The Efficacy of a Postoperative Atrial Fibrillation Prophylaxis Protocol in Adult Cardiothoracic Surgery Patients

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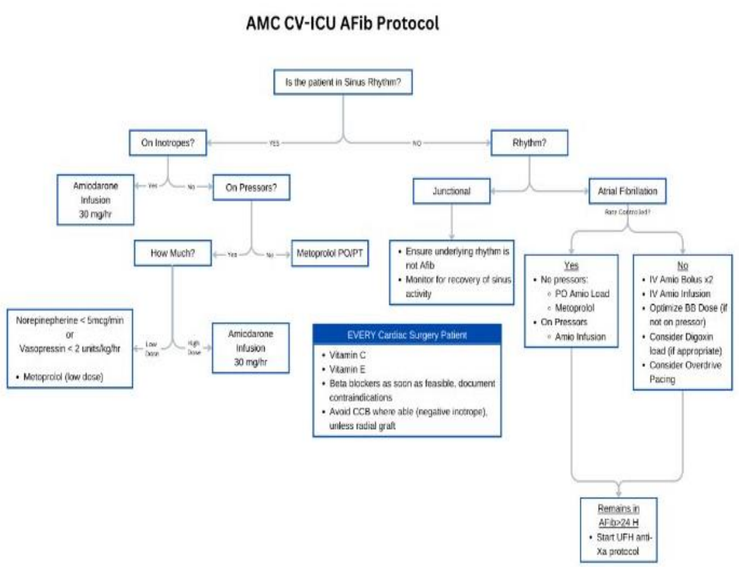
BACKGROUND

- **Atrial fibrillation (AF) and Cardiac Surgery**
  - Most common type of cardiac arrhythmia
  - Most common postoperative complication after open heart surgery,
  - Roughly 1/3 of the patients going into AF[1,2]
  - **Associated postoperative complications**
    - Stroke
    - increased mortality risk,
    - increased length of stay (LOS)
    - increased costs to the patient and hospital[3,4]
- American Health Association (AHA)
  - **Develop prophylaxis protocols**
    - beta blockers and amiodarone[2]
- The purpose of this study is to **review the efficacy of the postoperative atrial fibrillation prophylaxis protocol** currently used in the cardiac surgery ICU at Albany Medical Center (AMC)

METHODS

- **Observational retrospective cohort study**
- **Inclusion**
  - **O**pen heart coronary artery bypass graft and/or aortic valve repair/replacement
  - Surgery performed at AMC between January 2017-March 2020 and October 2023-August 2025
- **Exclusion**
  - Required mechanical support
  - Aortic work
  - Mitral valve repair/replacement
- A population size of 694 patients were used with 348 pre protocol and 346 post protocol

PROTOCOL



PRELIMINARY DATA

Continuous Data

Variable	Control (mean ± SD)	Experimental (mean ± SD)	t (Student, equal var)	p (Student, equal var)
Age (years)	63.51 ± 10.5	65.57 ± 10.39	2.598	0.00957356
Length of stay (days)	7.5 ± 4.84	7.03 ± 4.18	-1.372	0.17065187
CPB time (min)	143.65 ± 47.91	123.68 ± 55.06	-5.099	4.4086E-07
Cross-clamp time (min)	115.63 ± 42.26	94.73 ± 31.28	-7.402	3.8985E-13

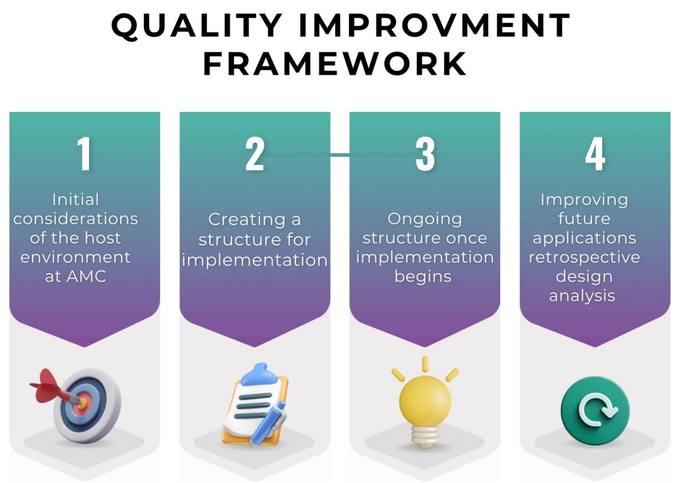
- Continuous variables are expressed as mean ±SD and compared by the student t-test
- Categorical variables are expressed in counts and percentages and compared by the X^2 test.

Categorical Data

Variable	Control n (%)	Experimental n (%)	Chi-square p
Sex			
Female	70 (20.1)	54 (15.6)	0.14679328
Male	278 (79.9)	292 (84.4)	0.14679328
Surgery Type			
CABG	247 (71)	287 (83.4)	0.000653136
AVR	56	31 (9)	0.000653136
CABG/AVR	45 (12.9)	27 (7.8)	0.000653136
Atrial Fibrillation			
No	227 (65.2)	232 (67.1)	0.669414552
Yes	121 (34.8	114 (32.9)	0.669414552
Preop Beta Blockers			
No	122 (35.1)	6 (1.7)	3.27365E-29
Yes	226 (64.9)	340 (98.3)	3.27365E-29
Beta Blocker at Discharge			
No	17 (4.9)	14 (4)	0.725515055
Yes	331 (95.1)	332 (96)	0.725515055
Amiodarone at Discharge			
No	273 (78.4)	238 (69)	0.006069322
Yes	75 (21.6)	107 (31)	0.006069322
Hypertension			
No	42 (12.1)	56 (16.2)	0.147659907
Yes	306 (87.9)	290 (83.8)	0.147659907
Diabetes			
No	193 (55.5)	194 (56.1)	0.932071384
Yes	155 (44.5)	152 (43.9)	0.932071384
TIA			
No	243 (84.1)	300 (86.7)	0.411280522
Yes	46 (15.9	46 (13.3)	0.411280522
Heart Failure			
No	345 (99.1)	294 (85)	1.31105E-11
Yes	3 (0.9)	52 (15)	1.31105E-11
Postop Stroke			
No	334 (96)	344 (99.4)	0.005595173
Yes	14 (4)	2 (0.6)	0.005595173
Atrial Fibrillation at Discharge			
No	333 (96.8)	338 (97.7)	0.632581613
Yes	11 (3.2)	8 (2.3)	0.632581613
Atrial Fibrillation at Followup			
No	312 (95.1)	343 (99.1)	0.003594023
Yes	16 (4.9)	3 (0.9)	0.003594023

- Overall, **increased rates** of atrial fibrillation were **associated with longer CPB and cross-clamp times**
- **Increased incidence** of **stroke/TIA** associated with atrial fibrillation
- **Reduction** in atrial fibrillation occurrence at the **30-day follow-up** appointment was **statistically significant**
- Reduction in atrial fibrillation occurrence at discharge was insignificant

THEORATICAL FRAMEWORK



DISCUSSION

- Atrial fibrillation prophylaxis protocol **proven to be efficacious** when looking at **30-day postoperative follow-up**
- **No significant reduction** in atrial fibrillation rates **at discharge**
- **Stronger association** of atrial fibrillation **occurrence rate reduction** with **postoperative beta blockers** than amiodarone
- Future research could focus on duration of beta blocker treatment preop and dosing postop and at discharge

STRENGTHS AND LIMITATIONS

STRENGTHS	LIMITATIONS
• Large sample size	• No atrial fibrillation duration measurement
• Protocol follows AHA recommendations	• Gaps in data
• Multiple variables collected	• Difficulty finding follow-up EKGs

REFERENCES