

COMPARATIVE EFFICACY AND SAFETY OF PULSE FIELD ABLATION VS. CRYOABLATION AND RADIOFREQUENCY ABLATION IN THE TREATMENT OF ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Poster Contributions

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Background: Pulse field ablation (PFA) is a promising new approach to atrial fibrillation (AF) ablation, with potential advantages over cryoablation and radiofrequency ablation, including greater tissue selectivity, shorter procedure times, and improved efficacy.

Methods: We conducted a comprehensive systematic review and meta-analysis of studies published in PubMed, Embase, Cochrane, and Web of Science databases up to September 2023 that compared PFA versus cryoablation or CA/RFA efficacy for AF. We studied arrhythmia recurrence and procedure-related complications as primary outcomes and fluoroscopy and procedure time as secondary outcomes. We used random-effects models in Review Manager (RevMan) to calculate odds ratios (OR) for dichotomous outcomes and mean differences (MD) for continuous outcomes.

Results: A total of 5 studies and 1199 patients were included in the meta-analysis. There is no statistically significant difference between the PFA vs CA/RFA group in terms of arrhythmia recurrence (OR: 0.86, 95% CI: [0.52, 1.41]) and periprocedural complications (OR: 0.63, 95% CI: [0.34, 1.20]). The PFA group was associated with longer fluoroscopy time (+3.69 minutes) but shorter overall procedure time (-15.99 minutes). Results should be interpreted cautiously in light of moderate to high heterogeneity. (Figure 1)

Conclusion: No clinically significant difference was noted with the PFA group compared to CA/RFA. More studies are needed to confirm the true efficacy of PFA over CA/RFA.

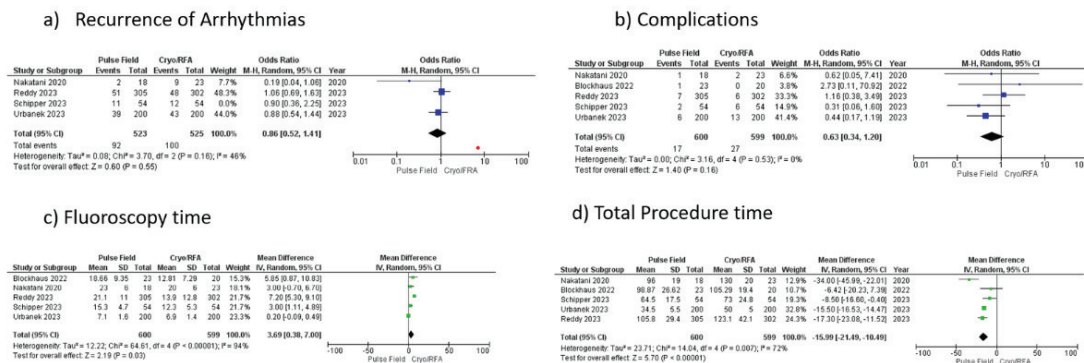


Figure 1 : Forest plots comparing outcomes between PFA and CA/RFA for atrial fibrillation