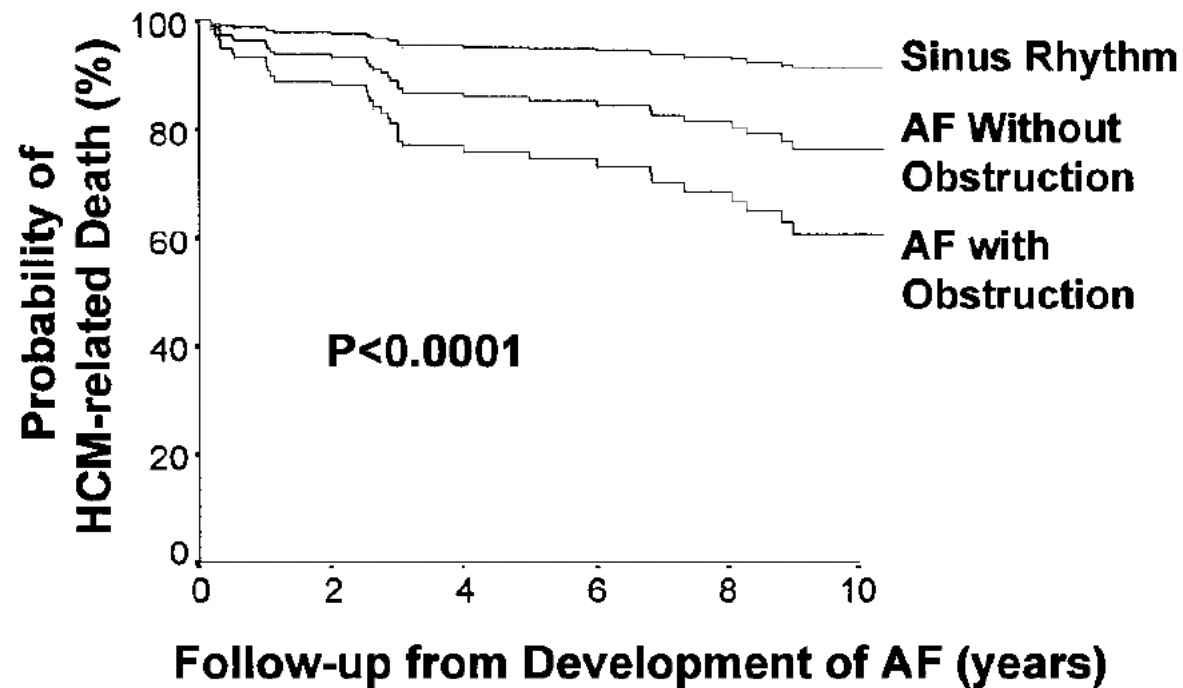
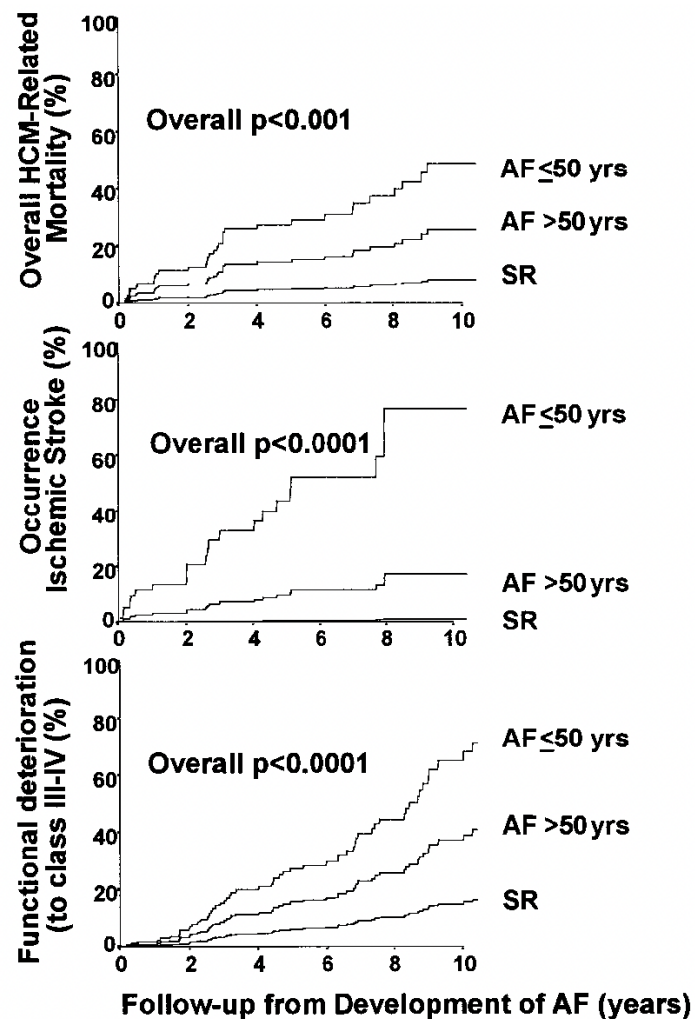


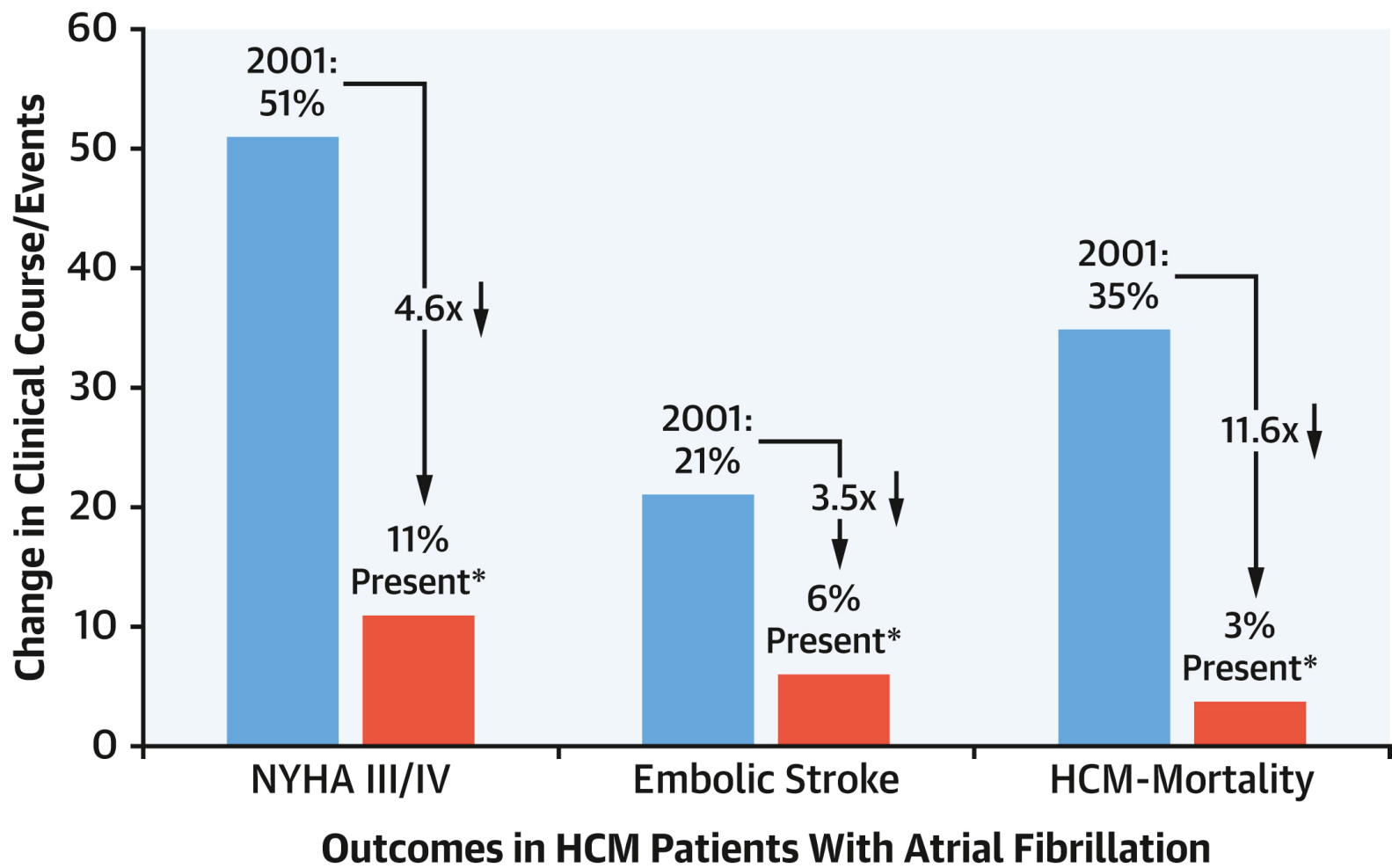
**Fibrillazione atriale nella cardiomiopatia ipertrofica:
ruolo del substrato atriale elettro-anatomico
nell'approccio ablativo**
Roma 25 Giugno 2026

Dott. Di Donna Paolo
S.S. Cardiologia interventistica
IRCCS AOM Liguria OC San Martino



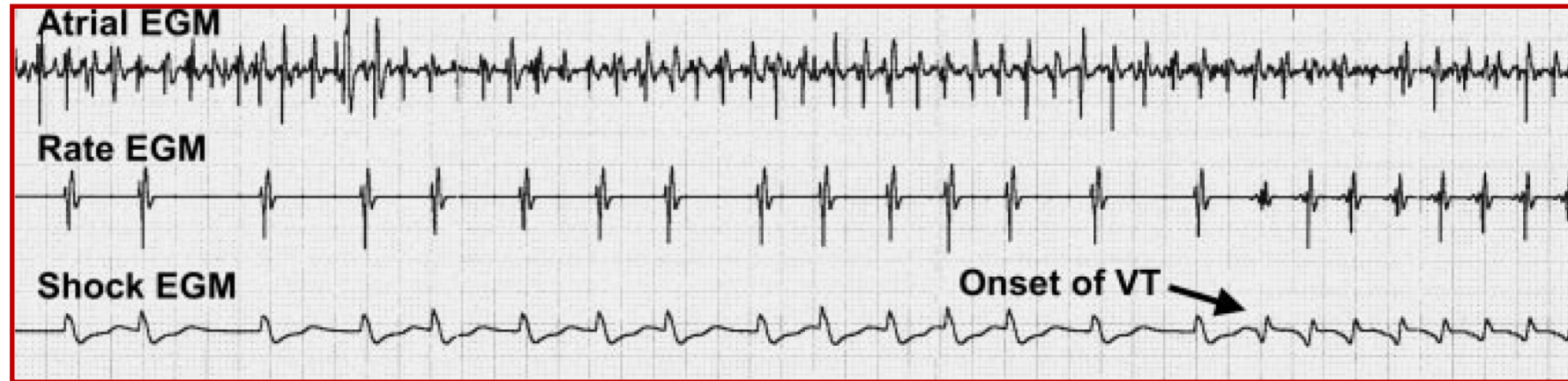
Olivotto I, et al. Circulation. 2001;104(21):2517-2524.





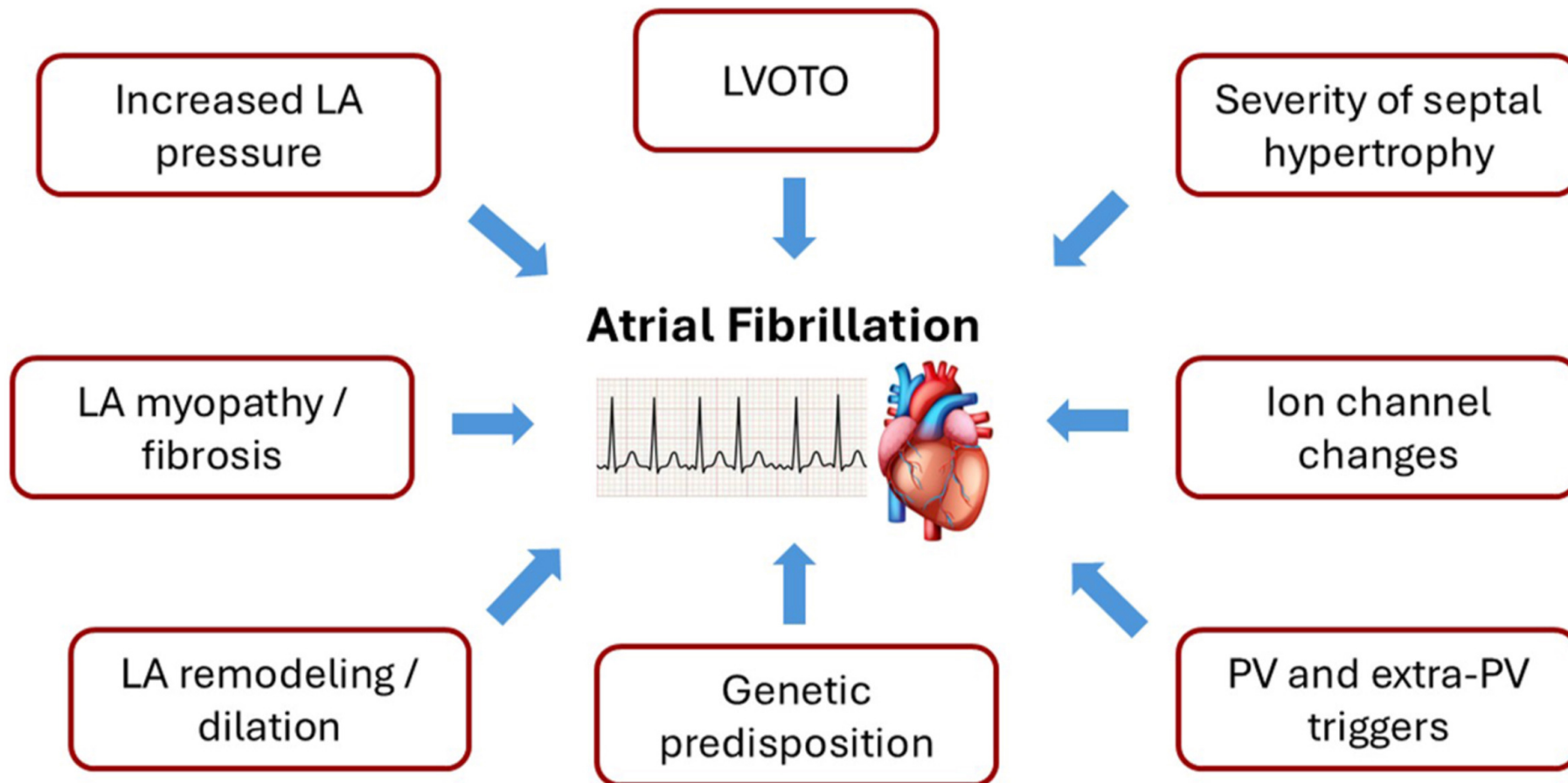
Maron BJ, et al. J Am Coll Cardiol. 2022;79(4):390-414.

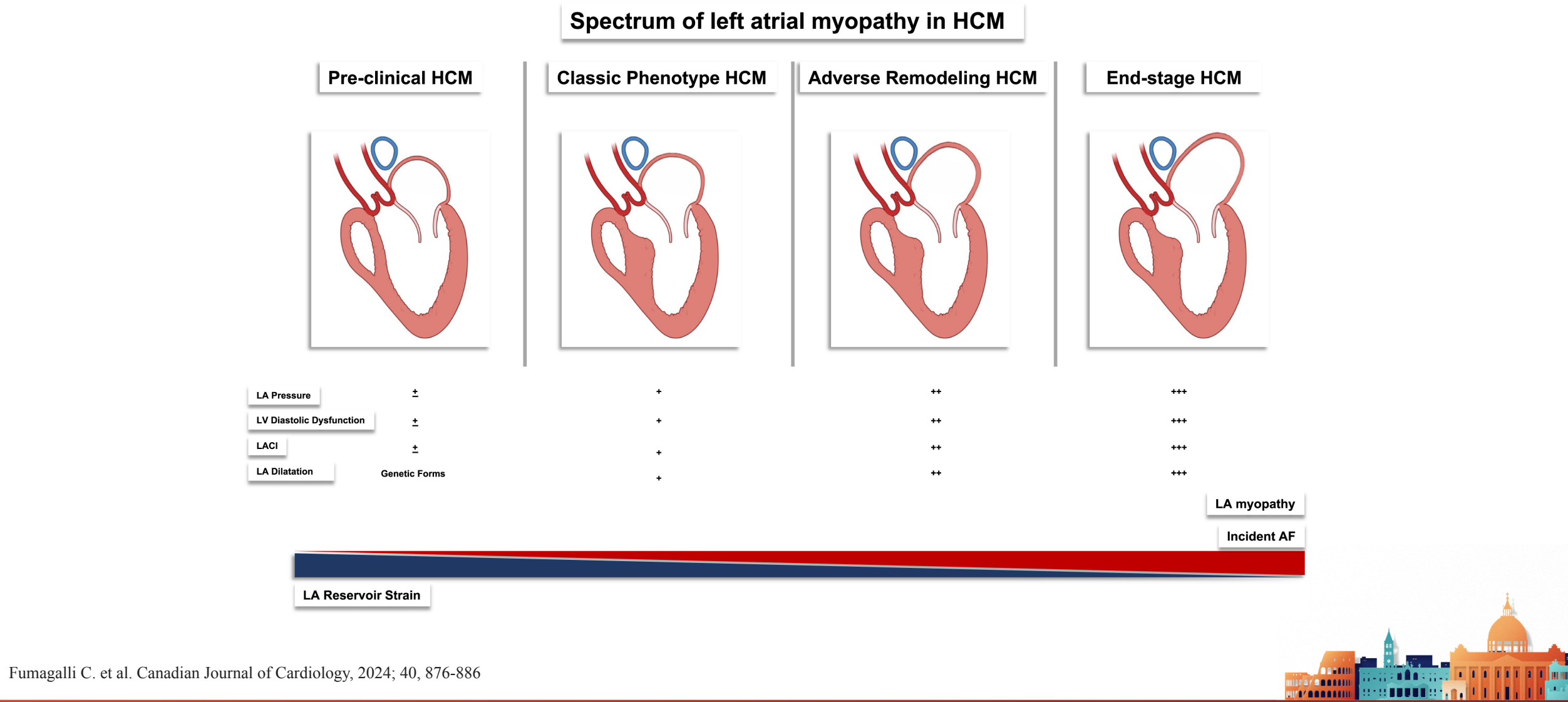


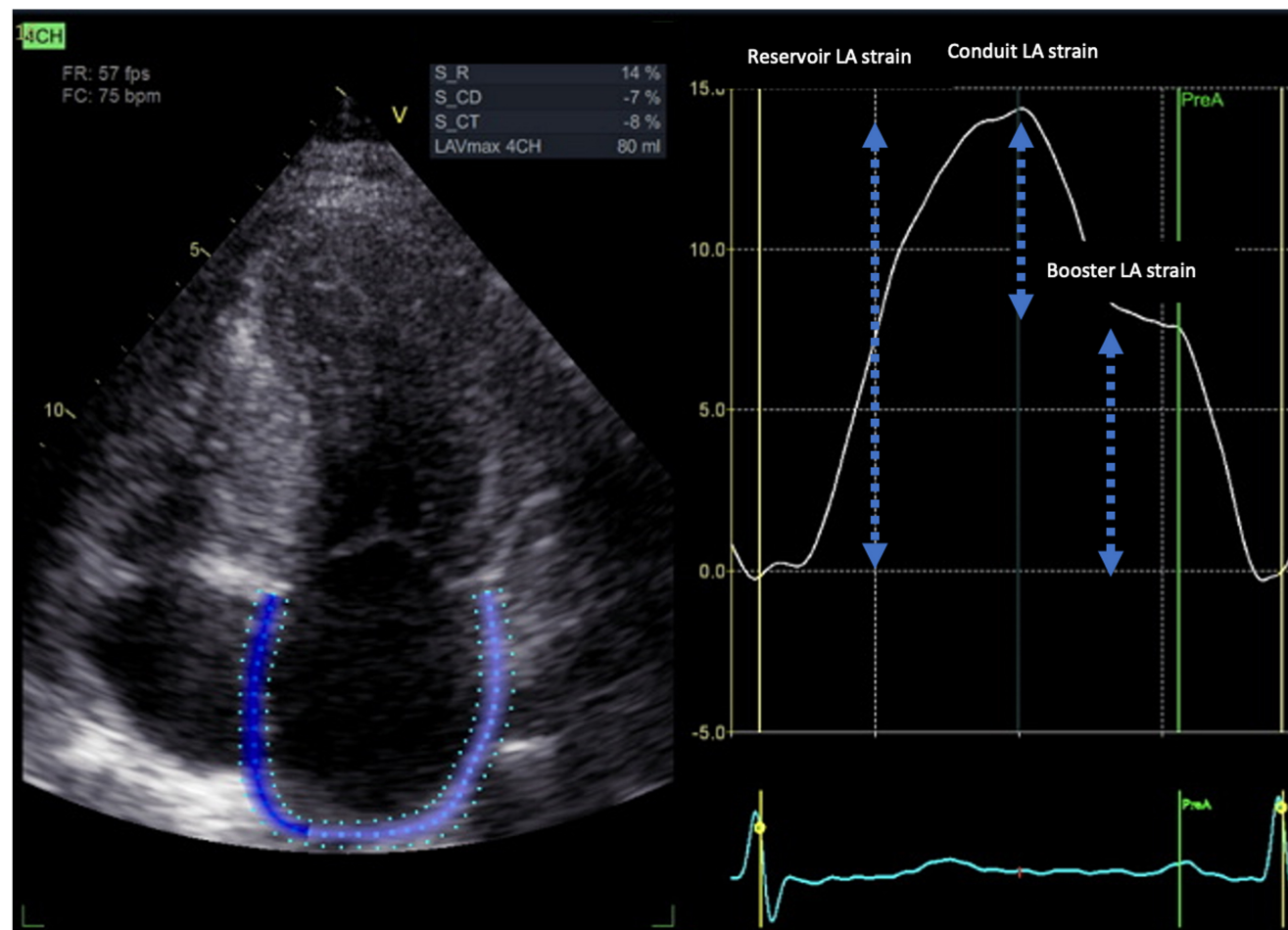


Boriani G. et al. Circulation. 2004 Oct 12;110(15):e438-42.



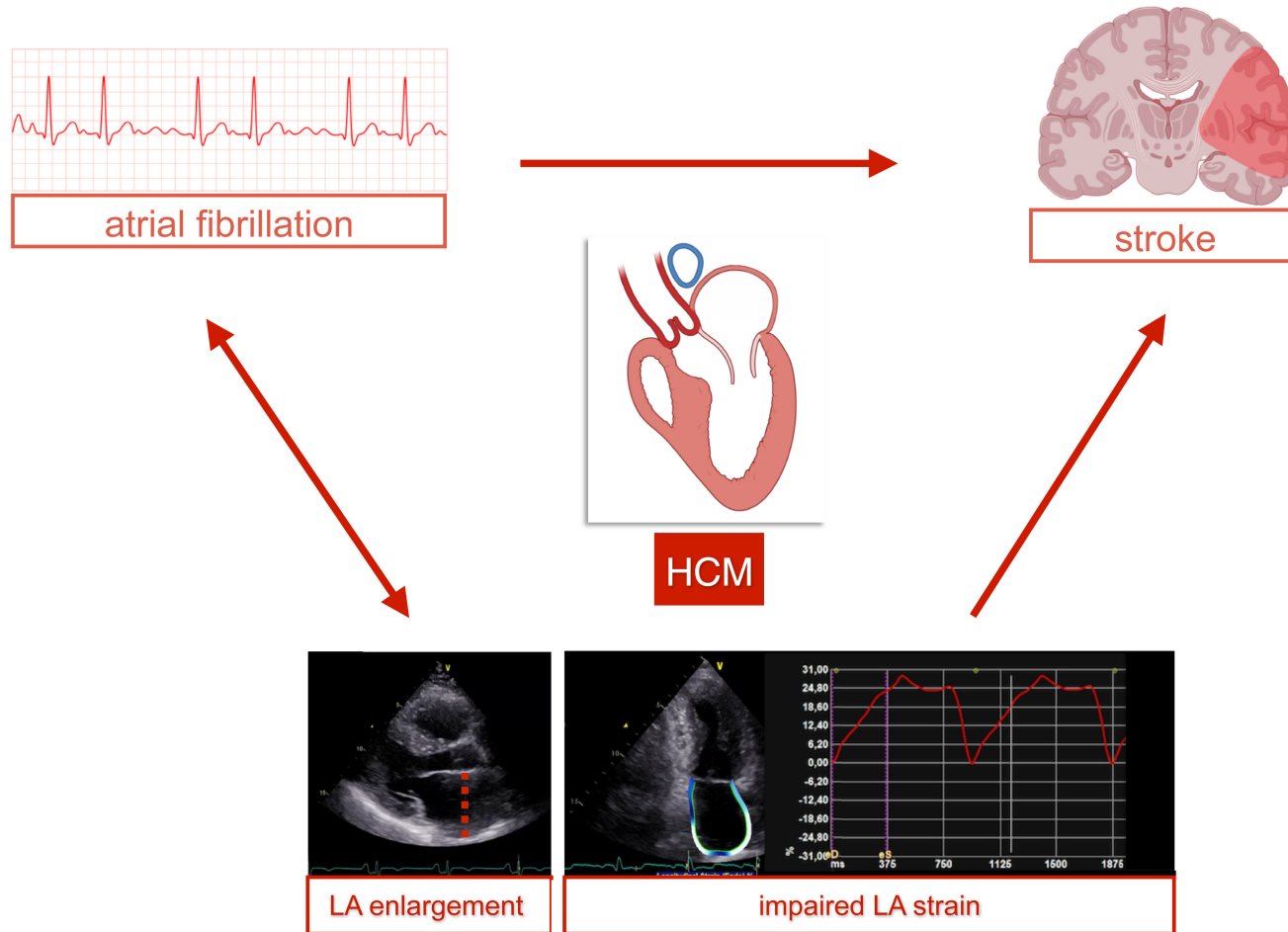


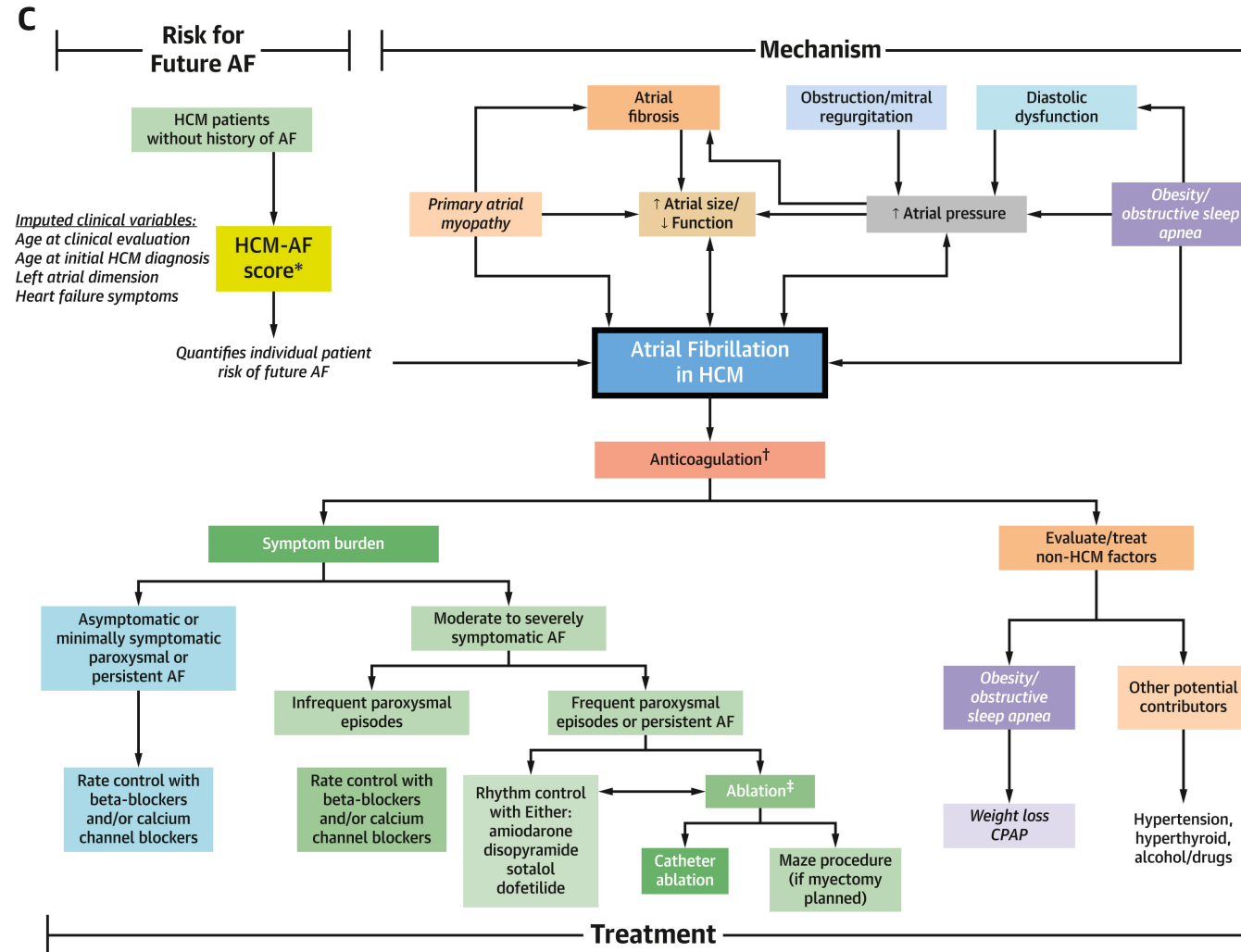




Fumagalli C. et al. Canadian Journal of Cardiology, 2024; 40, 876-886

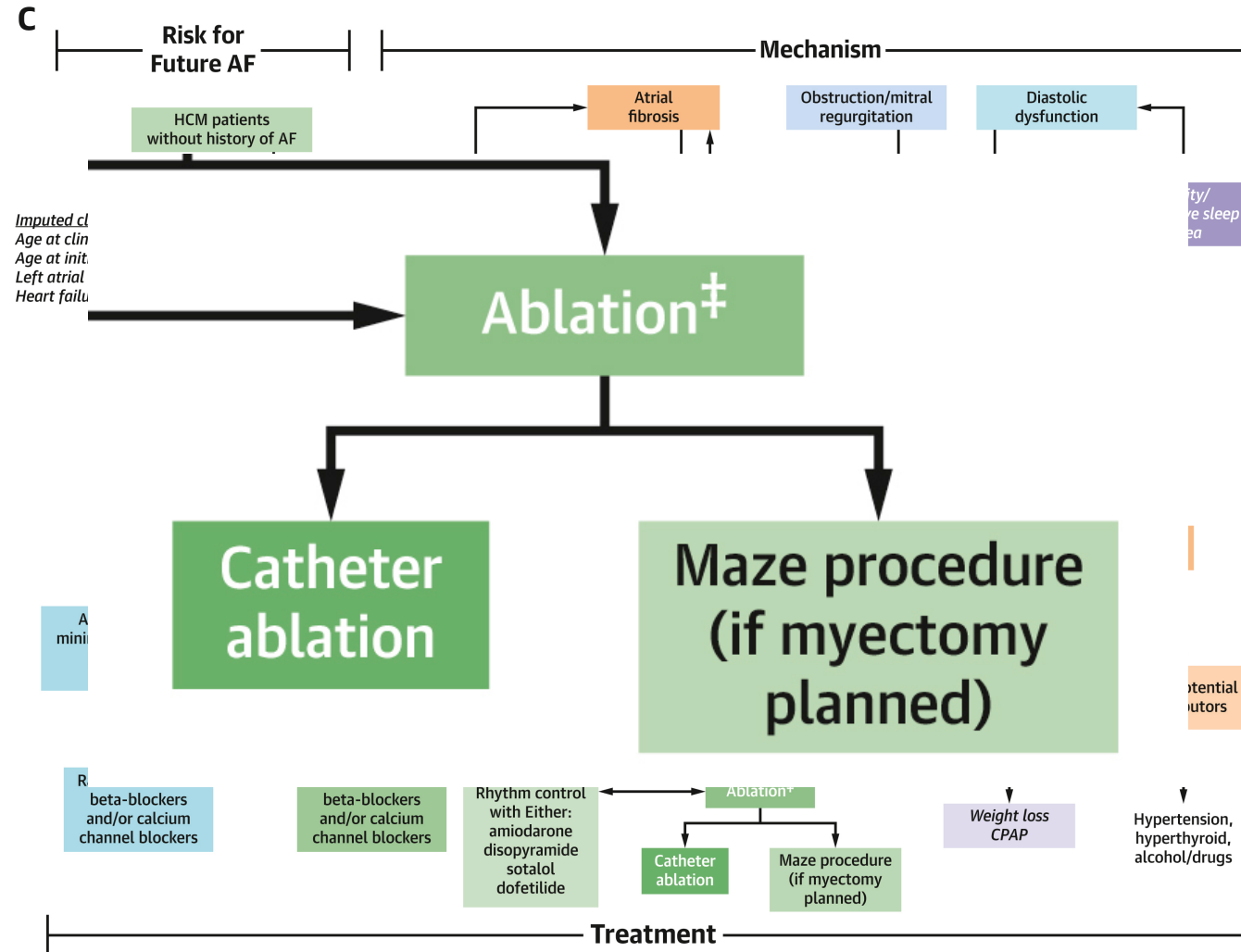






Maron BJ, et al. J Am Coll Cardiol. 2022;79(4):390-414.





Maron BJ, et al. J Am Coll Cardiol. 2022;79(4):390-414.



CLINICAL PRACTICE GUIDELINES

2024 AHA/ACC/AMSSM/HRS/PACES/SCMR
Guideline for the Management of Hypertrophic
Cardiomyopathy: A Report of the American Heart
Association/American College of Cardiology
Joint Committee on Clinical Practice Guidelines

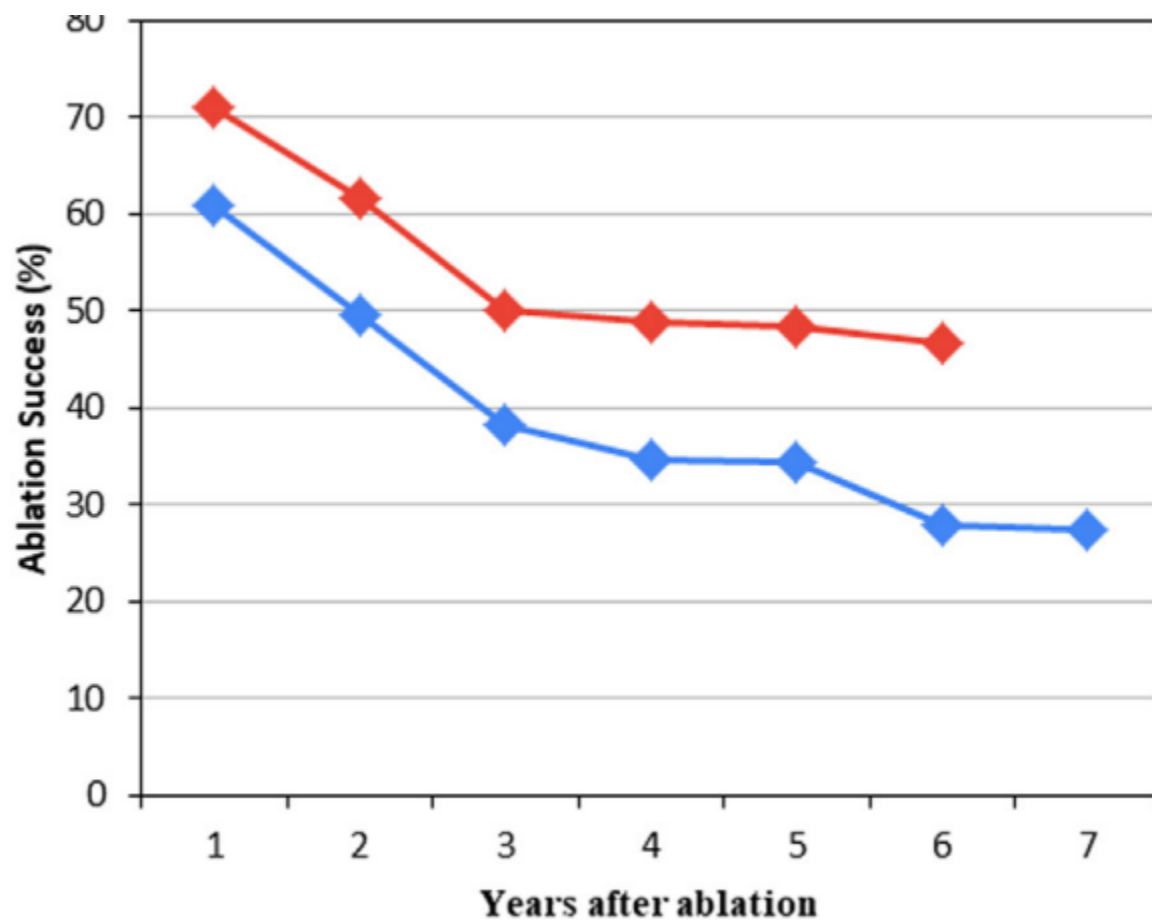
2a	B-NR	6. In patients with HCM and symptomatic AF, as part of an AF rhythm-control strategy, catheter ablation for AF can be effective when drug therapy is ineffective, contraindicated, or not the patient's preference. ^{12,25,26}
2a	B-NR	7. In patients with HCM and AF who require surgical myectomy, concomitant surgical AF ablation procedure can be beneficial for AF rhythm control. ^{13,27-29}

Ommen SR, et al. J Am Coll Cardiol. 2024 Jun 11;83(23):2324-2405.



Study, Year	Design	N° of pts	Follow-up (months)	Success 1st procedure (%)	Redo procedure (%)	Overall success (%)
Kilicaslan, 2006	Retrospective	27	11.4	52	26	70
Gaita, 2007	Retrospective	26	19	56	20	64
Bunch, 2008	Prospective	33	18	47	39	62
Di Donna, 2010	Retrospective	61	29	28	52	67
Derejko, 2013	Prospective	30	22.8	33	43	53
Santangeli, 2013	Prospective	43	42	49	58	94
Hayashi, 2014	Retrospective	17	29	53	47	82
Okamatsu, 2014	Retrospective	22	21	45	14	59
Moussigbrodt, 2015	Prospective	22	-	41	36	54
Bassiouny, 2015	Retrospective	79	35	29	55	39
Contreras, 2015	Retrospective	40	54	35	35	48
OVERALL	2/3 Retrospect.	400	28	42	38	64





Success rate following single procedure was 40.4%

Success rate following multiple procedures was 51.4%



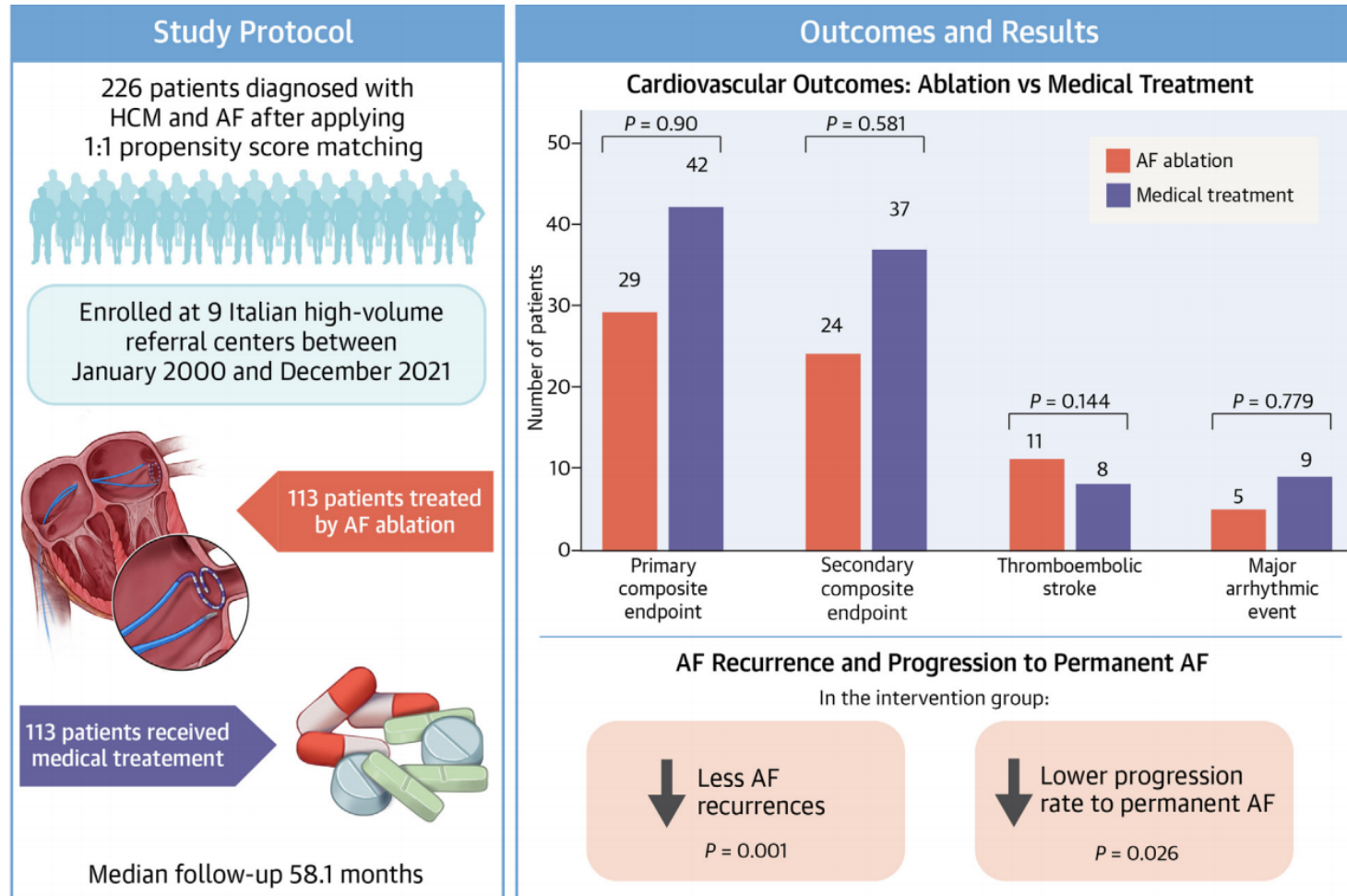
Catheter ablation of atrial fibrillation in hypertrophic cardiomyopathy: A proportional meta-analysis and systematic review of single-arm studies

KEY FINDINGS

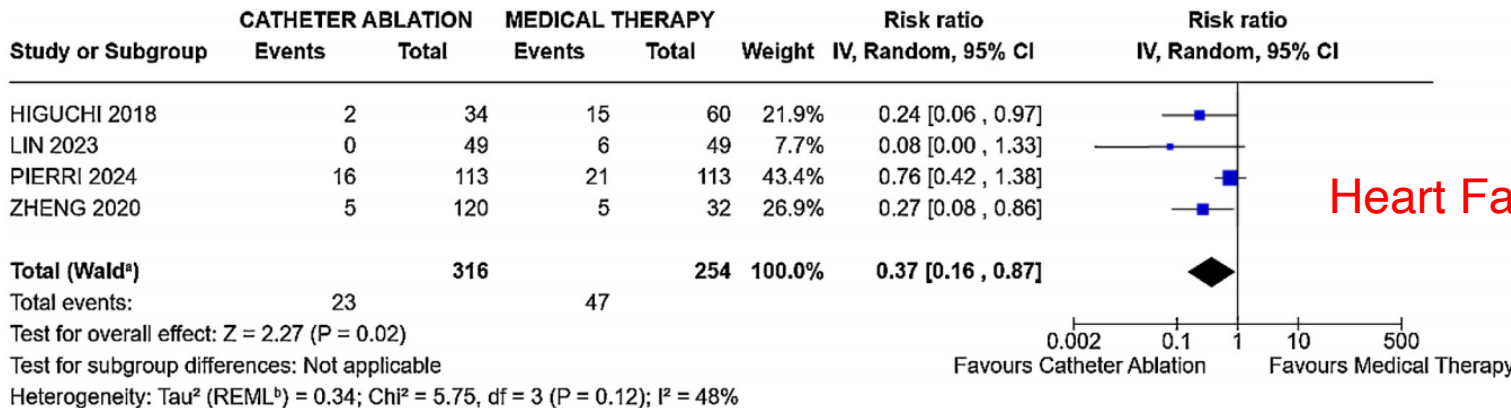
- Atrial fibrillation ablation is safe but less effective in patients with hypertrophic cardiomyopathy (HCM) as compared with patients with non-HCM substrate.
- Many patients with HCM required redo ablation and antiarrhythmic drugs to maintain normal sinus rhythm.
- Successful atrial fibrillation ablation in patients with HCM resulted in significant improvement in New York Heart Association functional class in our study.

Latif A, et al. Heart Rhythm O2. 2023 Jan 13;4(4):258-267.

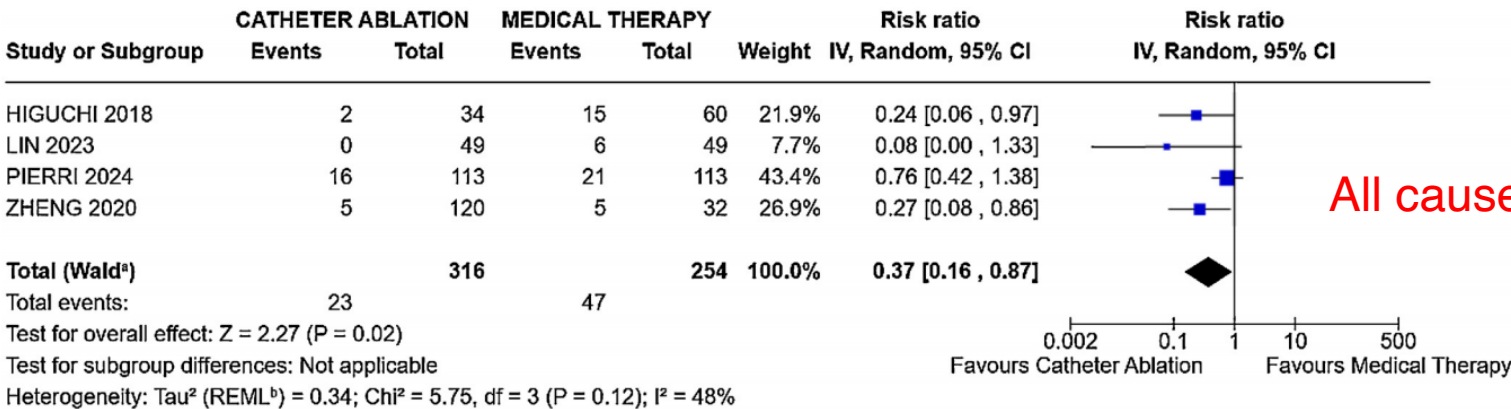




Atrial Fibrillation Catheter Ablation in Patients With Hypertrophic Cardiomyopathy: A Systematic Review and Meta-analysis



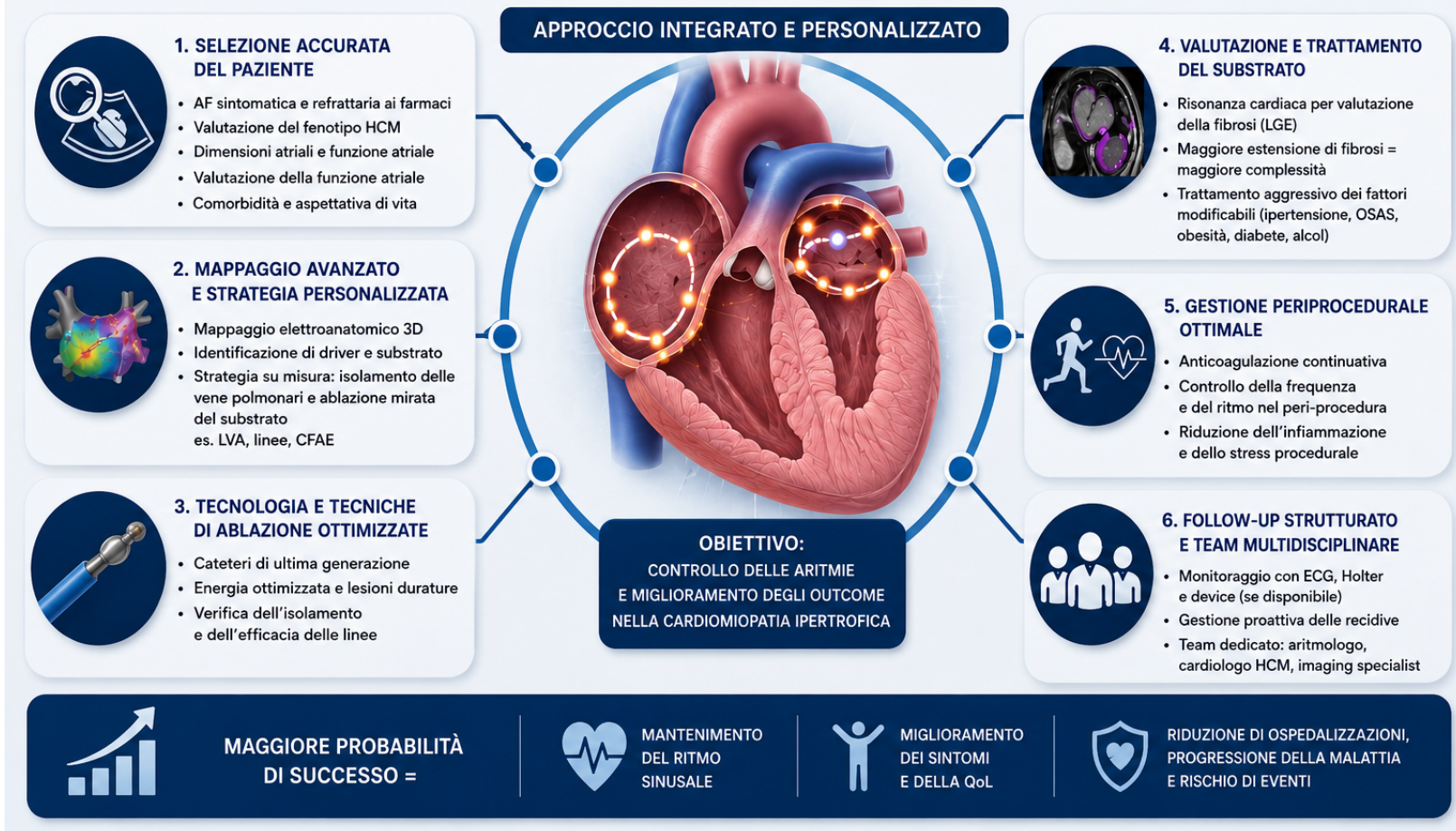
570pts , 316 (55%) CA



Latif A, et al. Heart Rhythm O2. 2023 Jan 13;4(4):258-267.

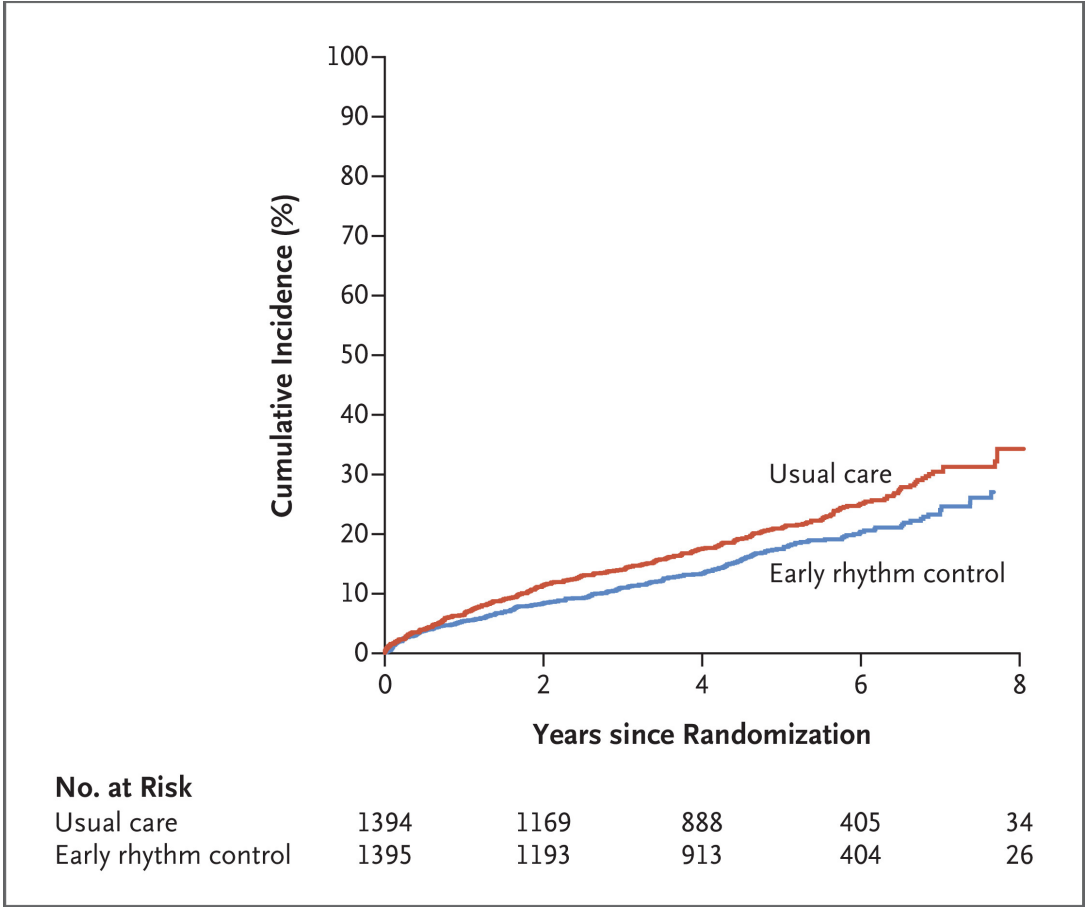


COME POSSIAMO AUMENTARE IL TASSO DI SUCCESSO?



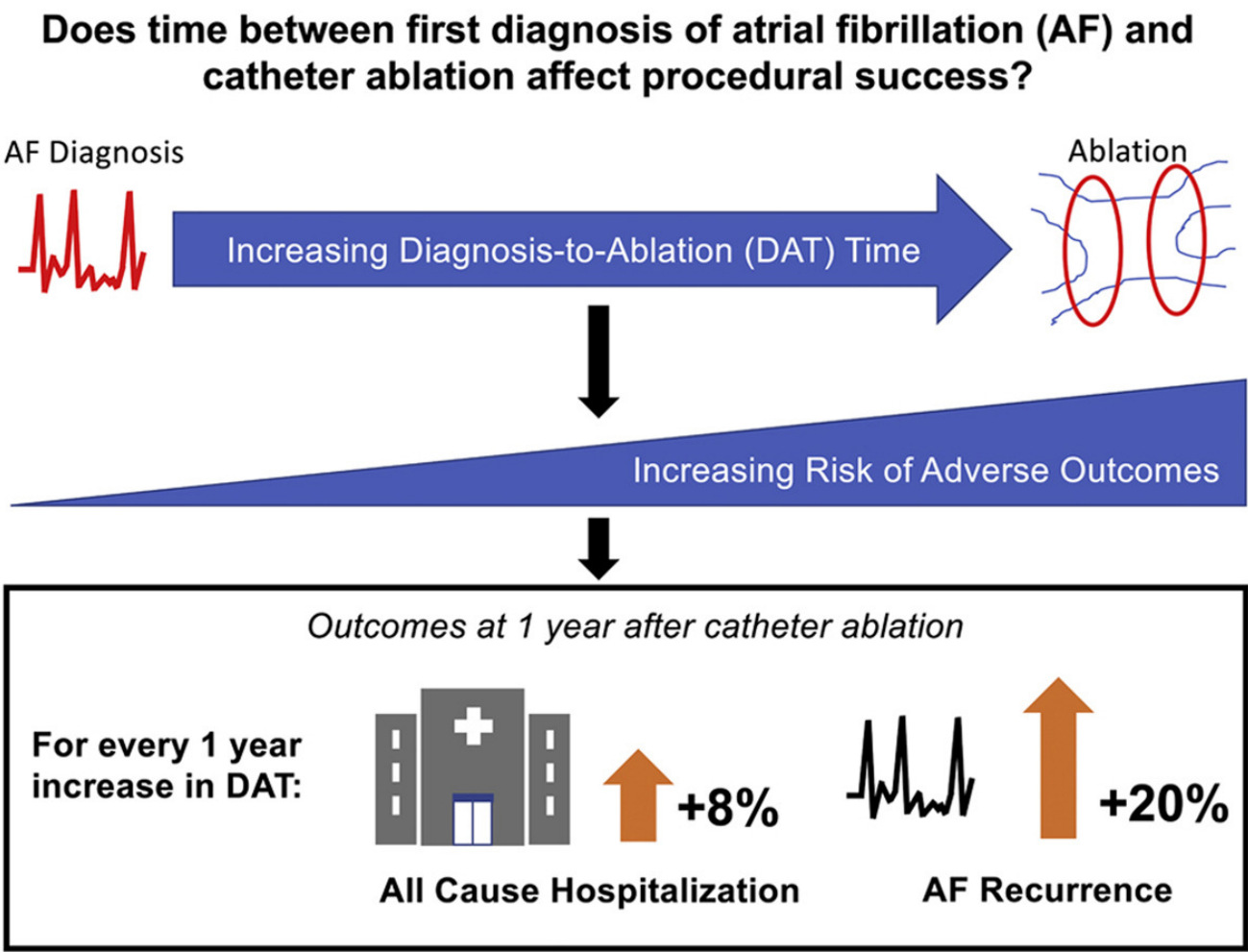
The NEW ENGLAND JOURNAL of MEDICINE

Early Rhythm-Control Therapy in Patients with Atrial Fibrillation



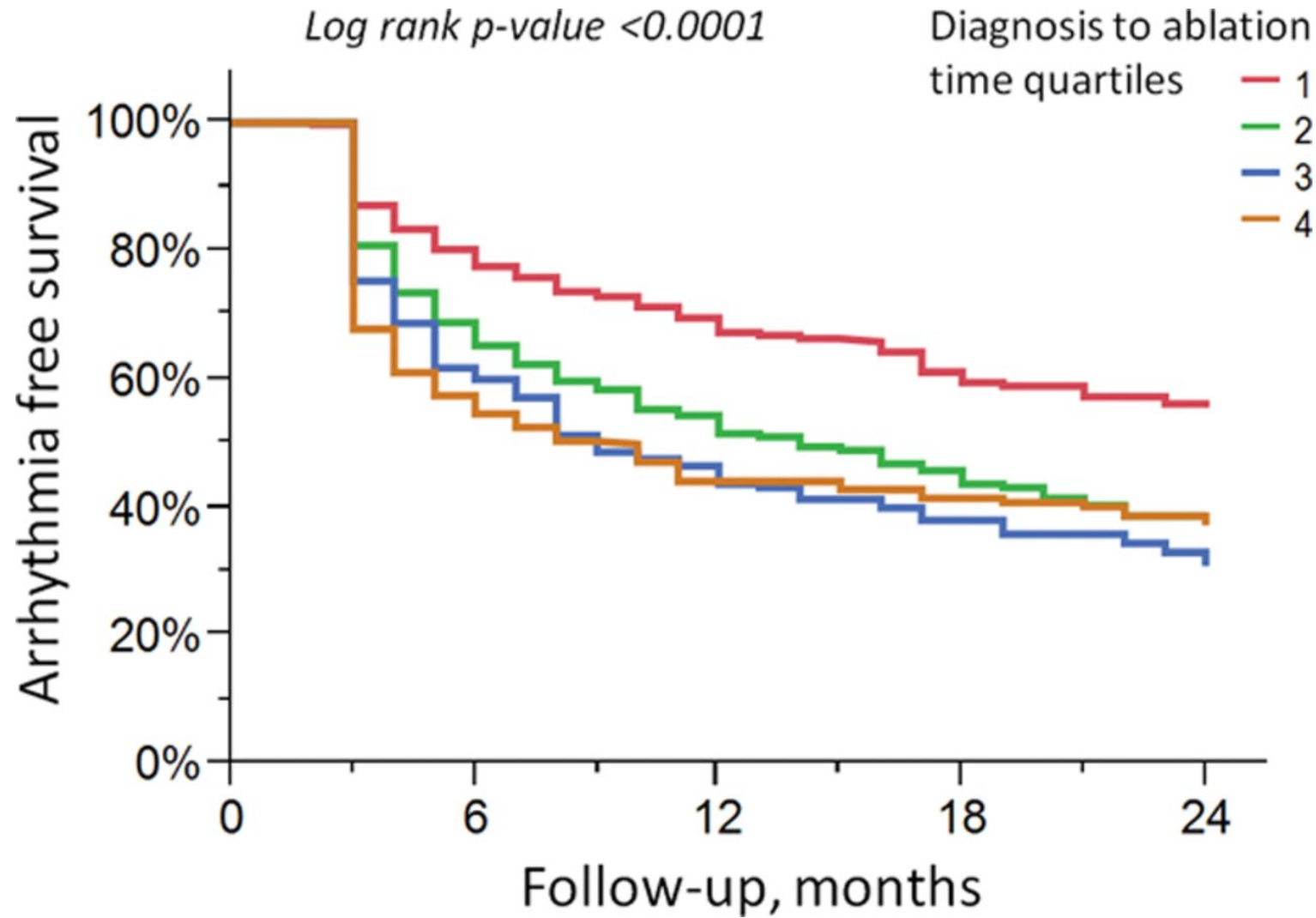
Kirchhof P., et al. N Engl J Med 2020;383:1305-1316





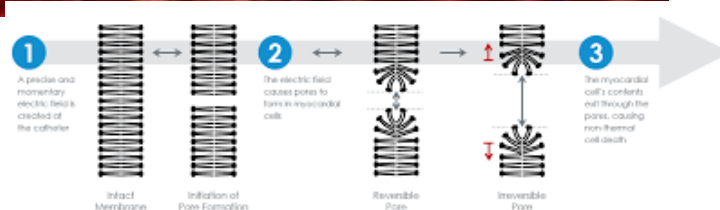
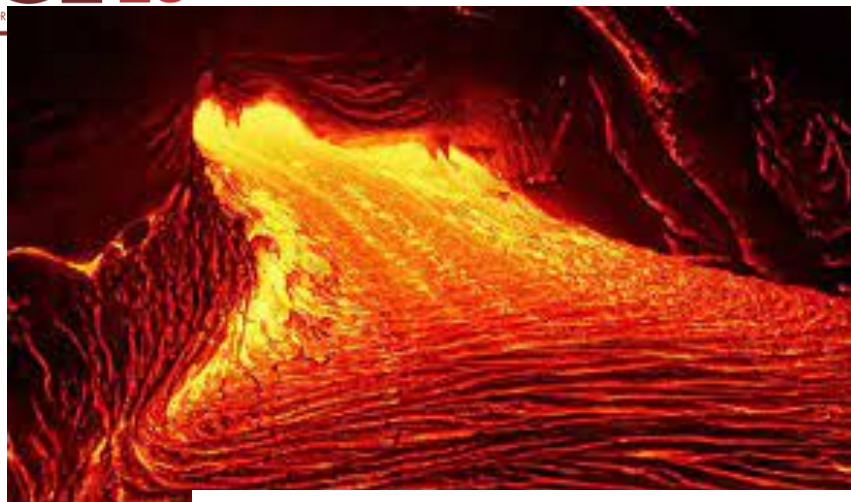
Chew D et al. Heart Rhythm O2, 2021; 3, 23-31





Hussein AA et al Circ Arrhythm Electrophysiol. 2016;9(1):e003669.



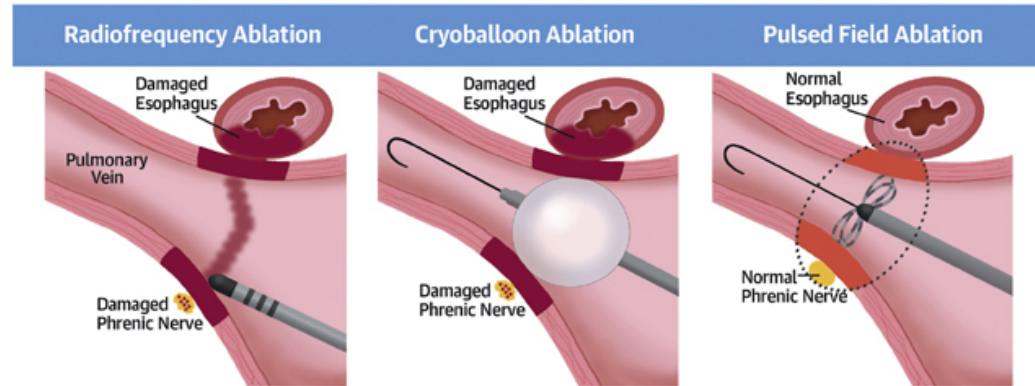


Energy source for durable lesions:

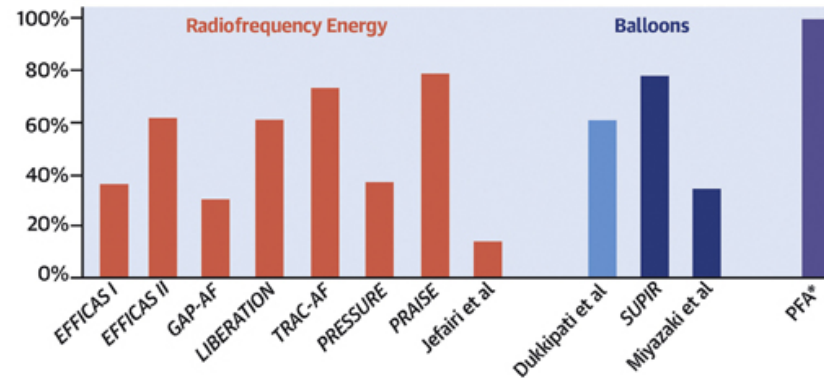
high power RF, cryoablation or pulse field ablation?



CENTRAL ILLUSTRATION: Pulmonary Vein Isolation for Atrial Fibrillation by Pulsed Field Ablation



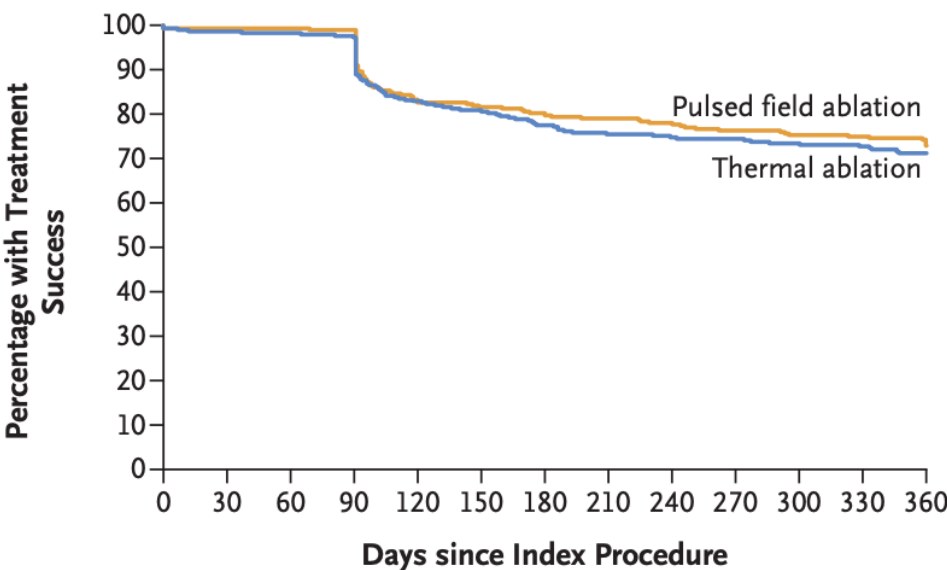
Frequency of Patients With ALL PVs Durably Isolated



Reddy, V.Y. et al. J Am Coll Cardiol. 2019;74(3):315-26.



Pulsed Field or Conventional Thermal Ablation for Paroxysmal Atrial Fibrillation



No. at Risk

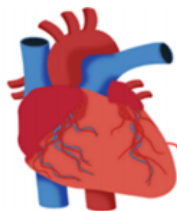
Pulsed field ablation	301	298	238	228	176
Thermal ablation	296	292	228	219	150

Treatment Success (%)

Pulsed field ablation	99.3	99.0	79.7	76.4	73.1
Thermal ablation	98.7	97.3	77.5	74.5	71.3

Reddy VY et al. N Engl J Med. 2023;389(18):1660-1671.





Pulsed field ablation is the standard technique for all candidates of atrial fibrillation ablation?



Effective in achieving PVI compared to thermal ablation without catastrophic complications e.g. atrio-esophageal fistula or PV stenosis

Efficacy of PFA is not superior to thermal ablation across AF types especially persistent and longstanding persistent AF



Reproducibility and versatility in ablating areas previously not able to due to thermal limitations

Long term lesions durability and real world outcomes still need to be assessed



Procedural efficiency leads to shorter procedure time, more procedures per lab per unit time, same day discharge

PFA specific complications can be equally concerning: coronary artery spasms, hemolysis

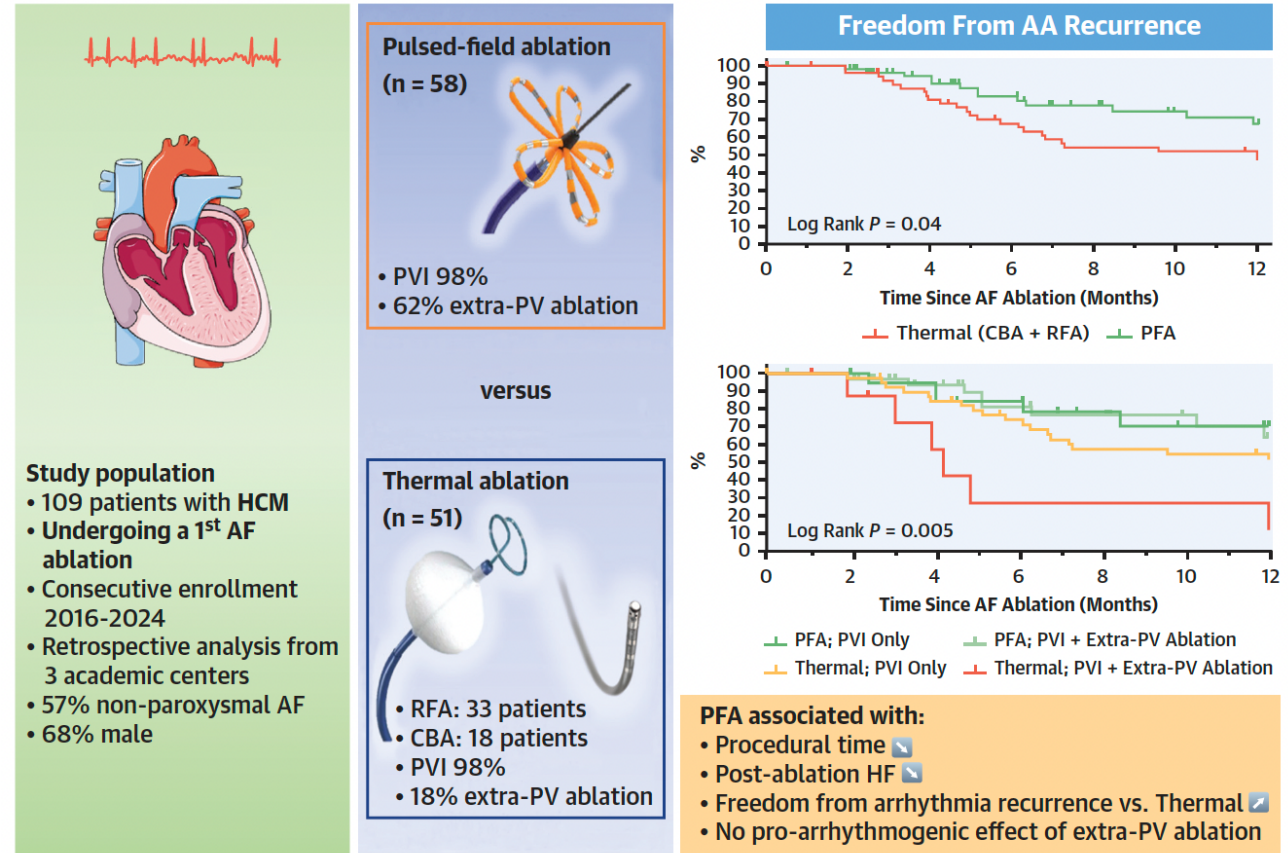


Reduces chronic fibrosis and preserves LA function

Upfront cost burden adopting new PFA systems, learning curves, accessibility.



Pulsed-Field vs Thermal Catheter Ablation of Atrial Fibrillation in Patients With Hypertrophic Cardiomyopathy



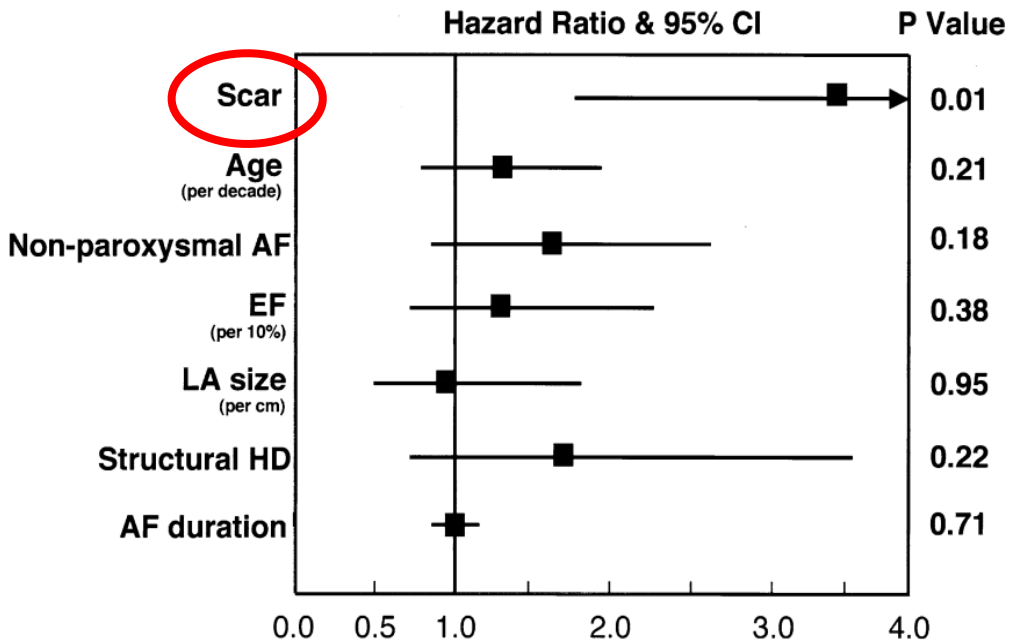
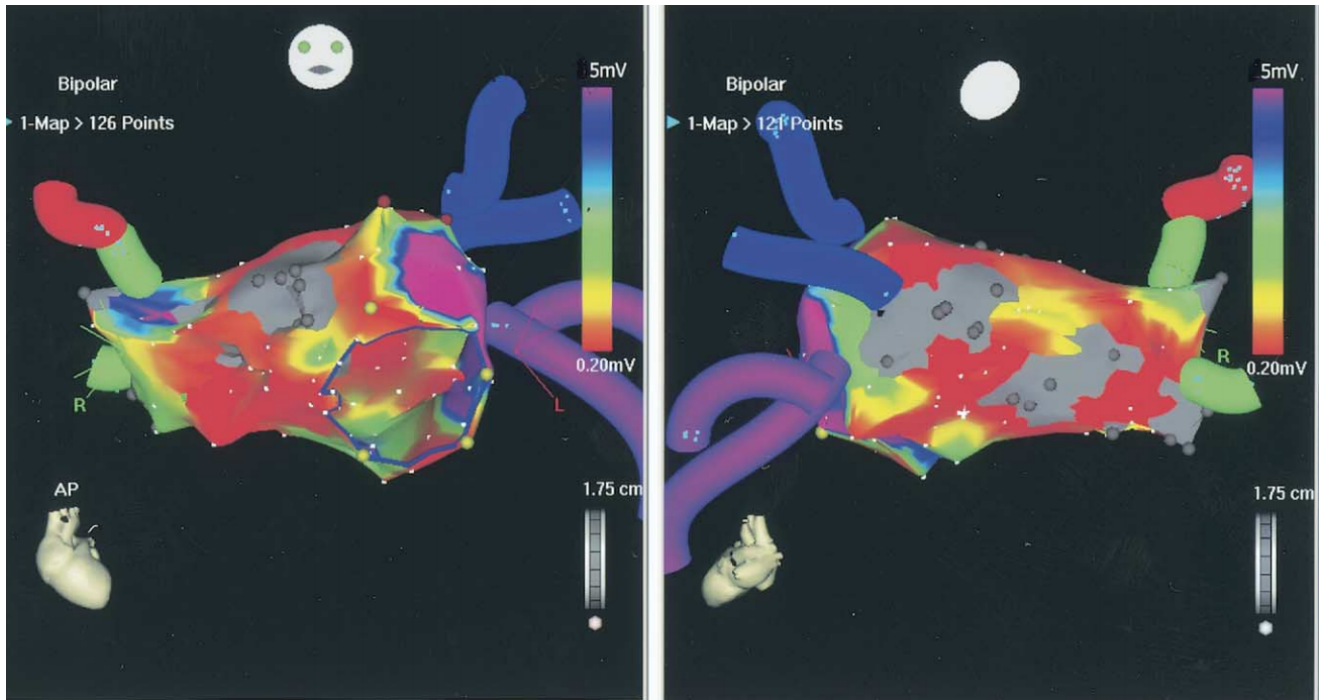
Gribissa S, et al. JACC Clin Electrophysiol. 2025;11(6):1205-1215.



The optimal ablative
approach in pts with AF and HCM?

Recognize the unique substrate and
vulnerability to LA remodeling.



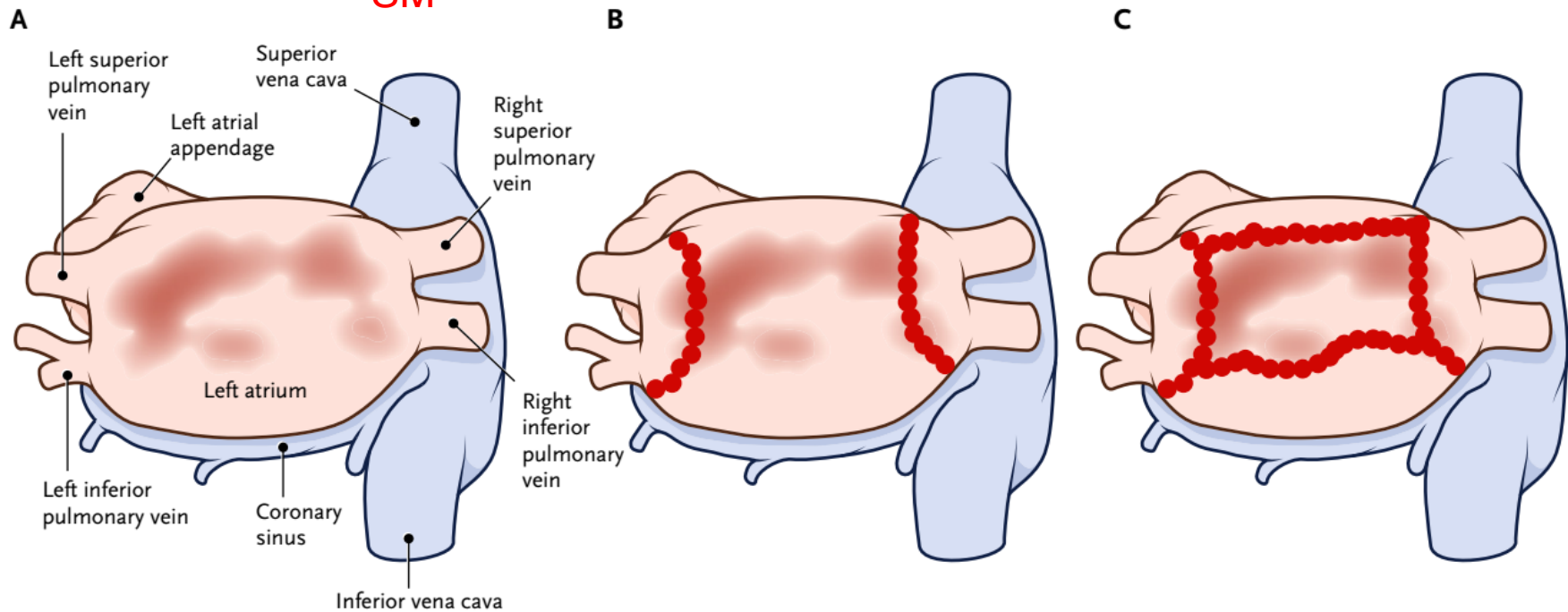


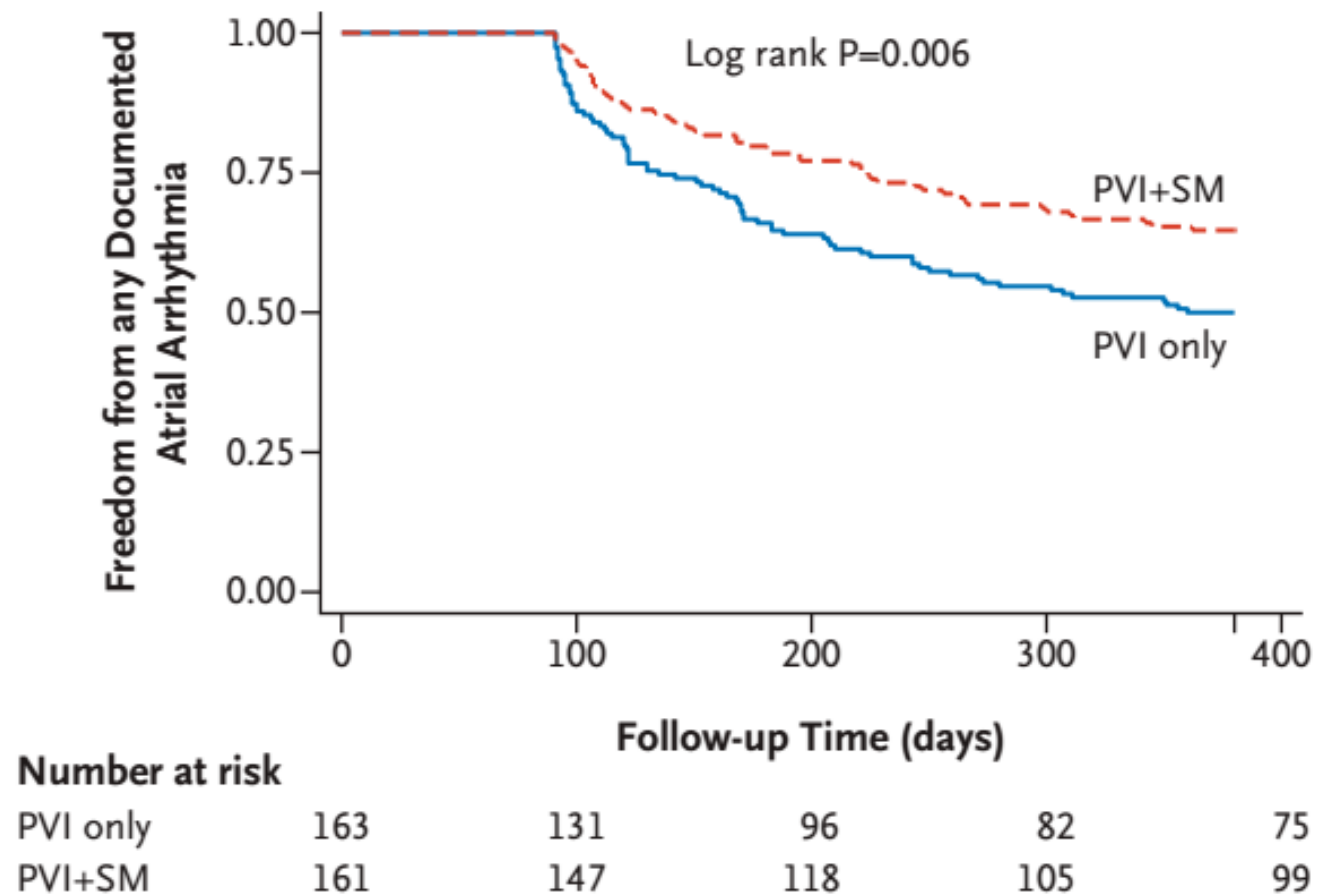
Verma A et al. J Am Coll Cardiol. 2005;45(2):285-292.



Low-Voltage Myocardium-Guided Ablation Trial of Persistent AF ERASE study

324 pts pers AF 163 PVI only 161 PVI + SM



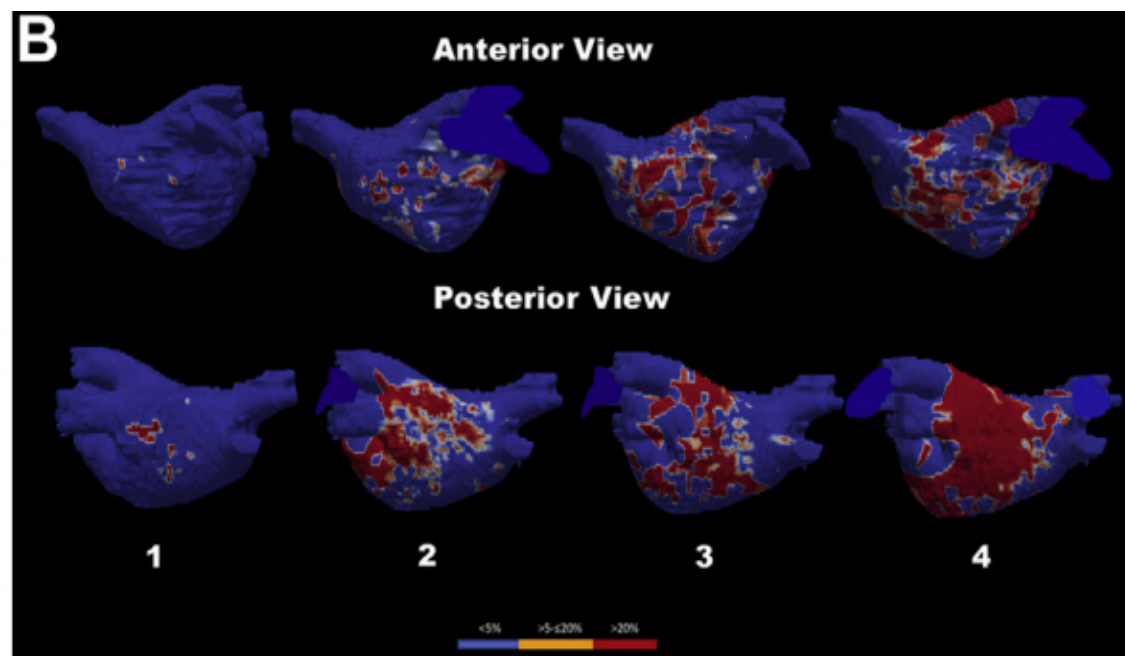
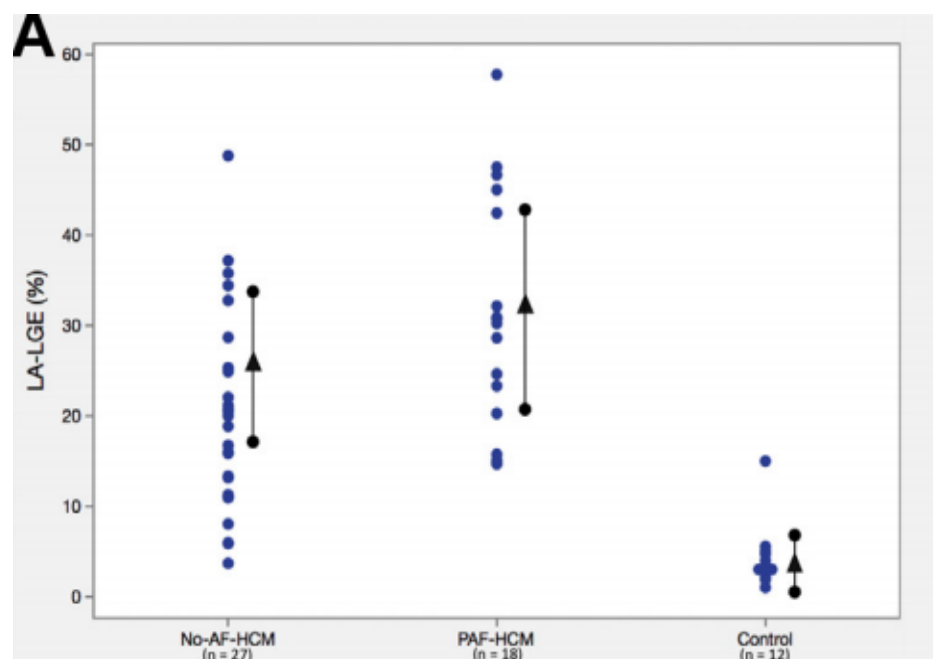


Huo Y et al.. NEJM Evid. 2022;1(11):EVIDoa2200141.



Hypertrophic Cardiomyopathy Patients With Paroxysmal Atrial Fibrillation Have a High Burden of Left Atrial Fibrosis by Cardiac Magnetic Resonance Imaging

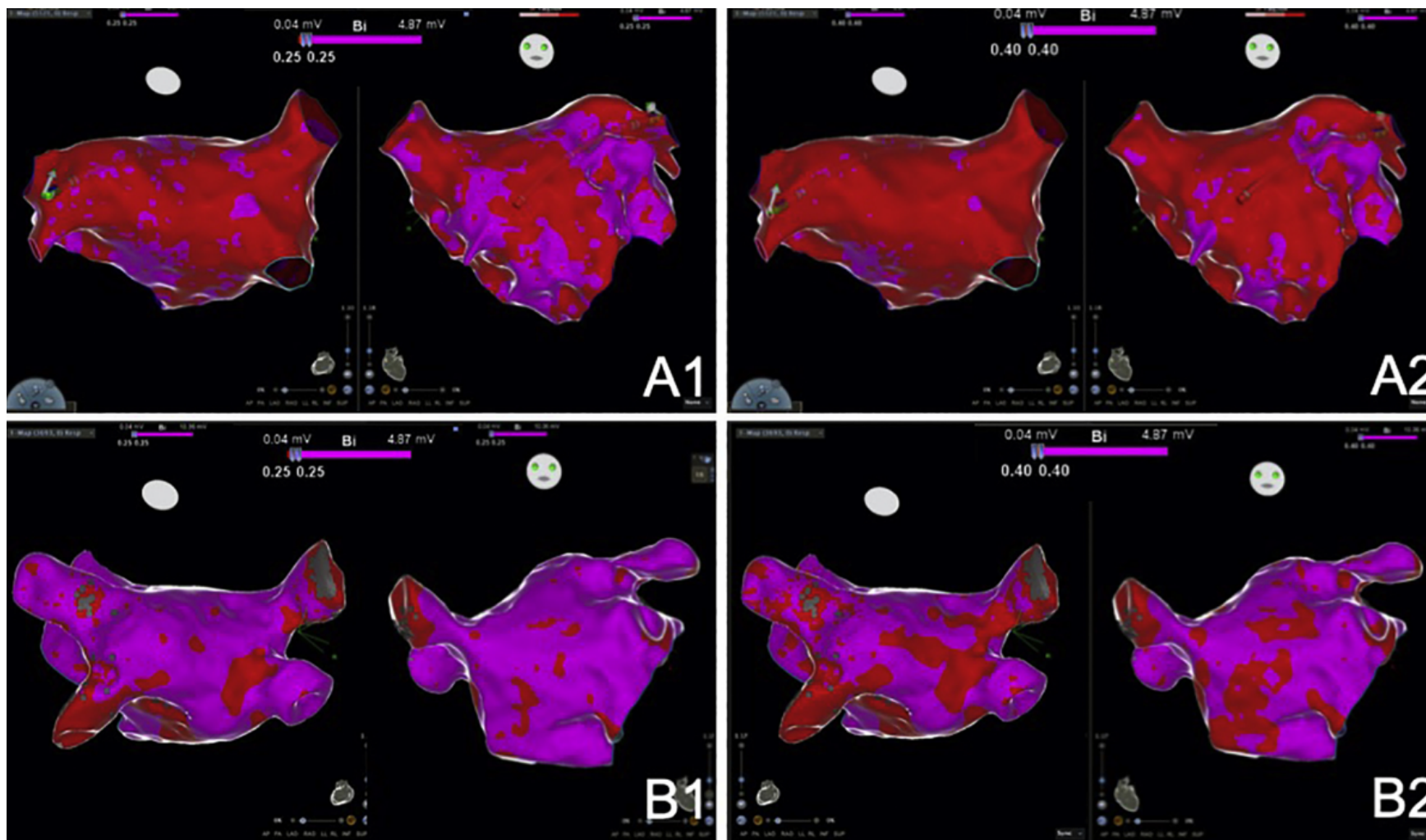
45 HCM pts , 18 PAF SR



Sivalokanathan S, et al. JACC Clin Electrophysiol. 2019 Mar;5(3):364-375



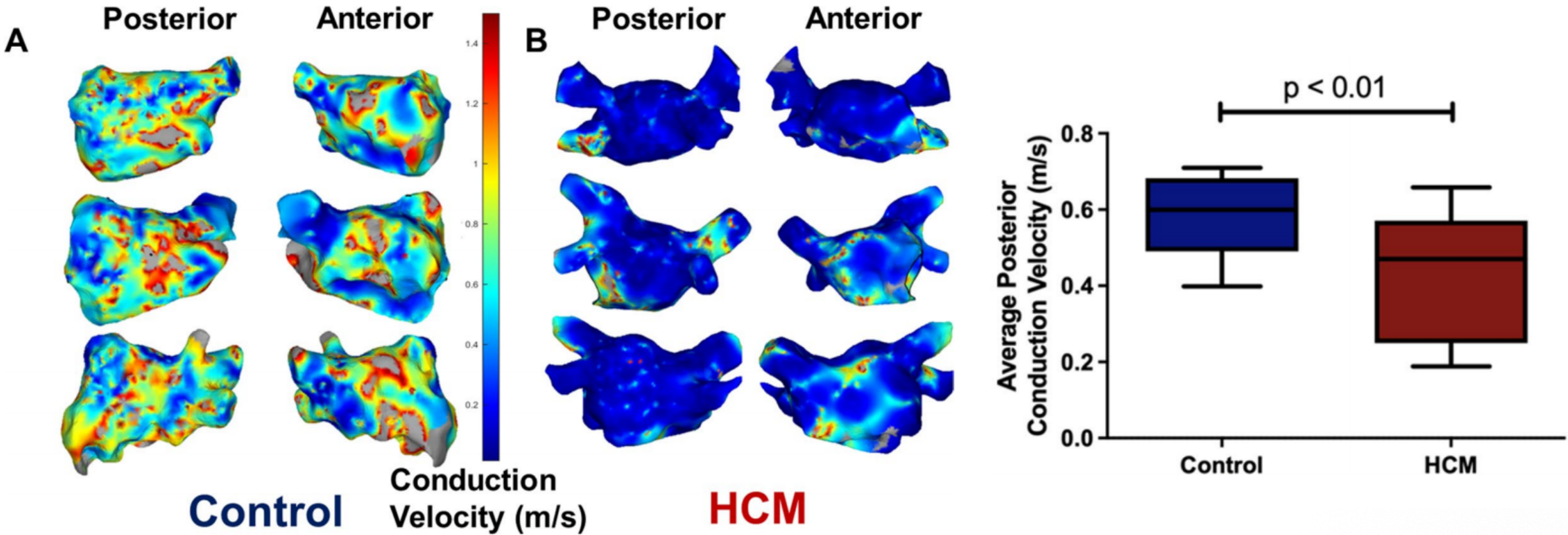
Pers AF and
recurrences

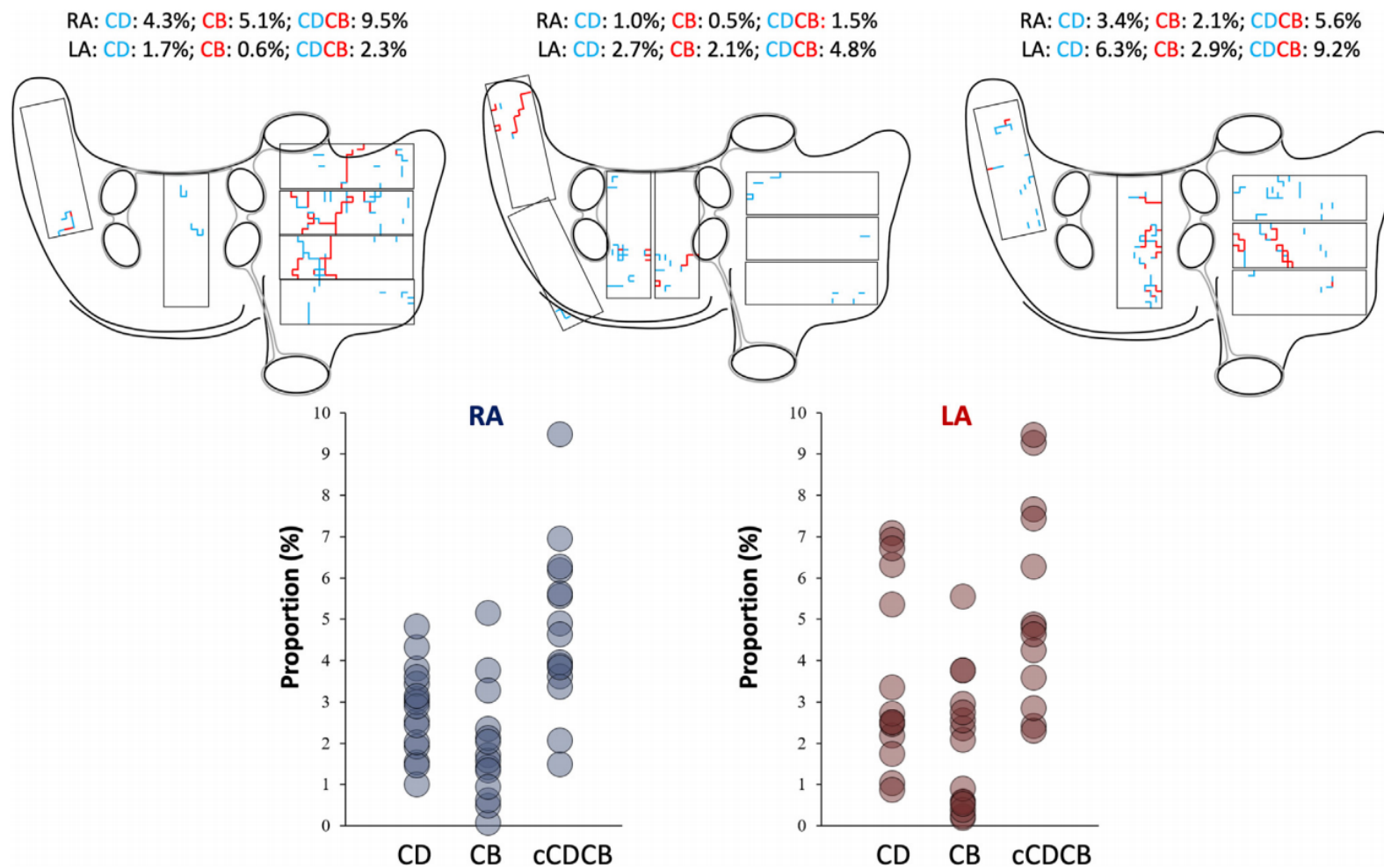


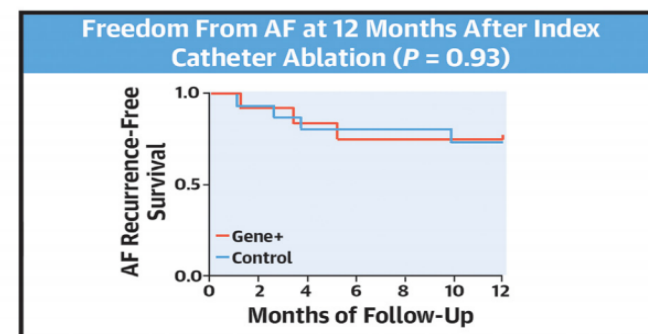
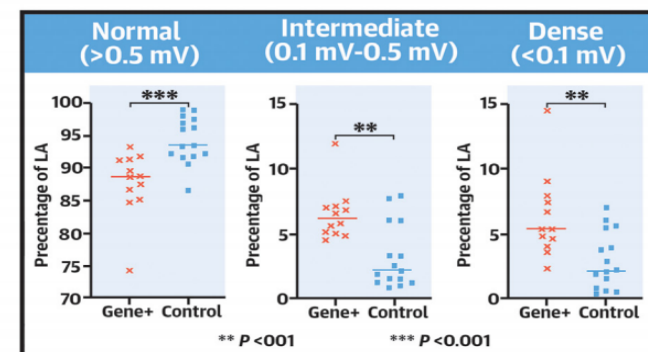
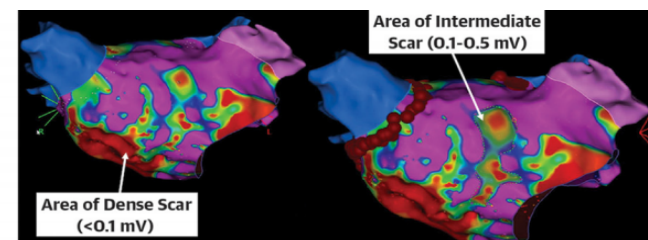
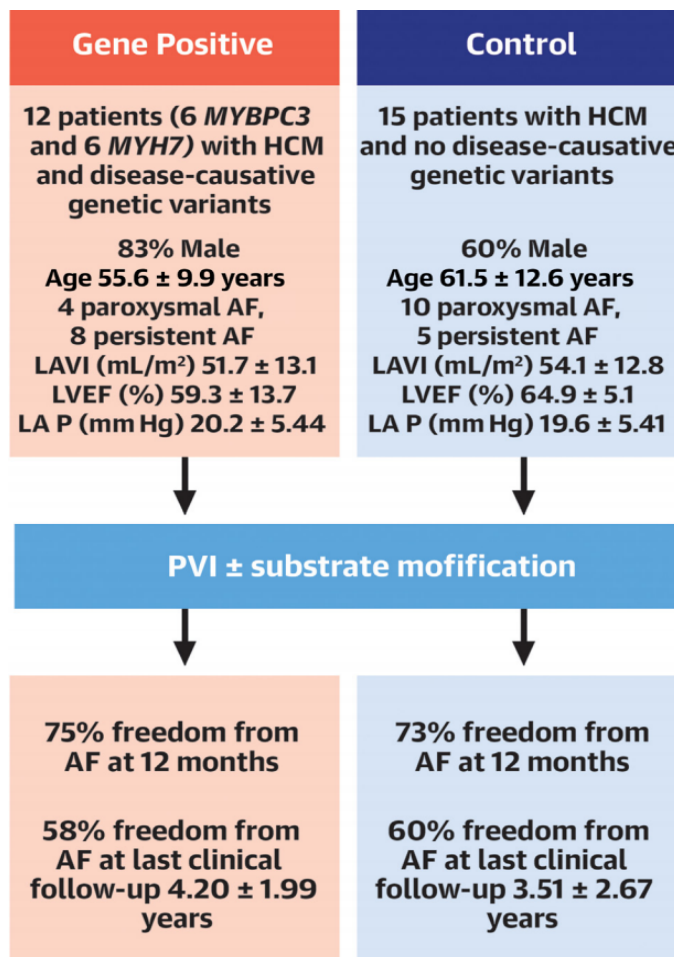
PAF and SR
maintenanc
e

Efremidis M., J Electrocardiol. 2021 Nov-Dec;69:87-92



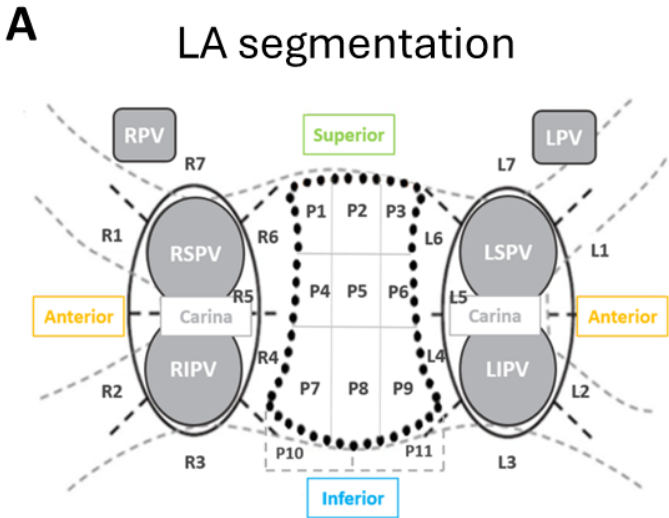






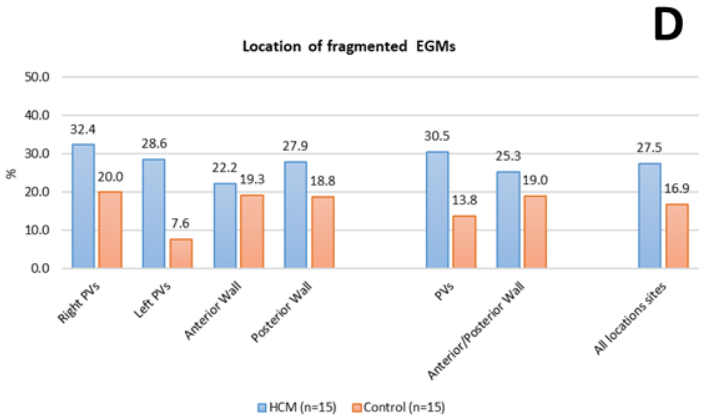
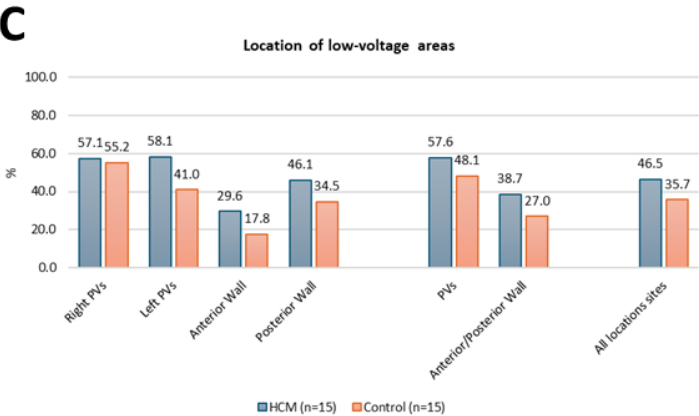
Haq IU, et al. JACC Clin Electrophysiol. 2024;10(7):1380-1391.

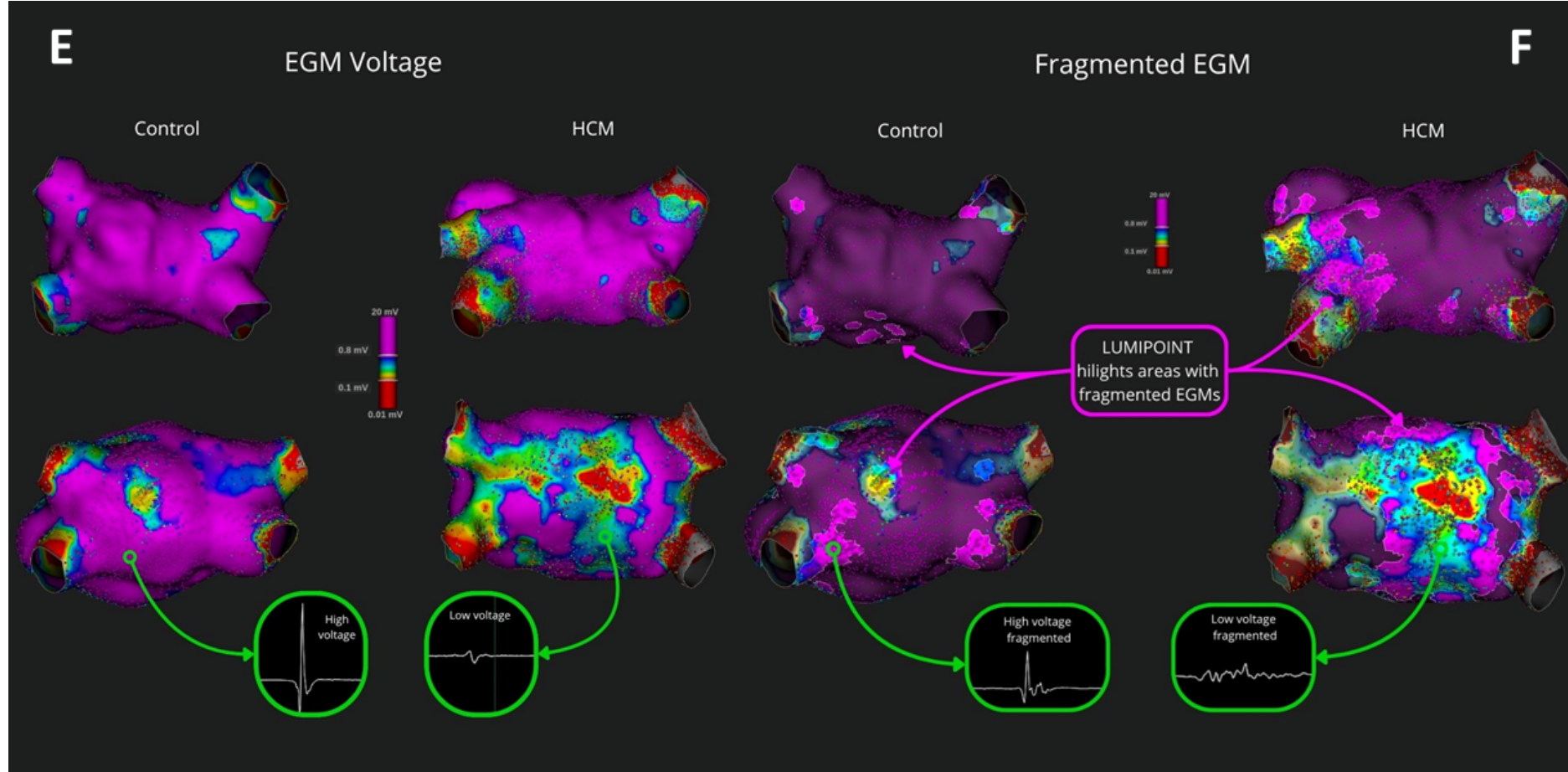




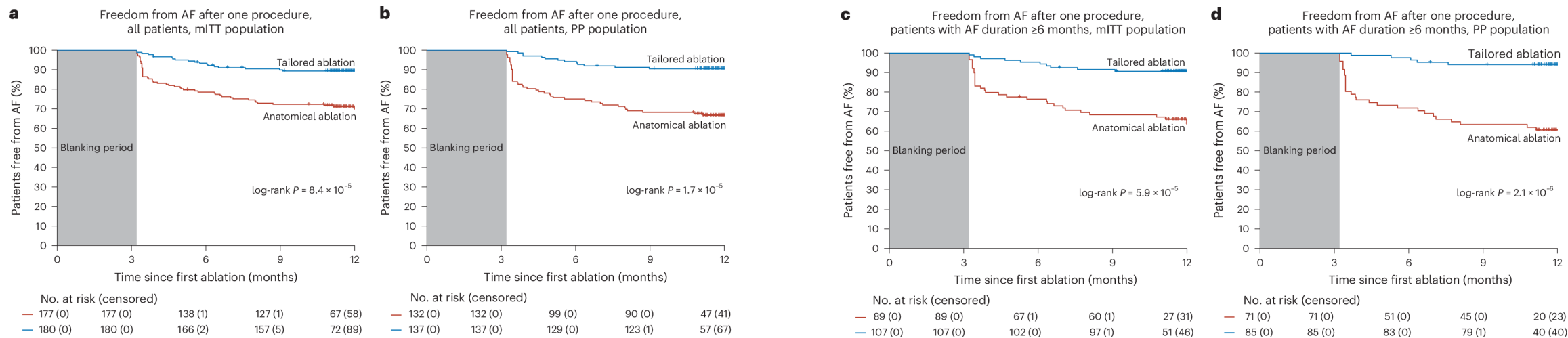
B

Parameter	HCM (n=15)	Control (n=15)	p
Age, y	57[48-65]	70[66-75]	0.001
Male, n (%)	9 (60)	11 (73.3)	0.699
BMI	27[26.7-29]	26[24.4-28.7]	0.136
LAVI, ml/m2	49[38-58]	47.9[35-54]	0.437
LA area, cm2	27[25-33]	25.5[23-29]	0.191
LVEF, %	60[57-65]	59[55-60]	0.187
Interventricular septum, mm	17[14.8-18]	12[11-12.5]	0.001
AA drugs, n (%)	8 (53.3)	10 (66.7)	0.710





Artificial intelligence for individualized treatment of persistent atrial fibrillation: a randomized controlled trial



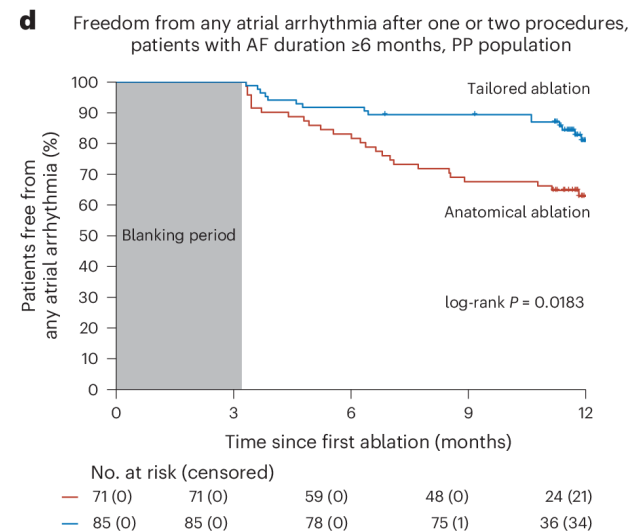
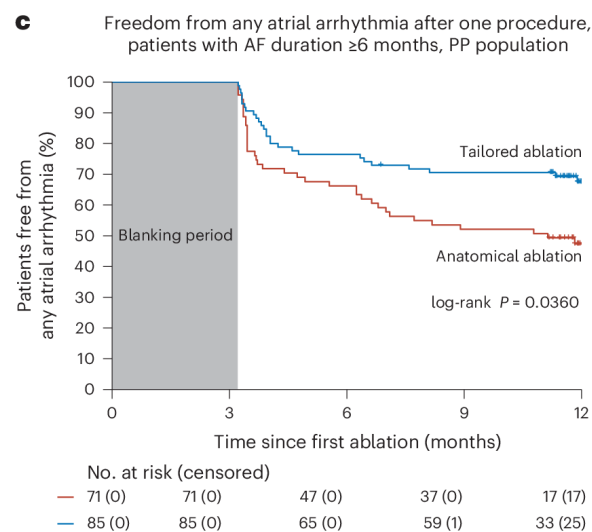
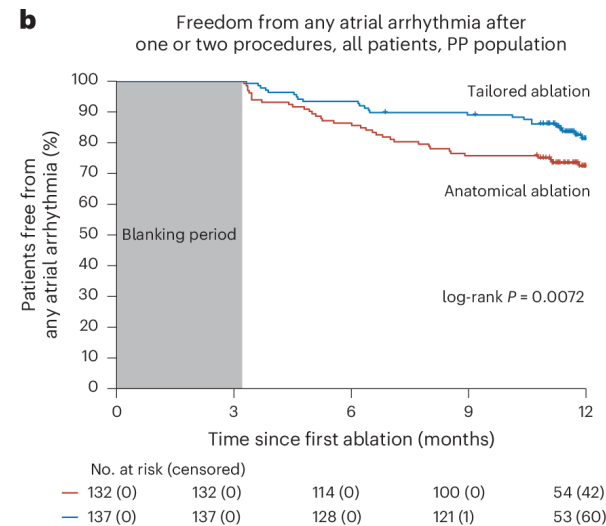
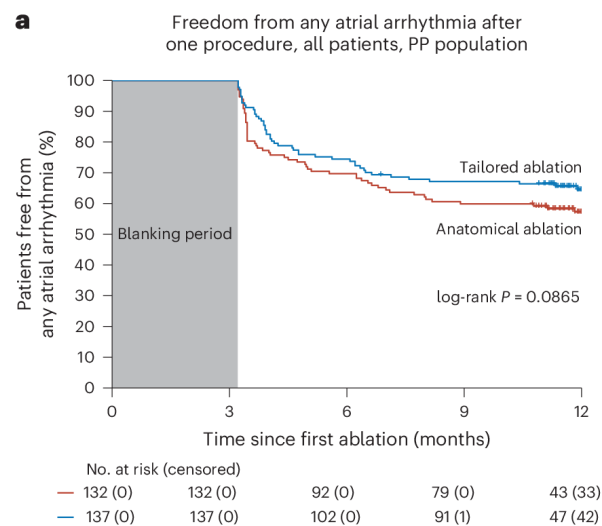
Deisenhofer I. et al. Nat Med 31, 1286–1293 (2025).



BUT...

Deisenhofer I. et al. Nat Med 31, 1286–1293 (2025).

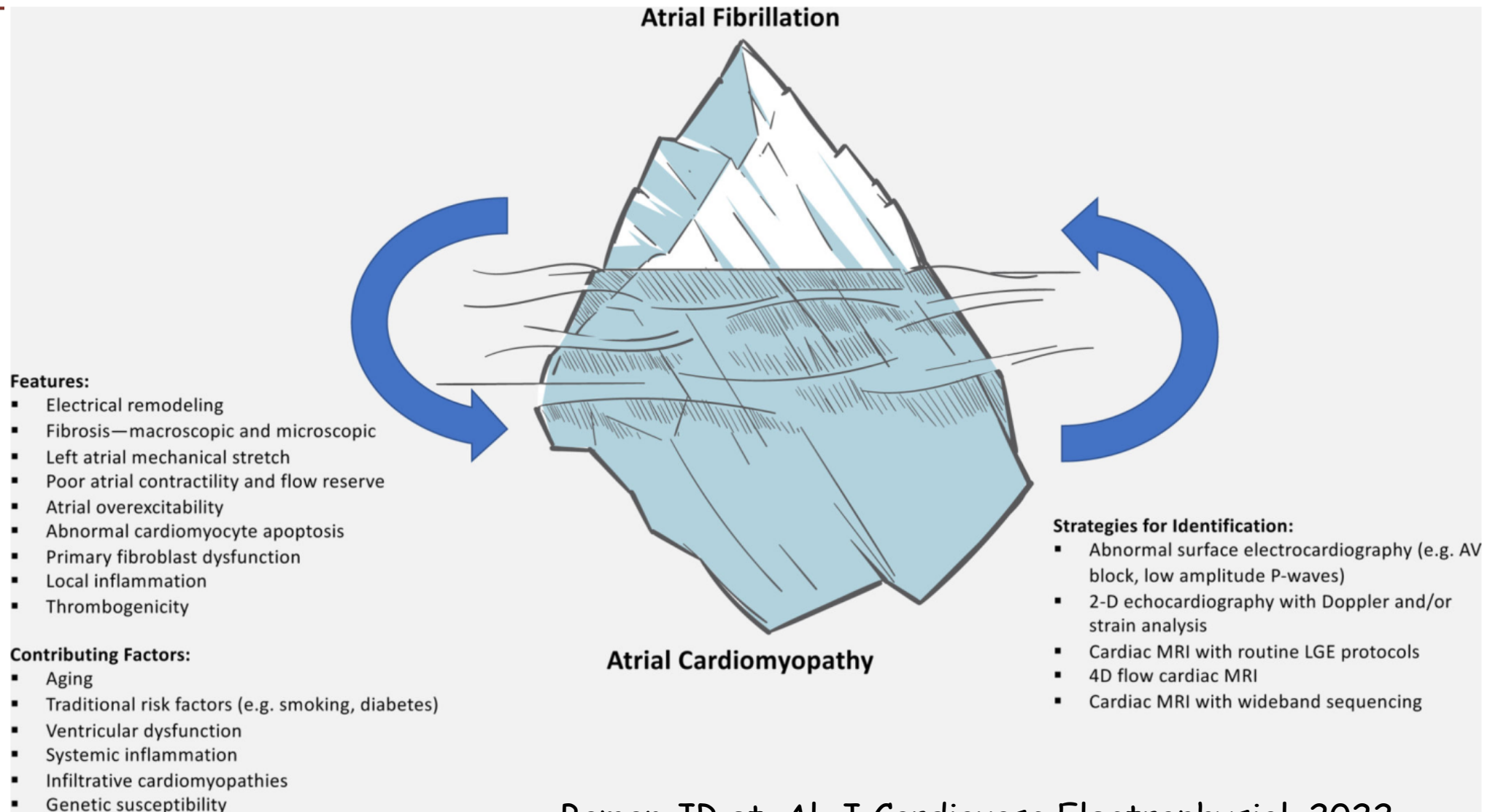




Deisenhofer I. et al. Nat Med 31, 1286–1293 (2025).



A complex interplay.....



Baman JR et. Al. J Cardiovasc Electrophysiol. 2022



- AF ablation in HCM pts should be considered, in earlier phases of pts with paroxysmal AF, higher degree of symptoms, and less structural LA disease;
But I still believe real advances in AF treatment will occur in basic science labs
- For pts with non-PAF careful risk-benefit assessment and shared decision making should take place;
not ablation labs
- the presence of LA cardiomyopathy with respect to the progression of the disease might have important implications in CA outcomes.
JMM

