SUMMARY

Resource Use and Clinical Outcomes in Patients with Atrial Fibrillation with Ablation versus Antiarrhythmic Drug Treatment

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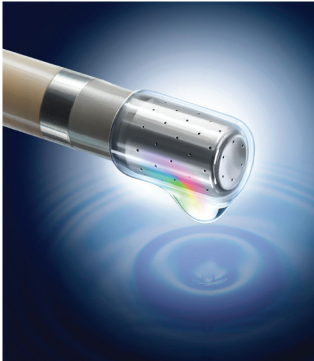
BACKGROUND



In the treatment of atrial fibrillation (AF), ablation has been compared to anti-arrhythmic drug therapy (AAD) in many different studies, including the recent CABANA trial. Several studies have found superior clinical and economic outcomes associated with ablation, but questions still remain on the benefit of ablation vs. AADs.

ENDPOINTS OF INTEREST WHEN COMPARING AADS AND ABLATION

REDUCED RATES OF AFIB RECURRENCE

COST-EFFECTIVENESS

LOW ADVERSE EVENT RATES

REDUCED INCIDENCE OF MORTALITY, STROKE AND HEART FAILURE

IMPROVED HEALTH-RELATED QUALITY OF LIFE (QOL)

This study uses the **UK Clinical Practice Research Database** (CPRD) and **Hospital Episode Statistics (HES)** to retrospectively examine the differences in outcomes **between catheter ablation and AAD treatment for AF**, building upon past published research.

About CPRD:

- Longitudinal database including records for more than 11 million patients
- Used in more than 1800 publications

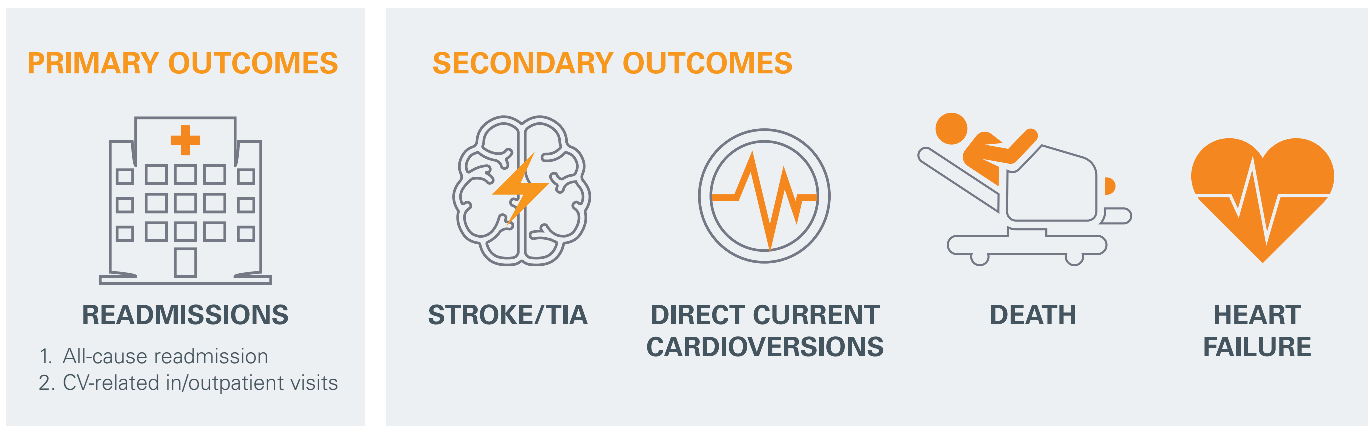
METHODS

PRIMARY STUDY OBJECTIVE

Compare **healthcare resource utilization over a 1-year period** among AF patients who underwent catheter ablation compared to AAD treatment.

SECONDARY STUDY OBJECTIVE

Compare **a composite outcome over three years** (any heart failure, stroke, cardioversion or death) among AF patients with ablation versus AAD treatment.



STUDY DESIGN & KEY FEATURES

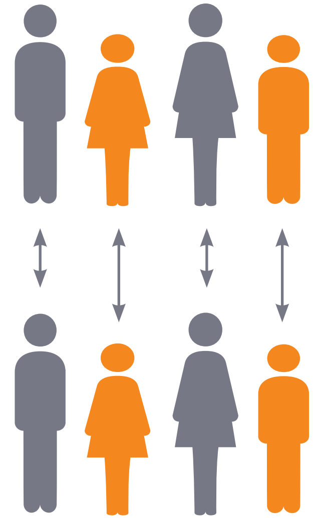
- Retrospective, longitudinal database study
- Data from the UK Clinical Practice Research Database (CPRD) linked with Hospital Episode Statistics (HES) was used.
- HES provides clinical information such as patient admissions, diagnoses and operations.
- Two cohorts were compared:

  1) Patients undergoing AAD therapy

  2) Patients undergoing ablation

METHODS

- Treatment was required to occur between 2008 and 2013
- Patients were matched using propensity scores, accounting for patient demographics and patient comorbidities
  - Match variables included: age, Charlson Comorbidity Score, CHA_2DS_2-VASc score, pre-existing heart disease, stroke risk and the number of CV-related visits in the 12 months pre-index period.
- Event rates from a three year follow-up period were collected and compared using regression analysis



INCLUSION CRITERIA

Ablation Cohort

- Age ≥18 years
- 12 months of pre-index ablation data and post-index data
- Required to have prescription of an AAD (specified as amiodarone, disopyramide, dronedarone, flecainide, propafenone, or sotalol)

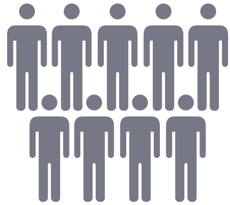
AAD Cohort

- Age ≥18 years
- Required to have prescriptions for two different AAD drugs, demonstrating failure on the first AAD
- 12 months of pre-index (defined as date of second AAD) and post-index data.

EXCLUSION CRITERIA

- Any cardiac ablation, valvular procedure, implantation of a pacemaker or ICD, surgical ablation or an LAA occlusion in the 12-month pre-index period (ablation and AAD cohort)
- Any ablation procedure in the 12-month post-index period (AAD cohort only)

RESULTS



STUDY POPULATION

- **558** matched patients in each cohort for the **primary outcome**
- **615** matched patients in each cohort for the **secondary outcome**

For the primary outcome, at a follow-up of 4-12 months:

	ALL-CAUSE INPATIENT VISITS[A]	CV-RELATED INPATIENT VISITS[A]	ALL-CAUSE OUTPATIENT VISITS[A]	CV-RELATED OUTPATIENT VISITS[A]
AAD	0.75	0.58	8.79	3.57
Ablation	0.70	0.55	7.95	1.79
Difference	0.05*	0.03*	0.84*	1.81†

* Indicates a non-statistically significant difference ($p \geq 0.05$)
† Indicates a statistically significant difference ($p<0.05$). CV outpatient visits were reduced by 49%.
[A] Mean visits per patient over 12 months

49%
REDUCTION IN OUTPATIENT CV VISITS

A **49% reduction** in the incidence **of outpatient CV visits** was observed in ablation patients compared to AAD patients.

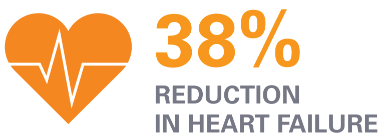
RESULTS

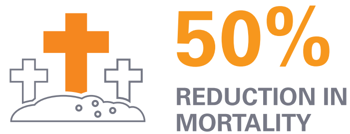
For the secondary outcome, patients were followed for a period of three years. Compared to the AAD cohort, ablation patients had:

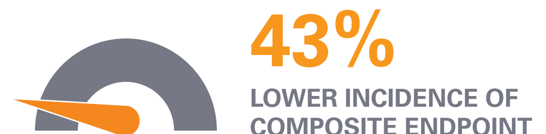
	STROKE/ TIA	DIRECT CURRENT CARDIOVERSIONS	HEART FAILURE	DEATH	COMPOSITE EVENTS
Hazard ratio	0.820	0.793	0.624	0.507	0.578
Difference	0.180*	0.207*	0.376[†]	0.493[†]	0.422[†]

* Indicates a non-statistically significant difference ($p \geq 0.05$)
† Indicates a statistically significant difference ($p < 0.05$). Odds of heart failure were reduced by 38%, death by 50% and the composite outcomes by 43%.

Patients receiving ablation had significant reductions in heart failure, reduced mortality and lower incidences of the composite over 3 years, as compared to patients treated with AADs.







DISCUSSION AND CONCLUSION

Study limitations include possible coding errors, under-reported diagnoses and lack of randomization. **Propensity score matching was used to reduce biases.**

Compared with AF patients only treated with AADs, ablation was associated with:

- Fewer CV-related outpatient visits
- Reduced incidence of heart failure
- Lower rate of death
- Reduced incidence in composite endpoint

KEY TAKEAWAY

The study demonstrates **lower resource utilization and improved outcomes associated with ablation treatment** compared to AAD treatment among AF patients.

Important information: Prior to use, refer to the instructions for use supplied with this device for indications, contraindications, side effects, warnings and precautions.
Caution: US law restricts this device to sale by or on the order of a physician.

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