INPLASY PROTOCOL

To cite: Li et al. Percutaneous revascularization for atherosclerotic renal artery stenosis: a meta-analysis. Inplasy protocol 202270052. doi: 10.37766/inplasy2022.7.0052

Received: 10 July 2022

Published: 10 July 2022

Corresponding author:
Tao Luo

taoluo35@126.com

Author Affiliation:
Xuanwu Hospital, Capital Medical University

Support: **None.**

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

Conflicts of interest:
None declared.

Percutaneous revascularization for atherosclerotic renal artery stenosis: a meta-analysis

Li, Y[1]; Cui, W[2]; Wang, J[3]; Chen, X[4]; Zhang, C[5]; Zhu, L[6]; Cui, S[7]; Luo, T[8].

Review question / Objective: **This study aimed to investigate whether percutaneous revascularization (PR) was as effective and safe as medication therapy alone in patients with atherosclerotic renal artery stenosis (ARAS).**
Condition being studied: **Atherosclerotic renal artery stenosis (ARAS) was a common problem in patients with peripheral vascular atherosclerosis and was recognized as a cause of secondary hypertension. Meanwhile, it was a contributing factor to cardiovascular disease development. Treatment options for ARAS mainly included percutaneous revascularization (PR) and medication therapy alone. PR with or without stenting has gained growing interest from vascular surgeons for treating ARAS. Some studies revealed that it could lead a better blood pressure control and a reduction in the number of antihypertensive agents. The American College of Cardiology/American Heart Association (ACC/AHA) guidelines strongly recommend PR for patients with hemodynamically significant ARAS regardless of whether they have resistant hypertension or progressing kidney disease. Additionally, several studies demonstrated that PR was a safe treatment for ARAS. However, few investigations compared the efficacy and safety between PR and medication therapy alone.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 July 2022 and was last updated on 10 July 2022 (registration number INPLASY202270052).

INTRODUCTION

Review question / Objective: **This study aimed to investigate whether percutaneous revascularization (PR) was as effective and safe as medication therapy alone in patients with atherosclerotic renal artery stenosis (ARAS).**

Condition being studied: Atherosclerotic renal artery stenosis (ARAS) was a common problem in patients with peripheral vascular atherosclerosis and was recognized as a cause of secondary hypertension. Meanwhile, it was a contributing factor to cardiovascular disease development. Treatment options for ARAS mainly included percutaneous revascularization (PR) and medication therapy alone. PR with or without stenting has gained growing interest from vascular surgeons for treating ARAS. Some studies revealed that it could lead a better blood pressure control and a reduction in the number of antihypertensive agents. The American College of Cardiology/American Heart Association (ACC/AHA) guidelines strongly recommend PR for patients with hemodynamically significant ARAS regardless of whether they have resistant hypertension or progressing kidney disease. Additionally, several studies demonstrated that PR was a safe treatment for ARAS. However, few investigations compared the efficacy and safety between PR and medication therapy alone.

METHODS

Participant or population: Patients who were diagnosed as ARAS.

Intervention: Percutaneous revascularization (PR).

Comparator: Medication therapy alone.

Study designs to be included: Medication therapy alone, RCT.

Eligibility criteria: Studies included in present anaysis were RCTs from database establishment to July 31, 2021. Published language was confined to English.

Information sources: We performed keyword search in Embase, PubMed, and the Cochrane Library using the following terms: ("Atherosclerotic Renal Artery Stenosis" OR "ARAS") AND ("Percutaneous revascularization" OR "PR" OR "Stenting" OR "angioplasty").

Main outcome(s): Reduction of systolic blood pressure (SBP) and diastolic blood pressure (DBP). Al-cause mortality, stroke, congestive heart failure, perioperative complications.

Additional outcome(s): None.

Quality assessment / Risk of bias analysis: The results of methodological quality assessment of included studies will be displayed in our manuscript. All studies were of similar high quality. A funnel plot representing publication bias of studies was presented our articles as well; the funnel plot was symmetrical, indicating a slight publication bias.

Strategy of data synthesis: Odds ratio (OR) and mean difference (MD) were calculated to combine categorical and continuous variables, respectively. Reduction of SBP and DBP by the end of follow-up period were calculated to determine the efficacy of PR compared with medication therapy alone. Secondly, the data about all-cause mortality, stroke, congestive heart failure, and perioperative complications were recorded to determine whether PR was as safe as medication therapy alone.

Subgroup analysis: None.

Sensitivity analysis: Sensitivity analyses were also performed to test the reliability of the results by removing one study at a time and repeating the meta-analyses. Based on the sensitivity analyses, no article was removed from the meta-analyses (fixed effects model).

Language: English.

Country(ies) involved: China.

Other relevant information: None.

Keywords: atherosclerotic renal-artery stenosis (ARAS), meta-analysis, percutaneous revascularization (PR), medication therapy alone.

Contributions of each author:

Author 1 - Yu Li.
Author 2 - Wenhao Cui.
Author 3 - Jukun Wang.
Author 4 - Xin Chen.
Author 5 - Chao Zhang.
Author 6 - Linzhong Zhu.
Author 7 - Shijun Cui.
Author 8 - Tao Luo.