Supplementary Information

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Table S1. Search strategies for electronic databases

Database	Search strategy	Records identified, n
PubMed	("Atrial Fibrillation"[Mesh] OR "atrial fibrillation") AND ("pulsed field ablation" OR "pulse field ablation" OR "pulsed-field ablation" OR "pulsed electric field" OR "pulsed electrical field") AND (randomized OR randomised OR "randomized controlled trial" OR "randomised controlled trial" OR "Randomized Controlled Trial"[Publication Type])	152
Embase	('atrial fibrillation'/exp OR 'atrial fibrillation') AND ('pulsed field ablation' OR 'pulse field ablation' OR 'pulsed-field ablation' OR 'pulsed electric field' OR 'pulsed electrical field') AND ('randomized controlled trial'/exp OR randomized OR randomised OR 'randomized controlled trial' OR 'randomised controlled trial')	440
Web of Science	TS=("atrial fibrillation") AND TS=("pulsed field ablation" OR "pulse field ablation" OR "pulsed-field ablation" OR "pulsed electric field" OR "pulsed electrical field") AND TS=(randomized OR randomised OR "randomized controlled trial" OR "randomised controlled trial")	222
Cochrane CENTRAL	("atrial fibrillation"):ti,ab,kw AND ("pulsed field ablation" OR "pulse field ablation" OR "pulsed-field ablation" OR "pulsed electric field" OR "pulsed electrical field"):ti,ab,kw	180

Table S2. GRADE Assessment of the Certainty of Evidence for Prespecified Outcomes

Outcome	Studies, n	Certainty of evidence	Main reason for downgrading
Atrial arrhythmia recurrence	6	**Low** ⊕⊕◯◯	Risk of bias; imprecision
Repeat ablation	4	**Low** ⊕⊕◯◯	Risk of bias; imprecision
Total procedure time	7	**Moderate** ⊕⊕⊕◯	Inconsistency
Phrenic nerve injury	7	**Moderate** ⊕⊕⊕◯	Serious imprecision
Left atrial dwell time	6	**Moderate** ⊕⊕⊕◯	Inconsistency
Procedure-related adverse events	6	**Moderate** ⊕⊕⊕◯	Imprecision
Post-blanking class I/III AAD use	4	**Low** ⊕⊕◯◯	Risk of bias; imprecision

Table S3. Outcome Definitions, Monitoring, Analysis Populations, and Safety Ascertainment

Study	Recurrence definition / duration threshold	Blanking period	Rhythm monitoring	Follow-up	Analysis population	Phrenic nerve injury reporting	Safety ascertainment / notes
ADVENT	Trial-defined recurrence; duration threshold not specified in the supplied extraction material	90 d	Weekly transtelephonic ECG; 72-h Holter at 6 and 12 mo; symptom-triggered recordings	12 mo	305 / 302	Transient/persistent distinction not specified in the supplied extraction material	Trial-reported adverse events
BEAT PAROX-AF	Trial-defined recurrence; duration threshold not specified in the supplied extraction material	60 d	12-lead ECG and 24-h Holter; weekly Kardia ECG; symptom-triggered recordings	12 mo	145 / 144 analyzed (292 randomized; 289 analyzed)	Transient/persistent distinction not specified in the supplied extraction material	Outcome-specific analyzed denominators used; missing data not imputed
FACIL-AF	Trial-defined recurrence; exact duration threshold not available in the conference-level material used	90 d	ECG/Holter and connected-device monitoring; schedule not reported	12 mo	175 / 174	Not reported in the conference-level material used	Conference presentation and registry material; unavailable details not inferred
InsightPFA	Trial-defined recurrence; duration threshold not specified in the supplied extraction material	90 d	12-lead ECG and 24-h Holter at 1, 3, 6, and 12 mo; symptom-triggered ECG	12 mo	142 / 145	Transient/persistent distinction not specified in the supplied extraction material	Trial-reported adverse events
Osmancik et al., 2024	Not applicable to longitudinal recurrence synthesis	NA	No longitudinal rhythm-monitoring protocol	24 h biomarker assessment	33 / 32	Not separately characterized in the supplied extraction material	Safety/biomarker assessment was limited to the 24-h study window
PERFECT-PAF	Trial-defined recurrence; exact duration threshold not available in the conference-level material used	60 d	NR	12 mo	134 / 135	Not reported in the conference-level material used	Conference presentation and registry material; unavailable details not inferred
SINGLE SHOT CHAMPION	Trial-defined recurrence; duration threshold not specified in the supplied extraction material	90 d	Continuous implantable cardiac monitor with daily remote transmission	12 mo	105 / 105	Transient/persistent distinction not specified in the supplied extraction material	Continuous monitoring may increase detection of asymptomatic recurrence relative to intermittent strategies

Figure S1. PRISMA 2020 Flow Diagram of Study Selection

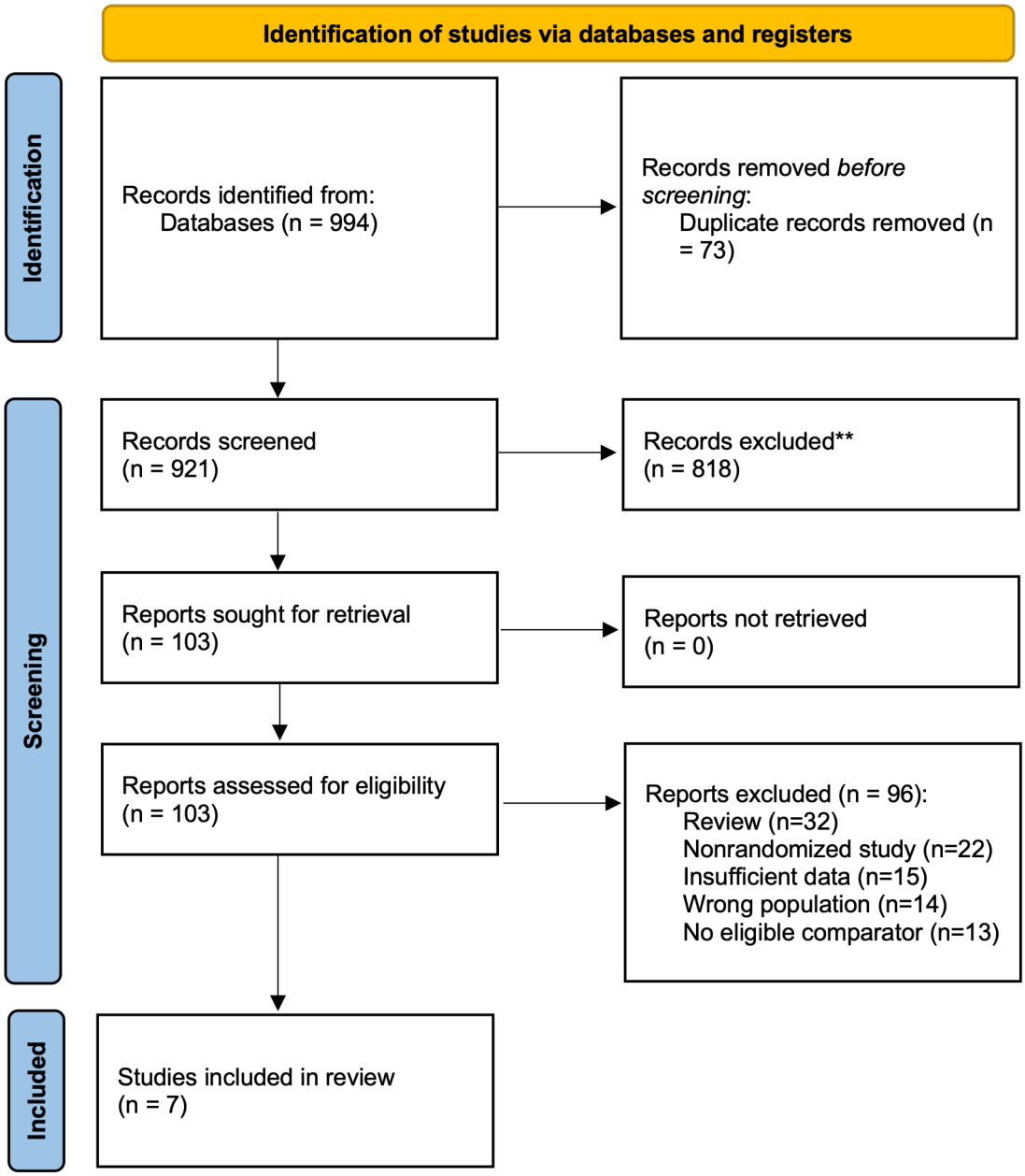


Figure S3. Procedure-Related Adverse Events After Pulsed-Field Versus Thermal Ablation

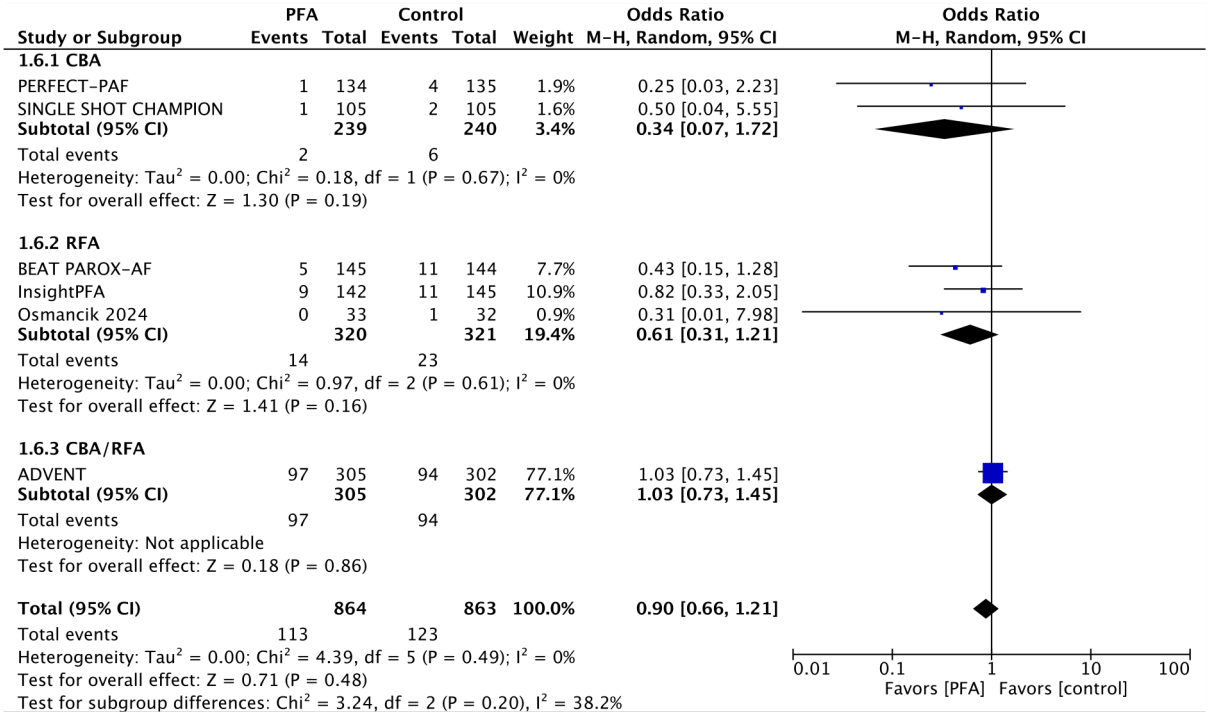


Figure S2. Left Atrial Dwell Time With Pulsed-Field Versus Thermal Ablation

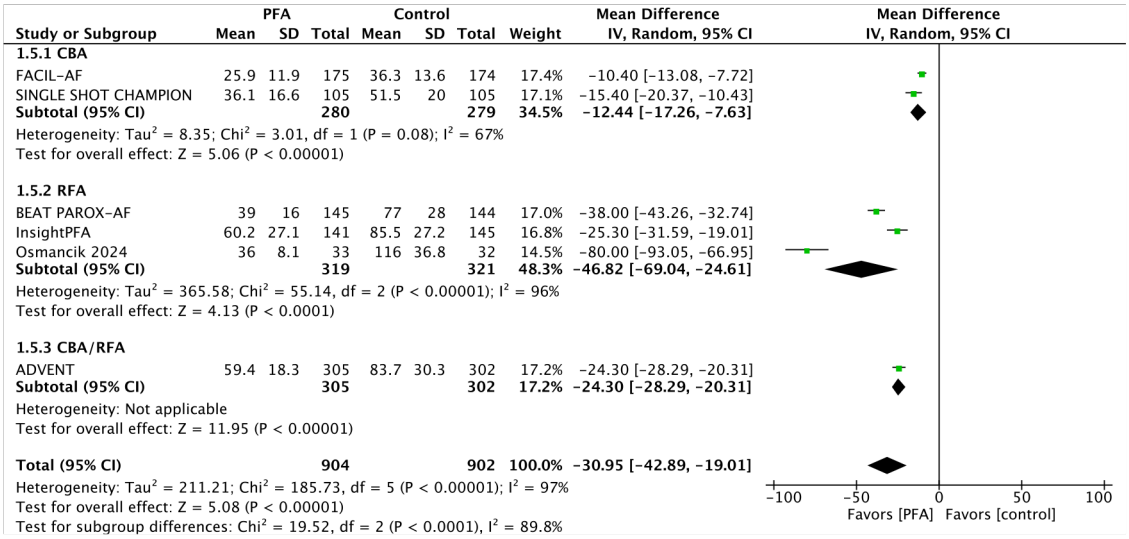


Figure S4. Post-Blanking Class I or III Antiarrhythmic Drug Use After Pulsed-Field Versus Thermal Ablation

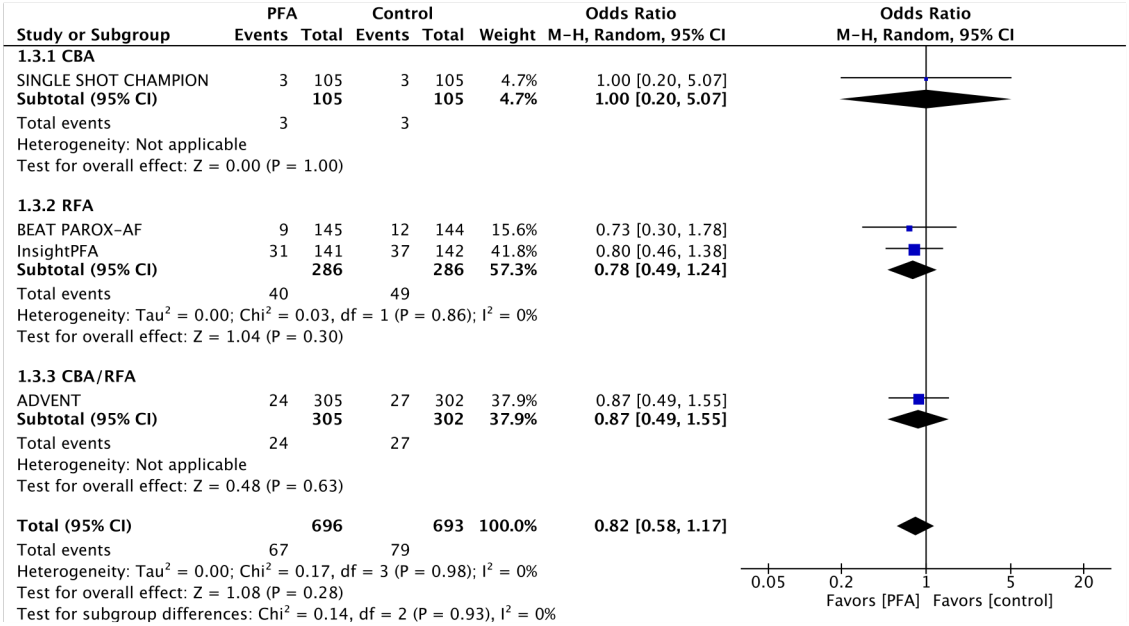


Figure S5. Risk-of-Bias Assessment of Included Randomized Controlled Trials

