

INPLASY PROTOCOL

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None declared.

Prognostic value of preoperative assessment of left ventricular function in patients undergoing percutaneous coronary intervention

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Review question / Objective: This study aims to explore the significance of left ventricular function assessment before PCI by comparing the differences in short - and long-term PCI outcomes between patients with different left ventricular ejection fraction stratified preoperatively.

Condition being studied: Preoperative assessment of left ventricular function in patients undergoing percutaneous coronary intervention.

Information sources: PubMed and Scopus were searched to identify potential studies from January 1, 2001 through January 1, 2022. There were no language restrictions. The reference list of previous systematic reviews were scrutinized.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 February 2022 and was last updated on 11 February 2022 (registration number INPLASY202220031).

INTRODUCTION

Review question / Objective: This study aims to explore the significance of left ventricular function assessment before PCI by comparing the differences in short - and long-term PCI outcomes between patients with different left ventricular ejection fraction stratified preoperatively.

Rationale: Recent studies have shown that increased use of percutaneous coronary intervention (PCI) reperfusion has led to a decrease in acute coronary syndrome mortality. In fact, patients may experience a decline in cardiac function even after successful primary PCI. Unfortunately, the assessment of left ventricular (LV) function before PCI is often overlooked. Recent

studies have shown that increased use of percutaneous coronary intervention reperfusion has led to a decrease in acute coronary syndrome mortality. In fact, patients may experience a decline in cardiac function even after successful primary PCI. Unfortunately, the assessment of LV function before PCI is often overlooked.

Condition being studied: preoperative assessment of left ventricular function in patients undergoing percutaneous coronary intervention.

METHODS

Participant or population: Patients undergoing percutaneous coronary intervention.

Intervention: Patients with different left ventricular ejection fraction stratified.

Comparator: Patients with different left ventricular ejection fraction stratified.

Study designs to be included: Observational studies or secondary analysis of intervention studies that reported prognosis of PCI surgery were included.

Eligibility criteria: Observational studies or secondary analysis of intervention studies that reported prognosis of PCI. Outcomes of studies must be stratified according to LVEF.

Information sources: PubMed and Scopus were searched to identify potential studies from January 1, 2001 through January 1, 2022. There were no language restrictions. The reference list of previous systematic reviews were scrutinized.

Main outcome(s): The primary outcome was all-cause mortality stratified according to LVEF at baseline.

Additional outcome(s): The secondary outcomes were MACE and cardiac mortality in-hospital or long-term.

Data management: Two investigators performed title / abstract screening independently from each other. After that, the full-text of potentially eligible studies was accessed by two investigators for finally determining eligibility and, then, proceeding data extraction. Extracted data included study design, age, gender, grouping rules, sample size, patients, country, follow-up periods, and study results. If the article did not provide data results, we used free software Engauge-digitizer (<https://github.com/markummitche/engauge-digitizer/tree/v12.2.1>) to obtain data from figures.

Quality assessment / Risk of bias analysis: Study quality was assessed using items from the Newcastle-Ottawa Quality Assessment Scale (NOS). Publication bias was assessed using the Begg rank correlation test and the Egger weighted linear regression test for implementation strategies with at least 10 studies.

Strategy of data synthesis: Random-effects or fix-effects meta-analysis was conducted of outcomes for which at least 2 studies contributed data. Categorical data were expressed as the pooled odds ratio (OR) or Hazard ratio (HR) with their 95% CIs using the inverse variance method. Heterogeneity was evaluated using both the χ^2 test and the I² statistic. All statistical tests were two sided and used a significance level of $P < 0.05$. We used STATA 15 (StataCorp, College Station, TX) for all statistical analyses.

Subgroup analysis: Three subgroups were analyzed: 1. Patients with heart failure (New York Heart Association or Killip class >1) at baseline, heart failure with reduced ejection fraction (HFrEF) versus heart failure with preserved ejection fraction (HFpEF); 2. Patients undergoing elective PCI of chronic total occlusion (CTO); 3. STEMI patients.

Sensitivity analysis: None.

Language: No language restriction.

Country(ies) involved: China.

Other relevant information: None.

Keywords: percutaneous coronary intervention; left ventricular ejection fraction; prognostic.

Contributions of each author:

Author 1 - Ming Yang - The author drafted the manuscript.

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Author 3 - Zhi Cheng Jing - The author contributed to the development of the selection criteria, and the risk of bias assessment strategy.

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