessed by visually examining the funnel plot asymmetry.

Subgroup analysis: If there are sufficient data, we will explore perform subgroup analysis and meta-regression to explore sources of heterogeneity and differences in main results between different groups.

Sensitivity analysis: If there are sufficient data, we will carry out sensitivity analysis to explore whether the effects of interventions for POAF prophylaxis were robustness.

Language: No limited.

Country(ies) involved: China.

Keywords: postoperative atrial fibrillation, cardiac surgery, prevention, network-meta analysis.

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