

## CATHETER ABLATION VS. ANTIARRHYTHMIC DRUGS AS THERAPY FOR PAROXYSMAL ATRIAL FIBRILLATION

QUALITY OF EVIDENCE: MODERATE



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### THE BOTTOM LINE

**For patients with paroxysmal atrial fibrillation (PAF), catheter ablation was a superior therapy compared to antiarrhythmic drugs in reducing both atrial fibrillation and hospitalizations without an increase in adverse events.**

### Why This Is Important

- Paroxysmal atrial fibrillation (PAF) is on the rise with 454,000 hospitalizations and 158,000 deaths annually in the USA.<sup>1</sup>
- One in seven patients admitted with PAF is readmitted within 30 days due to a recurrence of the arrhythmia.<sup>1</sup>
- The goal of PAF treatment is to reestablish a normal heart rhythm. This is called cardioversion. The two main PAF treatments are as follows:
  - Antiarrhythmic drugs which are oral medications that can return the heart to its normal rhythm. Some are toxic and poorly tolerated.<sup>2</sup>
  - Catheter ablation which is a procedure that can eliminate the abnormal heart rhythm. This involves sending a wire that transmits

radiofrequency waves, microwaves, lasers, or low temperatures to the area of the heart causing the arrhythmia.

### SETTING

Meta-analysis of six randomized controlled clinical trials (RCTs) conducted from January 2000 to November 2020 (Fig. 1).<sup>3</sup> The studies were selected for being RCTs with at least 12 months of follow-up, having tested ablation versus antiarrhythmic drug on patients 18 years of age and older with AF, and reporting at least one clinical outcome.

### PARTICIPANTS AND INTERVENTIONS

The six studies comprised 1212 participants with no prior treatment receiving first-line treatment for symptomatic PAF, 609 of whom were randomized to catheter ablation and 603 to drug therapy. The mean age of the participants was 56 (SD 11.0) years.

## CLINICAL OUTCOMES

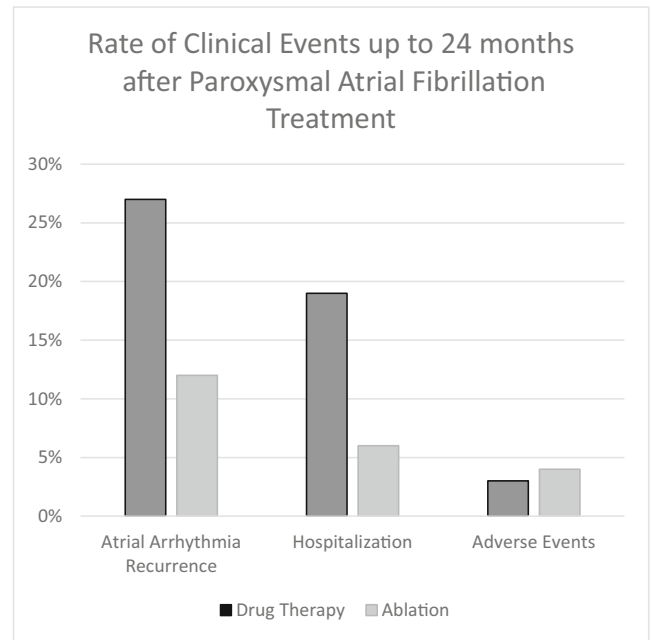
The primary outcome was freedom from recurrent atrial arrhythmia up to 2 years. The secondary outcomes were the recurrence of symptomatic atrial arrhythmia and the rate of readmission. Adverse events were also measured.

## Results

- Ablation resulted in significantly more patients being free from a recurrent atrial arrhythmia: ablation = 53.0% vs. drugs = 32.3% ( $p < 0.001$ ).
- Ablation had a significantly lower rate of recurrence of symptomatic atrial arrhythmia: ablation = 11.8% vs. drugs = 26.4% ( $p = 0.001$ ).
- Ablation had a significantly lower rate of all-cause hospitalizations after the treatment for PAF: ablation = 5.6% vs. drugs = 18.7% ( $p < 0.001$ ).
- Ablation did not have a significantly greater rate of adverse events: ablation = 4.2% vs. drugs = 2.8% ( $p = \text{NS}$ ).

## Study Quality and Application to Patients

As with any meta-analysis, there were methodologic differences between the studies. A majority of enrolled patients had normal ejection fractions without significant cardiac disease and pre-existing comorbidities. This may have affected generalizability. Still, study heterogeneity was moderate and a sensitivity analysis did not detect



**Figure 1** The rate of atrial arrhythmia recurrence, all-cause hospitalization, and adverse events up to 2 years after catheter ablation vs. antiarrhythmic drug therapy.

significant differences between the studies. Similarly, the mean age of enrolled participants was 56 while a higher prevalence of PAF has been seen among people 70 years of age. However, older patients have been shown to benefit from catheter ablation.<sup>4</sup> The studies were not blinded and were industry-sponsored which could have affected study results.

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### Declarations:

*Conflict of Interest: The authors declare that they do not have a conflict of interest.*

## TIPS FOR DISCUSSION WITH PATIENTS

- Catheter ablation was a superior therapy compared to antiarrhythmic drugs in reducing both atrial fibrillation recurrence and hospitalization.

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