Utility of Isoproterenol Infusion During Catheter Ablation of Atrial Fibrillation: Insights from the UC San Diego AF Ablation Registry

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Background: High-dose isoproterenol is a useful provocative maneuver to elicit atrial triggers during atrial fibrillation (AF) ablation.

Objective: To evaluate whether the use of isoproterenol is associated with differential outcomes after ablation of AF.

Methods: We performed a retrospective study of all patients who underwent de-novo radiofrequency catheter ablation enrolled in the University of California, San Diego AF Ablation Registry. The primary outcome was freedom from atrial arrhythmias on or off antiarrhythmic drugs (AAD).

Results: Of 314 patients undergoing ablation of AF, 235 (74.8%) patients received isoproterenol during catheter ablation of AF while 79 (25.2%) did not. Among those that received isoproterenol, 11 (4.7%) had additional triggers identified. There were no statistically significant differences in procedure time (p=0.432), antiarrhythmic drug use (p=0.289), or procedural complications (p=0.279) between groups. There was also no statistically significant difference in recurrence of atrial arrhythmias on or off AAD [Adjusted Hazard Ratio (AHR) 0.92 (95% CI 0.58-1.46); p=0.714] (Figure 1), all-cause hospitalizations [AHR 1.00 (95% CI 0.60-1.67); p=0.986] or all-cause mortality [AHR 0.14 (95% CI 0.01-3.52); p=0.229], whether isoproterenol was given or not.

Conclusion: In this registry analysis, use of isoproterenol is safe, but was not associated with a reduction in recurrence of atrial arrhythmias.
Figure 1: Kaplan Meier plot of recurrence of atrial arrhythmias (atrial fibrillation, atrial flutter and atrial tachycardia). Patients who had isoproterenol administered during catheter ablation of atrial fibrillation are compared with patients who did not have isoproterenol administered.