INPLASY PROTOCOL

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Support: **None.**

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Conflicts of interest:
None declared.

Usefulness and predictability of intravascular ultrasound-guided angioplasty in patients with femoropopliteal lesions: A systematic review and meta-analysis

Jiang, J[1]; Xu, W[2].

Review question / Objective: **To determine the patency rate after angioplasty with intravascular ultrasound (IVUS), and to assess whether IVUS-guided angioplasty would improve clinical outcomes and predict restenosis.**
Condition being studied: **Studies in which IVUS-guided angioplasty was used for femoropopliteal lesions.**
Information sources: **Searched the MEDLINE, Embase, Web of Science, and Cochrane databases to identify studies reporting clinical outcomes of femoropopliteal angioplasty with IVUS. The following keywords were used: femoropopliteal, intravascular ultrasound, infrainguinal, balloon angioplasty, percutaneous transluminal angioplasty, endovascular procedure, endovascular therapy, angioplasty, peripheral arterial disease, and chronic total occlusion. No language restrictions were imposed. Duplicate and irrelevant studies were filtered out, and full texts were procured from the remanent study.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 June 2021 and was last updated on 22 June 2021 (registration number INPLASY202160080).

INTRODUCTION

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Condition being studied: **Studies in which IVUS-guided angioplasty was used for femoropopliteal lesions.**

METHODS

Participant or population: Studies that reported the clinical outcomes of patients who underwent femoropopliteal artery (FPA) angioplasty with IVUS for primary patency were included.

Intervention: Angioplasty with IVUS.

Comparator: Angioplasty without IVUS.

Study designs to be included: Studues that have reported clinical results of angioplasty with IVUS of the femoropopliteal artery (defined as IVUS before and after percutaneous transluminal angioplasty of infrainguinal arterial lesions).

Eligibility criteria: Articles that have reported clinical results of angioplasty with IVUS of the femoropopliteal artery (defined as IVUS before and after percutaneous transluminal angioplasty of infrainguinal arterial lesions), were published in English, were human studies, and had the full text available were included. Studies that used any type of balloon or stent used for angioplasty were choosable (e.g., drug-eluting stent, bare-metal stent, plain balloon, and drug-coated balloon).

Information sources: Searched the MEDLINE, Embase, Web of Science, and Cochrane databases to identify studies reporting clinical outcomes of femoropopliteal angioplasty with IVUS. The following keywords were used: femoropopliteal, intravascular ultrasound, infrainguinal, balloon angioplasty, percutaneous transluminal angioplasty, endovascular procedure, endovascular therapy, angioplasty, peripheral arterial disease, and chronic total occlusion. No language restrictions were imposed. Duplicate and irrelevant studies were filtered out, and full texts were procured from the remanent study.

Main outcome(s): The primary patency at 12 months.

Additional outcome(s): Primary patency at 24 months, freedom from target lesion reintervention (TLR) at 12 months, and correlation of restenosis with the distal external elastic membrane (EEM) area, post-intervention minimum lumen area, lesion length, dissection, and calcification.

Quality assessment / Risk of bias analysis: The methodological quality of the articles was evaluated by two authors independently using the Methodological Index for Non-Randomized Studies (MINORS) score.

Strategy of data synthesis: The fixed effects model with the pooled effect size was used in pooling categorical data and represented as odds ratios (ORs) with 95% confidence interval (CI) limits, moreover pooled continuous data using the fixed effects model with the pooled effect size represented as standard mean difference (SMD) with 95% CI limits. A random-effects model was used when the heterogeneity of data was too high. I^2 values of <25%, 25% to 50%, and 50% to 75% were considered of low, moderate, and high heterogeneity, respectively. Statistical significance was set at $P < 0.05$. Analyses were performed using the Stata software (version 14.0).

Subgroup analysis: None.

Sensitivity analysis: None.

Country(ies) involved: Japan.

Keywords: intravascular ultrasound, angioplasty, peripheral arterial disease, femoropopliteal artery.

Contributions of each author:
Author 1 - Junhui Jiang.
Author 2 - Weiguo Xu.