

# **Sex Differences in Atrial Fibrillation Ablation Outcomes from The National Inpatient Sample Database 2016-2019**

## **Background:**

Research has shown mixed results when comparing in-hospital complications following atrial fibrillation ablation in women compared to men.

## **Objectives:**

To better quantify sex differences and in-hospital outcomes in atrial fibrillation ablation procedures.

## **Methods**

We queried the National Inpatient Sample database from 2016-2019 for hospitalizations with a primary diagnosis of atrial fibrillation ablation and excluded patients with any other arrhythmias or ICD/pacemaker placement. We assessed demographics, in-hospital mortality, and complications of women compared to men. Outcomes were adjusted for potential confounders using multivariable logistic regression analysis.

## **Results:**

Admissions for atrial fibrillation were more common in females than males (849,050 versus 815,665;  $p < 0.001$ ). However, females were less likely to receive ablation (1.65% versus 2.71%, OR: 0.60; 95% confidence interval: 0.57-0.64,  $p < 0.001$ ) which persisted after adjusting for cardiomyopathy (adjusted OR: 0.61; 95% confidence interval: 0.58-0.65,  $p < 0.001$ ). Females undergoing catheter ablation were likely to be older (67.89 vs 63.01 years,  $p < 0.001$ ), have BMI < 20 (0.49% vs. 0.0%,  $p < 0.001$ ), autoimmune disease (4.39% vs. 1.38%,  $p < 0.001$ ), COPD (13.33% vs. 11.23%,  $p = 0.026$ ), valvular heart disease (2.71% vs 1.77%,  $p = 0.03$ ) and prior stroke (9.48% vs. 6.60%,  $p < 0.001$ ) as compared to males. The primary outcome of in-hospital mortality

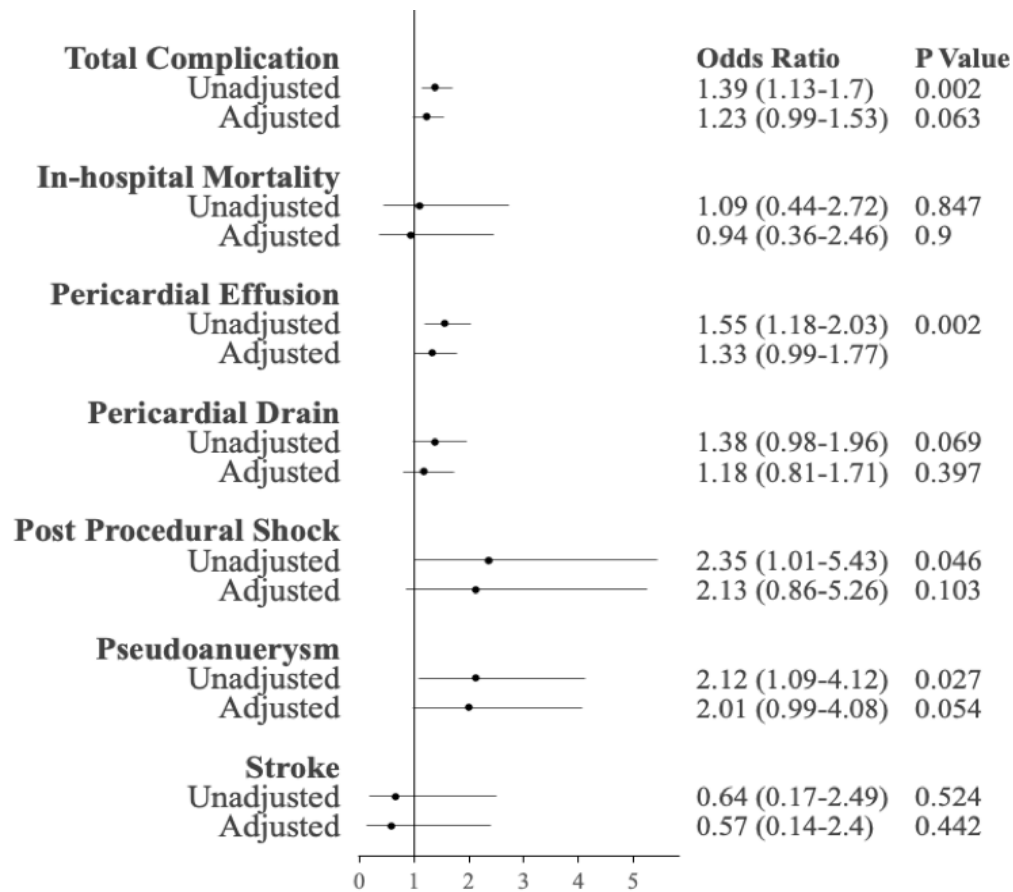
was not statistically different in univariate analysis (0.39% vs. 0.36%, OR: 1.09, 95% CI: 0.44-2.72, p=0.84), finding that did not change when adjusted for comorbidities (adjusted OR: 0.94, 95% CI: 0.36-2.49). The total unadjusted complication rate was higher for females than males (9.58% vs. 7.09%, p=0.001); however, it was not significant when adjusted for risks (adjusted OR: 1.23, 95% CI: 0.99-1.53, p=0.06). We also found that post-procedural shock, pericardial effusion, and overall total complications were significantly greater in females compared to the male population undergoing cardiac ablation that resolved after adjustment for potential confounders (Figure 1).

**Conclusion:**

Female sex is not associated with increased complications or death in a real-world study of catheter ablation when results are adjusted for risks. However, females admitted with atrial fibrillation receive ablation less often than males during hospital admission. More study is needed to identify factors contributing to later female referral for catheter ablation.

**Keywords:**

Atrial fibrillation  
Catheter ablation  
Risk  
Sex Difference  
Databases, Factual



**Figure 1:** Unadjusted and adjusted odds ratios\* for overall complication, in-hospital mortality, pericardial effusion, pericardial drain, post-operative shock, pseudoaneurysm, and post-procedure stroke in females compared to males.

\* Adjusted for age, BMI<20, history of valvular disease, stroke, coronary artery disease, cardiomyopathy, cancer, autoimmune disease, Elixhauser comorbidity index and CHADS<sub>2</sub> score.