

INPLASY PROTOCOL

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None declared.

Prevention of contrast-induced acute kidney injury by probucol combined with hydration in patients with coronary heart disease: a systematic review and meta analysis of randomized controlled trials

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Review question / Objective: The objective of this review and meta-analysis is to evaluate whether probucol combined with hydration could reduce contrast-induced acute kidney injury (CI-AKI) in patients with coronary heart disease undergoing coronary arteriography or percutaneous coronary intervention. The selected research method were Randomised Controlled Trials (RCTs).

Condition being studied: CI-AKI is a frequent complication following coronary arteriography or percutaneous coronary intervention, which is associated with the poor clinical outcomes. Probucol is effective for alleviating kidney injury resulting from oxidative stress, such as diabetic nephropathy. However, the efficacy and safety of probucol combined with hydration in preventing of CI-AKI are still uncertain.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 May 2022 and was last updated on 28 May 2022 (registration number INPLASY202250157).

INTRODUCTION

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hydration could reduce contrast-induced acute kidney injury (CI-AKI) in patients with coronary heart disease undergoing coronary arteriography or percutaneous coronary intervention. The selected

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METHODS

Participant or population: Participants with coronary heart disease who underwent coronary arteriography or percutaneous coronary intervention in hospital.

Intervention: Probucol combined with hydration.

Comparator: Hydration.

Study designs to be included: Randomised Controlled Trails (RCTs).

Eligibility criteria: CI-AKI was defined as a relative increase in the serum creatinine (Scr) from the baseline value of 25% or an absolute increase of 0.5mg/dl (44.2umol/l) within 3 days after interventional procedure.

Information sources: Search the databases, including PubMed, Web of Science, Cochrane Library, Embase, China National Knowledge Internet (CNKI), WanFang database, SinoMed, WanFang Data, and the Chinese Scientific Journal database (VIP).

Main outcome(s): Incidence of CI-AKI, Scr and eGFR after coronary arteriography or percutaneous coronary intervention, rate of need for dialysis. Safety Index: adverse reactions.

Quality assessment / Risk of bias analysis: Two investigators independently assessed the risk of bias in the included studies

using the Cochrane Collaboration's tool, including the following items: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting and other biases. For each item, the risk of bias was rated as either "low," "high" or "unclear". If the evaluation results were inconsistent, issues were resolved by rechecking the source papers and discussing with the third investigator.

Strategy of data synthesis: The data was analyzed using the Review Manager version 5.3. For binary outcomes, the combined results were calculated as odds ratios (ORs) with 95% credible intervals (CIs). For continuous outcomes, mean differences (MD) with 95% CIs were used as the effect index. To assess between-study heterogeneity, we used the Cochran Q statistic and the I² statistic. We pooled the study-specific estimate using a fixed-effect model in case of low statistical inconsistency (I² ≤ 50%) or with a random-effect model in case of moderate or high statistical inconsistency (I² > 50%). Publication bias was evaluated using a funnel plot analysis if a sufficient number of trials (≥10 trials) was found.

Subgroup analysis: Data of outcomes were analysed according to different types and volumes of contrast agent.

Sensitivity analysis: The sensitivity analysis was performed using Review Manager version 5.3 by excluding the studies that introduced significant heterogeneity to the analysis on outcomes, to assess the robustness of our conclusions.

Language: English or Chinese.

Country(ies) involved: China.

Keywords: probucol, hydration, contrast-induced acute kidney injury, coronary heart disease

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