Detection of Atrial Fibrillation Recurrence and Monitoring Duration on Ambulatory Cardiac Monitoring

Implications for OCEAN Trial-Guided Anticoagulation Discontinuation

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BACKGROUND

- Atrial fibrillation (AF) recurrence is common after ablation.
- OCEAN Trial showed anticoagulation may be stopped if no AF detected post-ablation, based on sequential Holter monitoring of 24-48 hours.
- Short-duration monitoring may miss recurrence.

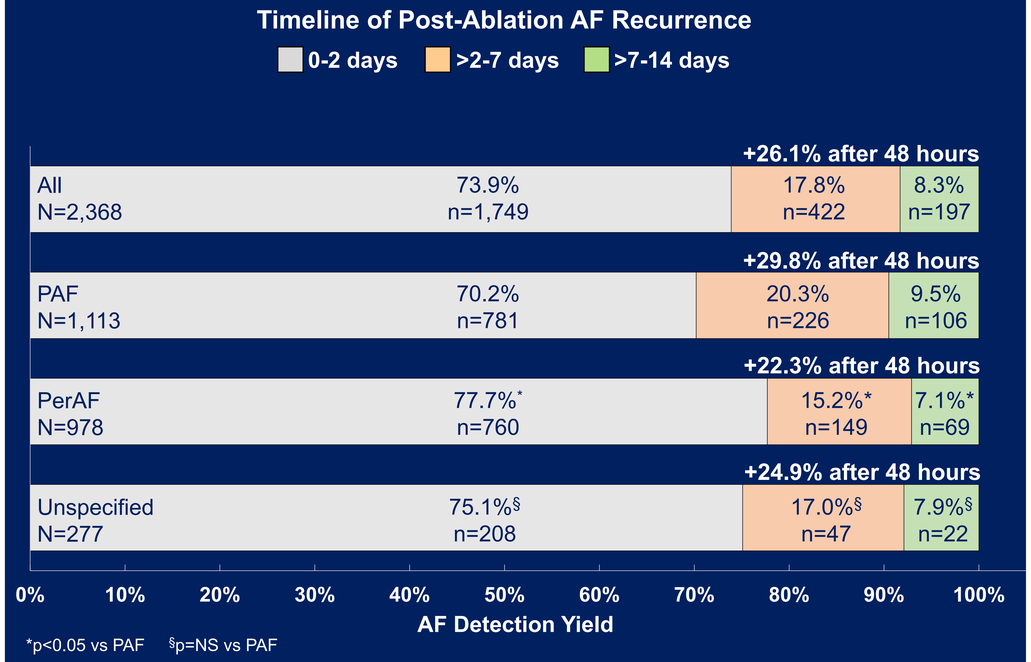
METHODS

- US cohort (2018-2022) receiving Zio ambulatory cardiac monitor (ACM)[†] and with AF ablation (CPT/ICD-10 PCS code-based) within the prior year
- AF subtype (ICD-10 code-based): paroxysmal (PAF), persistent/permanent (PerAF), unspecified
- ECG data analyzed using an FDA-cleared deep learning algorithm and confirmed by qualified cardiographic technicians
- Tokenized linkage to claims for commercial fee-for-service and government sponsored plans, including Medicare Advantage

RESULTS

- 709,083 patients with linked data
- N=11,051 met inclusion criteria
- 53% PAF, 36% PerAF, 11% Unspecified AF
- Age: Mean (SD) Age 65.6 (10.2) years
- 39% female
- 74% White race; 26% Black/Asian/Other/Unknown
- CHA_2DS_2-VASc Stroke Risk: Mean (SD) 2.4 (1.5) Overall
- Median time to monitoring: 113 days post-ablation

Monitoring for ≤48 hours misses ~25-30% of AF recurrence.



*p<0.05 vs PAF §p=NS vs PAF

[†]Adults ≥18 years undergoing ≤14 days of continuous patch-based ACM (Zio® XT or AT; iRhythm Technologies, San Francisco, CA) and with AF ablation (CPT/ICD-10 PCS code-based) within the prior year.

Missed AF may lead to misclassification of patients being considered for anticoagulation discontinuation under an OCEAN-guided approach.

AF RECURRENCE, BURDEN, AND REPEAT ABLATION

	All (N=11,051)	PAF (n=5,812)	PerAF (n=4,012)	Unspecified (n=1,227)
ACM detected AF ≥ 30s				
Overall (n, % of AF Group)	2,368 (21.4%)	1,113 (19.2%)	978 (24.4%)*	277(22.6%)*
AF Burden[‡]				
Median (IQR)	11.9% (87.8%)	4.4% (22.1%)	43.1% (94.9%)*	16.8% (97.9%)*
Repeat Ablations				
2018-2021 ablations (n)	8,380	4,429	3,024	927
Repeat ablation within 1 yr	667 (8.0%)	318 (7.2%)	265 (8.8%)*	84 (9.1%)*

*p<0.05 vs PAF [‡]Among patients with non-zero burden

KEY FINDINGS

- 21.4% of patients had AF recurrence during monitoring.
- 8.0% received a repeat AF ablation within one year.
- When compared to 14 days of continuous, uninterrupted ACM, an OCEAN-guided approach of up to 48 hours of monitoring would miss 29.8% of AF in paroxysmal and 22.3% of AF in persistent patients.
- Among patients with recurrence, AF burden was substantial and varied by subtype.

CLINICAL IMPLICATIONS

- Monitoring duration directly impacts anticoagulation decision-making.
- Short-duration (≤48 hours) monitoring may miss clinically meaningful AF recurrence.
- Extended (e.g., 14 days continuous, uninterrupted) monitoring may improve patient classification post-ablation.

LIMITATIONS

- Retrospective observational design
- AF types were identified using administrative claims, which may result in misclassification
- Variability in timing of post-ablation monitoring

DISCLOSURES

- Dr. Turakhia has received equity from iRhythm, Connect America, Evidently, PocketRN, AliveCor, and Hippocratic.ai. Dr Turakhia is an employee and corporate officer of iRhythm Technologies Inc.
- S Schmitt has received compensation from iRhythm.
- V Fokin, JM Ashburner, and AJ Battisti are employees of and have received equity from iRhythm Technologies, Inc.

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