Early recurrence of atrial arrhythmia and healthcare utilization during the 8-week blanking period following catheter ablation of atrial fibrillation

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Background

The 2024 EHRA/HRS/APHRS/LAHRS expert consensus statement proposed an 8-week "blanking period" for clinical trials involving catheter ablation of atrial fibrillation (AF), in which recurrences are not seen as a failure of treatment. However, the relationship between early recurrence of atrial arrhythmia and clinical events during the first 8 weeks following catheter ablation is not well defined.

Purpose

We studied the association between recurrence of atrial arrhythmia in the first 14 days following catheter ablation of AF and healthcare utilization in the first 8 weeks following ablation.

Methods

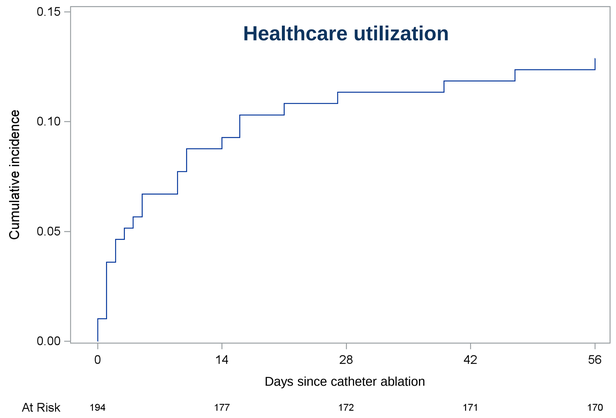
We analyzed prospectively collected data from participants enrolled in the IMPROVE-PVI randomized trial (NCT04160117) testing colchicine 0.6 mg twice daily vs. placebo for 10 days following catheter ablation of AF. All participants received a 14-day Holter immediately following ablation.
Recurrence of atrial arrhythmia was defined as Holter-documented AF, atrial flutter, or atrial tachycardia >30 seconds, and healthcare utilization was defined as any of emergency department visit, cardiovascular hospitalization, cardioversion, or repeat ablation. Blinded adjudicators assessed arrhythmias and outcomes. We built regression models to estimate the association between early recurrence of atrial arrhythmia and healthcare utilization.

Results

A total of 194 patients who wore a Holter immediately following catheter ablation were included (median age 61 years, 22% female, 70% first procedure). The median HATCH score (hypertension: 1, age ≥75 years: 1, transient ischemic attack or stroke: 2, chronic obstructive pulmonary disease: 1, heart failure: 2) was 1 (interquartile [IQR] range, 0-1; range, 0-5). A total of 144 patients (74%) were discharged on an antiarrhythmic drug. During a median monitoring duration of 13 days, 61 patients (31%) had recurrent atrial arrhythmia.

Healthcare utilization during the 8-week blanking period

Twenty-five patients (13%) had a healthcare utilization event in the first 8 weeks following catheter ablation **(Figure)**.



Association between arrhythmia recurrence and healthcare utilization within 8 weeks of ablation

Adjusted for the HATCH score, early recurrence of atrial arrhythmia was significantly associated with healthcare utilization, as was higher burden of AF **(Table)**.

Variable	Adjusted odds ratio (95% CI)	P-value
Early recurrence of atrial arrhythmia (14-day Holter)	6.21 (2.49-15.51)	<0.001
Burden of atrial fibrillation (per 1% increase)	1.03 (1.01-1.05)	0.001

Note: Logistic regression. Separate models, each adjusted for the HATCH score.

Colchicine did not reduce early recurrence of atrial arrhythmia (hazard ratio 0.98, 95% confidence interval 0.59-1.61), nor did it reduce healthcare utilization within 8 weeks of ablation (hazard ratio 0.92, 95% confidence interval 0.42-2.02).

Conclusions

Nearly 1 in 3 patients had early recurrence of atrial arrhythmia in the first 14 days following catheter ablation of AF. More than 1 in 8 patients experienced a clinically meaningful event during the 8-week "blanking period" following catheter ablation, which was largely driven by early recurrence of atrial arrhythmia.
Colchicine reduced neither early recurrence of atrial arrhythmia nor healthcare utilization.

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