

## Evaluating the Incidence and Outcomes for Post-Operative Atrial Fibrillation in Adult Congenital Heart Disease Patients After Cardiac Surgery

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**Background:** In the general population, there is an increased risk of post-operative atrial fibrillation after cardiac surgery with associated increased length of stay, stroke, and mortality. Although adult congenital heart disease (ACHD) patients have higher rates of arrhythmia than the general population, there is scant literature on post-operative atrial fibrillation (post-op a-fib) in ACHD patients. In this study, we analyze the incidence, management, and outcomes of post-op a-fib (POAF) in ACHD patients at the University of Colorado.

**Methods:** A retrospective cohort study was conducted of ACHD patients from 2017-2021 utilizing chart review of medical records of the University of Colorado and Children's Hospital of Colorado. The Society of Thoracic Surgeons (STS) surgical registry was used to identify patients who were  $\geq 18$  yo, carried a formal ACHD diagnosis, and underwent cardiac surgery. Charts were excluded for patients undergoing heart transplant, catheter-based procedures, or cardiac surgery not requiring cardiopulmonary bypass. Atrial fibrillation was defined by progress notes and/or discharge summary.

**Results:** A total of 106 patient charts were analyzed. The age range was 18-74 with a median age of 37; there were 58 males and 48 females. For ACHD diagnosis, 95 patients (90%) were moderate complexity, 8 patients (7.5%) were severe complexity. There were 31 incidences of post-op a-fib (29%). Pre-op digoxin and beta blocker use predicted post-op a-fib ( $p=0.03$  and  $p=0.01$ , respectively). Post-op inotropes were not associated with post-op a-fib ( $p=0.18$ ). Post-op a-fib was predictive of an increased length of stay (12 vs 6 days;  $p=0.05$ ) and recurrence of atrial fibrillation at 30 days (10% vs 6%;  $p=0.004$ ); however, post-op a-fib was not associated with in-hospital or long-term mortality and did not predict a-fib recurrence at one year or greater.

**Conclusion:** Atrial fibrillation is a common complication after cardiac surgery in the ACHD population. Older age, history of supraventricular tachycardia, intra-operative arrhythmia, and post-operative hypokalemia independently predicted POAF. Further investigation is needed to understand the long-term impacts of POAF.