ABSTRACT CA-532:
Treatment Strategies for Atrial Fibrillation and Associated Outcomes
Saturday, April 30, 2022
8:00 AM - 9:00 AM

CA-532-01
RISK OF DEMENTIA AMONG PATIENTS WITH ATRIAL FIBRILLATION TREATED WITH CATHETER ABLATION VERSUS ANTI-ARRHYTHMIC DRUGS
Emily P. Zeitler MD, MHS; Jamie L. March MBA; Rahul Khanna BPharm, MBA, PhD; Xiaozhou Fan and Andrea M. Russo MD, FHRS

Background: Atrial fibrillation (AF) is associated with an increased risk of dementia. However, variation in dementia risk by AF rhythm treatment has not been well studied.

Objective: To compare the risk of dementia in patients with AF who underwent catheter ablation (CA) versus anti-arrhythmic drug (AAD) treatment.

Methods: The 2000-2021 Optum Clinformatics database was used and includes national administrative claims of commercially insured non-elderly adults and Medicare Advantage beneficiaries in the US. Patients with AF who underwent CA versus treatment with AADs (≥1 prescription fill for ≥2 AADs) were identified. Patients with history of dementia, heart failure, surgical ablation, valvular procedure, or left atrial appendage occlusion were excluded. Propensity score matching was used to match patients in CA versus AAD groups. A cause-specific hazard model was performed to assess dementia risk overall and in sex subgroups.

Results: After matching, there were 15,441 patients per group. Patients treated with CA had 24% lower risk of dementia compared with those treated with AAD (1.8% vs 3.2%; hazard ratio [HR] 0.76, 95% confidence interval [CI] 0.66-0.88, p = 0.0003) (Figure). In males, the dementia risk did not differ significantly among CA versus AAD patients (1.5% vs 2.2%, HR 0.81, 95% CI 0.66-1.00, p = 0.0523). Among females, those treated with CA demonstrated a 27% lower risk of dementia compared with those treated with AAD (2.4% vs 4.4%, HR 0.73, 95% CI 0.59-0.90, p = 0.0038).

Conclusion: Patients with AF treated with CA had significantly lower risk of dementia compared with those treated with AADs. The lower risk of dementia in CA versus AAD treated patients was particularly prominent among females.

CA-532-02
ATRIAL UPTAKE OF TECHNETIUM-99M-PYROPHOSPHATE IS ASSOCIATED WITH INCREASED ARRHYTHMIA RECURRENCE FOLLOWING AF ABLATION
Eoin Donnellan MD; Wael A. Jaber MD; Divyang Rajesh Patel MD; Mohamed Kanj MD; Mazen Hanna and Oussama M. Wazni MD

Background: Atrial amyloidosis is an arrhythmogenic substrate for atrial fibrillation (AF). Technetium-99m-pyrophosphate (99mTc-Pyp), known to bind calcium, was originally developed as a bone tracer. It was subsequently demonstrated that 99mTc-Pyp correlated with areas of calcium deposition in injured and necrotic myocytes. Assessment of atrial uptake (AU) on 99mTc-Pyp scan is currently not utilized clinically but may provide important insights into the likelihood of success of rhythm control strategies among individuals with AF.

Objective: To examine the association between AU on 99mTc-Pyp scan and maintenance of normal sinus rhythm following AF ablation.

Methods: We studied 620 patients who were referred for a 99mTc-Pyp scan for suspected transthyretin cardiac amyloidosis between January 2012 and September 2019. Of these patients, 55 subsequently underwent AF ablation and were included in our final analyses. Presence or absence of AU was assessed using Corridor 4DM software and Syngo Via using fused/co-registered computed tomography single photon emission computed tomography imaging in all cases. AU was defined as qualitative uptake in the atrial walls distinct from the blood pool. A representative example of AU is shown in Figure 1b. A 2-sided p-value <0.05 was considered statistically significant.

Results: Baseline characteristics are shown in Figure 1a and were similar between those with and without AU. Following ablation, 34/55 (62%) developed recurrent arrhythmia and the mean time to recurrence was 28 months. Among those with AU on 99mTc-Pyp scan, 21/25 (84%) experienced arrhythmia recurrence, compared to 13/30 (43%) of those without AU (Figure 1c, log-rank 5.4, p = 0.02). On multivariable models adjusting for AF type, the presence or absence of cardiac amyloidosis, and left ventricular ejection fraction, AU was a significant predictor of recurrent arrhythmia (HR 2.6, 95% CI 1.2-5.3, p = 0.016).

Conclusion: Atrial myopathy is the result of a variety of factors that lead to structural and electrical remodeling in the atrium and portends a poorer prognosis with respect to rhythm control among patients with AF. AU of 99mTc-Pyp may identify patients at higher risk for arrhythmia recurrence following AF ablation.