

Feasibility Study to Assess Addition of a Prophylactic Antiarrhythmic Regimen to Post-operative Open-Heart Surgery Management.

Cameron St. Hilaire
USF MCOM- LVHN Campus

Travis Gaskill PA-C
Lehigh Valley Health Network, travis_f.gaskill@lvhn.org

Sarah Dolcemascolo PA-C
Lehigh Valley Health Network, sarah_e.dolcemascolo@lvhn.org

James K. Wu MD
Lehigh Valley Health Network, james.wu@lvhn.org

Follow this and additional works at: <https://scholarlyworks.lvhn.org/select-program>

 Part of the [Medical Education Commons](#)

Published In/Presented At

Hilaire, C. Gaskill, T. Dolcemascolo, S. Wu, J. K. (2017, March). *Feasibility Study to Assess Addition of a Prophylactic Antiarrhythmic Regimen to Post-operative Open-Heart Surgery Management*. Poster Presented at: 2017 SELECT Capstone Posters and Presentations Day. Kasych Family Pavilion, Lehigh Valley Health Network, Allentown, PA.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.

Feasibility Study to Assess Addition of a Prophylactic Antiarrhythmic Regimen to Post-operative Open-Heart Surgery Management

Cameron St. Hilaire, Travis Gaskill PA-C, Sara Dolcemascolo PA-C, James Wu MD
Lehigh Valley Health Network, Allentown, PA

INTRODUCTION

Post-operative atrial fibrillation (POAF) following open-heart procedures affects 30-50% of patients. It's presence has negative prognostic indications for the patient. Advanced age is associated with higher incidence of POAF, making it a potentially growing problem.

Complications include increased morbidity, mortality, length of stay, and as a result increased resource utilization.

The most effective prophylactic medication for cardiac procedures is amiodarone, shown to be superior for preventing and treating atrial fibrillation.

PROBLEM STATEMENT

The aim of this investigation is to improve the outcomes in open-heart surgery patients by initiating amiodarone prophylaxis regimen during the perioperative period.

METHODS

Our multidisciplinary team developed a perioperative amiodarone protocol based on published data.

This protocol was initiated for all patients undergoing open-heart surgery, starting in the operating room and continuing through their stay at the hospital.

After getting approval from our IRB, a database was created for a retrospective chart review of patients 2 months prior to, and 4 months following the protocol initiation date.

Univariate analysis and multivariate regressions were conducted to compare patient demographics, POAF risk factors, presence of POAF, length of stay, and mortality.



RESULTS

Population

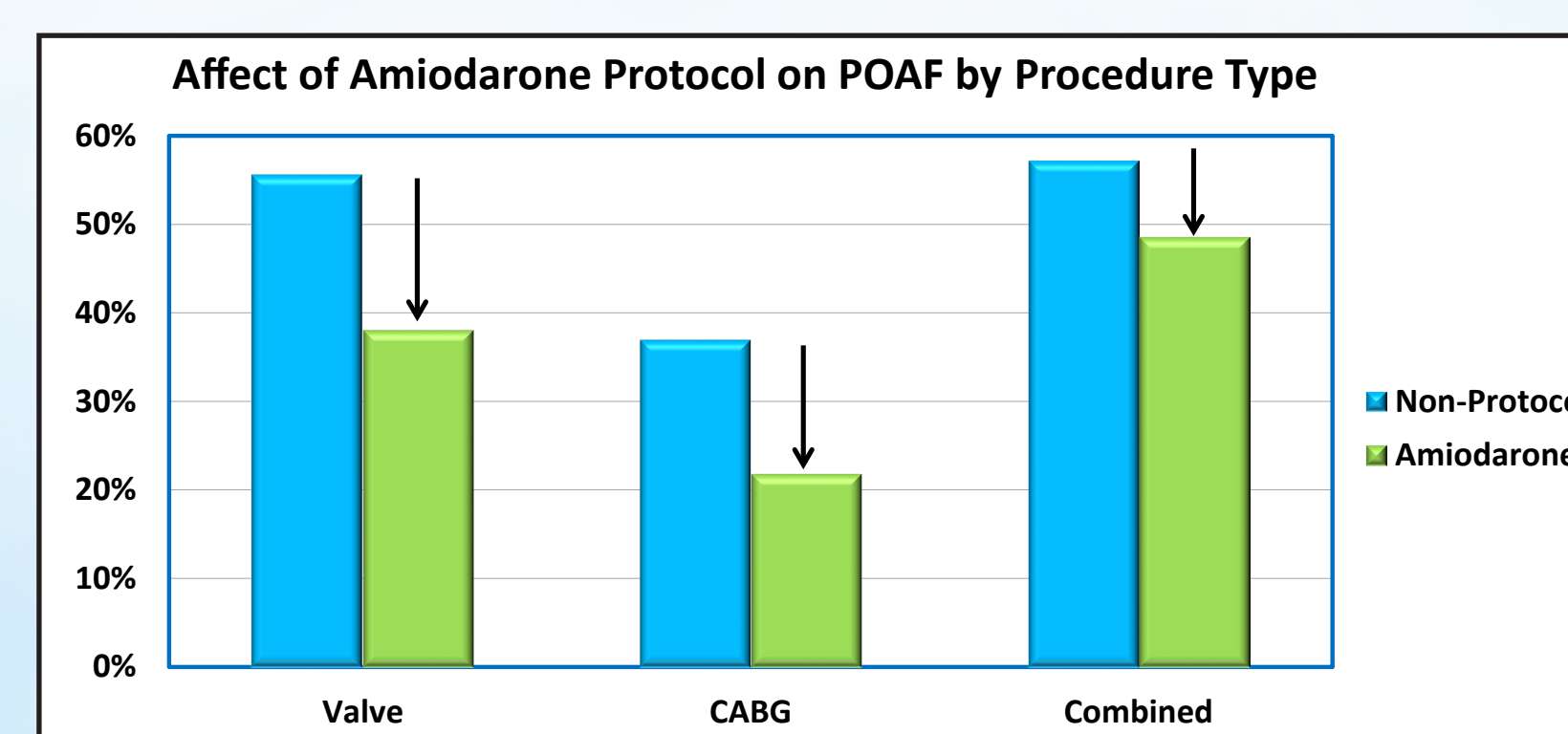
242 total patients, 146 (60%) on protocol. Median age was 68 (IQR 59-73), 73% were male, and the majority of operations were CABG (46%), Valve (32%), or Combined (20%).

Risk Factors for Atrial Fibrillation

Of the 10 risk factors observed, hypertension, CHF, male sex, and advanced age (>70 years) were the most common.

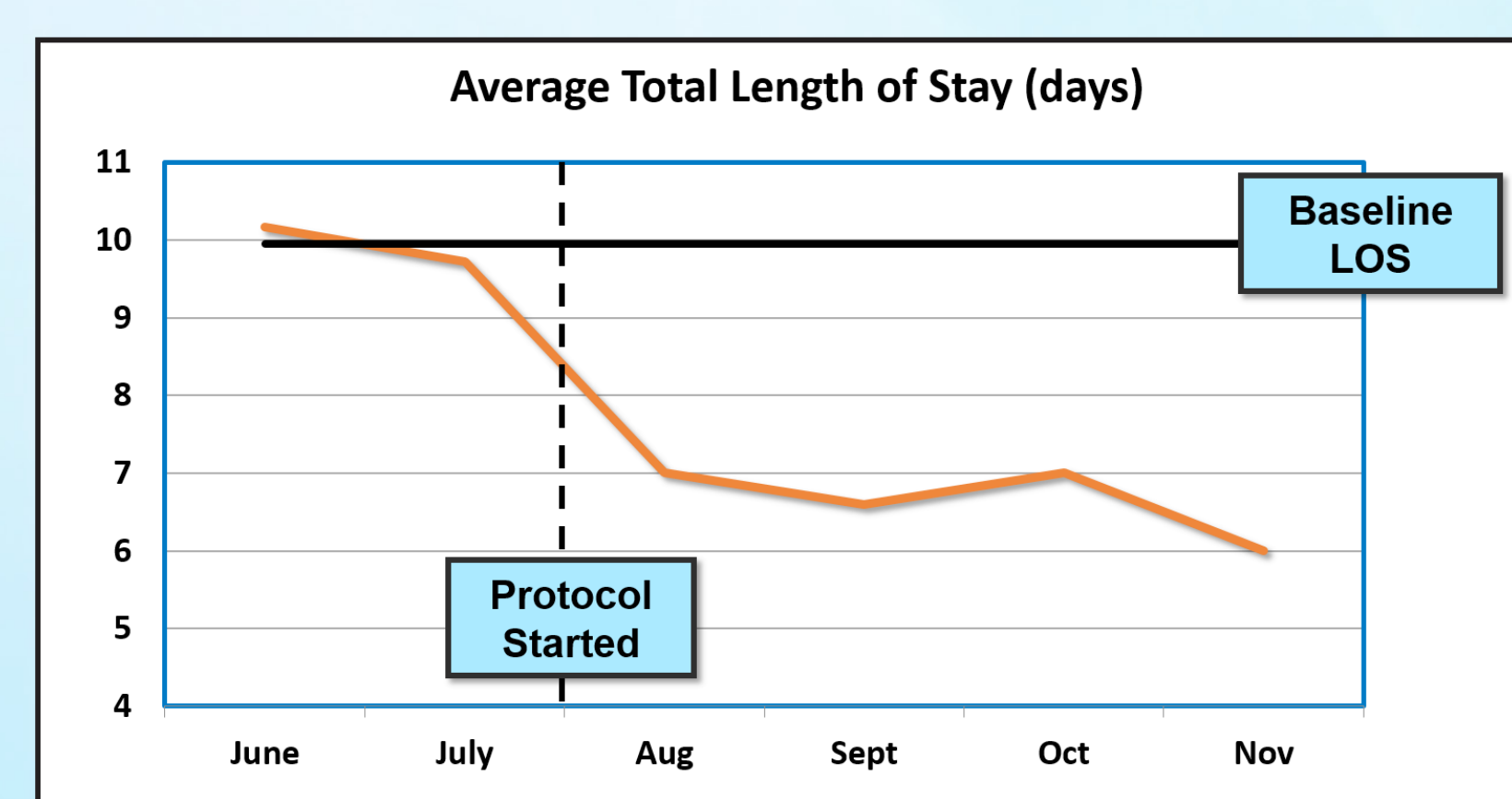
Incidence of Atrial Fibrillation

Overall incidence of POAF was 40%, protocol patients had a 26% relative risk reduction (35% vs 47%), however the difference was statistically insignificant ($p=0.06$). CABG patients had the most significant decrease in POAF rates (22% vs 37%, $p=0.03$), but all three of the major procedures had relatively large risk reductions. Patients with history of A-fib and pulmonary HTN had the largest relative risk reduction (42% and 51%, respectively).



Length of Stay

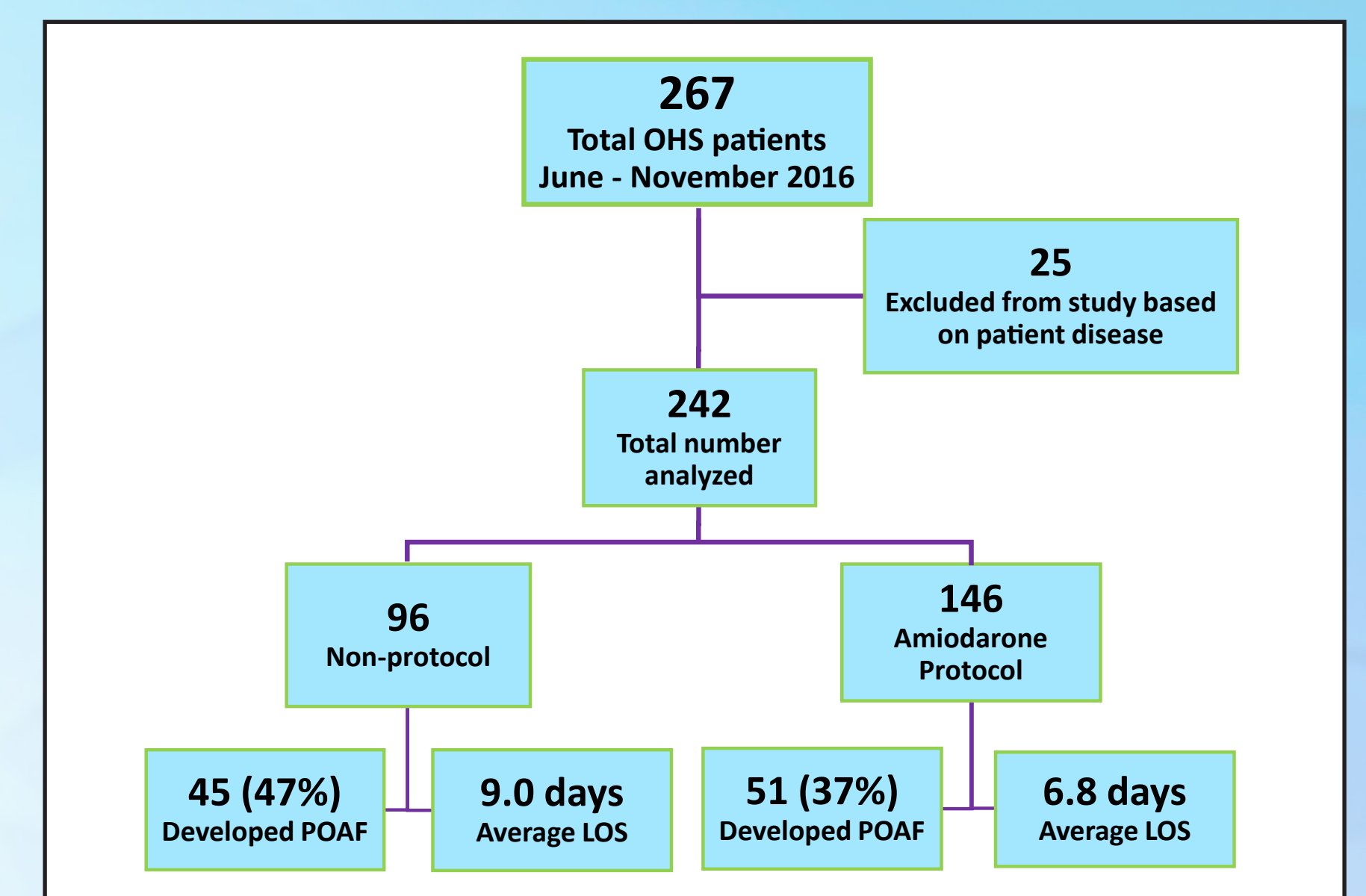
Amiodarone protocol patients had a decreased average length of stay (LOS) of 6.8 days compared to 9.0 days, p -value < 0.001. Protocol patients who did not develop POAF had a significantly decreased LOS compared to their non-protocol counterparts (6.4 days vs 8.8, $p=0.01$).



Mortality

There were 4 deaths (4%) in the non-protocol group and 3 (2%) deaths in the amiodarone group ($p=0.33$).

RESULTS CONTINUED



DISCUSSION

The significant results coming from this data were that the initiation of our amiodarone protocol resulted in a decreased total length of stay and decreased incidence of POAF in CABG patients. Overall POAF rates were improved, although this was not statistically significant.

These results are an improvement for the patient as it denotes earlier recovery and decreased risk for iatrogenic illnesses, it also is a large saving for the hospital in a form of resource and cost.

CONCLUSION

The addition of our anti-arrhythmia prophylaxis protocol to the standard of care for all open-heart surgery patients resulted in a decreased length of stay, relatively decreased rate of POAF in ALL procedure patients, and a significantly decreased POAF rate in CABG patients.

FUTURE DIRECTIONS

- Protocol will remain in place and expansion into full treatment algorithm
- Cost/benefit analysis to be performed

References:

1. Aresnault K, Ysyf A, Crystal E, et al. Interventions for preventing post-operative atrial fibrillation in patients undergoing heart surgery. Cochrane Database Syst Rev. 2013 Jan 31;(1).
2. Mitchell L. Incidence, timing, and outcome of atrial tachyarrhythmias after cardiac surgery. In: Steinberg JS (ed). Atrial Fibrillation After Cardiac Surgery. Norwell, MA: Kluwer Academic Publishers, 2000, pp.37-50.
3. Echahidi et al. Mechanisms, Prevention, and Treatment of Atrial Fibrillation After Cardiac Surgery. J Am Coll Cardiol. 2008 Feb 26;51(8):793-801.
4. Lomivorotov V, Efremov S, Pokushalov E, et al. New-Onset Atrial Fibrillation After Cardiac Surgery: Pathophysiology, Prophylaxis, and Treatment. J Cardiothorac Vasc Anesth. 2016 Jan;30(1):200-16.
5. Maesen B, Nijs J, Maessen J, et al. Post-operative atrial fibrillation: A maze of mechanisms. Europace. 2012. 14:159-174.

© 2017 Lehigh Valley Health Network