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Sivelestat supplementation in patients undergoing cardiac surgery: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - Fujian Provincial Senior Talent Training Program on Western Medicine Doctors Learning from Traditional Chinese Medicine.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202560099

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 June 2025 and was last updated on 24 June 2025.

INTRODUCTION

Review question / Objective To investigate the effects of sivelestat in cardiac surgery patients.

Condition being studied The research team comes from the Department of Critical Care Medicine of a tertiary hospital in China, and all the team members have perfect clinical experience in critical care and resuscitation. Moreover, our team members have published more than 40 meta-analyses, which can guarantee the successful completion of the current research.

METHODS

Participant or population Patients undergoing cardiac surgery who received CPB.

Intervention Sivelestat was administered during the perioperative period.

Comparator Placebo, or other sivelestat-free supplements, or no intervention (control group).

Study designs to be included Not limited.

Eligibility criteria We excluded the studies that met the following criteria: (1) studies that enrolled patients < 18 years old or women who were pregnant or breastfeeding; (2) publications only in the abstract, letters to the editor without sufficient data, and review articles.

Information sources Pubmed, Embase, and Cochrane Library.

Main outcome(s) The primary outcome was the effect of sivelestat on changes in partial pressure of oxygen/fraction of inspiration oxygen ($\Delta PaO_2/FiO_2$) during the prophylactic period.

Quality assessment / Risk of bias analysis Y-GH and D-XY independently assessed the quality of each included study using the Cochrane Risk of Bias tool. Publication bias was evaluated through visual inspection funnel plots.

Strategy of data synthesis Meta-analysis.

Subgroup analysis None.

Sensitivity analysis Sensitivity analyses were performed by sequentially excluding each study at a time to explore whether an individual study's particular result drove the results.

Country(ies) involved China.

Keywords sivelestat; cardiac surgery; partial pressure of oxygen/fraction of inspiration oxygen; mortality; meta-analysis.

Contributions of each author

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