

Summary

Catheter Ablation and Healthcare Utilization and Cost Among Patients with Paroxysmal versus Persistent Atrial Fibrillation

Daniel J. Friedman, Michael E. Field, Motiur Rahman, Laura Goldstein, Qun Sha, Sidharth M, Rahul Khanna, Jonathan P. Piccini,

Heart Rhythm O2

STUDY OBJECTIVE

To examine if ablation would be associated with reductions in AF-related healthcare utilization in patients with paroxysmal (PAF) and persistent (PsAF) forms of atrial fibrillation.

METHODOLOGY

DATA SOURCE: OPTUM® DE-IDENTIFIED CLINFORMATICS® DATA MART DATABASE



The Optum database contains facility, physician, and pharmacy claims from approximately 82 million covered health plan members.

Design: Retrospective, observational cohort study

Population: 2,794 PAF and 1,909 PsAF patients undergoing catheter ablation

Analysis: Costs and outcomes were compared for the year pre- and post-ablation using McNemar's test and Wilcoxon signed-rank test.

OUTCOMES



INPATIENT
ADMISSIONS



ED VISITS



INPATIENT LENGTH
OF STAY



AMBULATORY
CARE VISITS



CARDIOVERSION



ANTI-
ARRHYTHMIC
DRUG USE

RESULTS

For both AF subtypes, there was a significant reduction in healthcare utilization post-ablation. As cost were reduced in sensitivity analysis after removing patients with repeat ablation, and in secondary analysis for long-term follow-up.

TOTAL PAF PATIENT
POPULATION

2,794
PATIENTS

Compared to the
12-months pre-
ablation, in the
12 months post-
ablation there were

70% ↓
Fewer inpatient
admissions for AF

73% ↓
Fewer ED visits
for AF

54% ↓
Fewer
cardioversions

TOTAL PSAF PATIENT
POPULATION

1,909
PATIENTS

Compared to the
12-months pre-
ablation, in the
12 months post-
ablation there were

67% ↓
Fewer inpatient
admissions for AF

62% ↓
Fewer ED visits
for AF

58% ↓
Fewer
cardioversions

CONCLUSION



Significant reductions in healthcare utilization were observed among PAF and PsAF patients undergoing catheter ablation. **The magnitude of reductions increased with greater duration of follow-up.**

STUDY OBJECTIVE

To examine if ablation would be associated with **reductions in AF-related healthcare utilization** in patients with paroxysmal and persistent form of atrial fibrillation

METHODS

Experimental Design

STUDY DESIGN	Retrospective, observational cohort study
DATA SOURCE	Data from the Optum® De-Identified Clinformatics® Datamart Date of Death Database was used to identify patients with a diagnosis of PAF or PsAF who underwent a catheter ablation procedure between October 1, 2016 and June 30, 2018.
ANALYSIS	<ul style="list-style-type: none"> • McNemar’s test was used to compare changes in proportion of patients in the pre- and post-ablation period, stratified by AF subtype. • Wilcoxon signed-rank test was used to assess the mean changes in study outcomes in the pre- and post-ablation period. • A sensitivity analysis was conducted which excluded patients who underwent a repeat ablation. • A secondary analysis examined the study outcomes at the 18-months post-ablation period compared to the 6-months preceding the index ablation.

INCLUSION CRITERIA	EXCLUSION CRITERIA
<ul style="list-style-type: none"> • Age ≥19 years • Patients with a primary diagnosis of PAF or PsAF undergoing an ablation procedure between October 1, 2016 and June 30, 2018. 	<ul style="list-style-type: none"> • Patients who had a catheter ablation procedure for primary or secondary diagnosis of AF, coronary artery bypass grafting, surgical ablation, valvular procedure, or left atrial appendage in the 1-year pre-index ablation period. • Patients with congenital heart disease, or a negative aggregated cost in the pre- or post-ablation period.

OUTCOMES



INPATIENT ADMISSIONS



ED VISITS



INPATIENT LENGTH OF STAY



AMBULATORY CARE VISITS



CARDIOVERSION



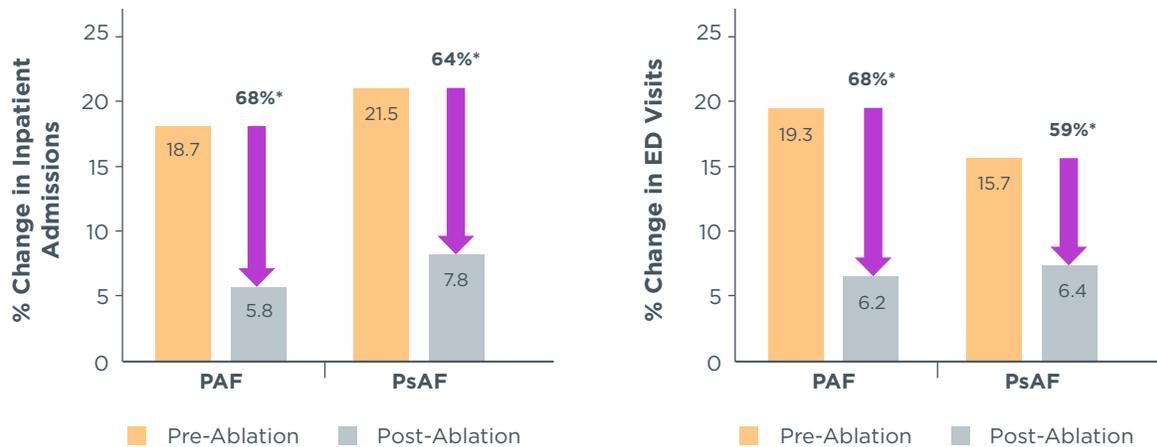
AAD USE

PATIENT POPULATION

A total of 2,794 and 1,909 patients underwent catheter ablation for PAF and PsAF, respectively. Patients with PsAF were older, less likely to be female, more often had a Charlson Comorbidity Index (CCI) score of ≥ 3 , and had a CHADS-VASC of ≥ 3 . Sleep apnea, diabetes, myocardial infarction, and heart failure were also more common among patients with PsAF.

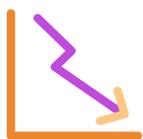
STUDY OUTCOMES

Compared to the 12 months pre-ablation, there was a significant reduction in healthcare utilization in the post-ablation period for both AF subtypes. There was no significant change in ambulatory care visits for either AF subtype.



* indicates statistically significant difference; $p < 0.0001$

The number of patients who filled an AAD prescription was significantly lower for PAF, but not PsAF patients. The number of cardioversions were significantly lower in the post-ablation period, regardless of AF subtype.

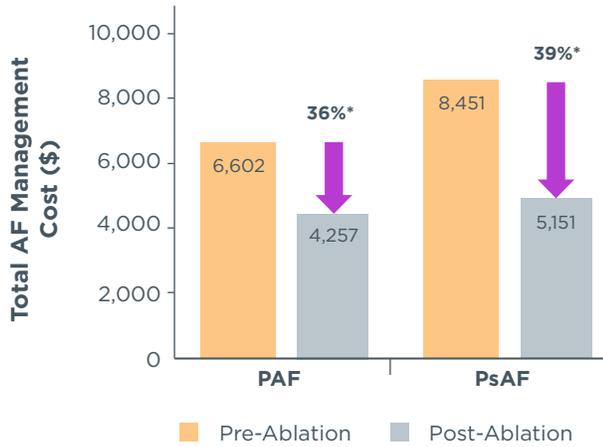


53% FEWER
REDUCTION IN THE
PROPORTION OF PAF
AND PSAF PATIENTS,
RESPECTIVELY, HAVING
CARDIOVERSIONS



13% LOWER
REDUCTION IN THE
PROPORTION OF PAF
PATIENTS WITH AAD USE

Total AF management cost after excluding patients who had repeat ablation in the 12-month post-ablation period.



* indicates statistically significant difference; $p < 0.0001$

The overall management costs were higher in the post-ablation period for both AF subtypes, but this increase in cost was driven by repeat ablations. When excluding patients who underwent repeat ablation during follow-up, total AF-related costs were significantly lower in the post-ablation period for both AF subtypes.

SECONDARY ANALYSIS

In the analysis of 18-month outcomes, there was a significant decrease in inpatient admissions, ED visits, cardioversions, ambulatory visits, AAD usage, and costs in the post-ablation period compared to the pre-ablation for both AF subtypes.

When examining the follow-up duration of 18-months, significant reductions in total AF management costs were observed for PAF (35%, $p < 0.0001$) and PsAF (34%, $p < 0.0001$) patients in the post-ablation period as compared to the pre-ablation period.

STUDY LIMITATIONS



Study limitations include possible selection bias, limited generalizability, and the limited follow-up period. Additionally, due to database limitations, date of death which precluded analysis of mortality after ablation. Further, patient centered outcomes were not captured, which may influence quality-of-life outcomes.

CONCLUSION



Significant reductions in healthcare utilization were observed among PAF and PsAF patients undergoing catheter ablation. The **magnitude of reductions increased with greater duration of follow-up**. Based on these data, a strategy of earlier CA may have the potential to reduce long term healthcare utilization and costs.