Hybrid Convergent Procedure for Persistent and Long-Standing Persistent Atrial Fibrillation: From an Electrophysiologist's Perspective

This review by Dr. David B. De Lurgio (Emory Heart & Vascular Center at Saint Joseph's, Atlanta, GA) summarized the Hybrid Convergent study findings and highlighted the pathophysiology behind Hybrid Convergent ablation, improved efficiency of the electrophysiology lab during the study, reduced endocardial ablation time and the value of a collaborative heart team approach when treating difficult-to-treat patients with advanced HF.

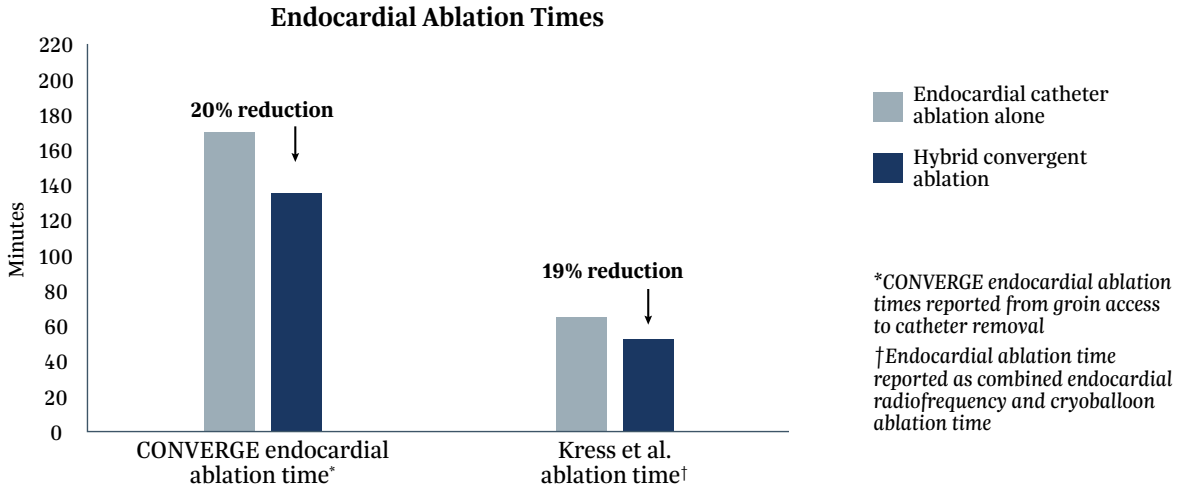
Pulmonary veins (PVs) are widely recognized as the predominant site of arrhythmogenicity leading to atrial fibrillation (Afib). However, the presence of arrhythmogenic triggers in the left atrial posterior wall, its role as substrate for Afib and the observed benefit of its isolation in Cox-Maze IV surgical ablation have led to the exploration of strategies to isolate the posterior wall using endocardial catheters. Unfortunately, the ability to leverage posterior wall isolation for improvements in arrhythmia outcomes with endocardial catheter ablation is limited due to the electroanatomical complexities of the posterior wall in persistent forms of Afib, the lack of a standardized lesion set and the risk of collateral damage. Therefore, the Hybrid Convergent approach combining epicardial and endocardial ablation was developed as a strategy to take advantage of minimally invasive surgical and electrophysiology techniques.

As new therapeutic tools have become available to electrophysiologists (EPs) and more advanced energy delivery systems such as radiofrequency (RF) and cryoablation are used, it would follow that cardiac ablation would, as a result, become more effective and efficient. Endocardial ablation time was reduced in the CONVERGE trial in the Hybrid Convergent arm. The addition of epicardial ablation resulted in a shorter mean endocardial ablation time of 36 minutes in the Hybrid Convergent arm versus endocardial catheter ablation (Figure 1).

A critical aspect of the success of the Hybrid Convergent procedure is the participation and collaboration of the heart team, composed of both cardiothoracic surgeons and the EP staff. The EP staff may often act as the central coordinator of the multi-disciplinary team in liaison with institutional stakeholders and patients. Best practices have outlined important considerations regarding pre-operative, procedural and post-operative care and highlighted aspects of the Hybrid Convergent procedure that are unique to conventional surgical and catheter ablation performed as individual procedures.

Hybrid Convergent: An EP Perspective

Figure 1.



Reference: *DeLurgio, D.B. (2022). The Hybrid Convergent Procedure for Persistent and Long-Standing Persistent Atrial Fibrillation From an Electrophysiologist's Perspective. Journal of Cardiovascular Electrophysiology, 2022 Apr 14. doi: 10.1111/jce.15492.*

U.S. Indications: *The EPi-Sense Coagulation System/EPi-Sense ST™ Coagulation Device is intended for the treatment of symptomatic long-standing persistent atrial fibrillation (continuous atrial fibrillation greater than 12 months duration) when augmented in a hybrid procedure with an endocardial catheter listed in the instructions for use, in patients (1) who are refractory or intolerant to at least one Class I and/or III antiarrhythmic drug (AAD); and (2) in whom the expected benefit from rhythm control outweighs the potential known risks associated with a hybrid procedure such as delayed post-procedure inflammatory pericardial effusions.* ***Contraindications*** *include patients with Barrett's Esophagitis, left atrial thrombus, a systemic infection, active endocarditis, or a localized infection at the surgical site at the time of surgery.* ***Adverse Events:*** *Reported adverse events associated with epicardial ablation procedure may include, but are not limited to, the following: pericardial effusion/cardiac tamponade, pericarditis, excessive bleeding, phrenic nerve injury, stroke/TIA/neurologic complication.* ***Warnings:*** *Physicians should consider post-operative anti-inflammatory medication to decrease the potential for post-operative pericarditis. and/or delayed post-procedure inflammatory pericardial effusions. Physicians should consider post-procedural imaging (i.e. 1-3 weeks post-procedure) for detection of post-procedure inflammatory pericardial effusions.* ***Precautions:*** *Precautionary measures should be taken prior to considering treatment of patients: (1) Deemed to be high risk and who may not tolerate a potential delayed post-procedure inflammatory pericardial effusion. (2) Who may not be compliant with needed follow-ups to identify potential safety risks. To ensure patients undergoing treatment with the EPi-Sense device are well informed, the benefits, potential risks and procedural outcomes associated with the EPi-Sense Hybrid Convergent procedure should be discussed with the patient. Physicians should document accordingly in the medical record. Qualified operators are physicians authorized by their institution to perform surgical sub-xyphoid pericardial access. The coagulation devices should be used by physicians trained in the techniques of minimally invasive endoscopic surgical procedures and in the specific approach to be used. Operators should undergo training on the use of EPi-Sense device before performing the procedure. Safety and effectiveness of concomitant left atrial appendage closure was not evaluated in the CONVERGE study. Follow-up should be conducted at approximately 30 days post-procedure to monitor for signs of delayed onset pericarditis or pericardial effusion.*

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