INPLASY PROTOCOL

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None declared.

Comparison of Jailed Wire and Jailed Balloon for Side Branch Occlusion Prevention in Provisional Stenting: Evidences from a Systematic Review and Meta-analysis

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Review question / Objective: **Whether jailed balloon technique or jailed wire technique performs better for coronary bifurcation lesion when adopting a provisional strategy.**
Condition being studied: **Side branch (SB) occlusion after main vessel (MV) stenting is the main in-procedure complication treating coronary bifurcation lesions by provisional stenting. Jailed wire technique (JWT) has been recommended by European Bifurcation Club (EBC) as a standard technique to deal with this issue [1]. However, data from several studies revealed that the efficacy of JWT was limited. In most cases, the jailed wire only acted as a marker or path to rescue the compromised SB [2]. Burzotta et al. first proposed jailed balloon technique (JBT) in 2010, in which a small balloon was jailed in place of a guidewire [3]. With JBT, SB occlusion incidence could be evidently reduced due to the bigger spatial occupation. However, to the best of our knowledge, JBT increased the risk of vessel dissection especially in the SB ostium. There is still no robust evidence to make it clear that whether JBT or JWT should be adopted when performing provisional stenting currently. This systematic review and meta-analysis aim to tackle this issue through comparing the immediate procedural outcomes and long-term follow-up of the two techniques.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 January 2023 and was last updated on 28 January 2023 (registration number INPLASY202310082).

INTRODUCTION

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treating coronary bifurcation lesions by provisional stenting. Jailed wire technique (JWT) has been recommended by European Bifurcation Club (EBC) as a standard technique to deal with this issue [1]. However, data from several studies revealed that the efficacy of JWT was limited. In most cases, the jailed wire only acted as a marker or path to rescue the compromised SB [2]. Burzotta et al. first proposed jailed balloon technique (JBT) in 2010, in which a small balloon was jailed in place of a guidewire [3]. With JBT, SB occlusion incidence could be evidently reduced due to the bigger spatial occupation. However, to the best of our knowledge, JBT increased the risk of vessel dissection especially in the SB ostium. There is still no robust evidence to make it clear that whether JBT or JWT should be adopted when performing provisional stenting currently. This systematic review and meta-analysis aim to tackle this issue through comparing the immediate procedural outcomes and long-term follow-up of the two techniques.

METHODS

Participant or population: Patients with coronary bifurcation lesion and underwent PCI with a provisional strategy.

Intervention: PCI of provisional strategy.

Comparator: Jailed wire technique.

Study designs to be included: RCT and two-arm observational studies.

Eligibility criteria: Inclusion criteria included: 1) randomized controlled trials (RCT) or observational studies comparing JBT and JWT; 2) studies used drug eluted stents.Exclusion criteria included: 1) studies with unclear description of the techniques or endpoints; 2) studies without the specified endpoints; 3) studies of low quality assessed by two independent reviewers; 4) repeated studies; 5) studies whose full text couldn't be retrieved; 6) conference paper.

Information sources: Pubmed, Ovid Medline, Web of science, Embase, Cochrane, CNKI, Wanfang and Weipu.

Main outcome(s): Primary endpoints: major adverse cardiac events (MACE) and its individual components including cardiac death, myocardial infarction (MI), target lesion revascularization (TLR).
Secondary endpoints: 1) SB occlusion defined as flow less than thrombolysis in myocardial infarction (TIMI) 3; 2) SB vessel dissection, detected by angiography, optical coherence tomography (OCT) or intravascular ultrasound (IVUS).

Quality assessment / Risk of bias analysis: The quality of RCTs were assessed with the Cochrane Collaboration tool. The quality of observational studies was assessed with the Newcastle-Ottawa Quality Assessment Scale (NOS). Any literature assessed as low quality by two reviewers was excluded.

Strategy of data synthesis: Aaggregated odds ratios (OR) at 95% confidence intervals were calculated with Stata/MP 17.0. Heterogeneity between the studies was explored using the I2 test and the random-effects model was used when $P < 0.01$ or $I2 > 50\%$, while the fixed-effects model was used if not. A heterogeneity test and sensitivity analysis were performed to select the origin of heterogeneity. Funnel plots and a regression-based Egger test were used to assess publication bias. The difference was considered as statically significant if P-value < 5%.

Subgroup analysis: Not applicable.

Sensitivity analysis: A heterogeneity test and sensitivity analysis were performed to select the origin of heterogeneity.

Country(ies) involved: China.

Keywords: bifurcation, jailed balloon technique, jailed wire technique, meta-analysis, provisional stenting.

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