International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Left atrial appendage closure versus oral anticoagulants in atrial fibrillation: A systematic review and meta-analysis

INPLASY2025100093

doi: 10.37766/inplasy2025.10.0093

Received: 24 October 2025

Published: 25 October 2025

Zhang, D; Zhu, D; Nan, J; Wang, C.

Corresponding author:
Chen Wang

wang_chen@zju.edu.cn

Author Affiliation:
The Second Affiliated Hospital, School of Medicine, Zhejiang University.

ADMINISTRATIVE INFORMATION

Support - This work was supported by Natural Science Foundation of Zhejiang Province (Grant No. LQ19H020007) and National Natural Science Foundation of China (Grant No. 81900393).

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025100093

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 October 2025 and was last updated on 25 October 2025.

INTRODUCTION

Review question / Objective This study aimed to systematically evaluate the comparative efficacy and safety of LAA closure versus OAC in patients with AF.

Condition being studied Atrial fibrillation (AF) substantially increases the risk of thromboembolic events, especially ischemic stroke, leading to higher disability and mortality rates and imposing a significant healthcare burden. Left atrial appendage (LAA) closure has emerged as a non-pharmacological alternative to oral anticoagulants (OAC), increasingly utilized in AF patients with high bleeding risk or OAC intolerance. However, evidence comparing the efficacy and safety of LAA closure versus OAC remains inconsistent.

METHODS

Participant or population Patients diagnosed with AF requiring long-term thromboprophylaxis.

Intervention LAA closure.

Comparator OAC therapy.

Study designs to be included RCTs or PSM studies.

Eligibility criteria The inclusion criteria were: (1) study design: RCTs or PSM studies (prospective or retrospective); (2) population: patients diagnosed with AF requiring long-term thromboprophylaxis; (3) intervention: LAA closure (intervention group) versus OAC therapy (control group, including VKAs or NOACs); and (4) minimum follow-up duration of

≥3 months and reporting of at least one relevant clinical outcome (composite endpoint, any stroke, ischemic stroke, hemorrhagic stroke, all-cause mortality, cardiac death, or major bleeding).

Information sources PubMed, Embase, the Cochrane Library, and Web of Science.

Main outcome(s) Composite endpoint, any stroke, ischemic stroke, hemorrhagic stroke, all-cause mortality, cardiac death, or major bleeding.

Quality assessment / Risk of bias analysis The Cochrane Risk of Bias tool was employed to assess the methodological quality of the included RCTs, while the Newcastle-Ottawa Scale (NOS) was used for the PSM studies.

Strategy of data synthesis A random-effects model was applied for all meta-analyses.

Subgroup analysis Subgroup analyses were conducted for the composite endpoint and major bleeding based on study design, mean age, proportion of males, prevalence of diabetes, hypertension, coronary artery disease, congestive heart failure, prior stroke, CHA_2DS_2-VASc score, type of OAC control (VKAs vs. NOACs), and follow-up duration.

Sensitivity analysis Sensitivity analyses were performed to evaluate the robustness of the pooled results.

Language restriction No restriction.

Country(ies) involved China.

Keywords atrial fibrillation; left atrial appendage closure; oral anticoagulants; systematic review; meta-analysis.

Contributions of each author
Author 1 - Danyang Zhang.
Author 2 - Dan Zhu.
Author 3 - Jinliang Nan.
Author 4 - Chen Wang.