# ADVENT trial

#ESCCongress

## Pulsed field ablation vs. thermal ablation (RF/cryo) for paroxysmal AF

### Conclusion

Pulsed field ablation (PFA) is noninferior to thermal ablation in paroxysmal atrial fibrillation (AF).

### Impact on clinical practice

PFA is as effective and safe as conventional thermal ablation to treat paroxysmal AF.
Procedure times were faster for PFA than thermal ablation, but there was more X-ray exposure with PFA.

### Study objectives

ADVENT was the first randomised controlled trial comparing PFA to conventional ablation (either radiofrequency or cryothermal ablation).

### Study population

Patients with drug-resistant, symptomatic paroxysmal AF

### Where?

United States — 30 centres

### Who and what?

687 patients → 80 roll-in patients to gain experience with the PFA catheter

607 patients

Randomised 1:1

- **PFA**
- **Thermal ablation**: Radiofrequency or Cryothermal

12-month follow-up

### Primary efficacy endpoint

Success rate, defined as acute success and chronic success (1-year freedom from recurrent atrial arrhythmias, antiarrhythmic drug use, and cardioversion or repeat ablation)

Rate%

- 73.3%
- 71.3%

Met the prespecified criteria for noninferiority: between-group difference, 2.0%; 95% Bayesian credible interval (BCI), -5.2 to 9.2%; posterior probability of noninferiority >0.999

### Secondary efficacy endpoint

Same as the primary efficacy endpoint, but tested for superiority:
did not meet the criteria for superiority
(posterior probability of superiority 0.708)

### Primary safety endpoint

Composite of serious adverse events related to use of an ablation catheter or the procedure itself and occurring within 7 days, as well as pulmonary vein stenosis or oesophageal fistula occurring at any time during the 12-month follow up

- 2.1%
- 1.5%

Met the prespecified criteria for noninferiority: between-group difference, 0.6%; 95% BCI, -1.5 to 2.8%; posterior probability of noninferiority >0.999

### Secondary safety endpoint

Change in pulmonary vein dimension (i.e., any stenosis or narrowing) from baseline to day 90

Reductions in vein cross-sectional area

- 3.3%
- 19.5%

Met the prespecified criteria for superiority of PFA: posterior probability of superiority >0.999

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