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INPLASY

Efficacy comparison of Chinese herbal monomers for the treatment of myocardial fibrosis: a network meta-analysis based on animal experiments

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ADMINISTRATIVE INFORMATION

Support - This study was supported by the Shandong Provincial Traditional Chinese Medicine Science and Technology Project.(Grant/Award Number:M20251916).

Review stage at the time of initial registration - The review has not yet started.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2026110050

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 November 2026 and was last updated on 12 November 2026.

INTRODUCTION

Review question / Objective The study question was defined based on the PICOS framework: Participants were animal models with myocardial fibrosis; Interventions referred to treatment with commonly used Chinese herbal monomers with anti-fibrotic effects; Comparators included blank control or untreated model control; Outcomes consisted of quantitative myocardial fibrosis-related indicators, including collagen volume fraction, fibrosis-related protein expression, and cardiac function parameters; Study design was limited to controlled animal experiments, without strict restrictions on the reporting of randomization and blinding.

Condition being studied Myocardial fibrosis, a pathological process characterized by excessive deposition of extracellular matrix in the myocardium, which leads to increased myocardial stiffness and impaired cardiac function. This study focuses on myocardial fibrosis in animal models.

METHODS

Participant or population Laboratory animal models with induced myocardial fibrosis, including rats, mice and other experimental animals. No restrictions on animal species, sex or modelling approaches.

Intervention Common Chinese herbal monomers with anti-fibrotic effects for the treatment of myocardial fibrosis. There is no restriction on dosage, administration route or treatment duration.

Comparator Untreated model control group.

Study designs to be included Controlled animal experiments. No strict restrictions on the reporting of randomization or outcome blinding.

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Eligibility criteria Inclusion criteria: studies reporting quantitative data of myocardial fibrosis-related indicators. Exclusion criteria: reviews, case reports, conference abstracts, duplicate publications, in vitro cell experiments, and studies without available extractable data.

Information sources Electronic databases: PubMed, Embase, Chcrane, CNKI, Wanfang Data, VIP. We will also check the reference lists of included articles for additional eligible studies. No grey literature search or contact with original authors will be performed.

Main outcome(s) The main outcome is the level of myocardial fibrosis-related indicators, including collagen volume fraction (CVF), collagen I, collagen III and α-SMA expression.

Quality assessment / Risk of bias analysis Risk of bias will be assessed independently by two reviewers using the SYRCLE risk-of-bias tool for animal studies. Each domain will be judged as low, high, or unclear risk of bias. Disagreements will be resolved by discussion or consultation with a third reviewer.

Strategy of data synthesis Network meta-analysis will be performed to compare different Chinese herbal monomers. Continuous endpoint data reported as mean ± SD will be pooled using standardised mean difference (SMD).

Subgroup analysis Subgroup analyses will be performed according to animal species (rats vs mice), modelling method, and administration route of Chinese herbal monomers, to explore potential sources of heterogeneity. Subgroup analysis will not be conducted if the number of studies within each subgroup is insufficient.

Sensitivity analysis Sensitivity analysis will be carried out by excluding studies with high risk of bias to test the robustness of the pooled results. If the included studies are too few, sensitivity analysis will be abandoned.

Country(ies) involved China.

Other relevant information Song RR, Liu F and Li Z are joint first authors and contributed equally to this work. Gao HM is the corresponding author.

Keywords Chinese herbal monomers; myocardial fibrosis; network meta-analysis; animal experiment.

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