Outcomes of Convergent Ablation Procedure using a Cryo-balloon Catheter for Treatment of Persistent Atrial Fibrillation (Poster)

Rosalie Mattiola

Avery Cox

Bryan Auvil

Jennifer E. Macfarlan MPH
Lehigh Valley Health Network, jennifer_e.macfarlan@lvhn.org

Gregory Altemose MD
Lehigh Valley Health Network, Gregory_T.Altemose@lvhn.org

See next page for additional authors

Follow this and additional works at: https://scholarlyworks.lvhn.org/research-scholars-posters

Published In/Presented At

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.
Authors
Rosalie Mattiola, Avery Cox, Bryan Auvil, Jennifer E. Macfarlan MPH, Gregory Altemose MD, Babak Bozorgnia MD, and James K. Wu MD

This poster is available at LVHN Scholarly Works: https://scholarlyworks.lvhn.org/research-scholars-posters/493
Outcomes of Convergent Ablation Procedure using a Cryo-balloon Catheter for Treatment of Persistent Atrial Fibrillation

Rosalie Mattiolla, Avery Cox, Bryan Auivil, Jennifer Macfarlan, MPH, Gregory Altemose, MD, Babak Bozorgnia, MD, James K Wu, MD

Division of Cardiothoracic Surgery, Department of Surgery
Lehigh Valley Health Network, Allentown, Pennsylvania

Overview

Research Question: Does the use of a cryo-balloon catheter during the endocardial portion of a convergent procedure elicit greater success rates towards eliminating recurrent atrial fibrillation than using a radiofrequency catheter?

Background: Traditional catheter based treatment for atrial fibrillation (AF) uses radiofrequency as a source of energy for the ablation of atrial tissue. This is an endocardial (inside the heart) technique. The success rate of this technique at one year is around 50-60%. In the last three years, a novel technology using a combined/hybrid trans-diaphragmatic surgical epicardial (outside the heart) ablation with endocardial (inside the heart) ablation has had one-year success rates close to 80%. This is called the Convergent Procedure (CP). The CP can be done with either radiofrequency ablation (RF), or with a cryo-balloon catheter to create the endocardial lesion set. The cryo-balloon technique may be a preferred approach, as it improves endocardial coverage of the pulmonary veins. Limited data is available on the cryo-balloon technique for CP.

Methods

From October 2013 to May 2016, 45 AF patients underwent the convergent procedure with cryo-balloon endocardial ablation at LVHN. Patients were managed postoperatively medically and followed up with in the office 1 month, 3 months, 6 months, and 12 months after the surgery. Most (87%) patients received an implantable monitoring device that was interrogated at each visit for arrhythmias. Medical records were reviewed to determine pre-operative comorbidities and post-operative outcomes.

Results

Success of Convergent Procedure using Cryo-balloon catheter vs. Literature review values

- The first Kaplan Meier curve estimates the likelihood of maintaining atrial fibrillation-free status post convergent procedure over time. After receiving the convergent procedure with cryoballoon catheter, 75.56% (34) of patients did not experience a recurrent AF episode, while 24.44% (11) had experienced at least one recurrent AF episode.

- The second Kaplan Meier curve estimates the likelihood of being in sinus rhythm at the most recent follow up. Postoperatively, 82.22% (37) patients were not experiencing a recurrent AF episode at the time of the most recent follow-up and 17.78% (8) were experiencing a recurrent AF episode at the time of follow up.

Procedural Complications

- A total of three patients (6.7%) experienced rare adverse effects from the operation.
- One patient suffered from pericardial effusion and one from a hemoperitoneum with bleeding around trocar sites.
- Both patients recovered successfully.
- Another patient experienced bleeding from groin puncture, and required factor VII.
- This patient had two failed cardioversions postoperatively.
- There were no procedural mortalities, no atrioesophageal fistulas, and no pericardial tamponade.

Study limitations

- A retrospective review of symptomatic AF patients that received Convergent Procedure with a cryo-balloon ablation
- No quality of life survey administered.
- No control group. Utilized literature review.
- Some patients underwent their CP less than a year before the conduction of study. Thus, limited follow-up data was available.

Conclusions

This study of 45 patients suggests that the use of a cryo-balloon catheter for endocardial ablation during the convergent procedure is a viable method to eliminate the recurrence of persistent atrial fibrillation and arrhythmias.

Other data should be collected on the time and cost efficiency of the cryo-balloon versus radiofrequency technique.

REFERENCES