REAL-WORLD COMPARISON OF OUTCOMES AMONG ELDERLY PATIENTS WITH VENTRICULAR TACHYCARDIA UNDERGOING OUTPATIENT CATHETER ABLATION PROCEDURE WITH VERSUS WITHOUT INTRACARDIAC ECHOCARDIOGRAPHY IMAGING

Michael Field
Laura Goldstein
Stephanie Hsiao Yu Lee
Iftekhar Kalsekar
Charlene Wong
Rahul Khanna
Matthew Reynolds
Jeffrey Winterfield

Introduction: Intracardiac echocardiography (ICE) use during catheter ablation for ventricular tachycardia (VT) may improve outcomes and reduce complications. This study compared outcomes including 12-month readmission, repeat ablation, and 30-day complications (cardiac perforation, vascular complications, major bleeding) among elderly ventricular tachycardia (VT) patients with implantable cardioverter defibrillator/cardiac resynchronization therapy (ICD/CRT-D) undergoing catheter ablation with ICE compared to without ICE.

Methods: Using the 2008-2017 Centers for Medicare and Medicaid Services (CMS) Standard Analytical Files database, patients aged ≥65 years with a primary diagnosis of VT undergoing outpatient catheter ablation procedure were identified, with the first such ablation classified as index procedure. Patients were classified into ICE and non-ICE groups based on the presence or absence of the ICE procedure code during index admission. Patients were required to have continuous enrollment and an ICD/CRT-D billing code during the 6-month pre-index period. A 1:1 propensity score matching using greedy match without replacement technique was performed to match patients in the ICE and non-ICE group on study covariates including patient demographic and comorbid characteristics. Time-to-event analysis including Kaplan-Meier log-rank test for bivariate comparison and Cox proportional hazards model for risk estimation were used to compare study outcomes among the matched ICE and non-ICE patients. Sensitivity analysis was performed by restricting the comparison of outcomes between ICE and non-ICE group to patients in whom transseptal puncture was performed during VT ablation.

Result: A total of 2,820 patients were identified based on study criteria (1,143 ICE and 1,677 non-ICE). The mean age was 73 years, with a majority (92%) being male. Based on propensity matching, 1,073 patients in both the ICE and non-ICE group were identified. Patients in the ICE group had 24% lower risk of all-cause (hazard ratio [HR] 0.76; confidence interval [CI] 0.67-0.86), 24% lower risk of cardiovascular (CV)-related (HR 0.74; CI 0.66-0.87) and 20% lower risk of VT-related (HR 0.80; CI 0.67-0.98) readmission compared to non-ICE patients. No significant difference in repeat ablation or complications was observed among the two groups. In VT ablations with transseptal puncture, ICE patients (n=231) had 45% lower risk of all-cause (HR 0.53; CI 0.41-0.68), 57% lower risk of CV-related (HR 0.43; CI 0.32-0.58) and 57% lower risk of VT-related (HR 0.43; CI 0.29-0.66) readmissions.
Conclusion: Elderly VT patients with ICD/CRT-D undergoing catheter ablation with ICE had lower 12-month readmissions compared to non-ICE patients.