Sinus Rhythm Matters.

ACT against Afib

Sinus Rhythm Matters.

There is a strong link between atrial fibrillation (Afib) and heart failure (HF). Does returning a patient to sinus rhythm, or reducing Afib burden make a difference?

- The presence of both heart failure and atrial fibrillation leads to a greater risk of death versus heart failure without atrial fibrillation.[1]
- When it comes to heart failure and atrial fibrillation, which condition develops first? It depends!
    - Framingham data show that of patients with both HF and Afib, 38% had Afib first and 41% had HF first, while the remaining 21% received both diagnoses at the same time.[2]

How much do cardiac surgery interventions improve ejection fraction?

CABG	AVR	MVR
A modest increase, but reduces sudden death and pump failure death[3]	About 21 points[4]	Ranges from a marginal improvement up to a return to baseline[5,6]
And for those with Afib, only about 10% receive a concomitant surgical ablation	Yet only about 25% of Afib patients receive a concomitant surgical ablation	Are most likely to receive a concomitant surgical ablation, with nearly 70% of Afib patients being treated

Returning to Sinus Rhythm Matters.

Restoring sinus rhythm with an ablation in patients with advanced heart failure can *dramatically* improve the ejection fraction by:

- A mean of 23 points, or 72% (surgical patients)[7]
- 7.3 points in those with paroxysmal Afib (CASTLE-AF)[8]
- 10.1 points in those with persistent Afib (CASTLE-AF)[8]
- 18 points (ablation group) versus 4 points (medical management) (CAMERA-MRI)[9]

"HF BEGETS AF, AF BEGETS HF"[10]

Performing a concomitant surgical ablation at the time of heart surgery gives patients *the best chance*[11-14] to return to sinus rhythm, reduce the burden of Afib, and restore normal heart function.

References:

[1] Rahman, F., Kwan, G.F., Benjamin, E.J. (2014). Global epidemiology of atrial fibrillation. Nature Reviews Cardiology, 11(11):639-54.

[2] Wang, T.J. et al. (2003). Temporal Relations of Atrial Fibrillation and Congestive Heart Failure and Their Joint Influence on Mortality: The Framingham Heart Study, 107(23):2920-5.

[3] Carson, P. et al. (2013). The STICH Trial (Surgical Treatment for Ischemic Heart Failure): Mode-Of-Death-Results. Journal of the American College of Cardiology: Heart Failure, 1(5):400-8.

[4] Disha, K. et al. (2016). Long-Term Recovery of Reduced Left Ventricular Ejection Fraction After Aortic Valve Replacement in Patients with Bicuspid Aortic Valve Disease, Journal of Thoracic and Cardiovascular Surgery, 64(5):418-26.

[5] Witkowski, T.G. et al. (2012). Changes in Left Ventricular Function After Mitral Valve Repair for Severe Organic Mitral Regurgitation. Annals of Thoracic Surgery, 93(3):754-60.

[6] Le Tourneau, T. et al. (2000). Effect of Mitral Valve Surgery on Exercise Capacity, Ventricular Ejection Fraction and Neurohormonal Activation in Patients With Severe Mitral Regurgitation. Journal of the American College of Cardiology, 36(7):2263-9.

[7] Adademir, T. et al. (2019). Surgical Ablation of Atrial Fibrillation in Patients With Tachycardia-Induced Cardiomyopathy. The Annals of Thoracic Surgery, 108(2):443-50.

[8] Marrouche, N.F. et al. (2018). Catheter Ablation for Atrial Fibrillation with Heart Failure. The New England Journal of Medicine, 378:417-27.

[9] Prabhu, S. et al. (2017). Catheter Ablation Versus Medical Rate Control in Atrial Fibrillation and Systolic Dysfunction: The CAMERA-MRI Study. Journal of the American College of Cardiology, 70(16):1953-61.

[10] Maisel, W.H., & Stevenson, L.W. (2003). Atrial fibrillation in heart failure: epidemiology, pathophysiology, and rationale for therapy. Am J Cardiol, 91(6A):2D-8D.

[11] Gaynor, S.L. et al. (2015). Surgical treatment of atrial fibrillation: predictors of late recurrence. J Thorac Cardiovasc Surg, 129(1):104-11.

[12] Weimar, T. et al. (2011). The Cox-maze IV procedure for lone atrial fibrillation: a single center experience in 100 consecutive patients. J Interv Card Electrophysiol. 31(1):47-54.

[13] Schill, M.R. et al. (2017). Late results of the Cox-maze IV procedure in patients undergoing coronary artery bypass grafting. J Thorac Cardiovasc Surg, 153(5):1087-94.

[14] Kirchhof, P. et al. (2016). 2016 ESC guidelines for the management of atrial fibrillation developed in collaboration with EACTS: the Task Force for the management of atrial fibrillation of the European Society of Cardiology (ESC) developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC Endorsed by the European Stroke Organization (ESO). Europace, 18(11):1455-90.