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INPLASY

The predictive value of cardiac magnetic resonance-derived ventricular and atrial strain for adverse prognosis in myocarditis: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - Hospital-level research project.

Review Stage at time of this submission - Preliminary searches.

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 28 January 2026 and was last updated on 28 January 2026.

INTRODUCTION

Review question / Objective The imaging predictors of prognosis for myocarditis have received increasing attention. The focus of this meta-analysis is to use the atrial and ventricular strain data obtained through cardiac magnetic resonance technology to predict major adverse cardiovascular events (MACE) in patients with myocarditis.P (Patients) - Patients with myocarditis and suspected myocarditis
I- Strain parameters derived from the CMR feature tracking (FT) technology
C-Select other healthy individuals as controls
O- Major adverse cardiac events (MACE) primarily include life threatening arrhythmias, heart failure, rehospitalization because of recurrence or a cardiac event, death, heart transplantation, implanted cardioverter defibrillator or pacemaker
S- cohort study.

Condition being studied Myocarditis and suspected myocarditis.Myocarditis and suspected myocarditis.Cardiac magnetic resonance feature tracking technology holds significant value in the prognosis assessment of myocarditis. When combined with clinical symptoms and biomarker analysis, it helps to more accurately predict the prognosis of patients and guide treatment decisions. However, due to the numerous ventricular and atrial strain parameters in cardiac magnetic resonance (CMR), some research results are not entirely consistent. Currently, there is no meta-analysis on the predictive value of CMR strain parameters for adverse prognosis of myocarditis.

METHODS

Participant or population Myocarditis or suspected myocarditis.

Intervention The atrial and ventricular strain parameters obtained through the CMR feature tracking (FT) technique.

Comparator Select healthy individuals as controls.

Study designs to be included Cohort study.

Eligibility criteria The detailed inclusion criteria were as follows: (1) studies including patients with myocarditis or clinically suspected myocarditis; (2)The topic is to use cardiac magnetic resonance-derived atrial and ventricular strain to predict major adverse cardiovascular events (MACE) in patients with myocarditis. (3)the mean time of follow-up more than 3 months; (3) reported adverse outcome, includinglife threatening arrhythmias, heart failure, rehospitalization because of recurrence or a cardiac event, death, heart transplantation, implanted cardioverter defibrillator or pacemaker. We excluded the following articles: (1) editorial,commentary, review, abstracts, conference, case reports and meta-analysis; (2) published duplicate data; (3) studies with out reporting of clinical prognosis.

Information sources PubMed, Embase, web of science, Cochrane Library, ovid MEDLINE, Scopu, Sinomed, CNKI, WanFang, VIP Database.

Main outcome(s) Hazard ratio,HR.

Additional outcome(s) Major adverse cardiovascular events.

Quality assessment / Risk of bias analysis Newcastle-Ottawa Rating Scale (NOS).

Strategy of data synthesis If there is heterogeneity, choose to merge the data using the random effect method. If there is no heterogeneity, choose to merge the data using the fixed effect method.
Fixed effect model combination:
Applicable conditions: When the heterogeneity among the included studies is low (such as $I^2 < 50\%$ and $P > 0.1$), it can be assumed that the true effect values among the studies are the same, and the fixed effect model can be used.
Random effect model combination: Applicable conditions: When there is significant heterogeneity among the studies (such as $I^2 > 50\%$ or $P < 0.1$), it indicates that the true effect values among the studies may differ, and a random effects model should be adopted.

Subgroup analysis Conducted subgroup studies based on the strain of the left ventricle, right ventricle, left atrium, and right atrium.

Sensitivity analysis If the combined results of the remaining documents are very similar to those without the deletion of any particular document, then it indicates that the sensitivity analysis has been passed.

Country(ies) involved CHINA.

Keywords Myocarditis,Cardiac magnetic resonance, ventricular and atrial strain, poor prognosis.

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