Prognostic Significance of Acute Reconnection Following Adenosine Administration During Catheter Ablation of Atrial Fibrillation: Insights from the UC San Diego AF Ablation Registry

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Background: The use of adenosine-guided pulmonary vein isolation is controversial.

Objective: To evaluate the prognostic significance of unmasking acute pulmonary vein reconnection with adenosine during catheter ablation of atrial fibrillation (AF).

Methods: We performed a retrospective study of all patients who underwent 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 357 patients who were administered adenosine during catheter ablation of AF, 39 (10.9%) had acute reconnection of at least one pulmonary vein and 318 (89.1%) did not. Fluoroscopy [75 (56, 89) vs 63.5 min (50,77); p=0.017] and procedure [309 (256, 362) vs 270 min (237,320); p=0.002] times were significantly longer when reconnection was seen after adenosine, but there were no statistically significant differences in antiarrhythmic drug use (p=0.086) or procedural complications (p=0.852). After multivariable adjustment, the recurrence of atrial arrhythmias on or off AAD (Adjusted Hazard Ratio (AHR) 0.95 (95% CI 0.56-1.62); p =0.848], all-cause hospitalizations [AHR 1.41 (95% CI 0.73-2.74); p=0.303] (Figure 1) or all-cause mortality [AHR 5.61 (95% CI 0.09-362.87); p=0.418] were not different during follow-up in those with or without reconnection after adenosine.
Conclusion: In this registry analysis, reconnections seen after adenosine resulted in longer fluoroscopy and procedure times without a reduction in recurrence of atrial arrhythmias, all-cause hospitalizations, or mortality.

![Recurrence of Atrial Arrhythmias on or off Antiarrhythmic Drugs](image)

**Figure 1**: Kaplan Meier plot of recurrence of atrial arrhythmias (atrial fibrillation, atrial flutter and atrial tachycardia). Patients who had reconnection of at least one pulmonary vein following administration of adenosine are compared with patients who had no reconnection.