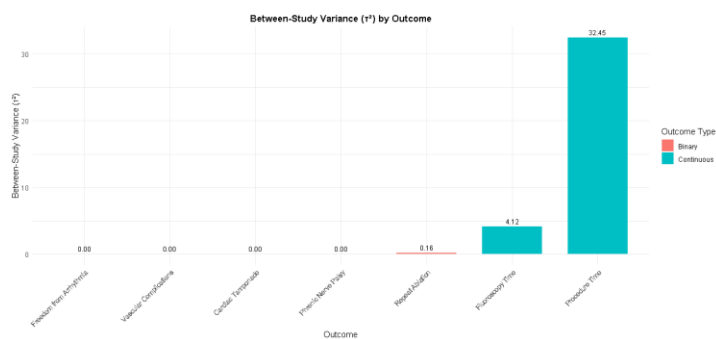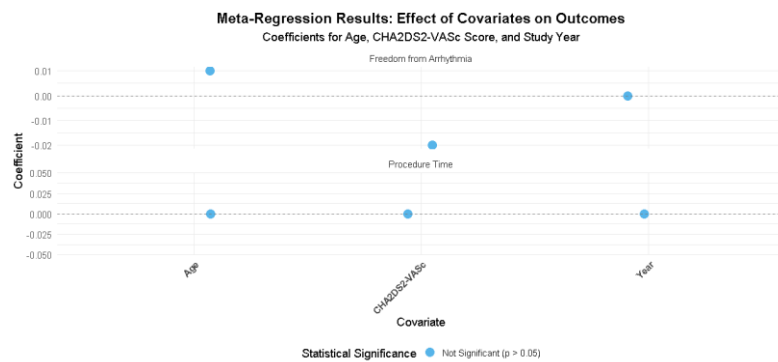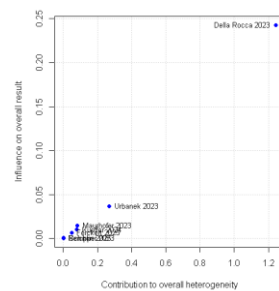**Supplementary Figure 1 Funnel plots for publication bias.** It presents funnel plots for various outcomes to visually assess for publication bias. Asymmetrical plots for outcomes like procedure time, fluoroscopy time, phrenic nerve palsy, and cardiac tamponade suggest that smaller studies with null or negative results may have been underrepresented. The plot for freedom from arrhythmia, however, appeared relatively symmetrical, indicating no clear publication bias for that outcome.
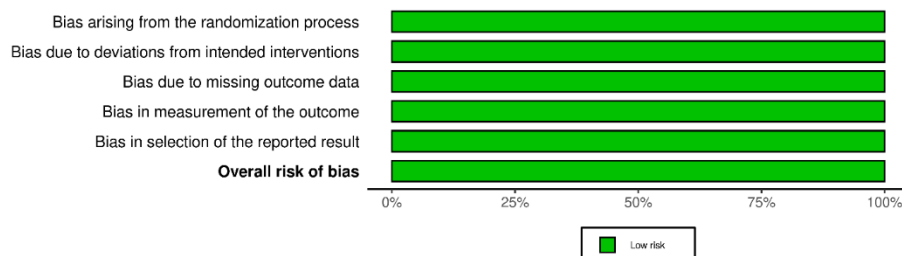

Supplementary Figure 2 Between-study variance (τ^2) by outcome. This bar chart, labeled "Between-Study Variance (τ^2) by Outcome," quantifies the amount of heterogeneity for each clinical outcome.

Meta-Regression Results: Effect of Covariates on Outcomes
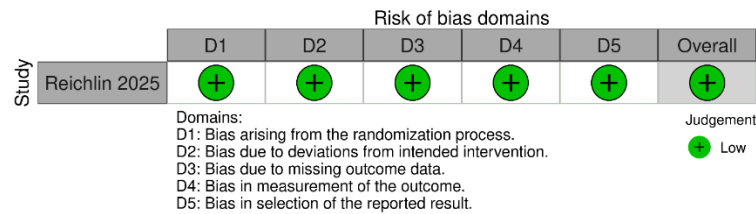Coefficients for Age, CHA2DS2-VASc Score, and Study Year

Supplementary Figure 3 Meta-regression results: Effect of covariates on outcomes. It displays the results of the meta-regression analysis, which explored whether study-level characteristics influenced the outcomes. The analysis found no significant associations between the covariates (mean age, CHA2DS2-VASc score, and study year) and any of the outcomes. The findings suggest that these factors do not explain the observed heterogeneity.

Supplementary Figure 4 Influence analysis: Baujat plots. This plot, labeled "Influence on overall result" versus "Contribution to overall heterogeneity," shows which individual studies might have a disproportionate influence on the overall pooled results. The plot identified no single study as an outlier exerting a significant influence on the pooled estimates.

Supplementary Figure 5 Risk of bias assessment of the Reichlin er al[17], 2025 randomized controlled trial. It presents the risk of bias assessment for the Reichlin 2025 study, which was a randomized controlled trial. Using the Cochrane risk of bias 2 tool, the study was rated as having a low overall risk of bias across all five domains, including bias from the randomization process, deviations from intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result.

Supplementary Table 1 Conversion of median and IQR to mean and SD for meta-analysis

Ref.	Outcome	Group	Original (IQR)	median	n	Converted mean (SD)
Isenegger *et al*[17], 2025	Procedure time	PFA	49 (39–61)		113	49.67 (16.52)
Isenegger *et al*[17], 2025	Procedure time	CBA	60 (49–75)		106	61.33 (19.54)
Isenegger *et al*[17], 2025	Fluoroscopy time	PFA	9 (8–13)		-	10.00 (3.75)
Isenegger *et al*[17], 2025	Fluoroscopy time	CBA	11 (8–16)		-	11.67 (6.01)
Maurhofer *et al*[20], 2024	Procedure time	PFA	94 (80–116)		40	96.67 (27.68)
Maurhofer *et al*[20], 2024	Procedure time	CBA	75 (60–97)		80	77.33 (27.93)

| Reichlin et al[22], 2025 | Procedure time | PFA | Directly reported (SD derived from CI) | - (25) |
| Reichlin et al[22], 2025 | Procedure time | CBA | Directly reported (SD derived from CI) | - (25) |

Supplementary Table 2 Hartung-Knapp adjustment for confidence intervals

Outcome	Original estimate (95%CI)	Original P-value	Adjusted 95%CI	Adjusted P-value	Impact on significance
Procedure time (MD)	-15.24 (-16.63 to -13.85)	< 0.00001	-18.76 to -4.14	0.007	Remains significant
Freedom from arrhythmia (OR)	1.27 (1.04-1.55)	0.02	0.99-1.09	0.07	Changes from significant to non-significant
Phrenic nerve palsy (RR)	0.17 (0.04-0.63)	0.008	0.04-0.78	0.03	Remains significant

Supplementary Table 3 Grading of Recommendations, Assessment, Development and Evaluations assessment of clinical outcomes

Outcome	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Overall quality of evidence
Procedure time	Serious	Serious	None	None	None	Low
Freedom from arrhythmia	Serious	Serious	None	None	None	Low
Phrenic	Serious	None	None	None	None	Low

nerve palsy

| Cardiac tamponade | Serious | None | None | Serious | None | Very low |

This table provides a summary of the Grading of Recommendations, Assessment, Development and Evaluations assessment for the certainty of evidence for key clinical outcomes. It details the risk of bias, inconsistency, indirectness, and imprecision for each outcome, ultimately rating the overall quality of evidence as low or very low.