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 randomized: 307 to PFA, 380 to Thermal Ablation
- 80 roll-in patients to gain experience with the PFA catheter

**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%: PFA 73.3%, Thermal Ablation 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
- 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
  - PFA: 3.3%
  - Thermal Ablation: 19.5%
  - Met the prespecified criteria for superiority of PFA: posterior probability of superiority >0.999

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