

Debate-STAR AF 2 study

PVI is not enough

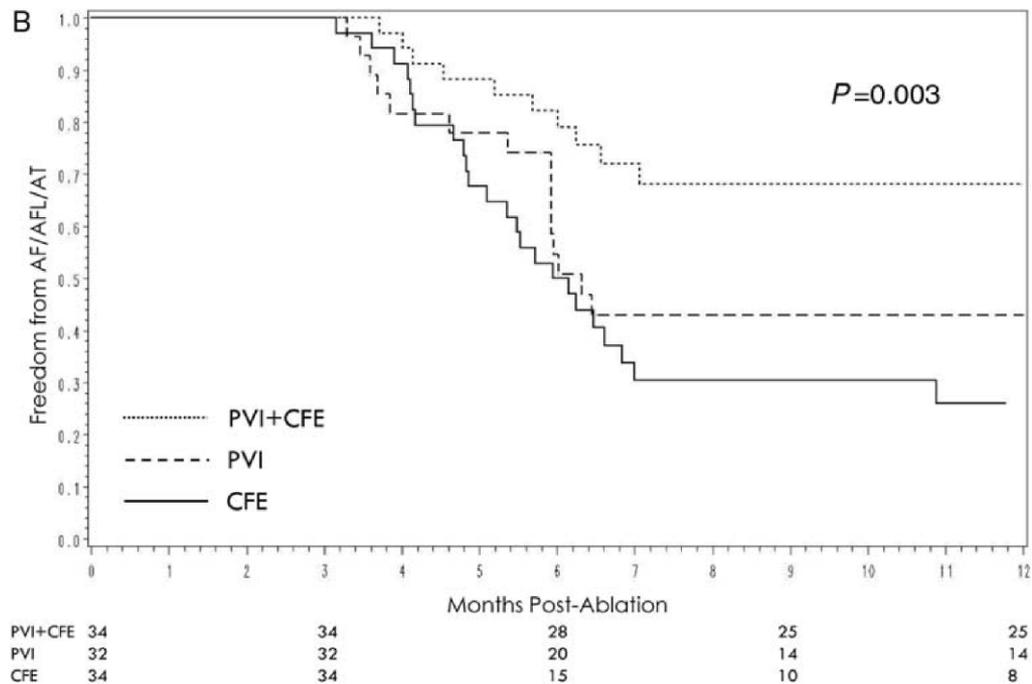


Debate about STAR AF 2 trial



STAR AF trial

- Substrate and Trigger Ablation for Reduction of Atrial Fibrillation – EHJ 2010



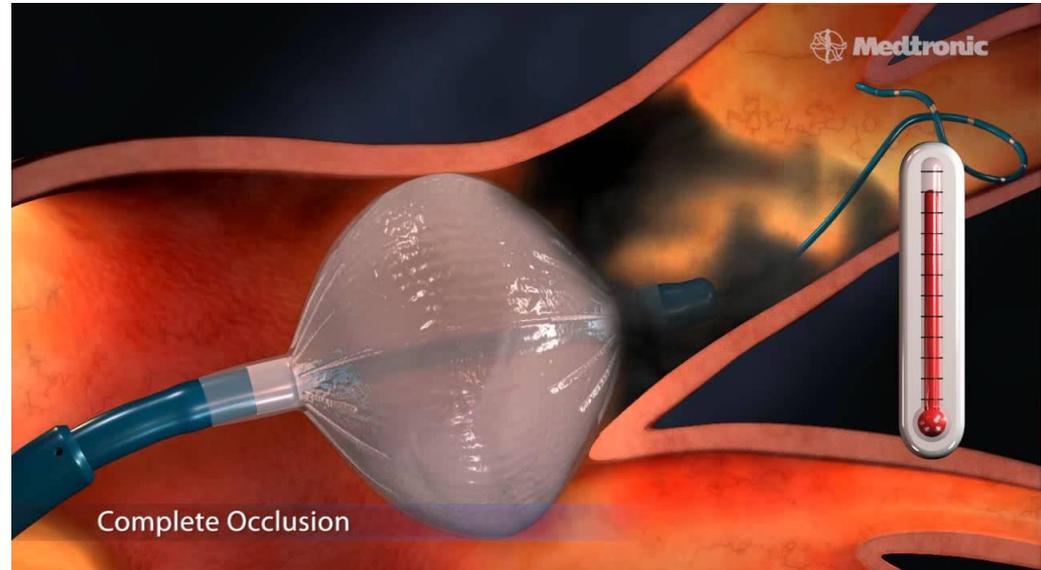
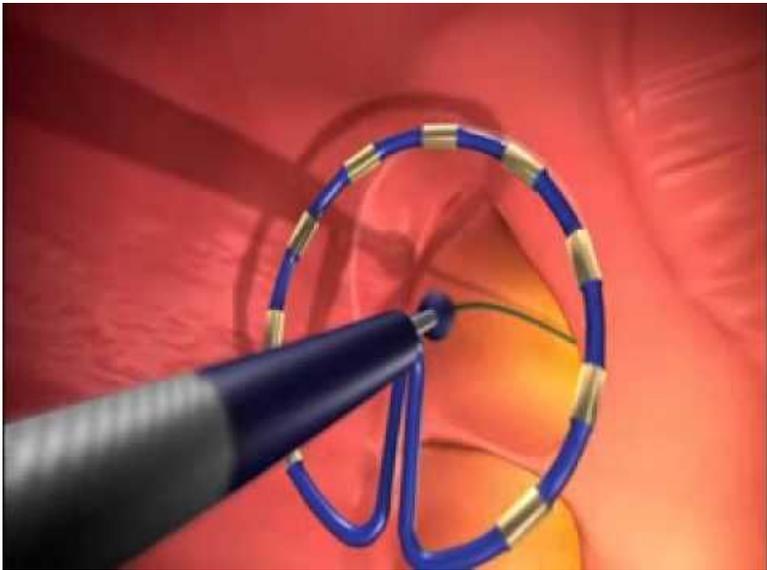
STAR-AF 2 trial



One Size Fits All?



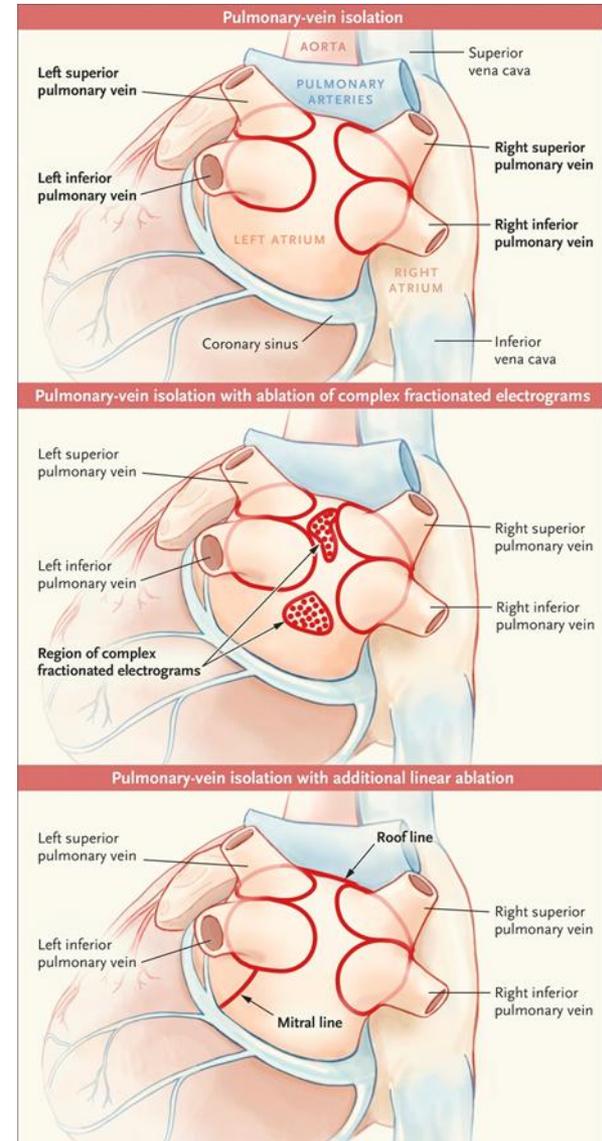
PVI is enough for persistent AF?



STAR-AF 2 trial

- The first randomized, multicenter trial addressing the best approach to AF ablation in persistent AF

-NEJM 2015



STAR AF 2 trial

- PVI is enough for persistent AF
 - despite of chronicity and LA size?
 - despite of coexisting or induced atrial flutter?
 - despite of organized atrial tachycardia during PVI?
- Completeness of linear ablation
- Termination of AF after CFAE ablation
- Non PV trigger or rotor



Chronicity and LA size

- the definition of “persistent” AF is not suitable for ablation strategy.
- the persistent AF population is not homogeneous.
- Exclusion criteria for STAR AF 2 study
 - paroxysmal AF
 - sustained AF lasting more than 3 years
 - left atrial diameter of 60 mm or greater.



Coexisting or induced atrial flutter

- Ablation of the CTI is recommended based on consensus opinion, in patients with a history of typical atrial flutter or inducible CTI dependent atrial flutter. -2012 Expert Consensus
- STAR AF 2 Protocol permitted to performing a right atrial CTI line is allowed in any of the three randomization strategies and will be left to investigator discretion.



Organizing AT during PVI

- STAR AF 2 protocol permitted that investigators have the option of either ablating any additional atrial tachycardias or flutters that arise, or simply cardioverting the patient back to sinus rhythm.
- Performing additional lesions that would involve creating lesions prescribed by one of the other arms of the study is strongly discouraged. For example, if the patient is randomized to PVI+CFE, performing either a roof or mitral line would be strongly discouraged and vice versa.

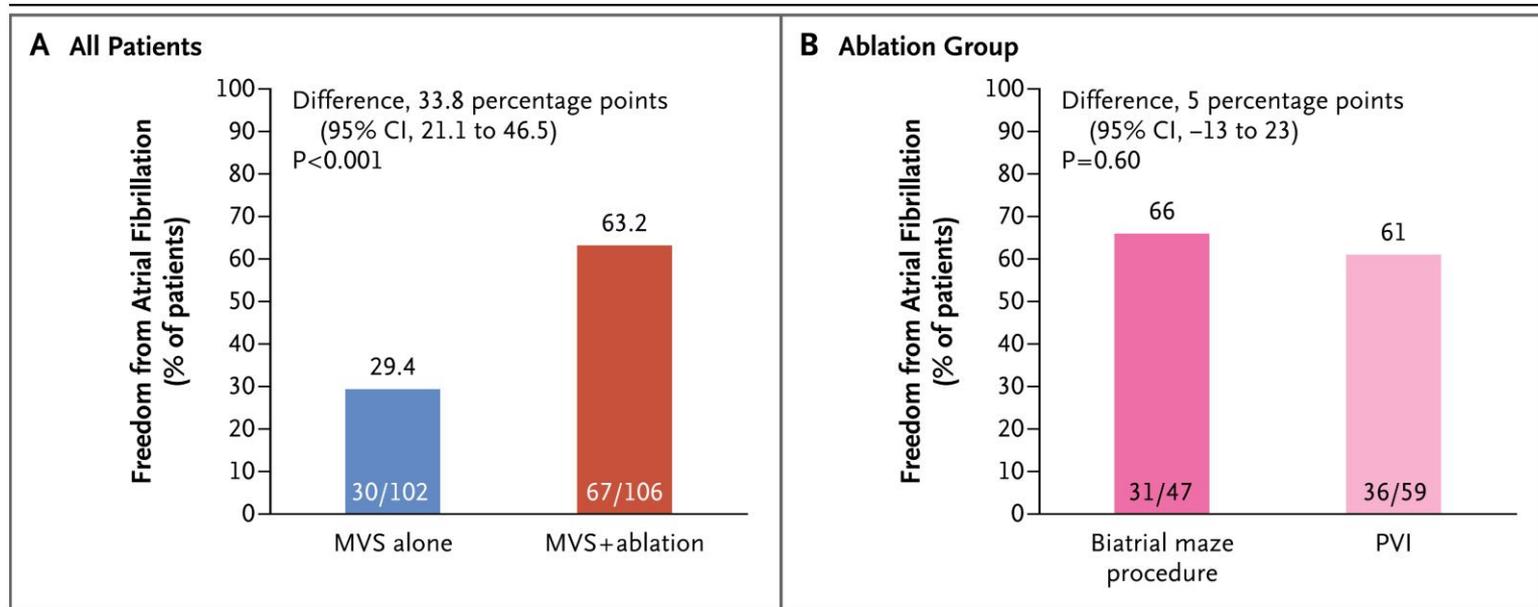


Linear ablation in STAR AF 2

- Roof line
- Mitral isthmus line (either posterior or anterior approach).
- The goal of all linear lesions will be to achieve complete block.
- pulmonary-vein isolation achieved in 97% of all patients and conduction block across ablation lines achieved in 74%



Surgical Ablation of Atrial Fibrillation during Mitral-Valve Surgery



Ablation predominantly using **unipolar RF** rather than cryoablation

NEJM 2015



Linear ablation in STAR AF 2

- ablation technique using unipolar catheter techniques do not reliably produce the permanent transmural and longitudinally continuous lesions.
- Therefore, the failure of the study may simply be due to the relative ineffectiveness of the unipolar catheter techniques.



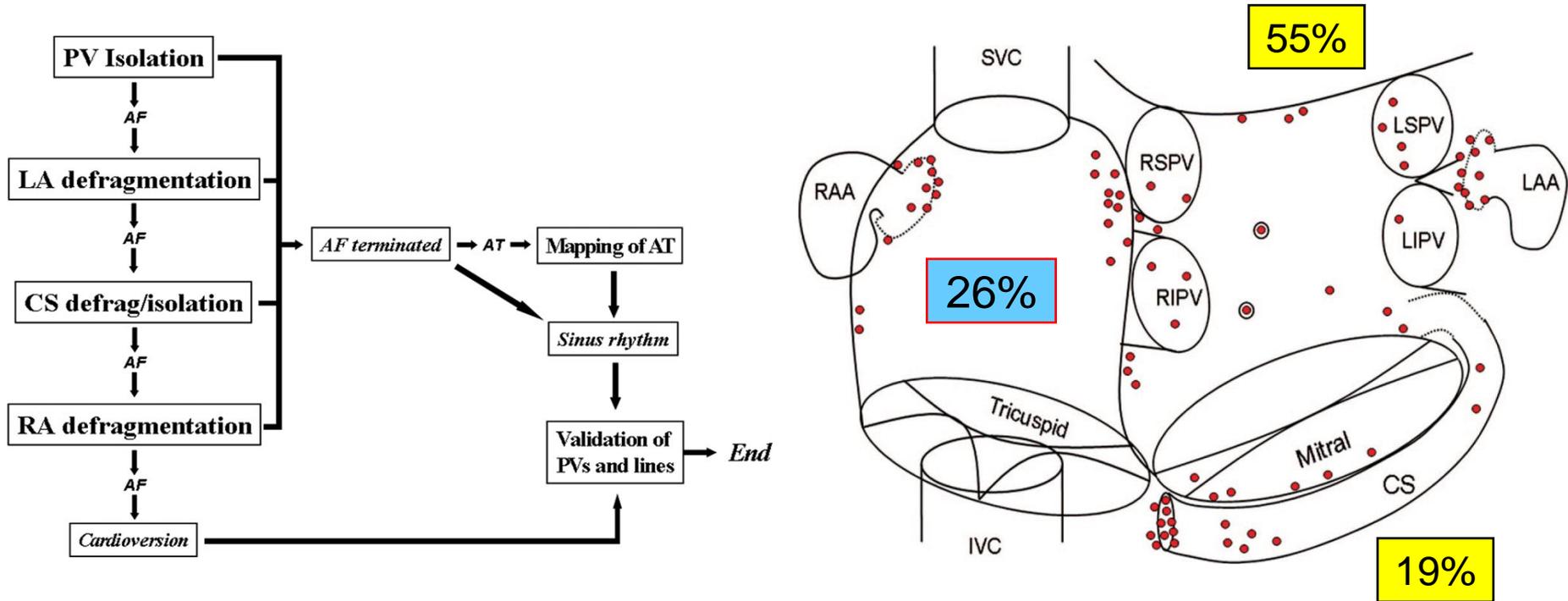
CFE ablation in STAR AF2

- The endpoint for CFE ablation of protocol:
 - Elimination of all CFE sites in the LA, CS and RA
or
 - AF termination.
- The termination of AF, the end point of ablation with CFE, was achieved in only 45% of participants, which may explain the poor long-term outcomes in this group

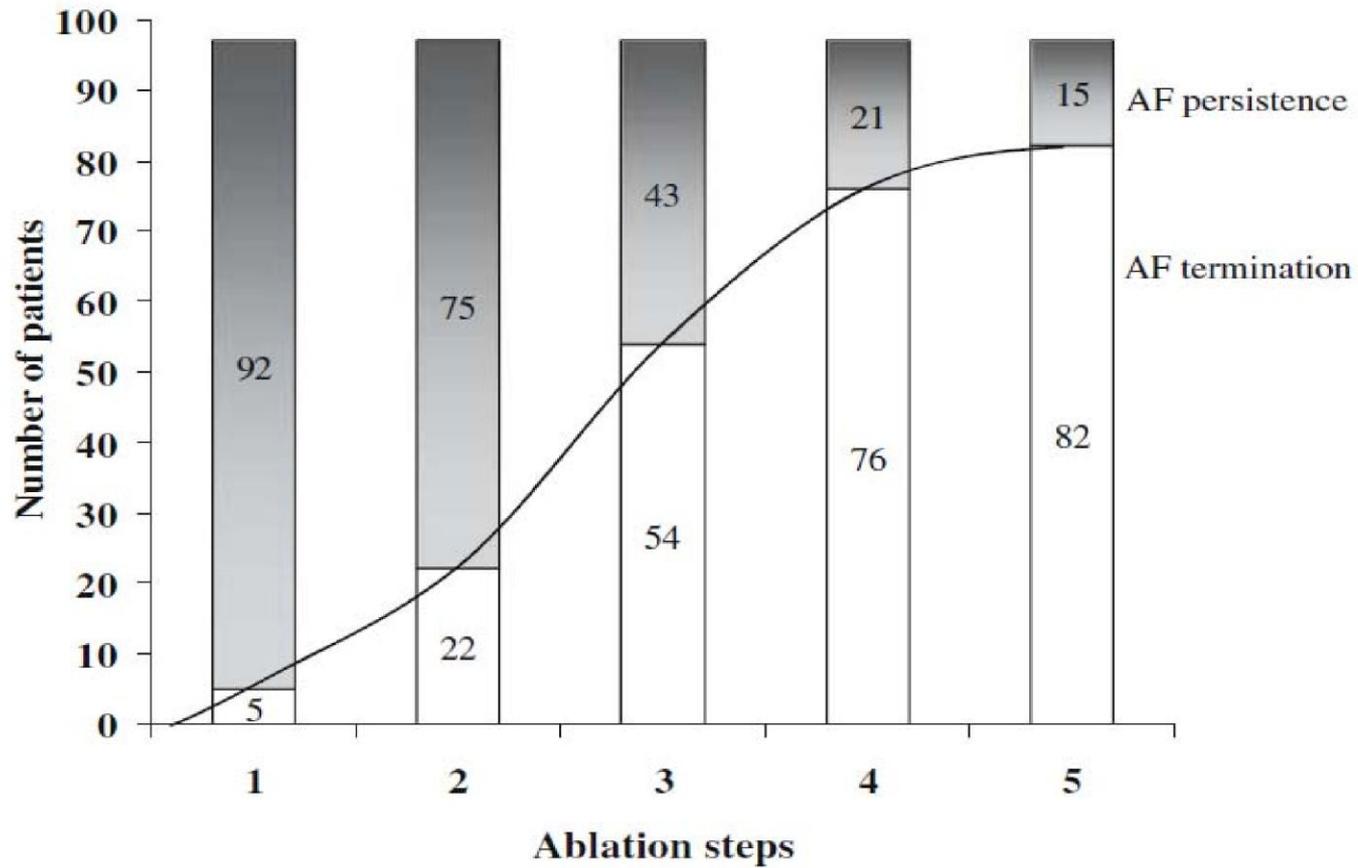


Chronic Atrial Fibrillation is a Biatrial Arrhythmia

Arrhythmia Termination Using Sequential Ablation Approach

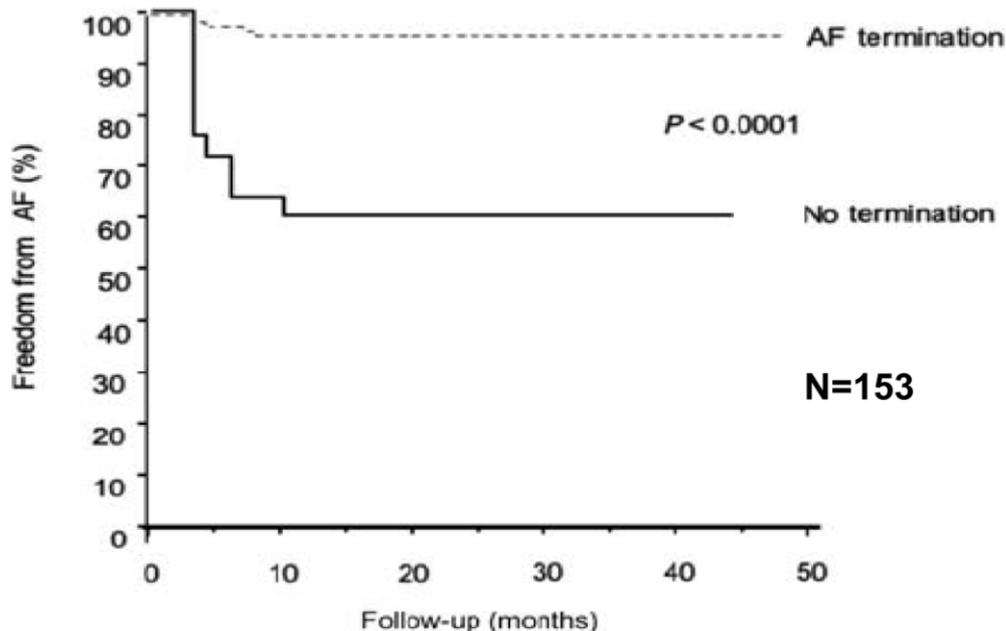


Rostock T et al. Circ Arrhythmia Electrophysiol. 2008;1:344-353.



Long-term follow-up of persistent atrial fibrillation ablation using termination as a procedural endpoint

Mark D. O'Neill, Matthew Wright*, Sébastien Knecht, Pierre Jaïs, Mélèze Hocini, Yoshihide Takahashi, Anders Jönsson, Frédéric Sacher, Seiichiro Matsuo, Kang Teng Lim, Leonardo Arantes, Nicolas Derval, Nicholas Lellouche, Isabelle Nault, Pierre Bordachar, Jacques Clémenty, and Michel Haissaguerre



EHJ 2009

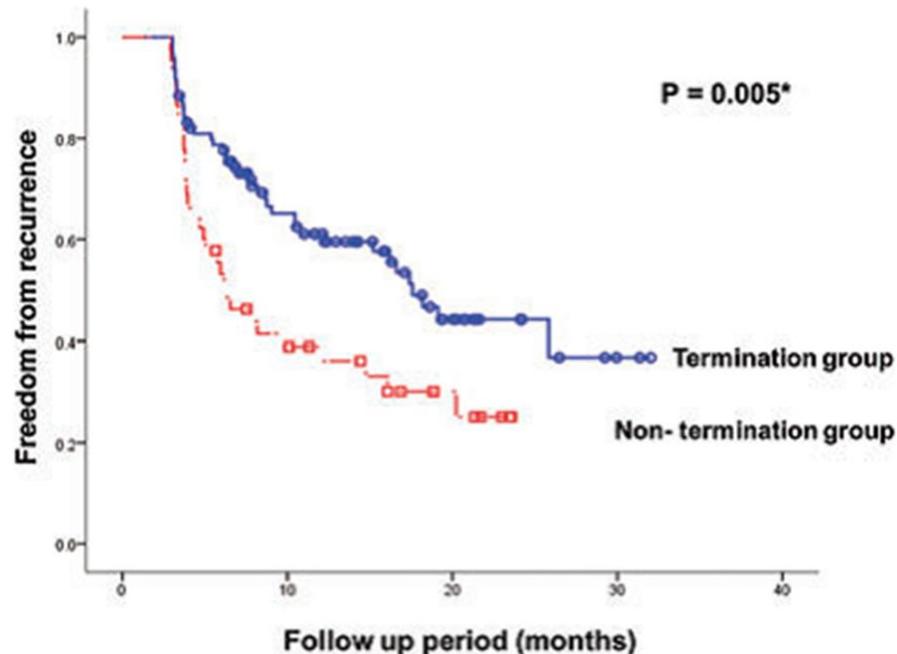


SEJONG GENERAL HOSPITAL
SEJONG CARDIOVASCULAR CENTER

Is Pursuit of Termination of Atrial Fibrillation During Catheter Ablation of Great Value in Patients with Longstanding Persistent Atrial Fibrillation?

YAE M. PARK, M.D., JONG-IL CHOI, M.D., HONG E. LIM, M.D., SANG W. PARK, M.D.,
and YOUNG-HOON KIM, M.D.

From the Division of Cardiology, Korea University, Seoul, South Korea

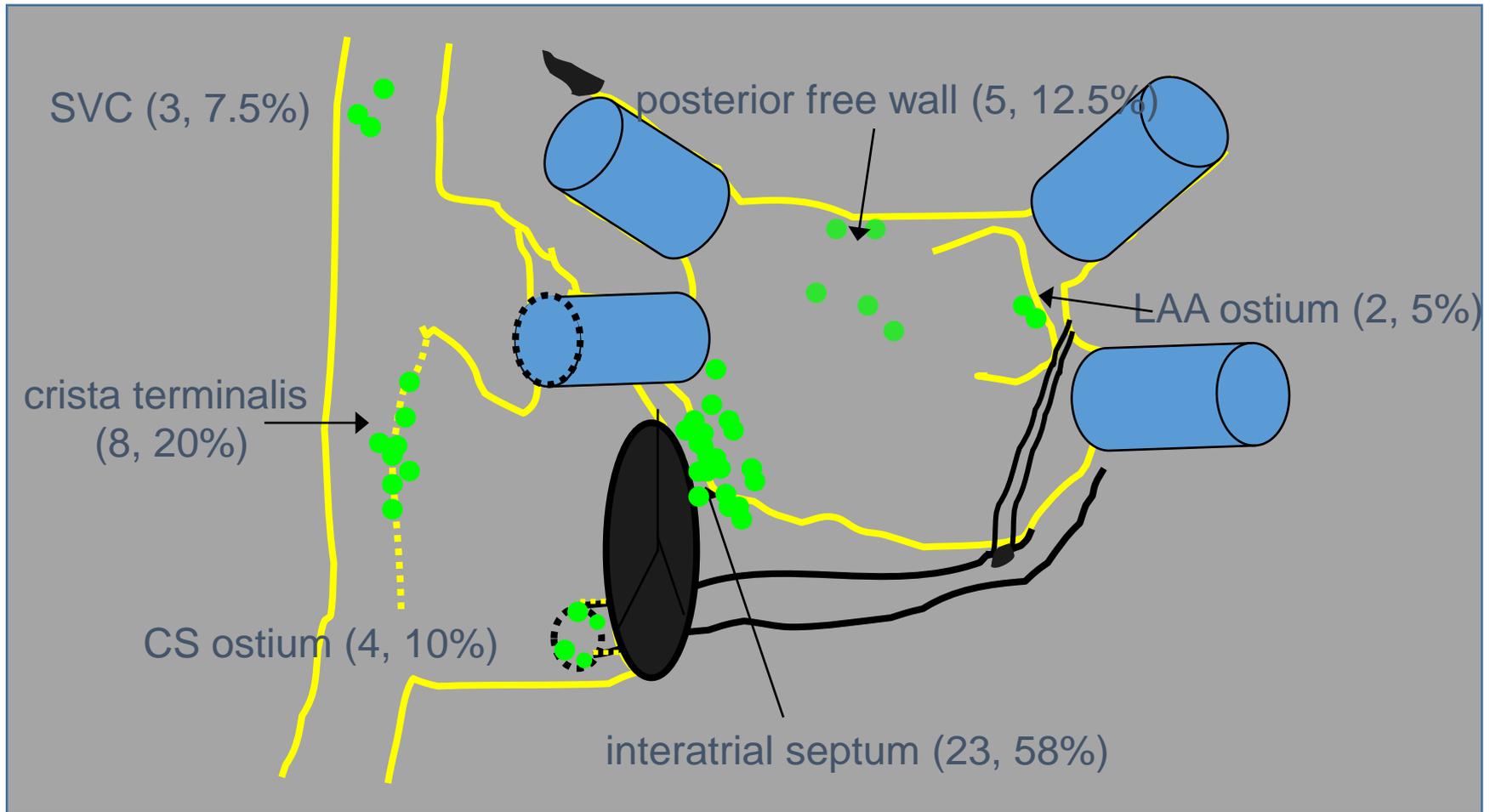


Non PV foci of Af

- Although most triggering focus of Af is PV, other non PV foci also serves as a triggering focus of Af in 20-40%.
- PV isolation is not sufficient in persistent Af, which require additional ablation at LA, RA and other thoracic vein such as SVC, CS, LOM. These structures are important in maintaining the Af.
- If a focal trigger is identified outside a PV at the time of an AF ablation procedure, ablation of that focal trigger should be considered. -2012 Expert Consensus



Non-PV Foci in PeAF



Hong Euy Lim, et al. Unpublished, 2007



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Left Atrial Appendage

An Underrecognized Trigger Site of Atrial Fibrillation

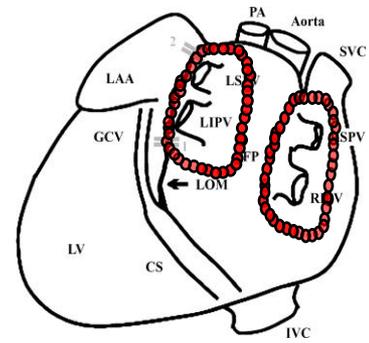
Luigi Di Biase, MD; J. David Burkhardt, MD; Prasant Mohanty, MBBS, MPH; Javier Sanchez, MD; Sanghamitra Mohanty, MD; Rodney Horton, MD; G. Joseph Gallinghouse, MD; Shane M. Bailey, MD; Jason D. Zagrodzky, MD; Pasquale Santangeli, MD; Steven Hao, MD; Richard Hongo, MD; Salwa Beheiry, MD; Sakis Themistoclakis, MD; Aldo Bonso, MD; Antonio Rossillo, MD; Andrea Corrado, MD; Antonio Raviele, MD; Amin Al-Ahmad, MD; Paul Wang, MD; Jennifer E. Cummings, MD; Robert A. Schweikert, MD; Gemma Pelargonio, MD; Antonio Dello Russo, MD; Michela Casella, MD; Pietro Santarelli, MD; William R. Lewis, MD; Andrea Natale, MD, FHRS

The LAA appears to be responsible for arrhythmias in 27% of patients presenting for repeat procedures.

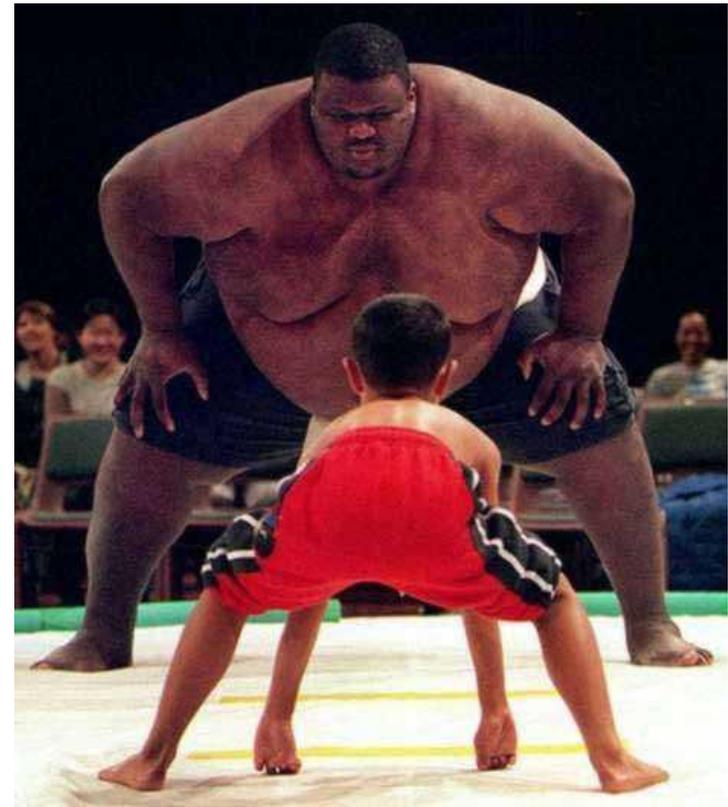
Isolation of the LAA could achieve freedom from atrial

Circulation 2010



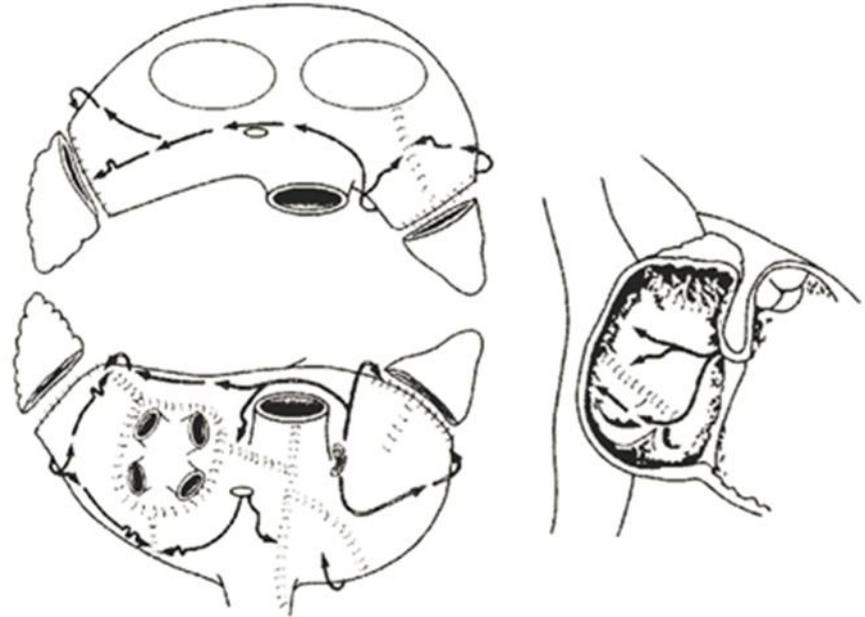
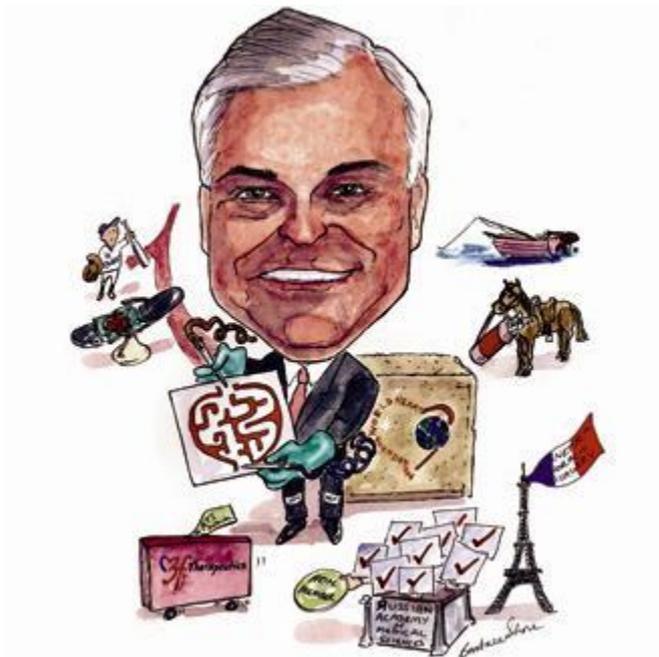


PV Isolation
is
enough
in pts with
persistent AF?



Cox Maze Procedure

Overall success rate=82%



Profile: James L Cox



PVI is not enough for persistent AF

