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Long-term discontinuation of oral anticoagulants after catheter ablation of atrial fibrillation: A meta-analysis of randomized controlled trials

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ADMINISTRATIVE INFORMATION

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Review stage at the time of initial registration - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2026110027

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 8 November 2026 and was last updated on 8 November 2026.

INTRODUCTION

Review question / Objective This study intends to conduct a Meta-analysis based on randomized controlled trials to evaluate the risks and benefits of discontinuing oral anticoagulantsOAC after catheter ablation in patients with atrial fibrillation.

Condition being studied There is still controversy over whether long-term oral anticoagulation (OAC) therapy should be continued after catheter ablation of atrial fibrillation. Current guidelines recommend that regardless of the ablation outcome, OAC should be continued indefinitely based on the thromboembolic risk score, but recent randomized controlled trials (RCTs) have presented different evidence. This study aims to evaluate the risks and benefits of discontinuing OAC after atrial fibrillation catheter ablation through a Meta-analysis.

METHODS

Search strategy pubmed: ("Atrial Fibrillation"[MeSH Terms] OR "Atrial Fibrillation"[Title/Abstract] OR "Atrial Fibrillation"[Title/Abstract] OR "atrial flutter"[Title/Abstract] OR "AF"[Title/Abstract] OR "AFl"[Title/Abstract]) AND ("Catheter Ablation"[MeSH Terms] OR "Catheter Ablation"[Title/Abstract] OR "radiofrequency ablation"[Title/Abstract] OR "cryoablation"[Title/Abstract] OR "pulmonary vein isolation"[Title/Abstract] OR "pulmonary vein ablation"[Title/Abstract] OR "PVI"[Title/Abstract]) AND ("Anticoagulants"[MeSH Terms] OR "anticoagulant*"[Title/Abstract] OR "anticoagulation"[Title/Abstract] OR "oral anticoagulant*"[Title/Abstract] OR "OAC"[Title/Abstract] OR "DOAC"[Title/Abstract] OR "NOAC"[Title/Abstract] OR "vitamin k antagonist*"[Title/Abstract] OR "warfarin"[Title/Abstract] OR "dabigatran"[Title/Abstract] OR

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"rivaroxaban"[Title/Abstract] OR "apixaban"[Title/Abstract] OR "edoxaban"[Title/Abstract]) AND ("discontinu*"[Title/Abstract] OR "cessation"[Title/Abstract] OR "stop*"[Title/Abstract] OR "withdraw*"[Title/Abstract] OR "suspend*"[Title/Abstract] OR "interrupt*"[Title/Abstract] OR "omission"[Title/Abstract] OR "non-adherence"[Title/Abstract] OR "drug holiday*"[Title/Abstract]) AND ("long-term"[Title/Abstract] OR "chronic"[Title/Abstract] OR "extended"[Title/Abstract] OR "prolonged"[Title/Abstract] OR "maintenance"[Title/Abstract] OR "after"[Title/Abstract] OR "post"[Title/Abstract] OR "follow-up"[Title/Abstract]) AND ("Stroke"[MeSH Terms] OR "Intracranial Hemorrhages"[MeSH Terms] OR "Hemorrhage"[MeSH Terms] OR "Thromboembolism"[MeSH Terms] OR "Stroke"[Title/Abstract] OR "Thromboembolism"[Title/Abstract] OR "embolism"[Title/Abstract] OR "bleeding"[Title/Abstract] OR "Hemorrhage"[Title/Abstract] OR "major bleeding"[Title/Abstract] OR "mortality"[Title/Abstract] OR "death"[Title/Abstract] OR "recurrence"[Title/Abstract] OR "recurrent"[Title/Abstract])
web of science: "TS=(""atrial fibrillation"" OR ""atrial flutter"" OR AF OR AFl) "
"TS=(""catheter ablation"" OR ""radiofrequency ablation"" OR cryoablation OR ""pulmonary vein isolation"" OR ""pulmonary vein ablation"" OR PVI) "
"TS=((anticoagulant* OR anticoagulation OR ""oral anticoagulant*"" OR OAC OR DOAC OR NOAC OR ""vitamin K antagonist*"" OR warfarin OR dabigatran OR rivaroxaban OR apixaban OR edoxaban)) "
"TS=((discontinu* OR cessation OR stop* OR withdraw* OR suspend* OR interrupt* OR omission OR ""non adherence"" OR ""drug holiday*"")) "
"TS=((""long term"" OR chronic OR extended OR prolonged OR maintenance OR after OR post OR ""follow up"")) "
"#1 AND #2 AND #3 AND #4 AND #5 "
"TS=(stroke OR thromboembolism OR embolism OR bleeding OR hemorrhage OR ""major bleeding"" OR mortality OR death OR recurrence OR recurrent) "
"#6 AND #7 "

Cochrane library: #1 [mh "Atrial Fibrillation"] OR [mh "Atrial Flutter"] OR (atrial NEAR/1 fibrillation):ti,ab OR (atrial NEAR/1 flutter):ti,ab OR AF:ti,ab OR AFl:ti,ab 20420
#2 [mh "Catheter Ablation"] OR (catheter NEAR/1 ablation):ti,ab OR (radiofrequency NEAR/1 ablation):ti,ab OR cryoablation:ti,ab OR (pulmonary NEAR/2 vein* NEAR/2 isolation):ti,ab OR (pulmonary NEAR/2 vein* NEAR/2 ablation):ti,ab OR PVI:ti,ab 7751
#3 [mh "Anticoagulants"] OR anticoagulant*:ti,ab OR anticoagulation:ti,ab OR (oral NEAR/1 anticoagulant*):ti,ab OR OAC:ti,ab OR DOAC:ti,ab OR NOAC:ti,ab OR (vitamin NEAR/1 K NEAR/1 antagonist*):ti,ab OR warfarin:ti,ab OR dabigatran:ti,ab OR rivaroxaban:ti,ab OR apixaban:ti,ab OR edoxaban:ti,ab 21932
#4 discontinu*:ti,ab OR cessation:ti,ab OR stop*:ti,ab OR withdraw*:ti,ab OR suspend*:ti,ab OR interrupt*:ti,ab OR omission:ti,ab OR (non NEAR/1 adherence):ti,ab OR (drug NEAR/1 holiday*):ti,ab 151876
#5 (long NEAR/1 term):ti,ab OR chronic:ti,ab OR extended:ti,ab OR prolonged:ti,ab OR maintenance:ti,ab OR after:ti,ab OR post:ti,ab OR (follow NEAR/1 up):ti,ab 1407164
#6 #1 AND #2 AND #3 AND #4 AND #5 98
#7 [mh "Stroke"] OR [mh "Intracranial Hemorrhages"] OR [mh "Hemorrhage"] OR [mh "Thromboembolism"] OR stroke:ti,ab OR thromboembolism:ti,ab OR embolism:ti,ab OR bleeding:ti,ab OR hemorrhage:ti,ab OR (major NEAR/1 bleeding):ti,ab OR mortality:ti,ab OR death:ti,ab OR recurrence:ti,ab OR recurrent:ti,ab 355285
#8 #6 AND #7 91.

Participant or population The patients underwent catheter ablation therapy.

Intervention Discontinued anticoagulant drugs after the surgery.

Comparator Continued anticoagulant drugs after the surgery.

Study designs to be included Randomized controlled trial.

Eligibility criteria Inclusion Criteria
The study subjects were patients with atrial fibrillation (AF), and the diagnostic criteria for atrial fibrillation followed the "2020 European Society of Cardiology Guidelines for the Management of Atrial Fibrillation";
The patients underwent catheter ablation therapy, and continued or discontinued anticoagulant drugs after the surgery;
The study type was a randomized controlled trial.
Exclusion criteria
The research subjects were non-atrial fibrillation patients;
The research did not have a control group;
The article was a repeat publication.

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

Main outcome(s) Bleeding and embolism incidents

Data management Enter the data using Excel and conduct the data analysis with Stata 15.0.

Quality assessment / Risk of bias analysis The criteria for evaluating the risk of bias are based on the RCT standards of the Cochrane Collaboration. A qualitative assessment is conducted from the following seven aspects: random sequence generation, allocation concealment, blinding of subjects and researchers, blinding of outcome assessors, incomplete outcome data, selective reporting, and other biases. Each is rated as "low risk of bias", "uncertain risk of bias", or "high risk of bias".

Strategy of data synthesis The literature data were processed using Stata (v15.0) software; a combined effect size and heterogeneity test were conducted, and a forest plot was drawn. The outcome indicators of the literature were binary variables, and the effect size was selected as the relative risk (RR), which was expressed with a 95% confidence interval (95% CI). The meta-analysis strictly followed the PRISMA guidelines, and the heterogeneity test was conducted using P values and I^2. If there was no statistical heterogeneity among the study results ($I^2 \leq 50\%$, $P > 0.1$), a fixed-effect model was selected (binary variables were analyzed using the M-H method). If there was statistical heterogeneity among the studies, meta-regression or subgroup analysis was used to further explore the source of heterogeneity; if the source of heterogeneity was unclear, a random-effect model (D+L method) was used for analysis. Publication bias was evaluated through funnel plots, Egger test, and Begg test.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction No language restrictions.

Country(ies) involved China.

Other relevant information Literature screening
Two researchers, following the inclusion and exclusion criteria, independently and in a double-blind manner screened the literature and extracted relevant data. If there were any disagreements during the stages of mutual verification, screening, and data extraction, a third researcher would participate in the discussion to decide whether to include these data.

Data extraction
Two researchers who had received training in systematic evaluation methodology independently conducted the literature screening and data extraction. Neither of them was aware of the decisions made by the other. The third author then verified the extracted data and resolved any inconsistencies; if there were disputes, they were resolved through discussion or consultation with a third reviewer. The extracted information included: (1) study characteristics (first author, publication year, sample size, etc.); (2) subject information (age, gender, type of atrial fibrillation, previous medical history, etc.); (3) intervention plan; (4) methodological characteristics (randomization method, implementation process of blinding, dropout rate and loss to follow-up rate); (5) outcome data.

Keywords Atrial fibrillation; Catheter ablation; Oral anticoagulation; Meta-analysis.

Dissemination plans Publicly published achievements.

Contributions of each author
Author 1 - Yonggang Cheng - Data extraction and analysis.
Email: chengyonglang666@163.com
Author 2 - Shen C.
Author 3 - Jia Y.
Author 4 - Yang R.
Author 5 - Zou C.
Author 6 - Cheng Y.
Author 7 - He TY.
Author 8 - Li DZ.
Author 9 - Liao Xiaoyang.

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