INPLASY PROTOCOL

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Review Stage at time of this submission: Formal screening of search results against eligibility criteria.

Conflicts of interest: None declared.

Comparison of Effect of staged versus instant complete revascularization on the prognosis of STEMI patients with multi-vessel disease: A protocol for meta-analysis

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Review question / Objective: Our meta-analysis including observational study and RCT on STEMI patients with multi-vessel disease compares the long-term (≥6months) outcome(all-cause mortality, cardiac death, reinfarction, target-vessel-revascularization) affected by different PCI strategy: staged complete revascularization or instant complete revascularization.

Condition being studied: About 50% STEMI patient has MVD(Multi-vessel disease) at the same time, the previous RCT have shown that complete revascularization of both Ischemia-related artery(IRA)and non-Ischemia-related artery(n-IRA) by Percutaneous Coronary Intervention(PCI) could improve the long term prognosis of the patient compared to culprit-only revascularization. But the optimal timing of n-IRA revascularization is still controversial. The existing RCT had a limited sample size, To enlarge the sample size, we plan to conduct a meta-analysis pool the data from both observational research and RCT study.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 April 2021 and was last updated on 11 April 2021 (registration number INPLASY202140064).

INTRODUCTION

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METHODS

Search strategy: We searched three databases: PubMed, Embase and Cocharane Library, and I listed PubMed's search strategies below as an example : #1 "ST Elevation Myocardial Infarction"[Mesh]; #2 ((STEMI) OR (ST elevation myocardial infarction)) OR (ST-segment elevation myocardial infarction); #3 (#1 OR #2); #4 "Percutaneous Coronary Intervention" [Mesh]; #5 ((((Coronary Intervention, Percutaneous) OR (PCI)) OR (Percutaneous Coronary Revascularization)) OR (Coronary Revascularizations, Percutaneous)) OR (Revascularizations,Percutaneous Coronary); #6 (#4 OR #5); #7 (((multivessel coronary artery disease) OR (MV-CAD)) OR (multivessel)) OR (MVD); #8 (#3 AND #6 AND #7.

Participant or population: Patients with both STEMI and MVD.

Intervention: Staged complete revascularization.

Comparator: Instant complete revascularization.

Study designs to be included: Observational study and RCT.

Eligibility criteria: Inclusion criteria: 1. Patients with STEMI complicated with MVD 2. Instant group and Staged group were compared in the study 3. The endpoint is one of the prognostic indicators in our study 4. Observational studies and RCT studies published in english. Exclusion criteria: 1. Patients with cardiogenic shock were excluded 2.Study whose full text and data cannot be obtained were excluded.

Information sources: We searched PubMed, EMBASE and Cochrane database, and Google Scholar for the completed study till 10/12/2020. Only the article published in English or Chinese would be intake. Additional studies that the database search may have missed would be identified through reviewing references of previous publications.

Main outcome(s): The main outcomes of our analysis were: All cause mortality, cardiac death, reinfarction, target-vessel-revascularization(TVR). These outcomes could be confirmed by medical records or by interviews through outpatient service and telephone.

Data management: The database search outcome was downloaded, and the duplicates were manually identified and eliminated. A full-text article was obtained for further selection after we reviewed the title and abstract of studies that may be included. If the possibility of inclusion of an article could not be determined by title or abstract alone, the full text was also obtained. Two authors will independently abstract data, from selected studies, using a specific collect form. The third author will resolve the disagreement between the two on data extraction.

Quality assessment / Risk of bias analysis: We plan to use Newcastle-Ottawa Scale for observational studies and Cochrane Collaboration's tool for RCT.

Strategy of data synthesis: We plan to use RR with 95%CI as the combined effect. All dichotomous variable data are calculated and converted into RR with 95%CI, and HR is approximately equal to RR. We synthesize data according to the inverse variance method for a random-effects model. Since RR values do not fit a normal

distribution, the natural logarithm of RR values is to be used during the computation. To evaluate heterogeneity, we use forest plots, Cochrane's Q test, and I-square statistics. We consider p>0.05 in the Q test and I2 > 50% to indicate substantial heterogeneity.

Subgroup analysis: Subgroup analyses are planned base on RCT versus other studies.

Sensitivity analysis: Sensitivity analysis conduct by removing one study at a time from the model, in case there were some influences from a single study.

Language: Only articles published in English were included in the analysis.

Country(ies) involved: China.

Keywords: ST Elevation Myocardial Infarction;Percutaneous Coronary Intervention; multi-vessel coronary disease; stage-revascularization.

Contributions of each author:
Author 1 - Wenchao Ou.
Author 2 - Shizheng Li.
Author 3 - Sisi Ling.