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Diagnostic performance of dynamic electrocardiography in the diagnosis of myocardial ischemic attack in coronary heart disease: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

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

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 6 June 2025 and was last updated on 6 June 2025.

INTRODUCTION

INPLASY

Review question / Objective To establish higher-level evidence-based medical evidence, this study systematically evaluates the diagnostic value of dynamic ECG for myocardial ischemia episodes in CHD patients through a comprehensive systematic review and meta-analysis.

Condition being studied Coronary heart disease (CHD), as a leading global cause of mortality, necessitates early and accurate diagnosis of myocardial ischemia to improve patient prognosis. While dynamic electrocardiography (ECG) has become a vital clinical tool for myocardial ischemia screening and diagnosis due to its unique capability for continuous cardiac electrical activity monitoring, significant discrepancies persist among studies regarding its diagnostic performance.

METHODS

Participant or population Patients with confirmed or suspected CHD.

Intervention 12-lead dynamic ECG monitoring.

Comparator CAG or MPI.

Study designs to be included No restrictions on study design.

Eligibility criteria The inclusion criteria are listed as follows: (1) population: patients with confirmed or suspected CHD; (2) diagnostic tool: 12-lead dynamic ECG monitoring; (3) outcomes: reported diagnostic outcomes for myocardial ischemia with complete contingency table data (true positives, false positives, true negatives, false negatives); and (4) study design: no restrictions on study design. Studies were excluded if they: (1) had sample sizes <10 participants; (2) failed to provide extractable diagnostic accuracy data; (3) involved non-human subjects; (4) contained incomplete methodology descriptions precluding quality assessment; and (5) utilized non-standard ECG configurations (e.g., <12 leads or modified lead placements).

Information sources PubMed, Embase, Web of Science, Cochrane Library, China National Knowledge Infrastructure, and Wanfang databases.

Main outcome(s) Reported diagnostic outcomes for myocardial ischemia with complete contingency table data (true positives, false positives, true negatives, false negatives).

Data management Two rigorously trained reviewers independently conducted data extraction following standardized protocols established during a comprehensive training program. The training curriculum emphasized operational definitions, variable specifications, and systematic extraction procedures from the study manual.

Quality assessment / Risk of bias analysis Then the reviewers jointly assessed methodological rigor using the QUADAS-2 tool on the basis of patient selection criteria, index test implementation, reference standard applicability, and flow/timing considerations.

Strategy of data synthesis A comprehensive pooled analysis was conducted using bivariate generalized linear mixed models with random effects to account for between-study variability.

Subgroup analysis To investigate potential effect modifiers, prespecified subgroup analyses were stratified by disease status (confirmed vs. suspected CHD) and reference standard methodology.

Sensitivity analysis NA.

Language restriction No restriction.

Country(ies) involved China.

Keywords dynamic electrocardiography; myocardial ischemic; coronary heart disease; systematic review; meta-analysis.

Contributions of each author

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