Α΄ ΚΑΡΔΙΟΛΟΓΙΚΗ ΚΛΙΝΙΚΗ
ΚΑΙ ΟΜΩΝΥΜΟ (Α' ΚΑΡΔΙΟΛΟΓΙΚΟ – ΑΙΜΟΔΥΝΑΜΙΚΟ) ΕΡΓΑΣΤΗΡΙΟ

ΕΘΝΙΚΟ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟ
ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
ΙΑΤΡΙΚΗ ΣΧΟΛΗ

Κολπική μαρμαρυγή. Ένας αόρατος δολοφόνος. Θεραπευτική αντιμετώπιση

Δ. Τσιαχρής
Επίκουρος Καθηγητής Καρδιολογίας
Πανεπιστήμιο Αθηνών
Athens Heart Center

Clinical Presentation

Asymptomatic or Silent (!)

Symptomatic

Palpitations, dyspnoea, fatigue,

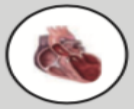
Chest tightness/pain, poor effort tolerance, dizziness, syncope, disordered sleep, etc.

Haemodynamically unstable

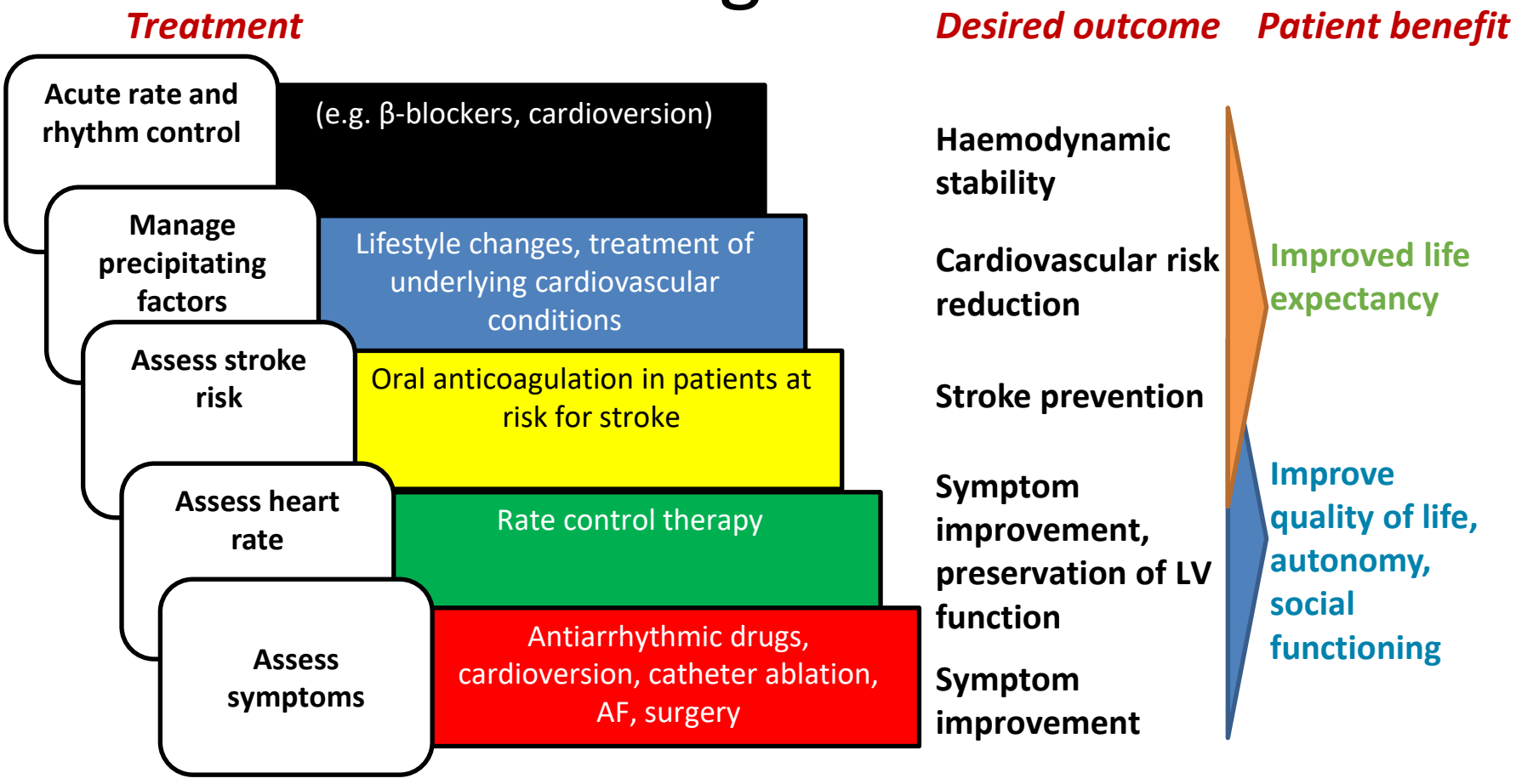
- Syncope
- Symptomatic hypotension
- Acute HF, pulmonary oedema
- Ongoing myocardial ischaemia
- Cardiogenic shock

Haemodynamically stable

AF-related OUTCOMES

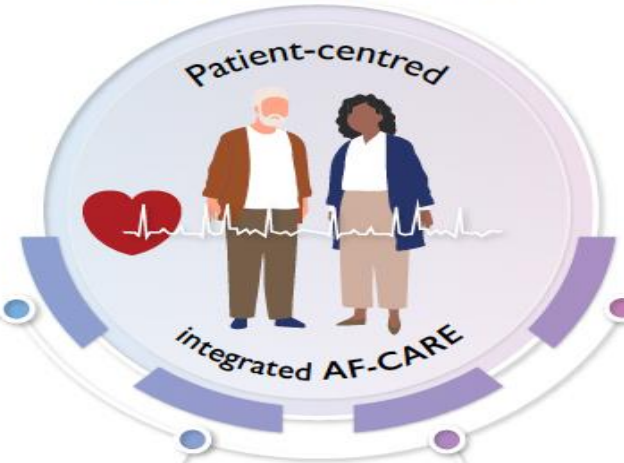
AF-Related Outcome	Frequency in AF	Mechanism(s)
Death 	1.5 - 3.5 fold increase	Excess mortality related to: • HF, comorbidities • Stroke
Stroke 	20-30% of all ischaemic strokes, 10% of cryptogenic strokes	• Cardioembolic, or • Related to comorbid vascular atheroma
LV dysfunction / Heart failure 	In 20-30% of AF patients	• Excessive ventricular rate • Irregular ventricular contractions • A primary underlying cause of AF
Cognitive decline / Vascular dementia 	HR 1.4 / 1.6 (irrespective of stroke history)	• Brain white matter lesions, inflammation, • Hypoperfusion, • Micro-embolism
Depression 	Depression in 16-20% (even suicidal ideation)	• Severe symptoms and decreased QoL • Drug side effects
Impaired quality of life 	>60% of patients	• Related to AF burden, comorbidities, psychological functioning and medication • Distressed personality type
Hospitalizations 	10-40% annual hospitalization rate	• AF management, related to HF, MI or AF related symptoms • Treatment-associated complications

The five domains of integrated AF management



- www.escardio.org/guidelines; Kirchhof P, et al. *Eur Heart J*. 2016;37:2893-2962.

Atrial fibrillation



C

Comorbidity and risk factor management

- Lifestyle help
- Primary care
- Cardiology
- Internal medicine
- Nursing care
- Other

A

Avoid stroke and thromboembolism

- Primary care
- Cardiology
- Neurology
- Nursing care
- Anticoagulation services
- e-Health

R

Reduce symptoms by rate and rhythm control

- Primary care
- Cardiology
- Electrophysiology
- Cardiac surgeons
- e-Health

E

Evaluation and dynamic reassessment

- Primary care
- Cardiology
- Pharmacy
- Nursing
- Family/carers
- e-Health

Stepwise approach – rhythm control in AF

1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
7. When to ablate
8. How to ablate
9. Future perspectives

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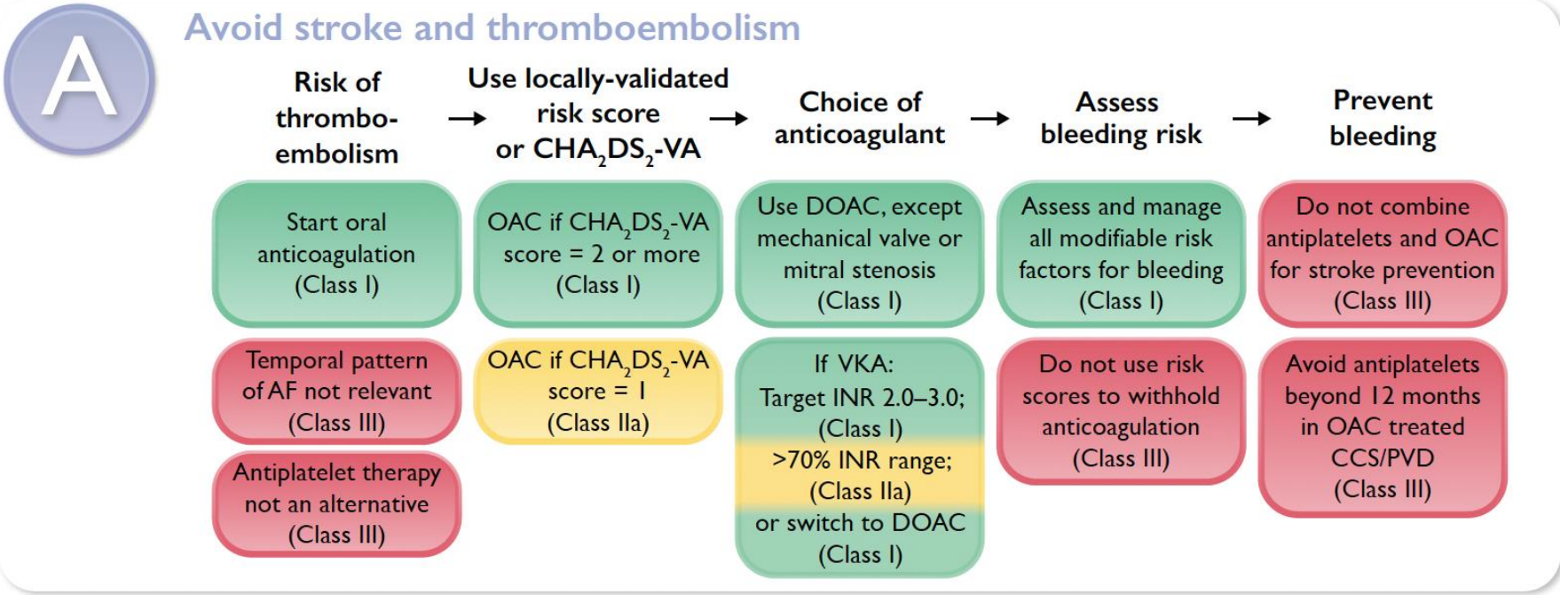

A
Avoid stroke and thromboembolism
Risk of thrombo-embolism
Use locally-validated risk score or CHA2DS2-VA
Choice of anticoagulant
Assess bleeding risk
Prevent bleeding
Start oral anticoagulation (Class I)
OAC if CHA2DS2-VA score = 2 or more (Class I)
Use DOAC, except mechanical valve or mitral stenosis (Class I)
Assess and manage all modifiable risk factors for bleeding (Class I)
Do not combine antiplatelets and OAC for stroke prevention (Class III)
Temporal pattern of AF not relevant (Class III)
OAC if CHA2DS2-VA score = 1 (Class IIa)
If VKA: Target INR 2.0–3.0; (Class I)
>70% INR range; (Class IIa)
or switch to DOAC (Class I)
Do not use risk scores to withhold anticoagulation (Class III)
Avoid antiplatelets beyond 12 months in OAC treated CCS/PVD (Class III)
Antiplatelet therapy not an alternative (Class III)

DOAC	Standard full dose	Criteria for dose reduction	Reduced dose only if criteria met
Apixaban	5 mg twice daily	Two out of three needed for dose reduction: (i) age ≥80 years (ii) body weight ≤60 kg (iii) serum creatinine ≥133 mmol/L.	2.5 mg twice daily
Dabigatran	150 mg twice daily	Dose reduction recommended if any apply: (i) age ≥80 years (ii) receiving concomitant verapamil. Dose reduction considered on an individual basis if any apply: (i) age 75–80 (ii) moderate renal impairment (creatinine clearance 30–50 mL/min) (iii) patients with gastritis, oesophagitis, or gastro-oesophageal reflux (iv) others at increased risk of bleeding.	110 mg twice daily
Edoxaban	60 mg once daily	Dose reduction if any apply: (i) moderate or severe renal impairment (creatinine clearance 15–50 mL/min) (ii) body weight ≤60 kg (iii) concomitant use of ciclosporin, dronedarone, erythromycin, or ketoconazole.	30 mg once daily
Rivaroxaban	20 mg once daily	Creatinine clearance 15–49 mL/min.	15 mg once daily

CHA_2DS_2-VA component		Definition and comments	Points awarded[a]
C	Chronic heart failure	Symptoms and signs of heart failure (irrespective of LVEF, thus including HFpEF, HFmrEF, and HFrEF), or the presence of asymptomatic LVEF ≤40%.[261–263]	1
H	Hypertension	Resting blood pressure >140/90 mmHg on at least two occasions, or current antihypertensive treatment. The optimal BP target associated with lowest risk of major cardiovascular events is 120–129/70–79 mmHg (or keep as low as reasonably achievable).[162,264]	1
A	Age 75 years or above	Age is an independent determinant of ischaemic stroke risk.[265] Age-related risk is a continuum, but for reasons of practicality, two points are given for age ≥75 years.	2
D	Diabetes mellitus	Diabetes mellitus (type 1 or type 2), as defined by currently accepted criteria,[266] or treatment with glucose lowering therapy.	1
S	Prior stroke, TIA, or arterial thromboembolism	Previous thromboembolism is associated with highly elevated risk of recurrence and therefore weighted 2 points.	2
V	Vascular disease	Coronary artery disease, including prior myocardial infarction, angina, history of coronary revascularization (surgical or percutaneous), and significant CAD on angiography or cardiac imaging.[267] OR Peripheral vascular disease, including: intermittent claudication, previous revascularization for PVD, percutaneous or surgical intervention on the abdominal aorta, and complex aortic plaque on imaging (defined as features of mobility, ulceration, pedunculation, or thickness ≥4 mm).[268,269]	1
A	Age 65–74 years	1 point is given for age between 65 and 74 years.	1

Gender and contemporary risk of adverse events in atrial fibrillation

Asgher Champsi [1,2,3†], Alastair R. Mobley [1,2,3†], Anuradhaa Subramanian [4], Krishnarajah Nirantharakumar [2,3,4], Xiaoxia Wang [1,3], David Shukla [2,4], Karina V. Bunting [1,3], Inge Molgaard[5], Jeremy Dwight[5], Ruben Casado Arroyo [6], Harry J.G.M. Crijns [7,8], Luigina Guasti [9], Maddalena Lettino [10], R. Thomas Lumbers [11,12], Bart Maesen [7,8], Michiel Rienstra [13], Emma Svennberg [14], Otilia Țica [1,15], Vassil Traykov [16], Stylianos Tzeis [17], Isabelle van Gelder [13], and Dipak Kotecha [1,2,3*]

Key Question

Should gender be used in current clinical practice to decide which patients with atrial fibrillation (AF) need oral anticoagulation?

Key Finding

Women had a lower rate of the composite of death, stroke and embolism, and no difference compared to men for stroke/embolism or vascular dementia, after accounting for confounding factors.

Take Home Message

Removal of gender from risk stratification in AF could simplify the identification of patients who should be offered oral anticoagulation.

Impact of gender on the contemporary risk of adverse events in patients with atrial fibrillation

Study design and population

Population-based cohort study
using routine healthcare records

16 587 749
primary care patients
(2005–2020)

290 525
with AF aged 40–75

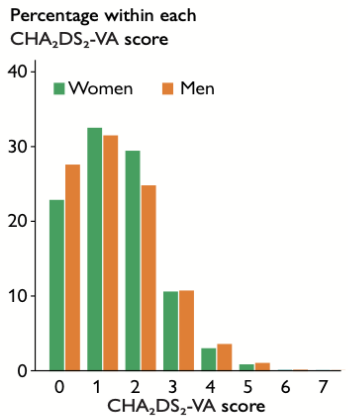
78 852
no prior stroke and
not on anticoagulation

66
Median age

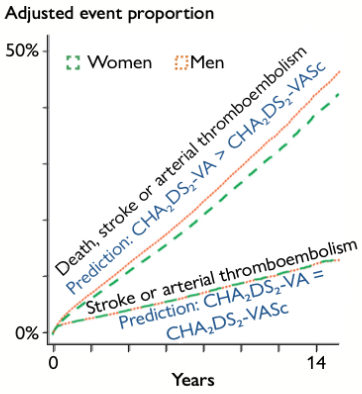
36%
Women

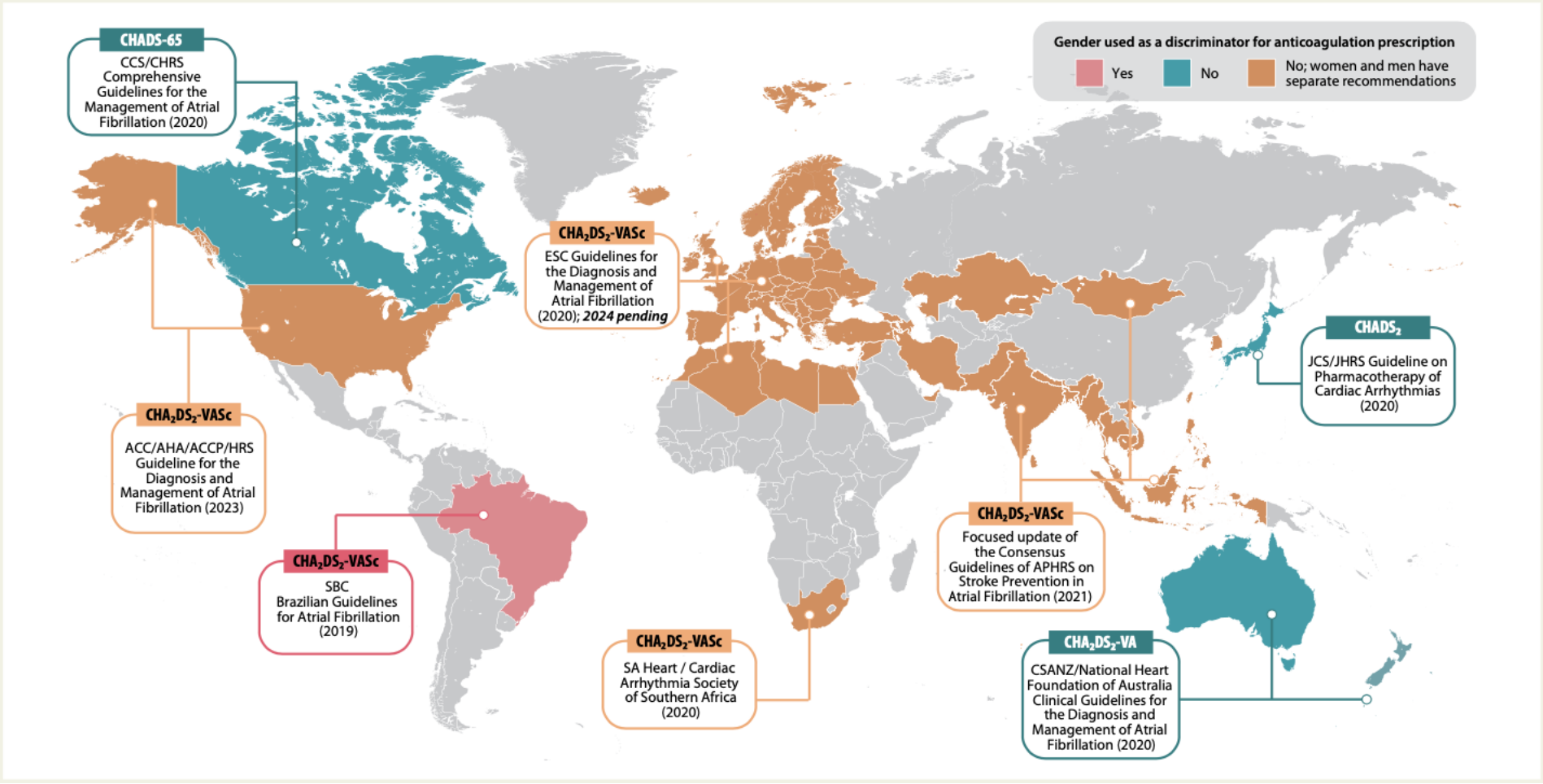
1.38
Mean CHA_2DS_2-VA

Distribution of risk factors



Outcomes




Gender used as a discriminator for anticoagulation prescription
Yes
No
No; women and men have separate recommendations
CHADS-65
CCS/CHRS Comprehensive Guidelines for the Management of Atrial Fibrillation (2020)
CHA2DS2-VASc
ESC Guidelines for the Diagnosis and Management of Atrial Fibrillation (2020); 2024 pending
CHADS2
JCS/JHRS Guideline on Pharmacotherapy of Cardiac Arrhythmias (2020)
CHA2DS2-VASc
ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation (2023)
CHA2DS2-VASc
Focused update of the Consensus Guidelines of APHRS on Stroke Prevention in Atrial Fibrillation (2021)
CHA2DS2-VASc
SBC Brazilian Guidelines for Atrial Fibrillation (2019)
CHA2DS2-VASc
SA Heart / Cardiac Arrhythmia Society of Southern Africa (2020)
CHA2DS2-VA
CSANZ/National Heart Foundation of Australia Clinical Guidelines for the Diagnosis and Management of Atrial Fibrillation (2020)

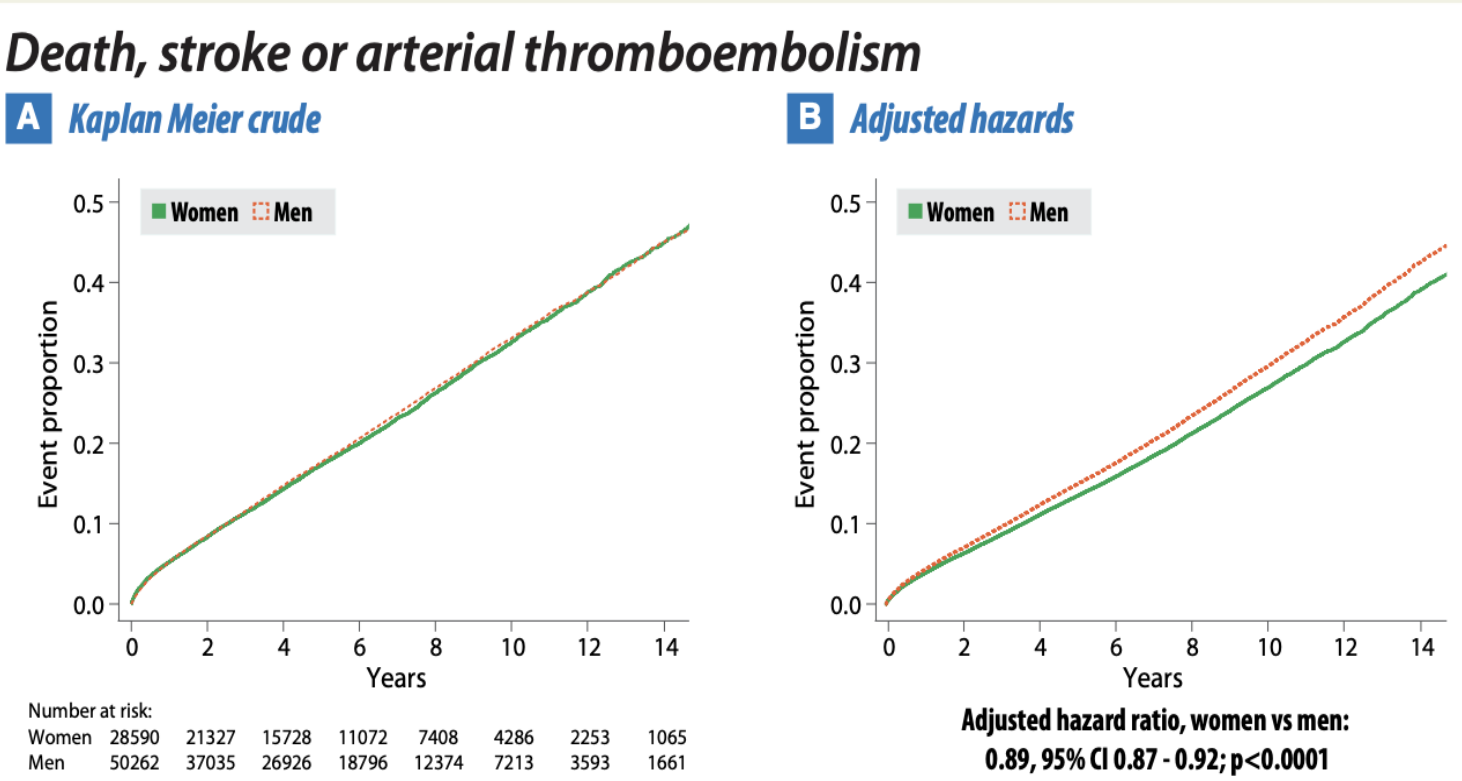


Figure 2 Crude and adjusted primary outcome by gender. Cumulative event curves for the composite of all-cause mortality, ischaemic stroke, or arterial thromboembolism for women (solid green line) and men (dashed orange line). Presented as crude Kaplan–Meier curves (panel A) and after adjustment for age, socioeconomic deprivation status, and diagnoses of hypertension, diabetes mellitus, heart failure, and vascular disease (panel B)

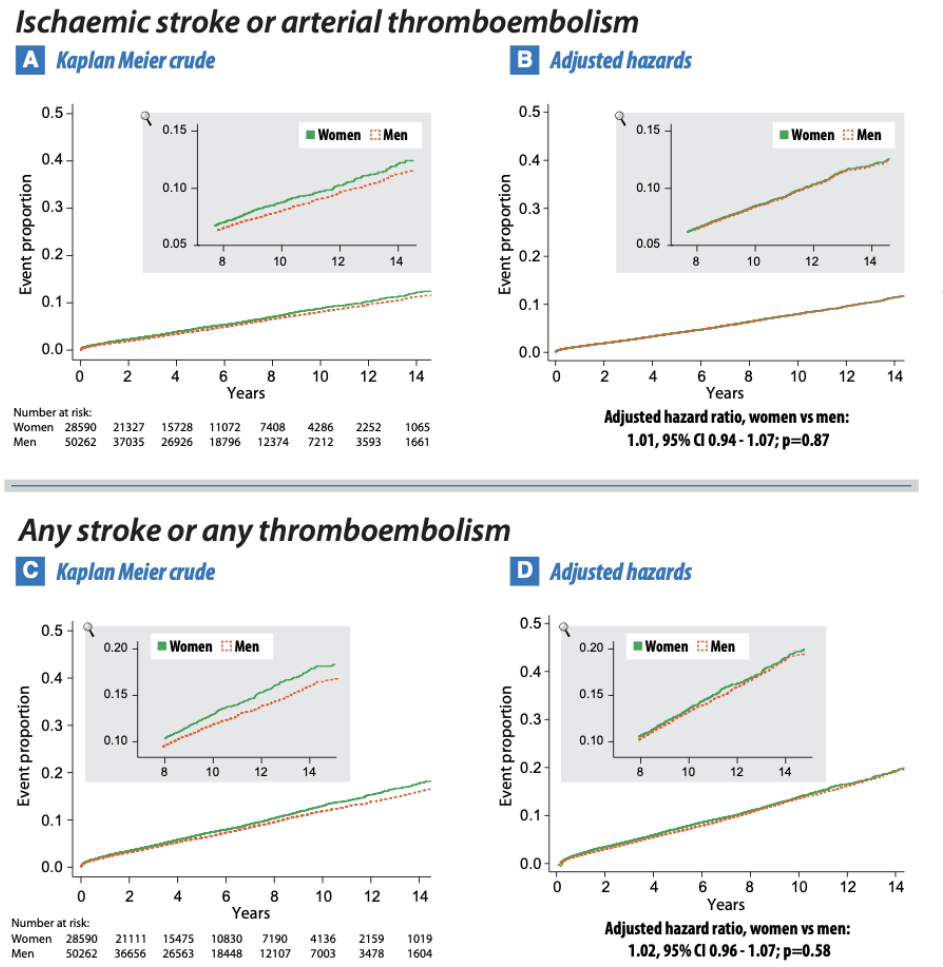


Figure 3 Crude and adjusted secondary outcomes by gender. Cumulative event curves for ischaemic stroke or arterial thromboembolism and any stroke (ischaemia or haemorrhagic) or any thromboembolism (arterial or venous). Presented as crude Kaplan–Meier curves (panels A and C) and after multivariate adjustment (panels B and D) for women (solid green line) and men (dashed orange line)

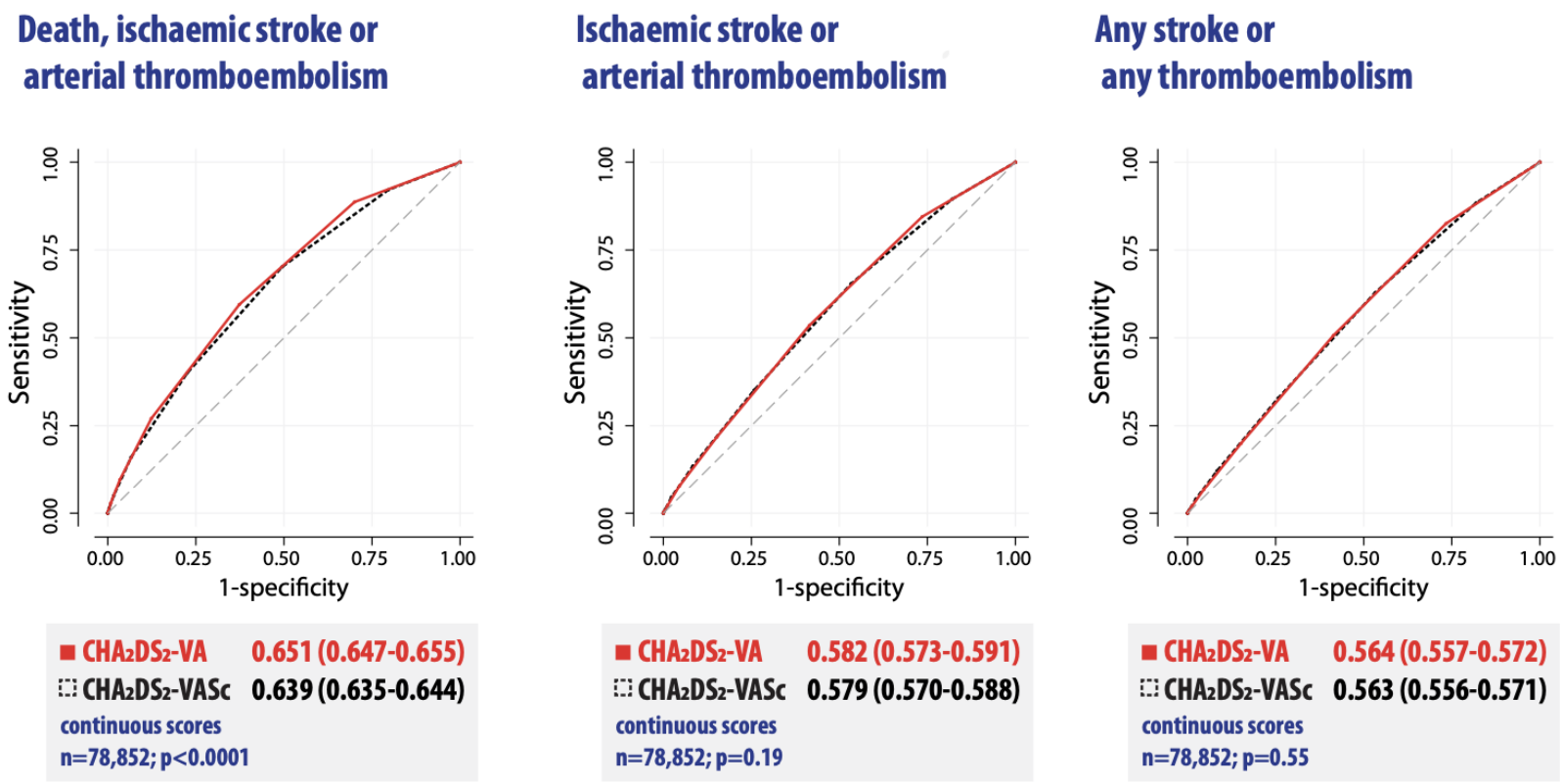


Figure 4 Comparison of risk scores with and without gender. Comparison of the area under the receiver operator characteristic curve for the CHA_2DS_2-VA score (solid red line) and CHA_2DS_2-VASc score (dashed black line) for each outcome. Higher values indicate better accuracy, with the dashed grey line indicating accuracy no better than chance. Note patients with prior stroke or age ≥75 years were excluded to focus on a population where gender was a contributor to decision-making on oral anticoagulation; hence, these performance figures do not reflect the standard use of these risk scores

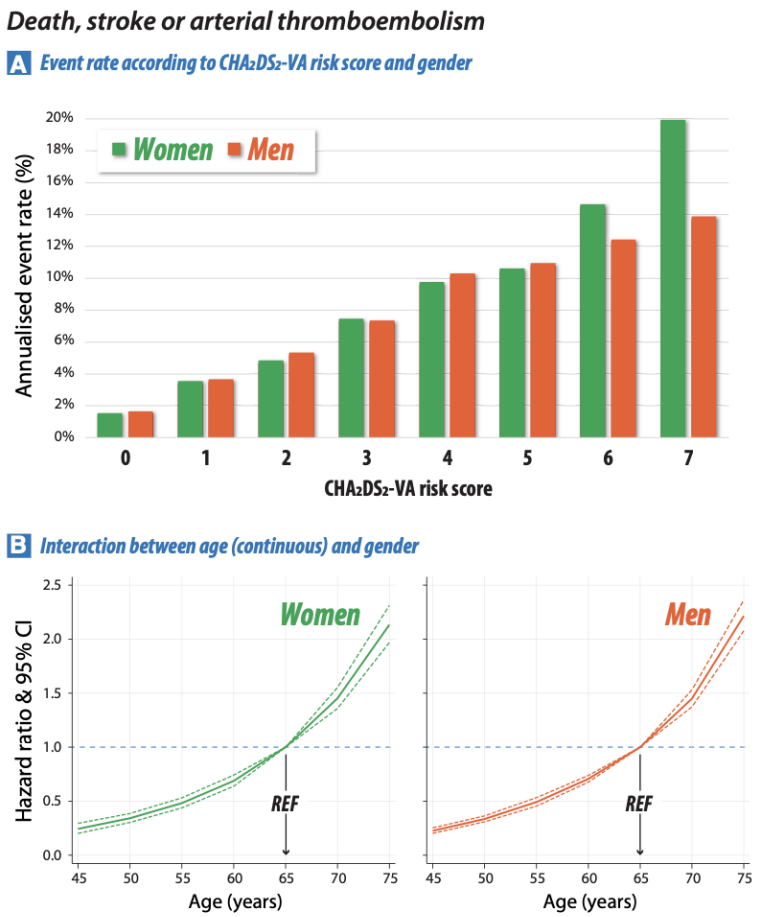


Figure 5 Primary outcome according to risk stratification. (A) Annualised crude event rate for the composite of all-cause mortality, ischaemic stroke, or arterial thromboembolism for each CHA_2DS_2-VA score according to gender; refer to Supplementary data online, *Figure S7* for the secondary outcome of ischaemic stroke or arterial thromboembolism. (B) Age as a continuous variable using a cubic spline model in reference to age = 65 years and presented separately for women and men

Stepwise approach – rhythm control in AF

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SR better that AF - AFFIRM

Covariate	*P*	HR	HR: 99% Confidence Limits	
			Lower	Upper
Age at enrollment*	<0.0001	1.06	1.05	1.08
Coronary artery disease	<0.0001	1.56	1.20	2.04
Congestive heart failure	<0.0001	1.57	1.18	2.09
Diabetes	<0.0001	1.56	1.17	2.07
Stroke or transient ischemic attack	<0.0001	1.70	1.24	2.33
Smoking	<0.0001	1.78	1.25	2.53
Left ventricular dysfunction	0.0065	1.36	1.02	1.81
Mitral regurgitation	0.0043	1.36	1.03	1.80
Sinus rhythm	<0.0001	0.53	0.39	0.72
Warfarin use	<0.0001	0.50	0.37	0.69
Digoxin use	0.0007	1.42	1.09	1.86
Rhythm-control drug use	0.0005	1.49	1.11	2.01

*Per year of age.

ORIGINAL ARTICLE

Early Rhythm-Control Therapy in Patients with Atrial Fibrillation

P. Kirchhof, A.J. Camm, A. Goette, A. Brandes, L. Eckardt, A. Elvan, T. Fetsch, I.C. van Gelder, D. Haase, L.M. Haegeli, F. Hamann, H. Heidbüchel, G. Hindricks, J. Kautzner, K.-H. Kuck, L. Mont, G.A. Ng, J. Rekosz, N. Schoen, U. Schotten, A. Suling, J. Taggeselle, S. Themistoclakis, E. Vettorazzi, P. Vardas, K. Wegscheider, S. Willems, H.J.G.M. Crijns, and G. Breithardt, for the EAST-AFNET 4 Trial Investigators*

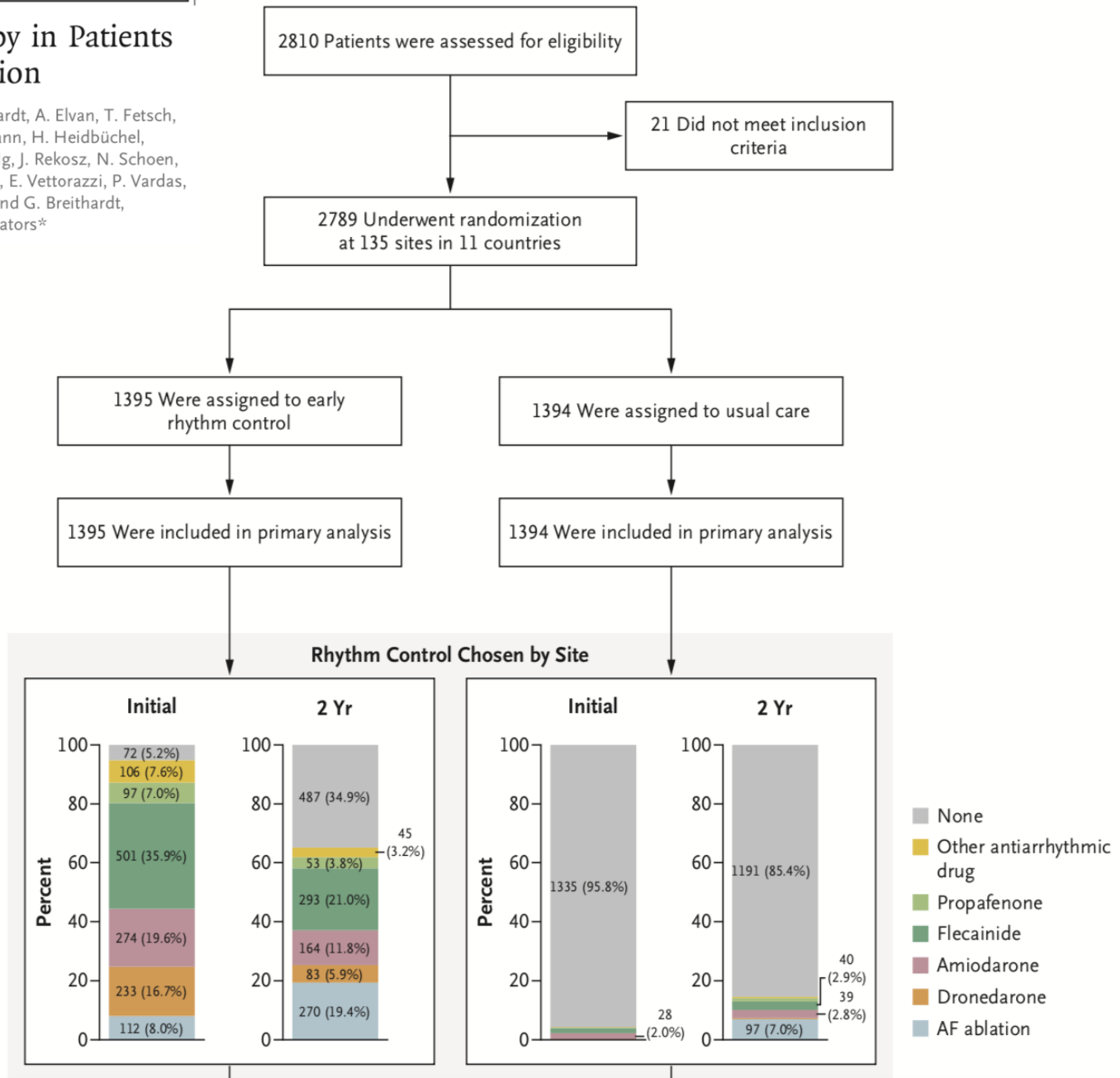
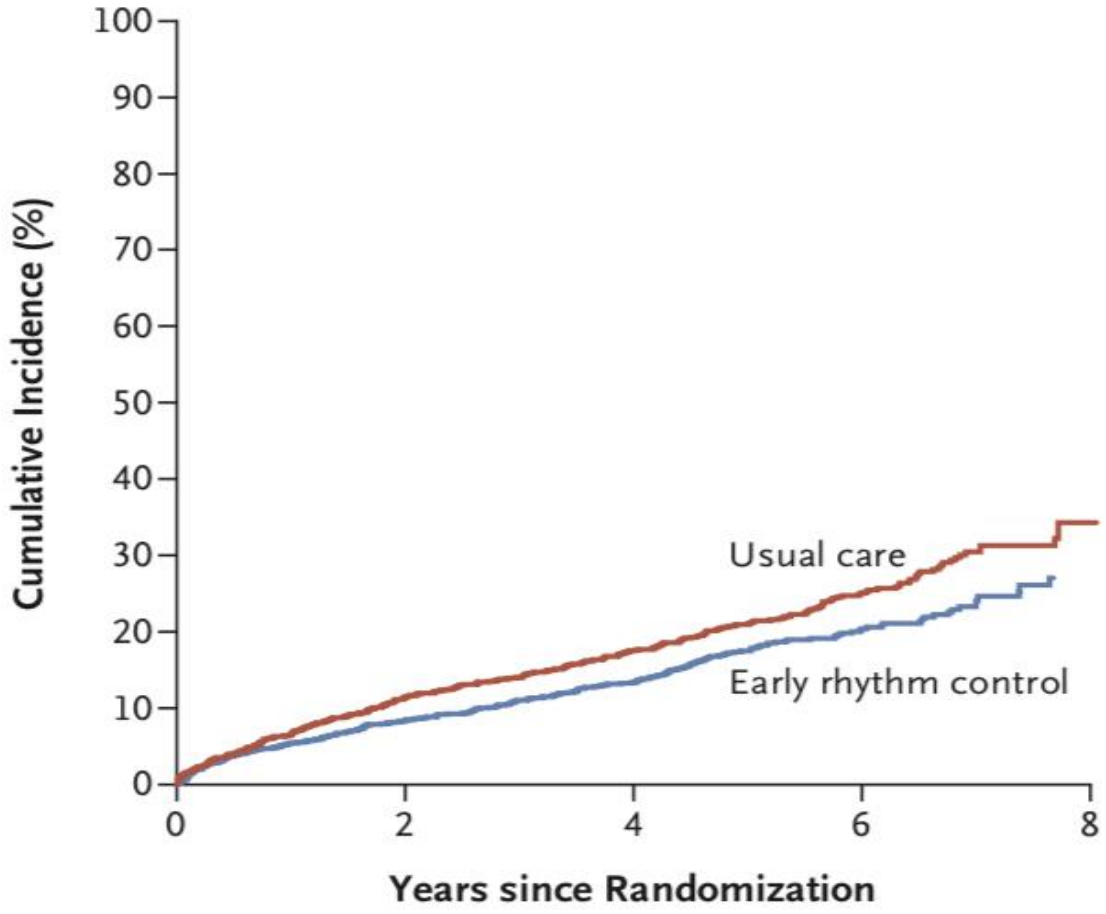


Table 2. Efficacy Outcomes.*

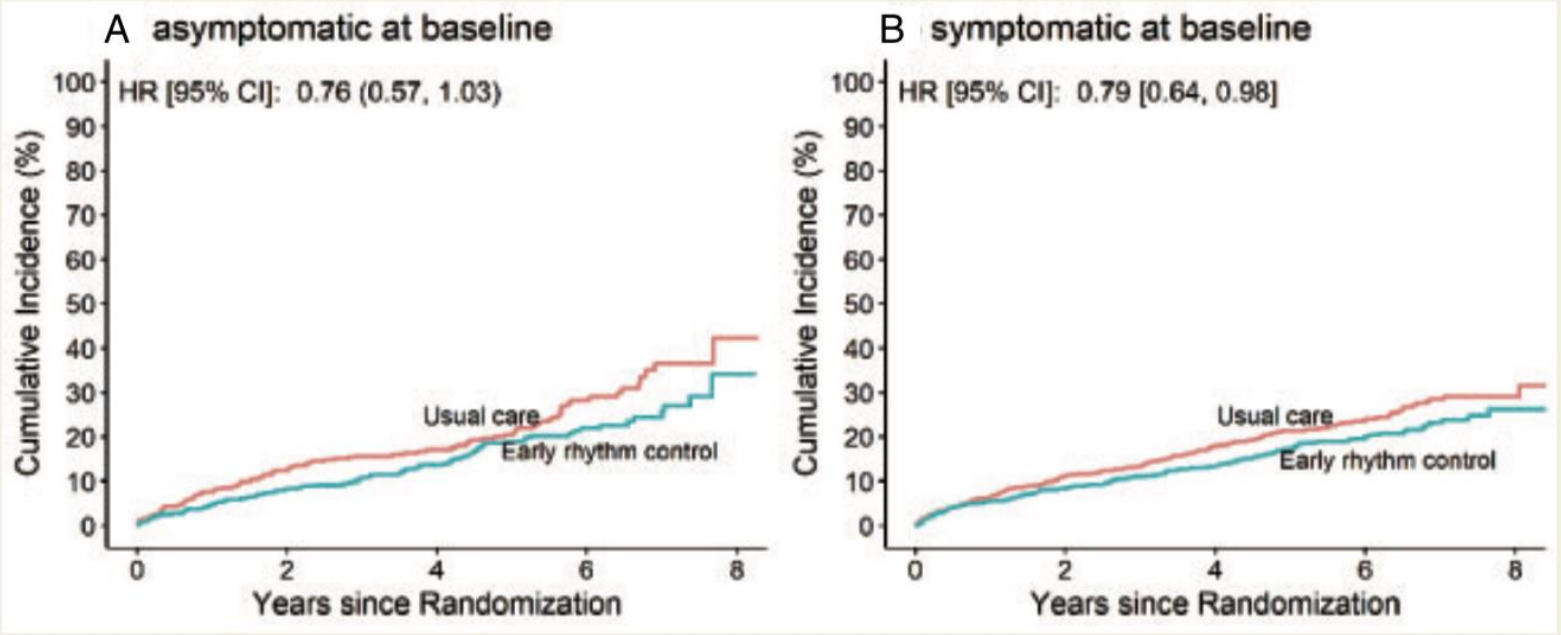
Outcome	Early Rhythm Control	Usual Care	Treatment Effect
First primary outcome — events/person-yr (incidence/100 person-yr)	249/6399 (3.9)	316/6332 (5.0)	0.79 (0.66 to 0.94)†
Components of first primary outcome — events/person-yr (incidence/100 person-yr)			
Death from cardiovascular causes	67/6915 (1.0)	94/6988 (1.3)	0.72 (0.52 to 0.98)‡
Stroke	40/6813 (0.6)	62/6856 (0.9)	0.65 (0.44 to 0.97)‡
Hospitalization with worsening of heart failure	139/6620 (2.1)	169/6558 (2.6)	0.81 (0.65 to 1.02)‡
Hospitalization with acute coronary syndrome	53/6762 (0.8)	65/6816 (1.0)	0.83 (0.58 to 1.19)‡
Second primary outcome — nights spent in hospital/yr	5.8±21.9	5.1±15.5	1.08 (0.92 to 1.28)§
Key secondary outcomes at 2 yr			
Change in left ventricular ejection fraction — %	1.5±9.8	0.8±9.8	0.23 (–0.46 to –0.91)¶
Change in EQ-5D score‖	–1.0±21.4	–2.7±22.3	1.07 (–0.68 to 2.82)¶
Change in SF-12 Mental Score**	0.7±10.6	1.6±10.1	–1.20 (–2.04 to –0.37)¶
Change in SF-12 Physical Score**	0.3±8.5	0.1±8.2	0.33 (–0.39 to 1.06)¶
Change in MoCA score	0.1±3.3	0.1±3.2	–0.14 (–0.39 to 0.12)¶
Sinus rhythm — no. of patients with feature/total no. (%)	921/1122 (82.1)	687/1135 (60.5)	3.13 (2.55 to 3.84)††
Asymptomatic — no. of patients with feature/total no. (%)‡‡	861/1159 (74.3)	850/1171 (72.6)	1.14 (0.93 to 1.40)††



No. at Risk					
Usual care	1394	1169	888	405	34
Early rhythm control	1395	1193	913	404	26

Systematic, early rhythm control strategy for atrial fibrillation in patients with or without symptoms: the EAST-AFNET 4 trial

Similar reduction of cardiovascular death, stroke, or hospitalisation for heart failure or acute coronary syndrome in symptomatic and asymptomatic patients



Our findings support the systematic, early initiation of rhythm control therapy in asymptomatic patients with atrial fibrillation and concomitant cardiovascular conditions.

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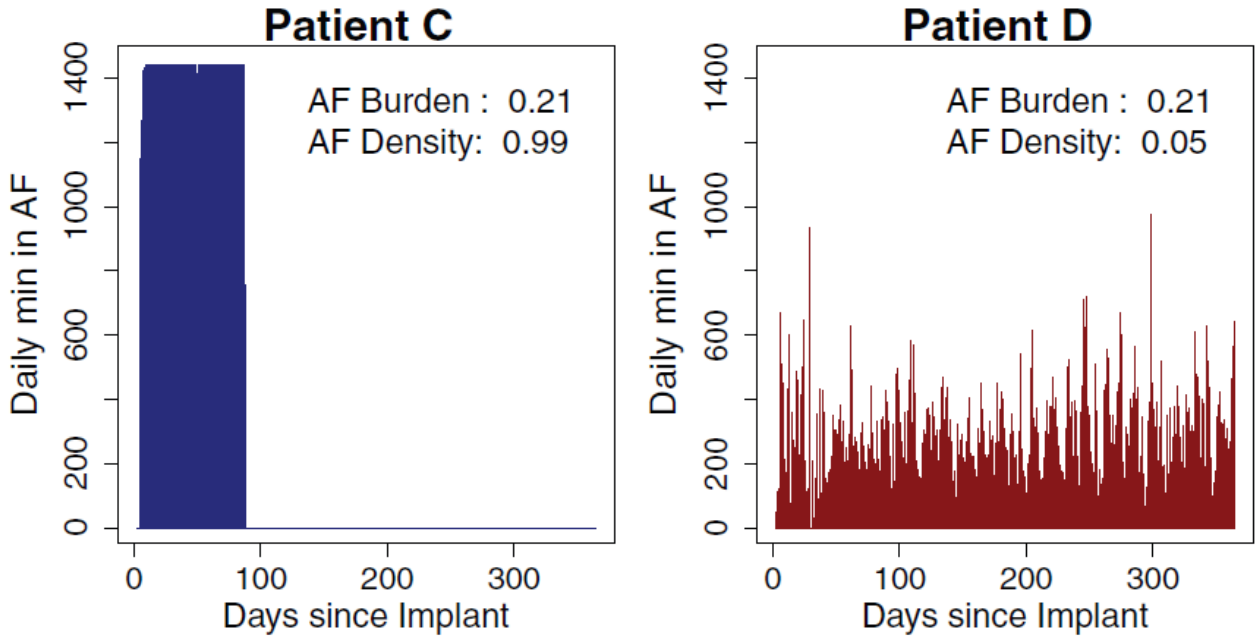
Measures of Burden



Charitos et al. Circulation. 2012;126:806-814.)

AF Burden and Clinical Outcomes

Circ Arrhythm Electrophysiol. 2022;

Study Cohort

Paroxysmal AF

&

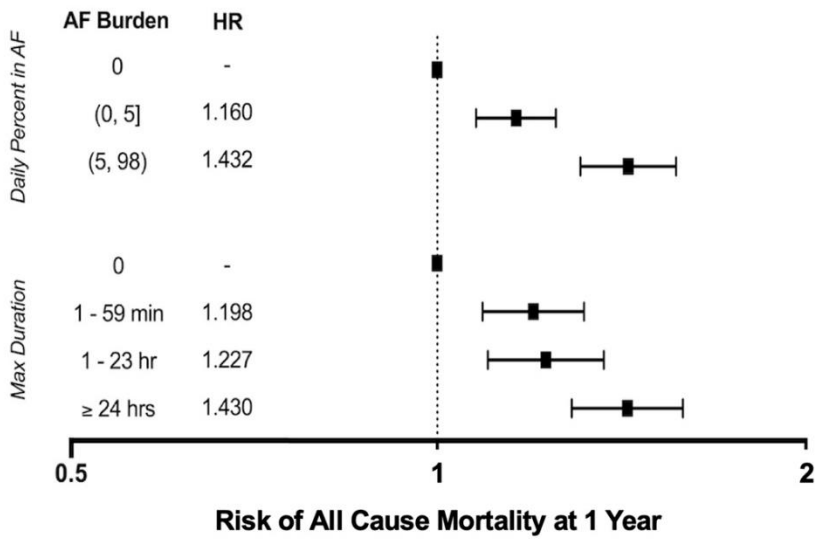
New cardiac implantable electronic devices (2010-2016)

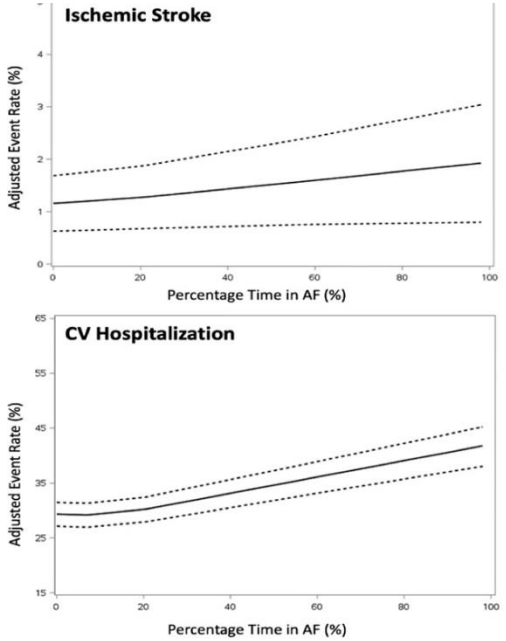
Exposure

AF Arrhythmic Burden

(a) % daily in AF
(b) Max duration of AF episode

Results

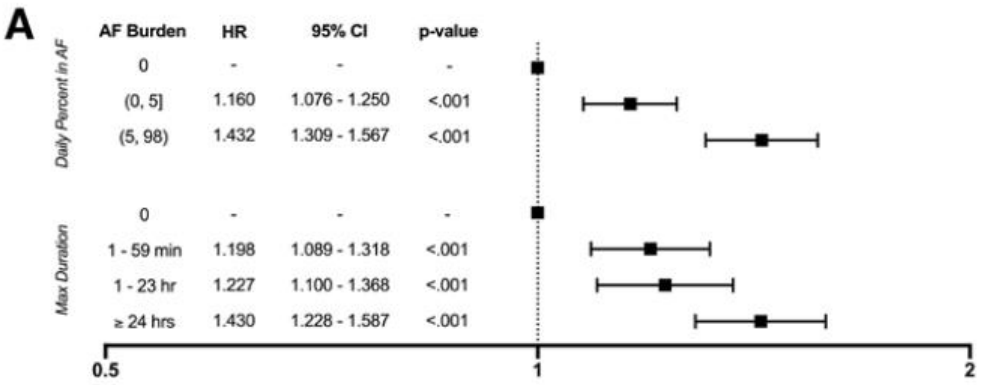


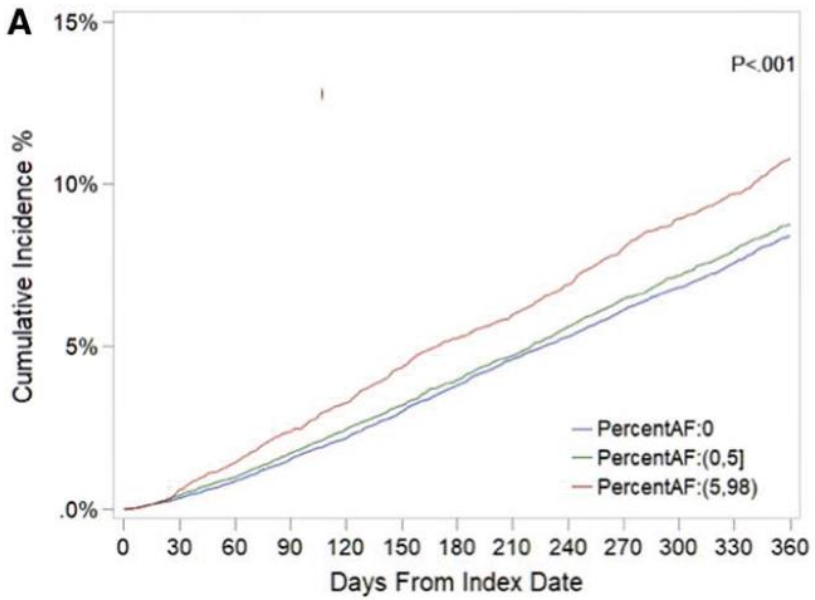


Conclusions

Among **39,710** patients with paroxysmal AF and cardiac implantable devices, there was an **exposure-response relationship** between device-based AF burden and clinical outcomes.

AF Burden and All Cause Mortality





Circ Arrhythm Electrophysiol. 2022; 15:e010304

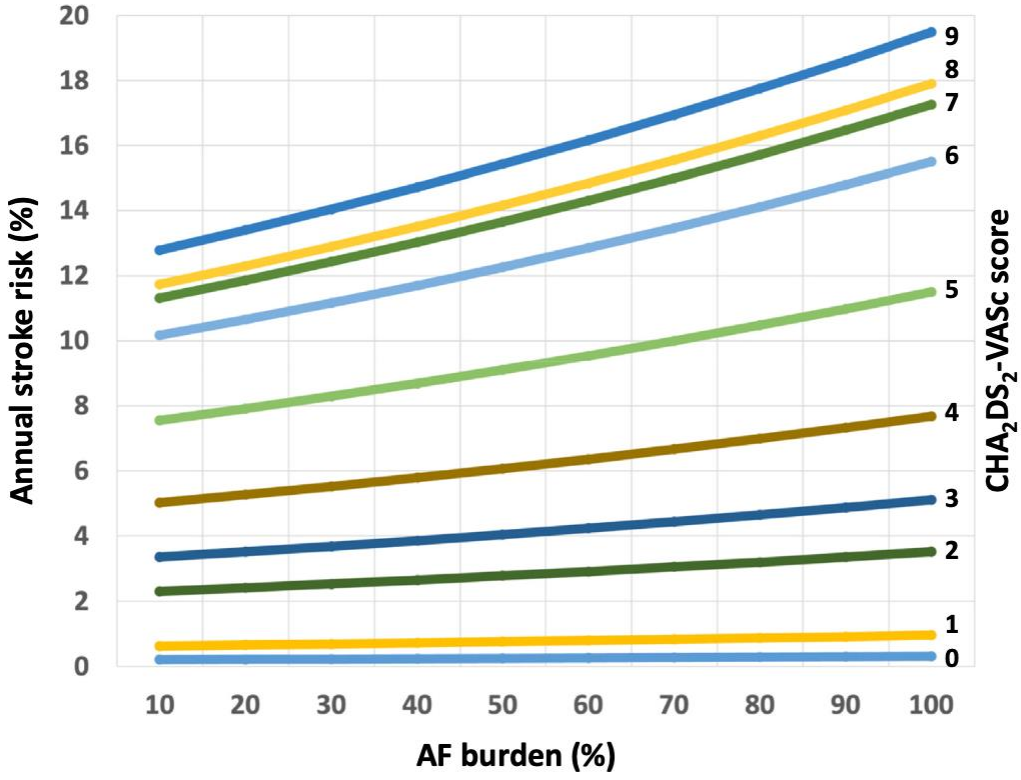
HeartRhythm

The Official Journal of the Heart Rhythm Society, The Cardiac Electrophysiology Society, and The Pediatric & Congenital Electrophysiology Society

Heart Rhythm Society SM

Atrial fibrillation burden: Stepping beyond the categorical characterization

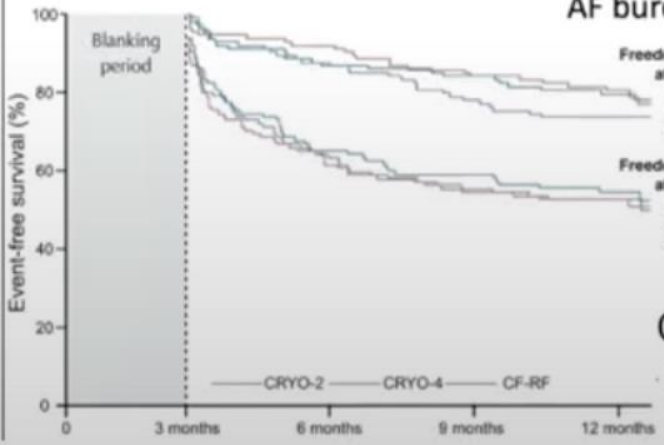
Ioannis Doundoulakis, MD, PhD,[1,*] Sotirios Nedios, MD, PhD, FHRS,[2,*] Stefanos Zafeiropoulos, MD, PhD,[3] Marco Vitolo, MD, PhD,[4] Domenico Giovanni Della Rocca, MD, PhD,[1] Athanasios Kordalis, MD, PhD,[5] Alireza Sepehri Shamloo, MD, PhD,[2] Leonidas Koliastasis, MD, PhD,[6] Lorenzo Marcon, MD,[1] Sotirios Chiotis, MD,[1] Antonio Sorgente, MD, PhD,[1] Stergios Soulaidopoulos, MD, PhD,[5] Jacopo F. Imberti, MD, PhD,[4] Michail Botis, MD,[5] Luigi Pannone, MD,[1] Konstantinos A. Gatzoulis, MD, PhD,[5] Andrea Sarkozy, MD, PhD,[1] Stavros Stavrakis, MD, PhD, FHRS,[7] Giuseppe Boriani, MD, PhD,[4] Serge Boveda, MD, PhD,[8] Dimitris Tsiachris, MD, PhD,[5] Gian-Battista Chierchia, MD, PhD,[1] Carlo de Asmundis, MD, PhD, FHRS[1]


Annual stroke risk (%)
20
18
16
14
12
10
8
6
4
2
0
10
20
30
40
50
60
70
80
90
100
AF burden (%)
9
8
7
6
5
4
3
2
1
0
CHA2DS2-VASc score

The Problem: Time to event gives only part of the picture

Pre-Ablation AF burden

Post-Ablation AF burden

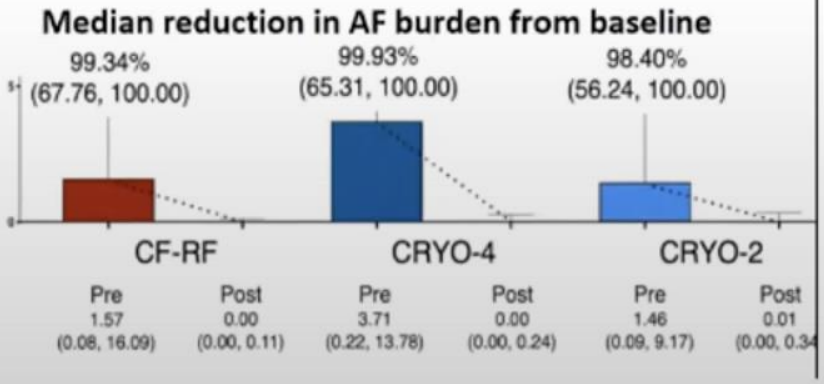


Freedom from symptomatic atrial tachyarrhythmia
79.1% CF-RF
78.2% CRYO-4
73.3% CRYO-2

Freedom from ANY atrial tachyarrhythmia
53.9% CF-RF
52.2% CRYO-4
51.7% CRYO-2

CIRCA DOSE

AF Burden median (IQR)



All is True?

The Following Statements Are Simultaneously True:

- The rate of "Cure" post ablation is ~53%
- The rate of symptomatic "Cure" is ~77%
- The magnitude of improvement is >99%

2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of atrial fibrillation: Executive summary

1. **Burden reduction is the goal in long standing persistent AF**
2. **SR trial through DC and amio loading in "asymptomatic"**

- **Asymptomatic status is associated with similar (or worse) prognosis compared with symptomatic status**. EORP-AF Pilot General Registry.

Am J Med 2015;128(5):509–518.e2

symptoms and rhythm. In patients with persistent AF who initially appear to be asymptomatic, a reassessment of symptoms after restoration of sinus rhythm with cardioversion often reveals that the patient does in fact feel better when in sinus rhythm. Because of this observation, many experienced clinicians routinely recommend cardioversion with a reassessment of symptoms in apparently asymptomatic patients with persistent AF. If the patient is ultimately demonstrated to be symptomatic, a rhythm control strategy becomes an attractive therapeutic approach. Conversely, if there is no change in symptoms postrestoration of sinus rhythm, a rate control strategy could be preferable.

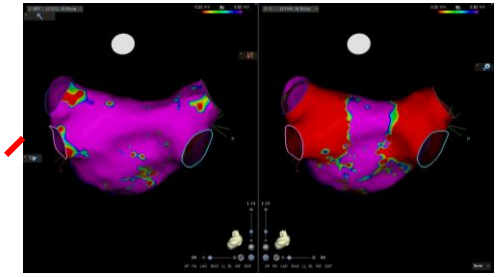
Stepwise approach – rhythm control in AF

1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
7. When to ablate
8. How to ablate
9. Future perspectives

Νέο σύγγραμμα Καρδιολογίας – ΕΚΠΑ, (Κ. Τσιούφης)
Έλεγχος πυροδοτών

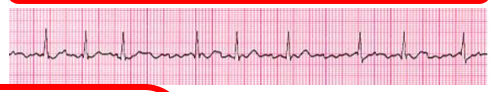
Εξωτερικοί πυροδότες
Συναισθηματικό στρες
Βαρύ γεύμα
Αλκοόλ
Έντονη άσκηση

Αποφόρτιση - Ενεργοποίηση παρασυμπαθητικού



Εσωτερικοί πυροδότες
Πνευμονικές φλέβες
Άνω κοίλη φλέβα
Ωτία κόλπων

Κολπική μαρμαρυγή



Νοσήματα που συνδέονται
Υπέρταση
Καρδιακή ανεπάρκεια
Βαλβιδοπάθειες
Μυοκαρδιοπάθειες
Παχυσαρκία
Υπνική άπνοια
Διαταραχές θυρεοειδούς

Ηλεκτρική αναδιαμόρφωση κόλπου
↑ ετερογένειας
↓ αγωγής
↓ διάρκειας δυναμικού ενέργειας
↓ανερεθιστότητας
↑ αυτοματισμού
Διαταραχή ενδοκυττάριου ασβεστίου

Δομική αναδιαμόρφωση κόλπου
Ίνωση
Διάταση
Ισχαιμία
Υπερτροφία

Equality in healthcare provision (gender, ethnicity, socioeconomic) (Class I)

Education for patients, families and healthcare professionals (Class I)

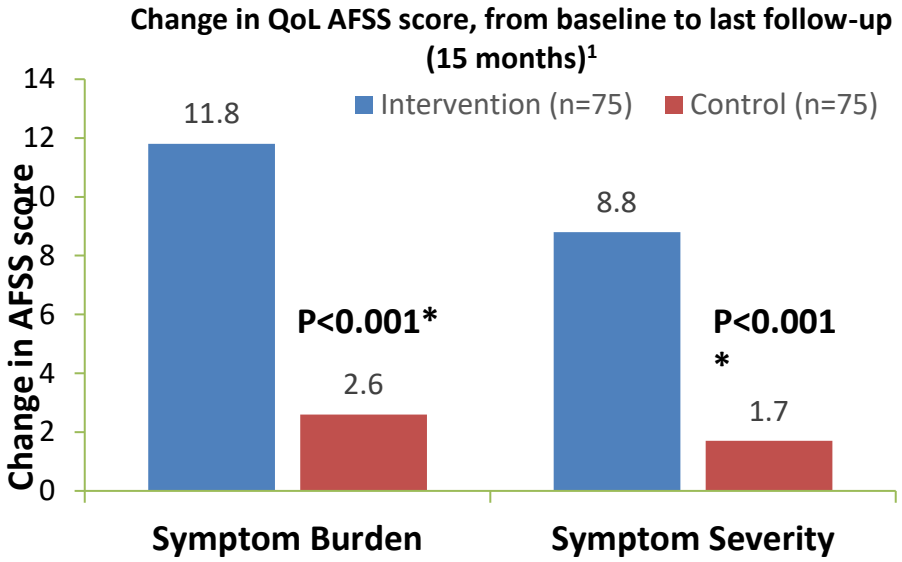
Patient-centred AF management with a multidisciplinary approach (Class IIa)

C Comorbidity and risk factor management

Hypertension	Heart failure	Overweight or obese	Obstructive sleep apnoea	Alcohol
Blood pressure lowering treatment (Class I)	Diuretics for congestion (Class I)	Weight loss (target 10%)[a] (Class I)	Management of OSA[a] (Class IIb)	Reduce to ≤3 drinks per week (Class I)
Diabetes mellitus	Appropriate HFrEF medical therapy (Class I)	Bariatric surgery if rhythm control[a] (Class IIb)	**Exercise capacity**	**Other risk factors/ comorbidities**
Effective glycaemic control[a] (Class I)	SGLT2 inhibitors (Class I)		Tailored exercise programme (Class I)	Identify and manage aggressively[a] (Class I)

Lifestyle modification is an important component of AF management

Greater Reductions in Weight Loss Lead to Greater Benefits in QoL Scores



- In an RCT among overweight and obese AF patients that randomised patients to **weight management** intervention or lifestyle advice only, the **magnitude of benefit was greatest** in the intervention group in which larger reductions in weight loss were achieved compared with the control group

- *P-values refer to between-group differences over time;
- 1. Abed HS et al. *JAMA* 2013;310:2050-60

World Journal of Gastroenterology

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World J Gastroenterol 2014 July 28; 20(28): 9592-9599
ISSN 1007-9327 (print) ISSN 2219-2840 (online)
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SYSTEMATIC REVIEWS

Atrial fibrillation in patients with gastroesophageal reflux disease: A comprehensive review

Βασικός πυροδότης η ΓΟΠ

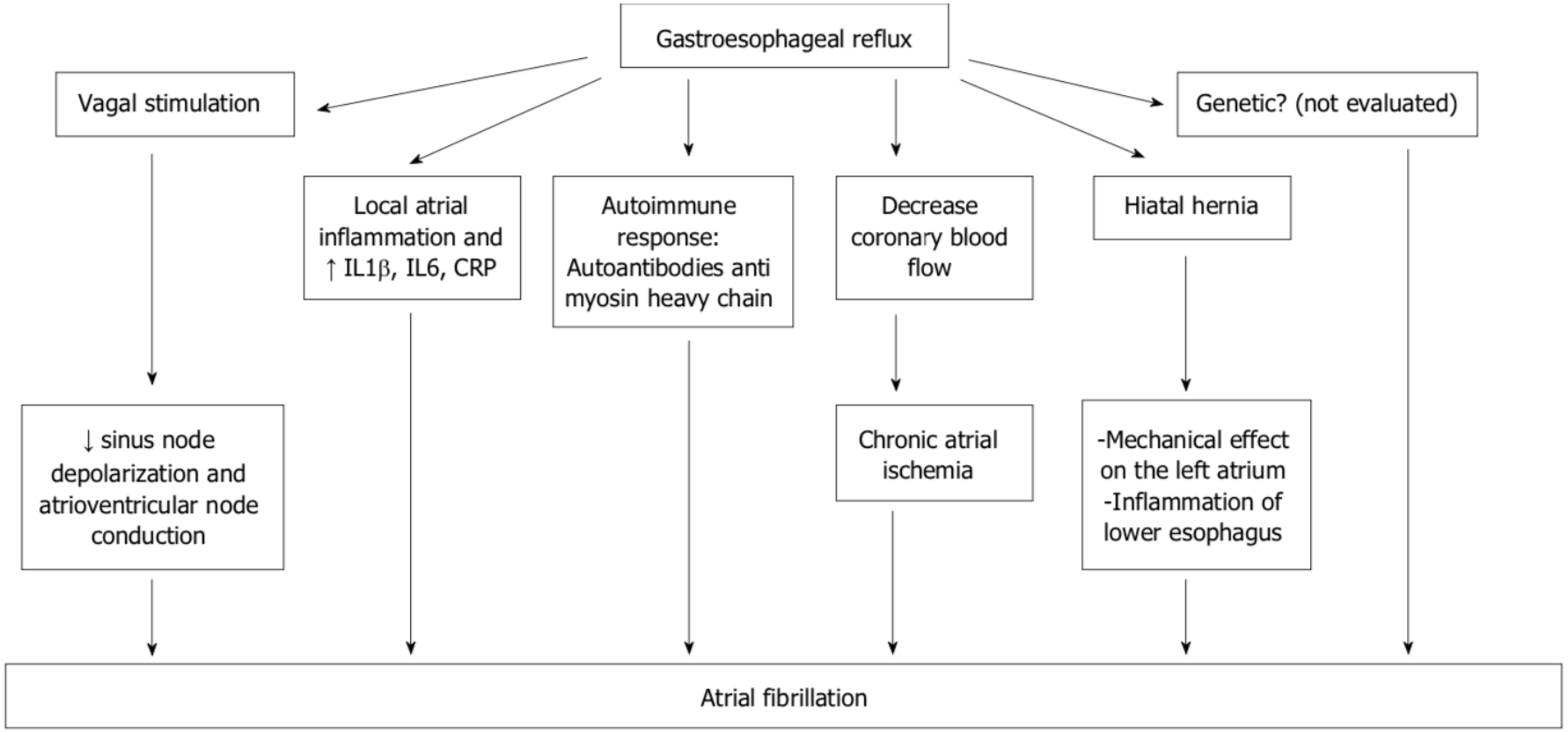

Figure 3 Main physiopathological hypotheses for the relationship gastroesophageal reflux disease-atrial fibrillation. IL1β: Interleukin 1β; IL6: Interleukin 6; CRP: C-reactive protein.

Contents lists available at ScienceDirect

International Journal of Cardiology

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Letter to the Editor

Gastroesophageal reflux disease is a predictor of atrial fibrillation recurrence following left atrial ablation

Louiza Lioni, Konstantinos P. Letsas *, Michael Efremidis, Konstantinos Vlachos, Dimitrios Karlis, Dimitrios Asvestas, Constantinos C. Mihas, Antonios Sideris

Second Department of Cardiology, Laboratory of Cardiac Electrophysiology, "Evangelismos" General Hospital of Athens, Greece

Table 2
Univariate and multiple logistic regression analysis of clinical, electrocardiographic, echocardiographic, laboratory, and procedural data on AF recurrence following catheter ablation.

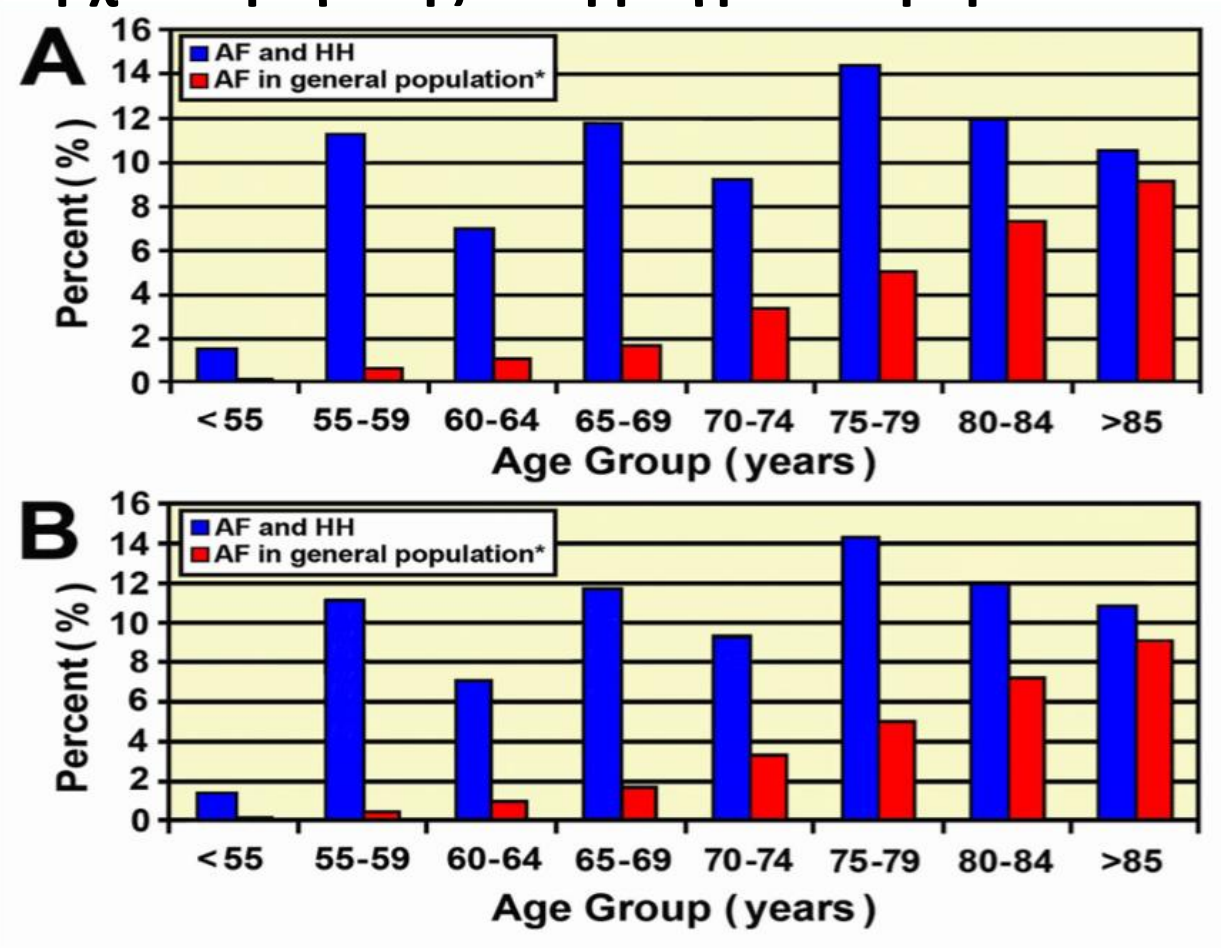
Variable	Odds ratio	95% confidence interval	p value	Odds ratio	95% confidence interval	p value
	Univariate regression analysis			Multiple regression analysis		
Age (years)	1.015	0.978–1.054	0.437			
Gender (males) (%)	0.600	0.228–1.581	0.302			
BMI (kg/m^2)	0.993	0.881–1.118	0.902			
Hypertension (%)	4.792	1.736–13.225	**0.002**			
Diabetes mellitus (%)	1.810	0.464–7.054	0.393			
Dyslipidemia (%)	1.090	0.402–2.956	0.866			
Smoking (%)	0.538	0.176–1.638	0.275			
CAD (%)	9.632	1.793–51.736	**0.008**			
GERD	12.091	3.814–38.331	<**0.001**	8.501	1.637–44.149	**0.011**
AADs after AF ablation						
Class I (%)	1.739	0.273–11.090	0.558			
Class III (%)	0.646	0.252–1.654	0.362			
PPIs after ablation (%)	4.159	0.651–26.568	0.132			
Maximum P-wave duration (msec)	1.263	1.123–1.421	<**0.001**			
P-wave dispersion (msec)	2.512	1.583–3.988	<**0.001**			
LAD (mm)	1.857	1.414–2.438	<**0.001**	1.796	1.351–2.387	<**0.001**
LVEF (%)	0.990	0.906–1.081	0.822			
WBC count (mm^3)	1.070	0.891–1.285	0.469			
Creatinine (mg/dl)	0.509	0.010–24.827	0.733			
eGFR (ml/min/1.73 m^2)	0.995	0.977–1.013	0.606			
Fluoroscopy time (min)	1.051	0.993–1.113	0.088			

Hiatal Hernia Is Associated With an Increased Prevalence of Atrial Fibrillation in Young Patients

Ranjini R. Roy, MD,[a] Sandeep Sagar, MD,[b] T. Jared Bunch, MD,[b] Wahaj Aman, BS,[b] Daniel J. Crusan, BS,[c] Komandoor Srivathsan, MD,[a] Samuel J. Asirvatham, MD,[b] Win K. Shen, MD,[a] Arshad Jahangir, MD[d].

[a]Division of Cardiovascular Diseases, Mayo Clinic, Scottsdale, AZ; [b]Division of Cardiovascular Diseases, Mayo Clinic, Rochester, MN; [c]Department of Health Sciences Research, Mayo Clinic, Rochester, MN; [d]Center for Integrative Research on Cardiovascular Aging (CIRCA), Aurora University of Wisconsin Medical Group, Aurora Health Care, Milwaukee, WI

Αν συνυπάρχει ευμεγέθης διαφραγματοκήλη - Nissen



AF during sleep – untreated OSA will lead to relapse post AF ablation (>20% of AF patients)

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Alcohol Abstinence in Drinkers with Atrial Fibrillation

Aleksandr Voskoboinik, M.B., B.S., Ph.D., Jonathan M. Kalman, M.B., B.S., Ph.D., Anurika De Silva, Ph.D., Thomas Nicholls, M.B., B.S., Benedict Costello, M.B., B.S., Shane Nanayakkara, M.B., B.S., Sandeep Prabhu, M.B., B.S., Ph.D., Dion Stub, M.B., B.S., Ph.D., Sonia Azzopardi, R.N., Donna Vizi, R.N., Geoffrey Wong, M.B., B.S., Chrishan Nalliah, M.B., B.S., Hariharan Sugumar, M.B., B.S., Michael Wong, M.B., B.S., Ph.D., Emily Kotschet, M.B., B.S., David Kaye, M.B., B.S., Ph.D., Andrew J. Taylor, M.B., B.S., Ph.D., and Peter M. Kistler, M.B., B.S., Ph.D.

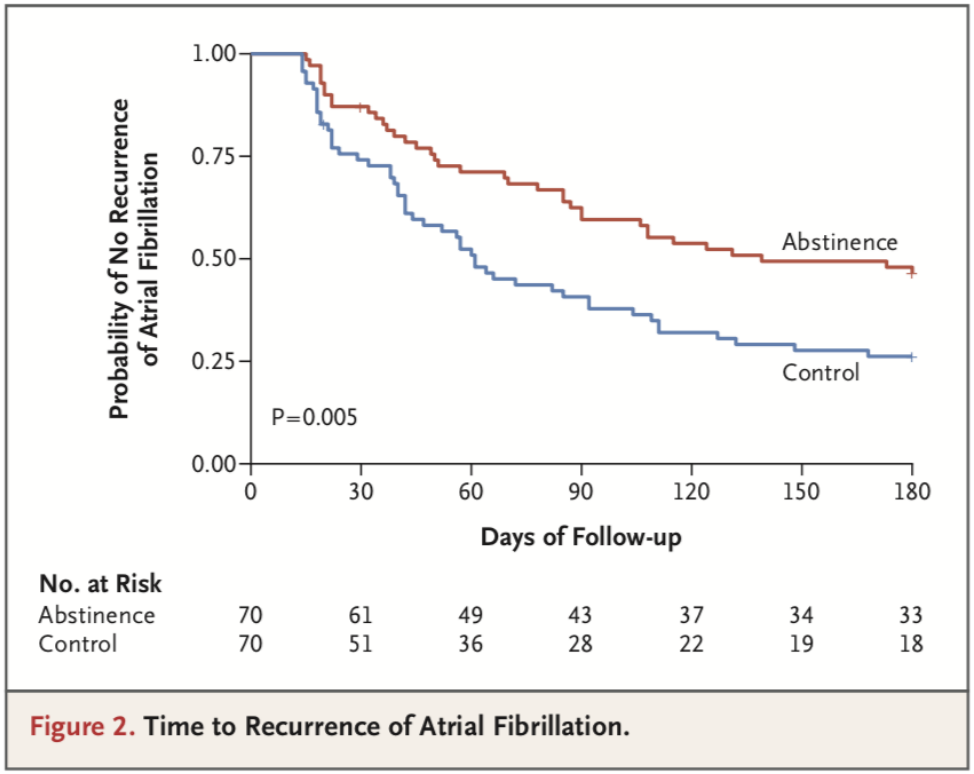


Figure 2. Time to Recurrence of Atrial Fibrillation.

Table 2. Alcohol Intake at Baseline.

Variable	Abstinence Group (N=70)	Control Group (N=70)
Alcohol intake — no. of standard drinks/wk	16.8±7.7	16.4±6.9
Beverages consumed — no. (%)		
Wine	48 (69)	47 (67)
Beer	34 (49)	34 (49)
Spirits	13 (19)	9 (13)
Binge drinking — no. (%)*	20 (29)	16 (23)

* Binge drinking was defined as consumption of 5 or more drinks on a single occasion at least once a month.

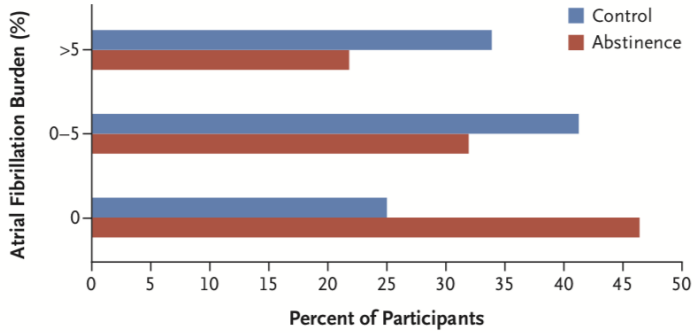


Figure 3. Atrial Fibrillation Burden in the Abstinence and Control Groups.
Atrial fibrillation burden is the percentage of time the patient was in atrial fibrillation during the entire 6-month follow-up period.

Οδηγός διατροφής
First rule of fight club

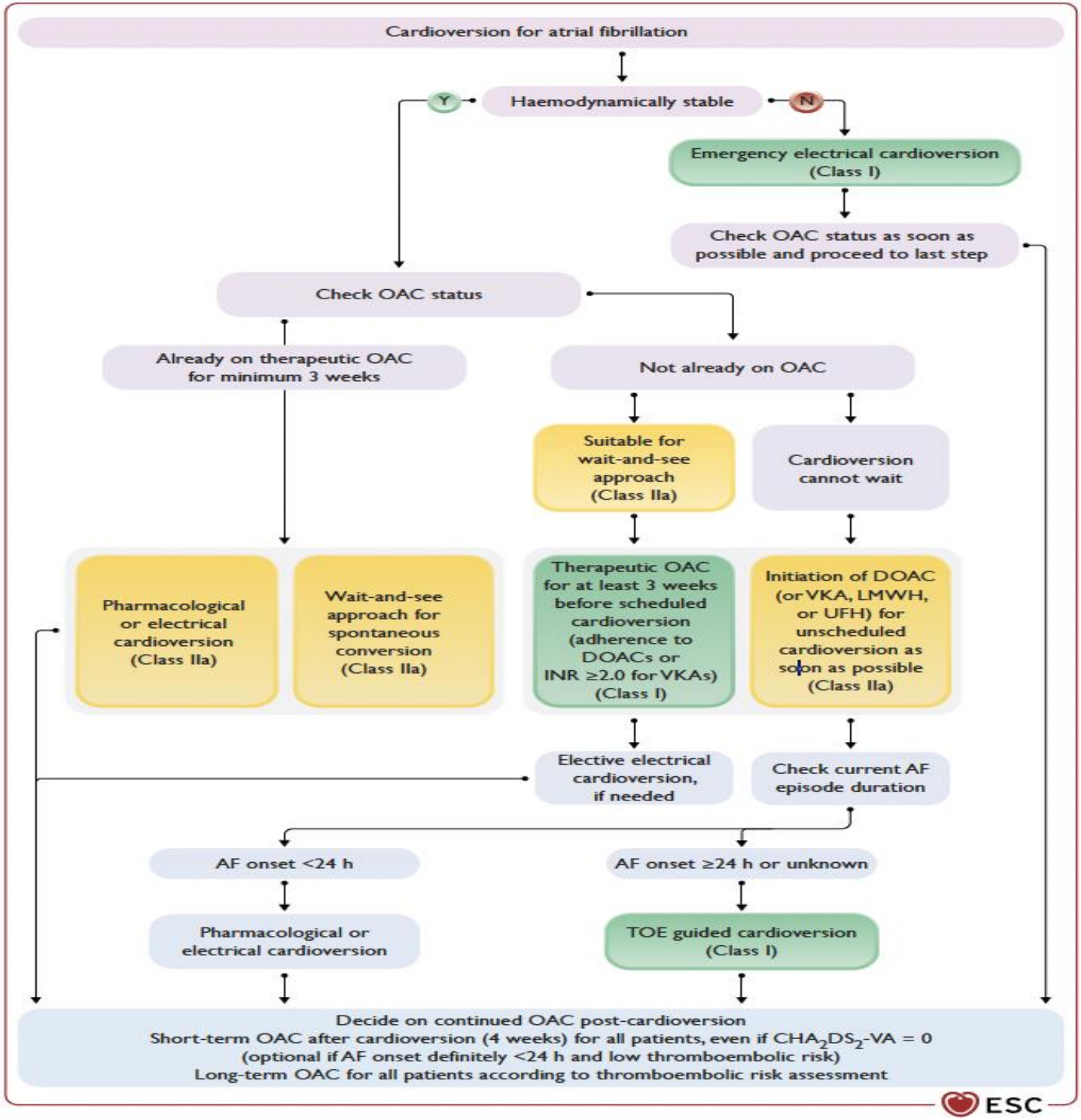
Δεν τρώμε βιαστικά
Περιορίζουμε αλκοόλ
Παν μέτρον άριστον

Κολπική μαρμαρυγή: τι πρέπει και τι δεν πρέπει να τρώμε και να πίνουμε.

Η κολπική μαρμαρυγή δεν είναι μόνο η πιο συχνή αρρυθμία, αλλά ταυτόχρονα αποτελεί μια νόσο της σύγχρονης εποχής με διαρκώς αυξανόμενη επίπτωση, στενά συνυφασμένη με τις αλλαγές στον τρόπο ζωής μας. Είναι απαραίτητο να διαχωρίσουμε την αιτία της νόσου από τις αφορμές που την πυροδοτούν.
Ειδικότερα το αίτιο είναι έκτοπος καρδιακός ιστός στα σημεία όπου οι πνευμονικές φλέβες εκβάλλουν στην καρδιά. Έκτοπο ιστό έχουμε όλοι οι άνθρωποι, απλά χρειάζονται κάποιες αφορμές για να πυροδοτηθούν αυτά τα έκτοπα κέντρα. Πυροδότες σε γενικές γραμμές είναι άλλες καρδιακές παθήσεις όπως οι βαλβιδοπάθειες, η καρδιακή ανεπάρκεια και η υψηλή αρτηριακή πίεση. Συχνά όμως δεν συνυπάρχει καρδιακή νόσος και είναι άλλοι οι παράγοντες που συντελούν στην ενεργοποίηση των έκτοπων κέντρων. Το lifestyle της εποχής μας και η παχυσαρκία συμμετέχουν ενεργά στην όλη διαδικασία. Ειδικότερα, η γαστροοισοφαγική παλινδρόμηση μετά από ένα βαρύ γεύμα σε μια κουραστική μέρα και ακόμα περισσότερο μετά κατανάλωση αλκοόλ είναι ίσως ο πλέον συχνός πυροδότης κολπικής μαρμαρυγής. Όσον αφορά στο αλκοόλ το κόκκινο κρασί μέσω των τανινών προκαλεί μεγαλύτερη παλινδρόμηση, γεγονός που έρχεται σε αντιπαραθέση με την προστατευτική δράση των αντιοξειδωτικών ουσίων του κόκκινου κρασιού στην στεφανιαία νόσο.
Εκτός από το αλκοόλ, η καφεΐνη και συγκεκριμένες τροφές μπορεί συχνά να πυροδοτήσουν επεισόδια κολπικής μαρμαρυγής. Οι μικρές αυτές απολάυσεις αποτελούν όμως μέρος της καθημερινότητας μας. Σκοπός σε κάθε περίπτωση είναι η διατήρηση ενός υψηλού επιπέδου ποιότητας ζωής, οποτε πρέπει να αναζητήσουμε το μέτρο όσον αφορά και αυτές τις απολαύσεις.
Πώς θα βρούμε το μέτρο για κάθε άνθρωπο; Σε πρώτη φάση, όσον αφορά στο αλκοόλ και την καφεΐνη, συνιστάται η πλήρης διακοπή για μερικές μέρες. Ακολούθως μπορούμε να επανεισάγουμε σταδιακά μικρές ποσότητες. Εάν τα συμπτώματα επανέλθουν, ίσως θα πρέπει να στραφούμε προς τα ροφήματα χωρίς καφεΐνη και σε μπύρες χωρίς αλκοόλ. Σε κάθε περίπτωση πρέπει να γνωρίζουμε ότι η καφεΐνη βρίσκεται και σε πολλά ενεργειακά ποτά και συμπληρώματα διατροφής.
Όσον αφορά τις τροφές, βασικός κανόνας είναι να αποφεύγουμε την γαστροοισοφαγική παλινδρόμηση, ειδικά αν πάσχουμε από διαφραγματοκήλη. Πρέπει να αποφεύγουμε, όχι μόνο να τρώμε μεγάλες ποσότητες, αλλά κυρίως να μην τρώμε βιαστικά και να μην ξαπλώνουμε τις δύο πρώτες ώρες μετά το φαγητό. Επιπρόσθετα, τα λιπαρά τρόφιμα, και ιδίως τα τηγανητά, είναι καλό να αποφεύγονται. Τα όξινα τρόφιμα, όπως η ντομάτα και τα εσπεριδοειδή, επιδεινώνουν επίσης πολύ την παλινδρόμηση, κυρίως εάν τα καταναλώνουμε με άδειο στομάχι. Με μέτρο επίσης θα πρέπει να καταναλώνουμε τη σοκολάτα και τα μπαχαρικά, όπως και το σκόρδο και το κρεμμύδι, τα οποία δεσπόζουν στην ελληνική κουζίνα.
Εάν έχουμε κάνει όλα όσα πρέπει και πάλι τα αποτελέσματα δεν είναι τα επιθυμητά πρέπει να απευθυνθούμε στους ειδικούς ηλεκτροφυσιολόγους οι οποίοι θα μας βοηθήσουν να δώσουμε οριστική λύση στο πρόβλημά μας.

Stepwise approach – rhythm control in AF

1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
7. When to ablate
8. How to ablate
9. Future perspectives


Cardioversion for atrial fibrillation
Haemodynamically stable
Y
N
Emergency electrical cardioversion (Class I)
Check OAC status as soon as possible and proceed to last step
Check OAC status
Already on therapeutic OAC for minimum 3 weeks
Not already on OAC
Suitable for wait-and-see approach (Class IIa)
Cardioversion cannot wait
Pharmacological or electrical cardioversion (Class IIa)
Wait-and-see approach for spontaneous conversion (Class IIa)
Therapeutic OAC for at least 3 weeks before scheduled cardioversion (adherence to DOACs or INR ≥2.0 for VKAs) (Class I)
Initiation of DOAC (or VKA, LMWH, or UFH) for unscheduled cardioversion as soon as possible (Class IIa)
Elective electrical cardioversion, if needed
Check current AF episode duration
AF onset <24 h
AF onset ≥24 h or unknown
Pharmacological or electrical cardioversion
TOE guided cardioversion (Class I)
Decide on continued OAC post-cardioversion
Short-term OAC after cardioversion (4 weeks) for all patients, even if CHA_2DS_2-VA = 0
(optional if AF onset definitely <24 h and low thromboembolic risk)
Long-term OAC for all patients according to thromboembolic risk assessment
ESC

Drug	Administration route	Initial dosing	Subsequent dosing [long-term approach]	Acute success rate and time to sinus rhythm	Contraindications and precautions
Flecainide	Oral	200–300 mg	[long-term 50–150 mg twice daily]	50%–60% at 3 h and 75%–85% at 6–8 h (3–8 h)	• Should not be used in patients with severe structural or coronary artery disease, Brugada syndrome, or severe renal failure (CrCl <35 mL/min/1.73 m^2). • Prior documentation of safety and efficacy in an inpatient setting is recommended prior to pill-in-the-pocket use. • An AVN-blocking agent should be administered to avoid 1:1 conduction if transformation to AFL. • Drug infusion should be discontinued in case of QRS widening >25% or bundle branch block occurrence. • Caution is needed in patients with sinus node disease and AVN dysfunction. • Do NOT use for conversion of atrial flutter.
	Intravenous	1–2 mg/kg over 10 min		52%–95% (Up to 6 h)	
Propafenone	Oral	450–600 mg	[long-term 150-300 mg three times daily]	45%–55% at 3 h, 69%–78% at 8 h (3–8 h)	
	Intravenous	1.5–2 mg/kg over 10 min		43%–89% (Up to 6 h)	
Amiodarone	Intravenous (/oral)	300 mg intravenous over 30–60 min	900-1200 mg intravenous over 24 hours (or 200 mg oral three times daily for 4 weeks). [long-term 200 mg oral daily]	44% (8–12 h to several days)	• May cause phlebitis (use a large peripheral vein, avoid i.v. administration >24 h and use preferably volumetric pump). • May cause hypotension, bradycardia/ atrioventricular block, QT prolongation. • Only if no other option in patients with hyperthyroidism (risk of thyrotoxicosis). • Consider the broad range of drug interactions.
Ibutilide	Intravenous	1 mg over 10 min (0.01 mg/kg if body weight <60 kg)	1 mg over 10 min (10–20 min after the initial dose)	31%–51% (30–90 min) in AF 60–75% in AFL (60 min)	• Should be used in the setting of a cardiac care unit as it may cause QT prolongation and torsades de pointes. • ECG monitoring for at least 4 h after administration to detect any proarrhythmic effects. • Should not be used in patients with prolonged QT, severe LVH, or low LVEF.
Vernakalant	Intravenous	3 mg/kg over 10 min (maximum 339 mg)	2 mg/kg over 10 min (10–15 min after the initial dose) (maximum 226 mg)	50% within 10 min	• Should not be used in patients with arterial hypotension (SBP <100 mmHg), recent ACS (within 1 month), NYHA III or IV HF, QT prolongation or severe aortic stenosis. • May cause arterial hypotension, QT prolongation, QRS widening, or non-sustained ventricular tachycardia.

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Cardiovascular Drugs and Therapy (2021) 35:293–308
https://doi.org/10.1007/s10557-020-07127-1

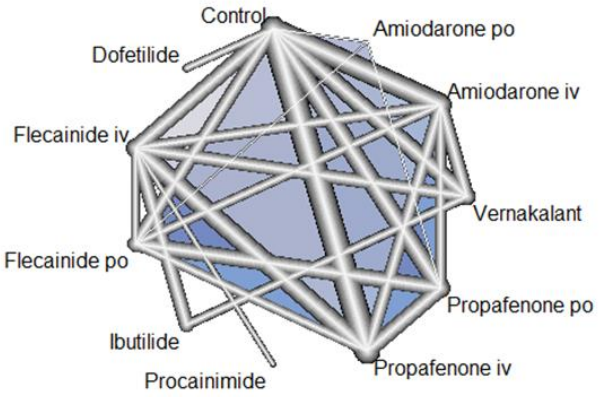
REVIEW ARTICLE

Pharmacologic Cardioversion in Patients with Paroxysmal Atrial Fibrillation: A Network Meta-Analysis

Dimitris Tsiachris[1] · Ioannis Doundoulakis[1,2] · Eirini Pagkalidou[3] · Athanasios Kordalis[1] · Spyridon Deftereos[4,5] · Konstantinos A. Gatzoulis[2] · Konstantinos Tsioufis[2] · Christodoulos Stefanadis[1,5]

A network meta-analysis foR pharmacological cardioversion

41 RCTs (6013 patients)



- A prespecified protocol registered in the OFS database (DOI: 10.17605/OSF.IO/APWT7)
- RCTs until 15 March 2020
- Adult patients with AF lasting for up to 7 days (Paroxysmal)

Tsiachris et al. Pharmacologic cardioversion of AF: A network meta-analysis. Ahead of print

Conversion to sinus rhythm within 4 hours

- Pooled cardioversion rates of the 4 hours monitoring

Treatment	Trials	N	Events	Rate (95% CI)	I^2(%)
Amiodarone iv	8	474	111	0.23 (0.20 – 0.27)	0
Dofetilide	1	65	26	0.40 (0.28 – 0.53)	0
Flecainide iv	8	553	354	0.65 (0.54 – 0.76)	85
Flecainide po	3	149	84	0.56 (0.48 – 0.65)	15
Ibutilide	2	157	75	0.48 (0.40 – 0.56)	0
Placebo	18	982	147	0.14 (0.10 – 0.19)	74
Propafenone iv	8	514	319	0.60 (0.54 – 0.66)	42
Propafenone po	5	306	138	0.45 (0.36 – 0.53)	52
Vernakalant	9	816	430	0.53 (0.47 – 0.59)	63

Allowing discharge from the Emergency department and reducing hospital admission

Tsiachris et al. Pharmacologic cardioversion of AF: A network meta-analysis. Ahead of print

Table 5 Treatment ranking for pharmacologic cardioversion within 4 h

Vernakalant	0.9933
Flecainide iv	0.8031
Propafenone iv	0.7827
Flecainide po	0.6971
Ibutilide	0.6132
Propafenone po	0.5605
Dofetilide	0.3754
Amiodarone iv	0.3018
Procainimide	0.1961
Amiodarone po	0.1639
Control	0.0128

P-scores are calculated in order to create a relative ranking of effectiveness for pharmacologic cardioversion within 4 h

Table 6 Treatment ranking for pharmacologic cardioversion within 12 h

Flecainide po	0.8313
Flecainide iv	0.7255
Amiodarone+ ranolazine	0.6818
Propafenone po	0.6447
Propafenone iv	0.4976
Amiodarone po	0.3859
Amiodarone iv	0.2300
Control	0.0033

P-scores are calculated in order to create a relative ranking of effectiveness for pharmacologic cardioversion within 12 h

Table 7 Treatment ranking for pharmacologic cardioversion within 24 h

Amiodarone+ranolazine	0.9220
Flecainide po	0.7501
Vernakalant	0.6893
Amiodarone po	0.6746
Ibutilide	0.5795
Flecainide iv	0.5272
Propafenone iv	0.4935
Propafenone po	0.4345
Quinidine	0.3594
Amiodarone iv	0.3415
Procainimide	0.1726
Control	0.0558

P-scores are calculated in order to create a relative ranking of effectiveness for pharmacologic cardioversion within 24 h

Time to cardioversion

Treatment	Mean (min)	SD	I^2(%)
Amiodarone iv	560.15	123.73	0
Amiodarone + Ranolazine	612.00	198.00	0
Flecainide iv	52.00	54.00	0
Flecainide po	110.00	82.30	0
Ibutilide	41.33	15.93	0
Placebo	565.76	230.84	0
Propafenone iv	150.60	166.20	0
Propafenone po	279.00	237.00	0
Vernakalant	11.80	4.30	0

Tsiachris et al. Pharmacologic cardioversion of AF: A network meta-analysis. Ahead of print

European Journal of Clinical Pharmacology

Reappraising the role of class Ic antiarrhythmics in atrial fibrillation cardioversion

Dimitris Tsiachris[1,2], Ioannis Doundoulakis[1,2], Panagiotis Tsioufis[2], Eirini Pagkalidou[3], Christos-Konstantinos Antoniou[1], Stefanos M. Zafeiropoulos[4,5], Konstantinos A Gatzoulis[2], Konstantinos Tsioufis[2], Christodoulos Stefanadis[1,6]

Table 2. Number Needed to Treat for cardioversion in 4 hours

Study	Antiarrhythmic Drug	Control	Event Drug	Total Drug	Event Placebo	Total Placebo	*CER*	Mean *CER*	Pooled OR (95% CI)	Pooled RD (95% CI)	NNT_{RD} (95% CI)
Balla 2011	Flecainide oral	Placebo	18	40	2	20	0.10	0.14	6.43 (2.86,14.48)	0.37 (0.25,0.50)	3 (2-4)
Boriani 1998	Flecainide oral	Placebo	39	69	7	40	0.18				
Donovan 1995	Flecainide iv	Placebo	20	34	7	32	0.22	0.23	7.38 (4.16,13.08)	0.43 (0.32,0.54)	2 (2-3)
Donovan 1992	Flecainide iv	Placebo	29	51	7	51	0.14				
Romano 2001	Flecainide iv	Placebo	111	138	8	25	0.32				
Azpitarte 1997	Propafenone oral	Placebo	12	29	2	26	0.08	0.13	5.46 (3.08,9.69)	0.34 (0.26,0.43)	3 (2-4)
Balla 2011	Propafenone oral	Placebo	23	40	2	20	0.10				
Boriani 1998	Propafenone oral	Placebo	54	119	7	40	0.18				
Botto 1997	Propafenone oral	Placebo	36	70	6	35	0.17				
Bianconi 1998	Propafenone iv	Placebo	20	41	19	82	0.23	0.24	5.21 (3.18,8.56)	0.38 (0.27,0.49)	3 (2-4)
Boriani 1998	Propafenone iv	Placebo	33	58	7	40	0.18				
Fresco 1996	Propafenone iv	Placebo	24	41	10	34	0.29				
Ganau 1998	Propafenone iv	Placebo	57	81	13	75	0.17				
Romano 2001	Propafenone iv	Placebo	112	164	8	25	0.32				

Abbreviations: CER, control event rate; CI, confidence interval; N, sample size; NNT, number needed to treat; OR, odds ratio; RD, risk difference; Treat, treatment

Table 3. Pooled adverse events of class Ic antiarrhythmics

Treatment	N	Patients with IHD	Patients with HF	Hypotension, N (%)	Bradycardia, N (%)	Ventricular dysrhythmia, N (%)
Flecainide iv	473	89	17	31 (6.5)	4 (0.9)	1 (0.2)
Flecainide po	149	8	23	0	0	0
Propafenone iv	723	112	57	16 (2.2)	13 (1.8)	0
Propafenone po	349	34	27	5 (1.4)	4 (1.2)	1 (0.3)

IHD: Ischemic Heart Disease
HF: Heart Failure

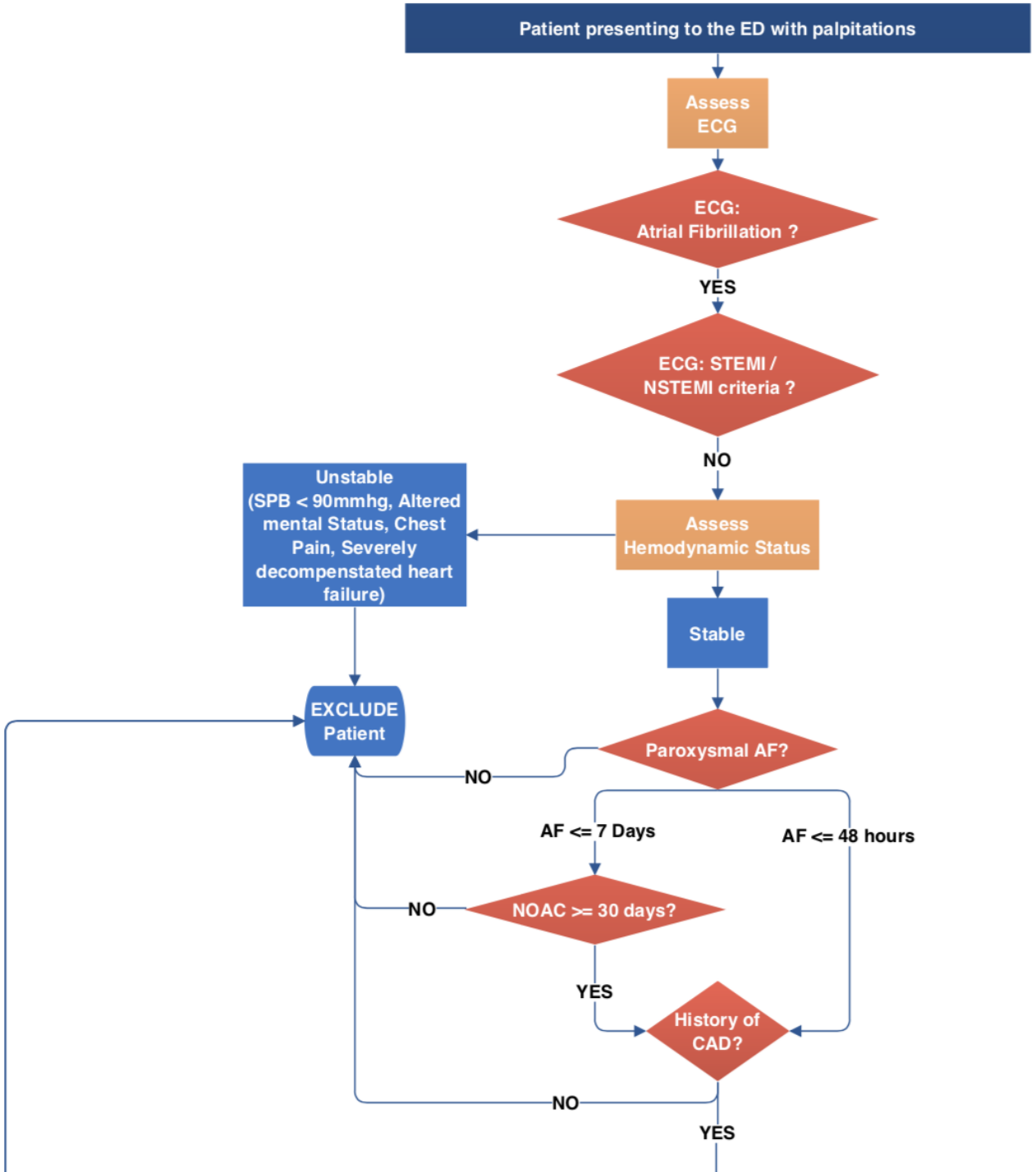
FLECA-ED RCT

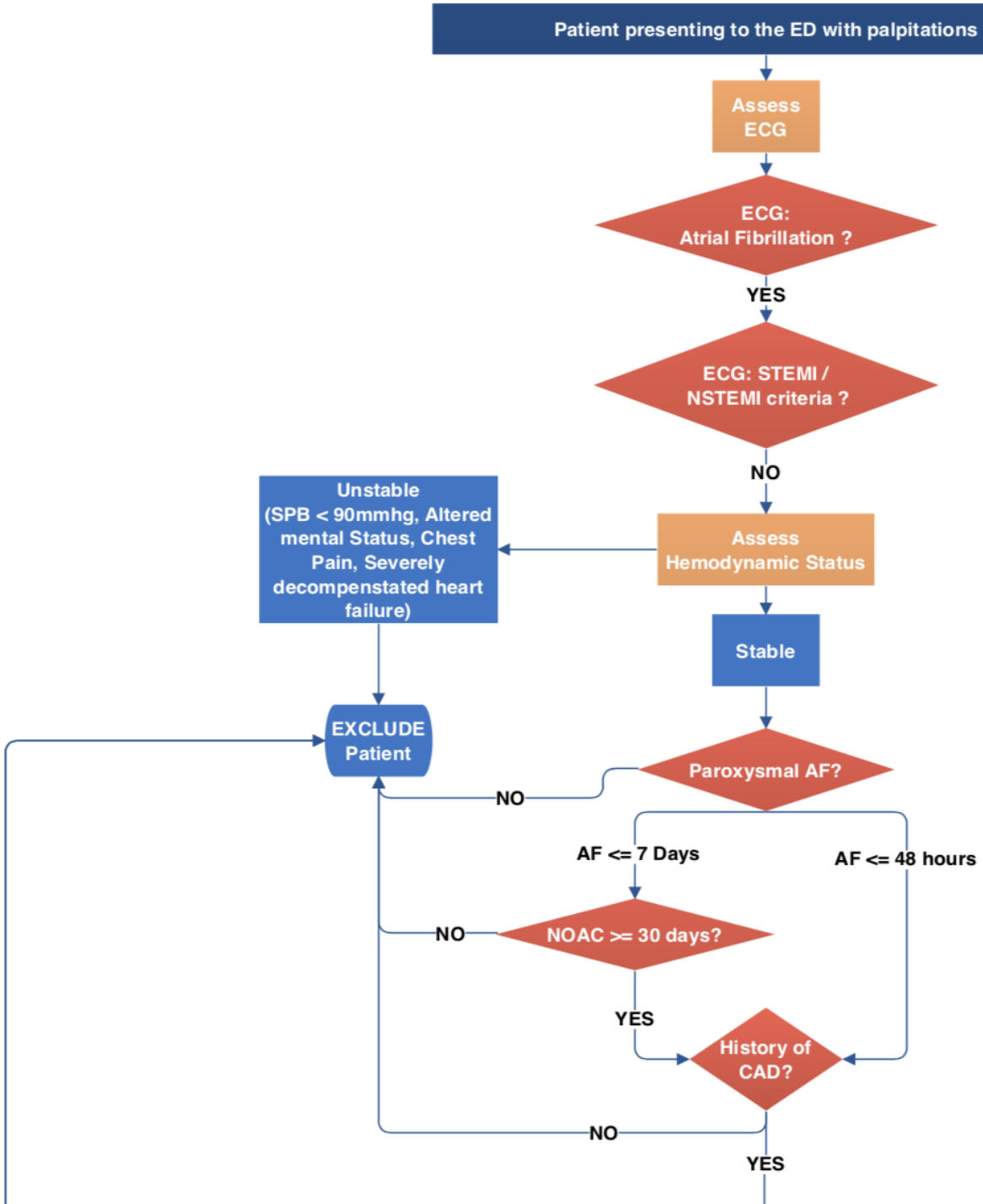
Χορηγός: Win Medica
Κωδικός Κλινικής Μελέτης: FLECA-ED
Έκδοση: *1.0*
Ημερομηνία: 27/07/2022

ΠΡΩΤΟΚΟΛΛΟ ΠΑΡΕΜΒΑΤΙΚΗΣ ΚΛΙΝΙΚΗΣ ΜΕΛΕΤΗΣ

Τίτλος Κλινικής Μελέτης

Μία προοπτική, πολυκεντρική, τυχαιοποιημένη, κλινική δοκιμή για την ασφάλεια και αποτελεσματικότητα της φλεκαϊνιδης έναντι της αμιωδαρόνης για την καρδιοανάταξη της παροξυσμικής κολπικής μαρμαρυγής στο Τμήμα Επειγόντων Περιστατικών, σε ασθενείς με στεφανιαία νόσο χωρίς υπολειπόμενη ισχαιμία και κλάσμα εξώθησης > 35% (FLECA-ED)


Patient presenting to the ED with palpitations
Assess ECG
ECG: Atrial Fibrillation ?
YES
ECG: STEMI / NSTEMI criteria ?
NO
Assess Hemodynamic Status
Unstable (SPB < 90mmhg, Altered mental Status, Chest Pain, Severely decompenstated heart failure)
Stable
EXCLUDE Patient
Paroxysmal AF?
NO
AF <= 7 Days
AF <= 48 hours
NOAC >= 30 days?
NO
YES
History of CAD?
NO
YES


Patient presenting to the ED with palpitations
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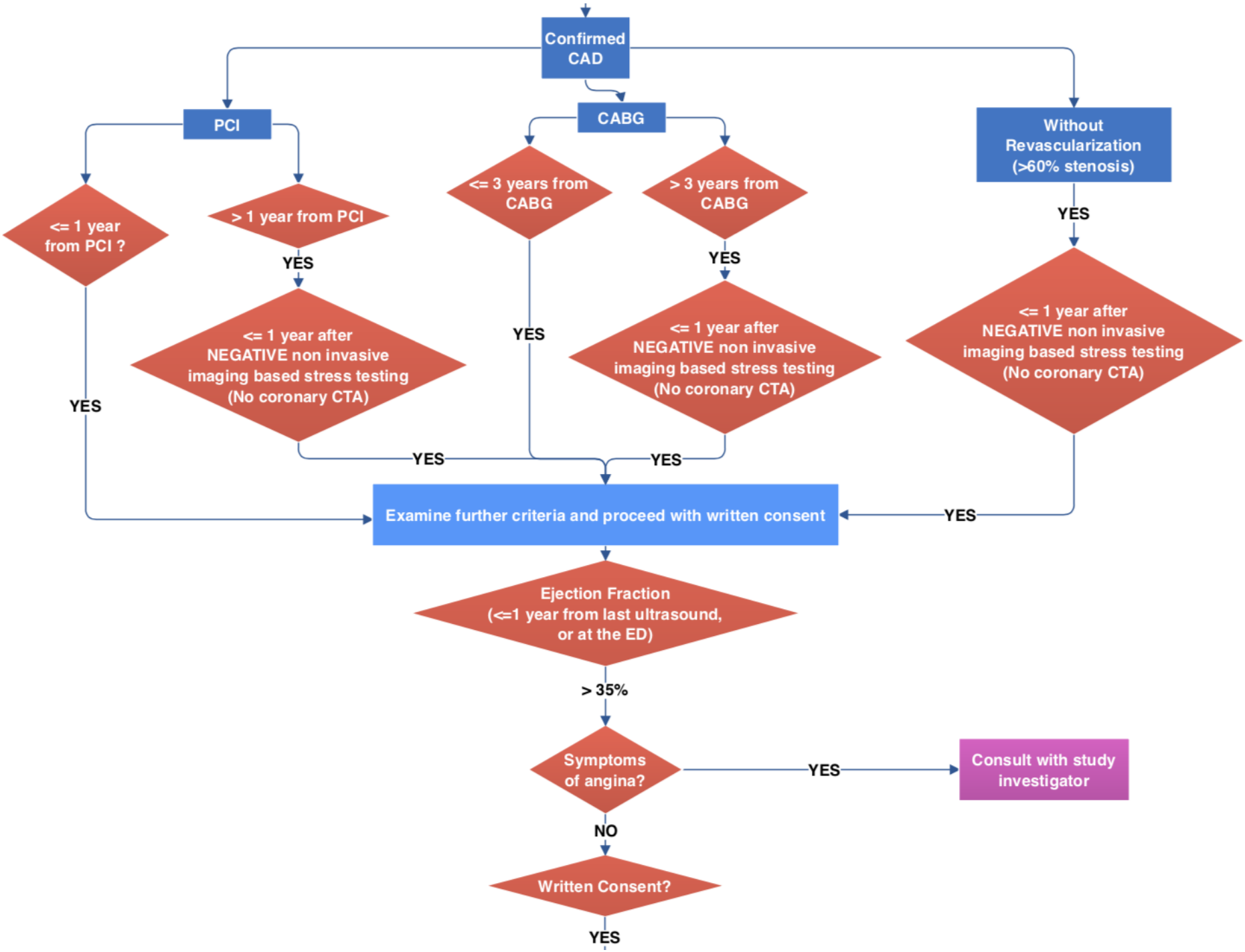
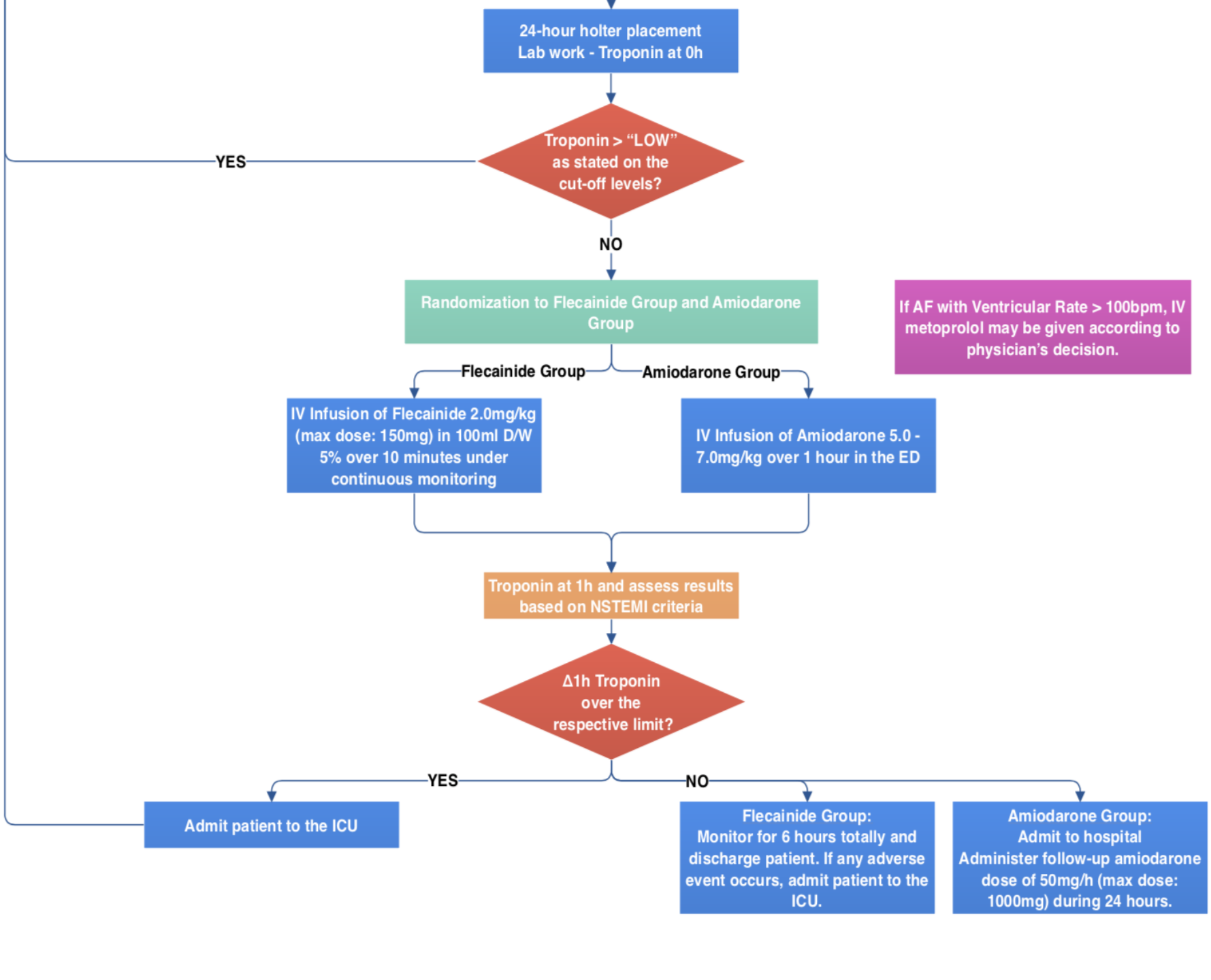
Unstable (SPB < 90mmhg, Altered mental Status, Chest Pain, Severely decompenstated heart failure)
Stable
EXCLUDE Patient
Paroxysmal AF?
NO
AF <= 7 Days
AF <= 48 hours
NOAC >= 30 days?
NO
YES
History of CAD?
NO
YES


Confirmed CAD
PCI
CABG
Without Revascularization (>60% stenosis)
<= 1 year from PCI ?
> 1 year from PCI
<= 3 years from CABG
> 3 years from CABG
YES
<= 1 year after NEGATIVE non invasive imaging based stress testing (No coronary CTA)
<= 1 year after NEGATIVE non invasive imaging based stress testing (No coronary CTA)
<= 1 year after NEGATIVE non invasive imaging based stress testing (No coronary CTA)
Examine further criteria and proceed with written consent
Ejection Fraction (<=1 year from last ultrasound, or at the ED)
> 35%
Symptoms of angina?
Consult with study investigator
NO
Written Consent?


24-hour holter placement
Lab work - Troponin at 0h
Troponin > "LOW" as stated on the cut-off levels?
YES
NO
Randomization to Flecainide Group and Amiodarone Group
If AF with Ventricular Rate > 100bpm, IV metoprolol may be given according to physician's decision.
Flecainide Group
Amiodarone Group
IV Infusion of Flecainide 2.0mg/kg (max dose: 150mg) in 100ml D/W 5% over 10 minutes under continuous monitoring
IV Infusion of Amiodarone 5.0 - 7.0mg/kg over 1 hour in the ED
Troponin at 1h and assess results based on NSTEMI criteria
Δ1h Troponin over the respective limit?
YES
NO
Admit patient to the ICU
Flecainide Group:
Monitor for 6 hours totally and discharge patient. If any adverse event occurs, admit patient to the ICU.
Amiodarone Group:
Admit to hospital
Administer follow-up amiodarone dose of 50mg/h (max dose: 1000mg) during 24 hours.

Πλατφόρμα Heromedicus

Καταγραφή Δομημένων Ιατρικών Δεδομένων

Για ερευνητικούς σκοπούς

Πλήρως Προσαρμοσμένες Φόρμες

Σάρωση Εξετάσεων μέσω κάμερας

Ασφαλής Αποθήκευση Αρχείων

Με δυνατότητα επεξεργασίας και σημάνσεων (v1.10)

Απομακρυσμένη Επίκριση Περιστατικού από Αρρυθμιολόγο

Διαχείριση Ραντεβού

Δημιουργία Ραντεβού από το ΤΕΠ για follow-up σε Τακτικό Ιατρείο

Αυτόματος Συγχρονισμός

Πρόσβαση από κάθε συσκευή (tablet, phone, web)

Ευκολία χρήσης

Ταχύτητα στη συμπλήρωση και ανάκτηση των δεδομένων

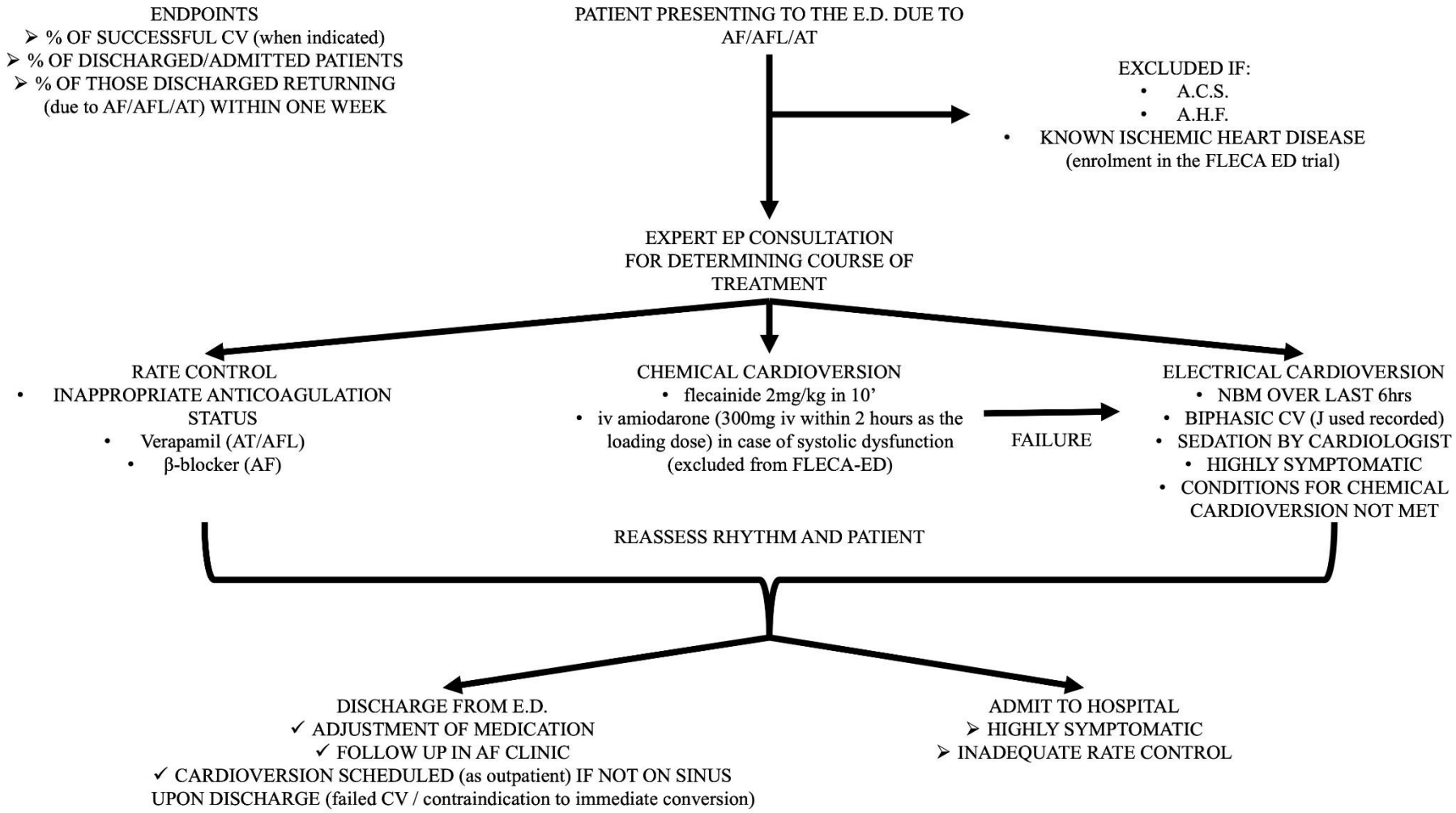
1. Heromedicus
2. FLECA-ED CRF & Randomization
3. GE SEER 1000

Τίτλος Διδακτορικής διατριβής: Επίδραση της επιθετικής στρατηγικής ελέγχου ρυθμού στις εισαγωγές ασθενών με κολπική μαρμαρυγή από το τμήμα επειγόντων περιστατικών. Εκτίμηση ασφάλειας και αποτελεσματικότητας.

Επιβλέπον μέλος ΔΕΠ: Επίκουρος Καθηγητής Τσιαχρής Δημήτριος

Aggressive rhythm control strategy in atrial fibrillation patients presented at the emergency department. The HEROMEDICUS study design and initial results. JCDD (in press)

Νίκος Αργυρίου MD



Journal of
Cardiovascular
Development and Disease

MDPI

Article

Aggressive Rhythm Control Strategy in Atrial Fibrillation Patients Presenting at the Emergency Department: The HEROMEDICUS Study Design and Initial Results

Dimitrios Tsiachris *, Nikos Argyriou, Panagiotis Tsioufis, Christos Konstantinos Antoniou, Aggeliki Laina, George Oikonomou, Ioannis Doundoulakis, Athanasios Kordalis, Kyriakos Dimitriadis, Konstantinos Gatzoulis and Konstantinos Tsioufis

9. Initial Results

During the first 100 days of the study period, 63 patients visited the ED with a primary diagnosis of AF (n = 55) or AFL (n = 8) and were included in this study. It is notable that in half of them, this was the first episode of AF (n = 32). Among the 31 patients with a known history of AF, 5 had undergone previous AF ablation. Electrical cardioversion was performed in 18 patients and restoration of SR was achieved in 17 of them. Ultimately, only two patients were admitted to the hospital (3.2%) and both of them were discharged within 48 h.

ΠΑ040 | **Βελτίωση διαχείρισης ασθενών με κολπική μαρμαρυγή στο ΤΕΠ βάσει επιθετικής στρατηγικής ελέγχου ρυθμού (μελέτη HEROMEDICUS)**

Ν. Αργυρίου[1], Δ. Τσιαχρής[1], Π. Τσιούφης[1], Α. Κορδαλής[1], Χ. Κ. Αντωνίου[1], Ι. Δουνδουλάκης[1], Α. Σακαλίδης[1], Α. Λαζάρου[1], Ι. Δημητρόγλου[1], Χ. Κασκούτης[1], Σ. Σουλαιδόπουλος[1], Κ. Δημητριάδης[1], Κ. Γκατζούλης[1], Κ. Τσιούφης[1]

[1] ΓΕΝΙΚΟ ΝΟΣΟΚΟΜΕΙΟ ΑΘΗΝΩΝ ΙΠΠΟΚΡΑΤΕΙΟ ΑΤΤΙΚΗΣ Α' ΠΑΝΕΠΙΣΤΗΜΙΑΚΗ ΚΛΙΝΙΚΗ

ΠΑ038 | **Ασφάλεια και αποτελεσματικότητα της ηλεκτρικής ανάταξης της κολπικής μαρμαρυγής στο περιβάλλον των επειγόντων περιστατικών (μελέτη HEROMEDICUS)**

Ν. Αργυρίου[1], Δ. Τσιαχρής[1], Π. Τσιούφης[1], Α. Κορδαλής[1], Χ. Κ. Αντωνίου[1], Ι. Δουνδουλάκης[1], Α. Ε. Καρανικόλα[1], Φ. Τατάκης[1], Σ. Σουλαιδόπουλος[1], Ε. Δρη[1], Π. Θεοφίλης[1], Μ. Κουρεμέτη[1], Ι. Λεοντσίνης[1], Κ. Δημητριάδης[1], Κ. Τσιούφης[1]

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ΑΑ014 | **Ασφάλεια και αποτελεσματικότητα της χρήσης της ενδοφλεβίου φλεκαϊνίδης στα πλαίσια επιθετικής στρατηγικής ελέγχου ρυθμού ασθενών με κολπική μαρμαρυγή στο τμήμα επειγόντων περιστατικών (μελέτη HEROMEDICUS)**

Ν. Αργυρίου[1], Δ. Τσιαχρής[1], Π. Τσιούφης[1], Μ. Κουρεμέτη[1], Α. Κορδαλής[1], Χ. Κ. Αντωνίου[1], Α. Καρανικόλα[1], Γ. Οικονόμου[1], Φ. Τατάκης[1], Ι. Καχριμανίδης[1], Γ. Κουτσόπουλος[1], Ε. Μαντά[1], Κ. Δημητριάδης[1], Κ. Τσιούφης[1]

[1] ΓΕΝΙΚΟ ΝΟΣΟΚΟΜΕΙΟ ΑΘΗΝΩΝ ΙΠΠΟΚΡΑΤΕΙΟ ΑΤΤΙΚΗΣ Α' ΠΑΝΕΠΙΣΤΗΜΙΑΚΗ ΚΛΙΝΙΚΗ

Μέχρι 28 Οκτωβρίου έχουμε:

155 ασθενείς (**9** ATs, **11** flutter, **135** AF)

40 έλαβαν flecainide μόνο και ανέταξαν (40/54)
14 έλαβαν φλεκαινίδη, δεν ανέταξαν και έγινε DCCV και ανέταξαν
1 έλαβε φλεκαινίδη+DCCV και δεν ανέταξε
1 έλαβε φλεκαινίδη μόνο, δεν ανέταξε και αποφασίστηκε το rate control

44 έγινε απευθείας DCCV και ανέταξαν (40/41)
1 έγινε μόνο DCCV και δεν ανέταξε

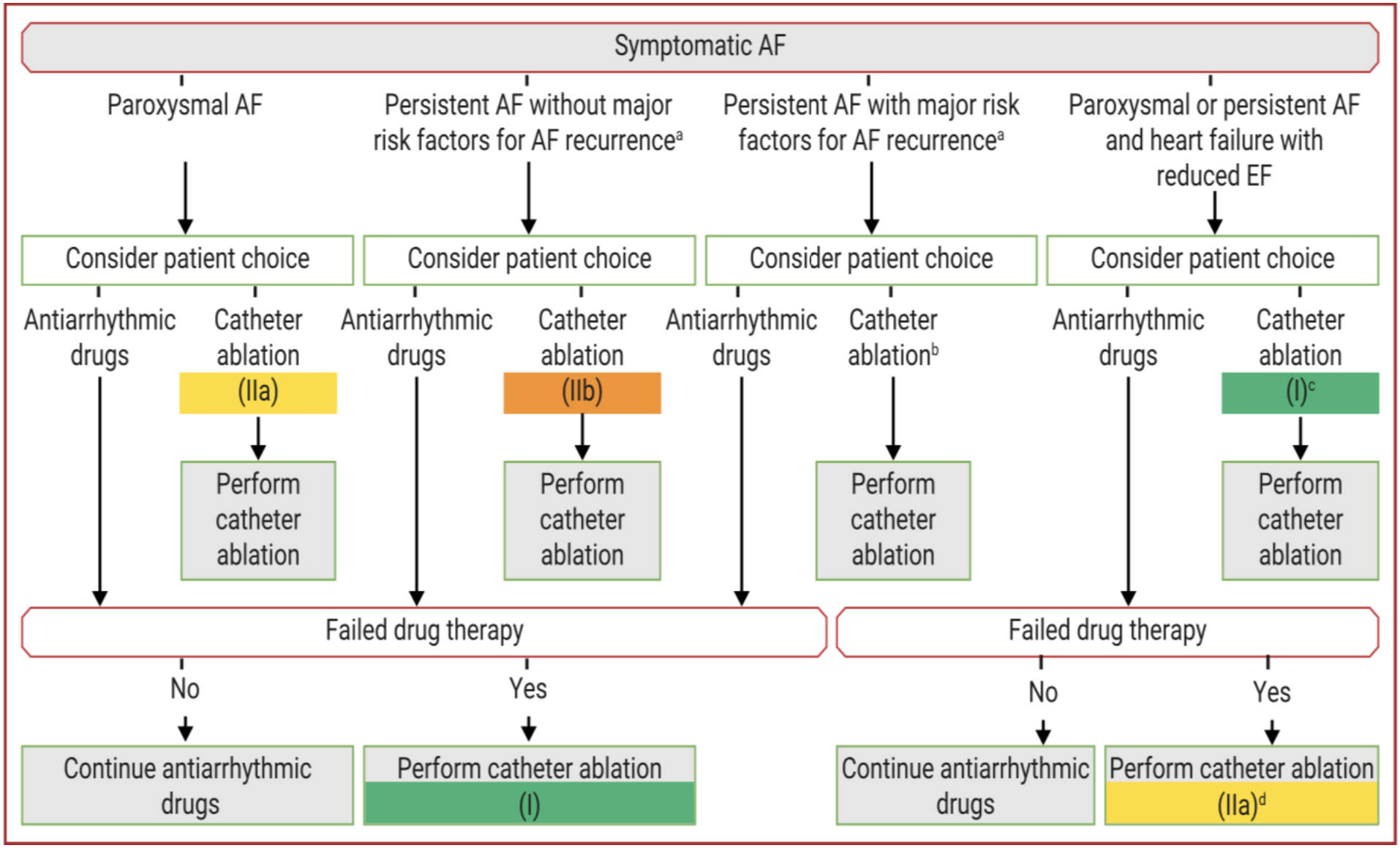
22 έγινε απευθείας rate control και δόθηκε ραντεβού για ανάταξη.
1 έγινε rate control και ανέταξε μετά από λίγο

24 ανέταξαν αυτόματα (**4** είχαν λάβει pill in the pocket)

3 protocol deviation Angoron

Stepwise approach – rhythm control in AF

1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
7. When to ablate
8. How to ablate
9. Future perspectives



Therapy of the arrhythmia, not the disease

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Cryoablation or Drug Therapy for Initial Treatment of Atrial Fibrillation

Jason G. Andrade, M.D., George A. Wells, Ph.D., Marc W. Deyell, M.D., Matthew Bennett, M.D., Vidal Essebag, M.D., Ph.D., Jean Champagne, M.D., Jean-Francois Roux, M.D., Derek Yung, M.D., Allan Skanes, M.D., Yaariv Khaykin, M.D., Carlos Morillo, M.D., Umjeet Jolly, M.D., Paul Novak, M.D., Evan Lockwood, M.D., Guy Amit, M.D., Paul Angaran, M.D., John Sapp, M.D., Stephan Wardell, M.D., Sandra Lauck, Ph.D., Laurent Macle, M.D., and Atul Verma, M.D., for the EARLY-AF Investigators*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Cryoballoon Ablation as Initial Therapy for Atrial Fibrillation

Oussama M. Wazni, M.D., Gopi Dandamudi, M.D., Nitesh Sood, M.D., Robert Hoyt, M.D., Jaret Tyler, M.D., Sarfraz Durrani, M.D., Mark Niebauer, M.D., Kevin Makati, M.D., Blair Halperin, M.D., Andre Gauri, M.D., Gustavo Morales, M.D., Mingyuan Shao, Ph.D., Jeffrey Cerkvenik, M.S., Rachelle E. Kaplon, Ph.D., and Steven E. Nissen, M.D., for the STOP AF First Trial Investigators*

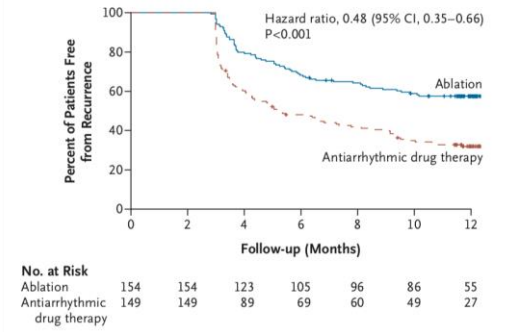


Figure 1. Freedom from Recurrence of Atrial Tachyarrhythmia over Time.
Shown are Kaplan–Meier estimates of the primary end point, freedom from recurrence of any atrial tachyarrhythmia (atrial fibrillation, atrial flutter, or atrial tachycardia) lasting 30 seconds or longer between 91 and 365 days after the initiation of an antiarrhythmic drug or catheter ablation. Tick marks indicate censored data. CI denotes confidence interval.

Cryoballoon ablation vs. antiarrhythmic drugs: first-line therapy for patients with paroxysmal atrial fibrillation

Malte Kuniss [1]*, Nikola Pavlovic [2], Vedran Velagic[3], Jean Sylvain Hermida[4], Stewart Healey[5], Giuseppe Arena[6], Nicolas Badenco[7], Christian Meyer [8], Jian Chen[9], Saverio Iacopino[10], Frédéric Anselme [11], Douglas L. Packer[12], Heinz-Friedrich Pitschner[1], Carlo de Asmundis[13], Stephan Willems[14], Fabio Di Piazza[15], Daniel Becker[16], and Gian-Battista Chierchia[13]; for the Cryo-FIRST Investigators

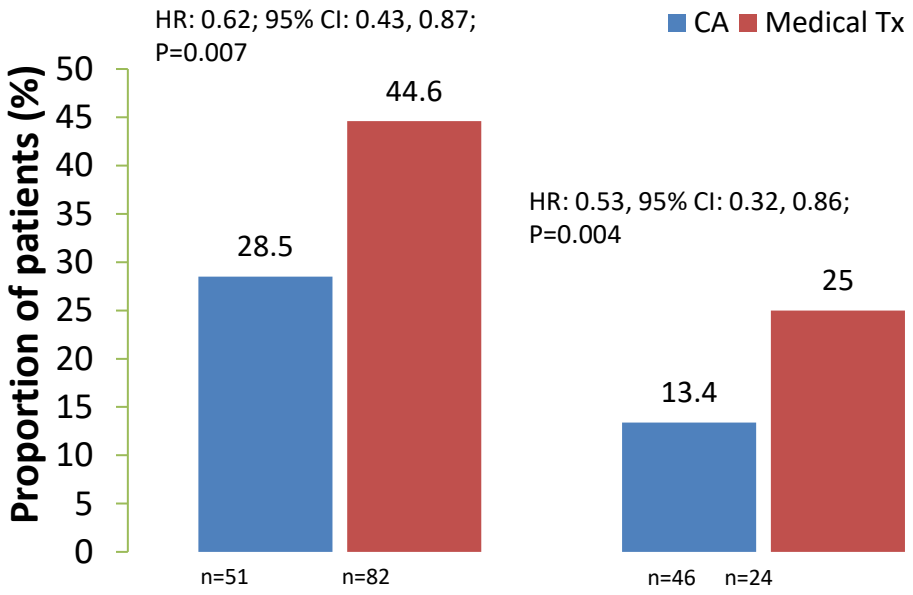
CASTLE-AF first trial to report positive impact of CA on hard endpoints in patients with HF

- HF patients are considered separately in guidelines because it is recognised that CA can be demanding in these patients[1]
- The evidence from CASTLE-AF should be interpreted with caution because there are some limitations in the study, including open-label design, number of patients screened for eligibility and number lost to follow-up

CASTLE-AF study characteristics[2]

Design:	Randomised, multicentre, open-label
Patients:	N=363
AF type:	Symptomatic paroxysmal or persistent AF with unacceptable side effects or unwillingness to take ADT, NYHA class II, III, or IV HF and a LVEF of 35% or less
Interventions:	CA (PVI) vs medical therapy (rate or rhythm control)
Median follow-up:	37.8 months
Primary endpoint:	Composite of death from any cause or worsening of HF that led to unplanned overnight hospitalisation

Proportion of patients experiencing an event in the ablation vs medical treatment group (N=363)[2]

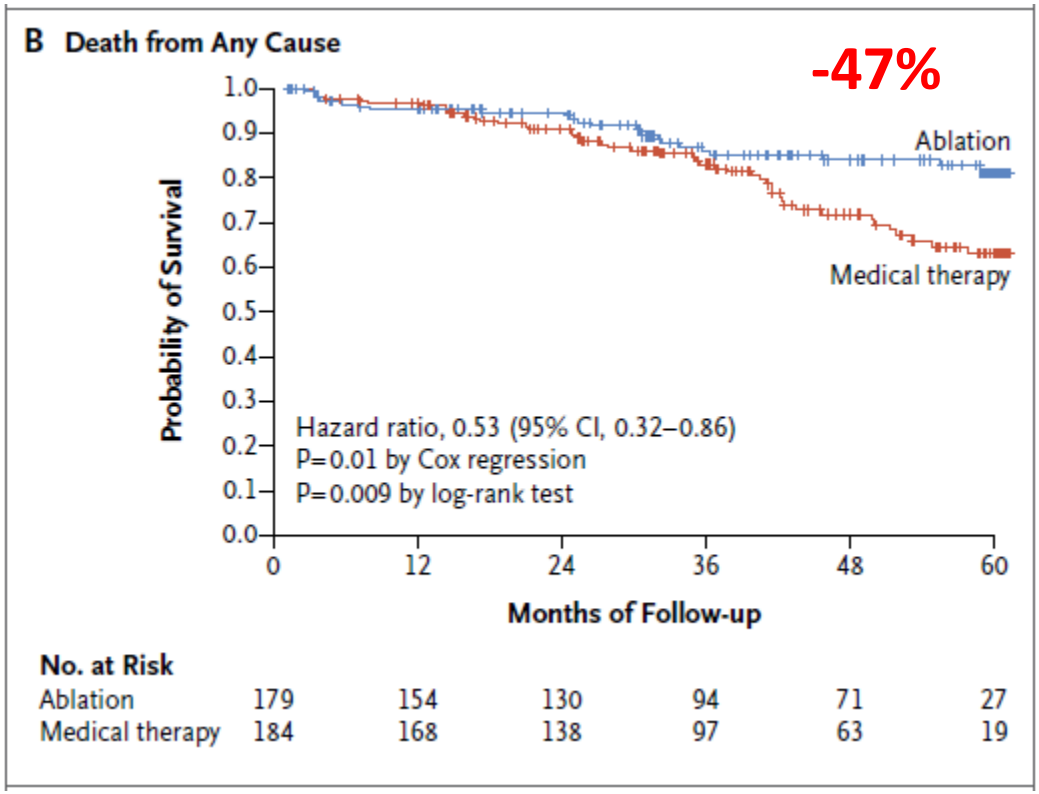


Therapy of the consequences of the disease

- 1. Kirchhof P et al. *Eur Heart J* 2016;37:2893-962; 2. Marrouche NF et al. *N Engl J Med* 2018;378:417-27

Catheter Ablation for Atrial Fibrillation with Heart Failure

Nassir F. Marrouche, M.D., Johannes Brachmann, M.D., Dietrich Andresen, M.D., Jürgen Siebels, M.D., Lucas Boersma, M.D., Luc Jordaens, M.D., Béla Merkely, M.D., Evgeny Pokushalov, M.D., Prashanthan Sanders, M.D., Jochen Proff, B.S., Heribert Schunkert, M.D., Hildegard Christ, M.D., Jürgen Vogt, M.D., and Dietmar Bänsch, M.D., for the CASTLE-AF Investigators*



Ablation, not the successful one

Therapy of the consequences of the disease

Which AF patient benefits from ablation?

More benefit

- **Cardiac function deteriorated by AF**
- **Signs of tachycardiomyopathy**
- **Increased risk of stroke**
- **Younger age**

Higher success rate

- **Lone AF**
- **Shorter AF duration**
- **Younger age**
- **Controlled risk factors**
- **Favorable cardiac structure**

Stepwise approach – rhythm control in AF

1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
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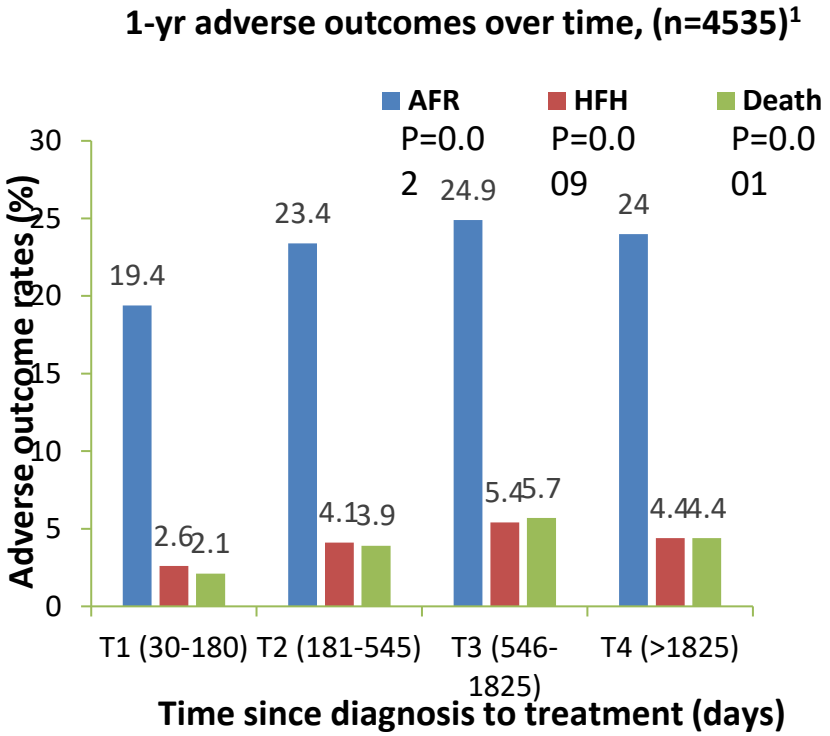
8. How to ablate
9. Future perspectives

Ablation is more effective earlier
(shorter time since diagnosis)



- Delays in catheter ablation procedure are associated with increased rates of adverse outcomes
- Adverse long-term outcomes correlate with increasing time between 1st diagnosis and ablation[1]
- In a separate retrospective study multiple drug failures were associated with higher recurrence rates, suggesting that earlier intervention may be more effective[2]
- Delays in treatment with catheter ablation negatively impact on success rates and patient outcomes[1,2]

- 1. Bunch TJ et al. *Heart Rhythm* 2013;10:1257-62;. 2. Winkle RA et al. *Europace* 2012;14:646-52

Radiofrequency Ablation of Persistent Atrial Fibrillation

Diagnosis-to-Ablation Time, Markers of Pathways of Atrial Remodeling, and Outcomes

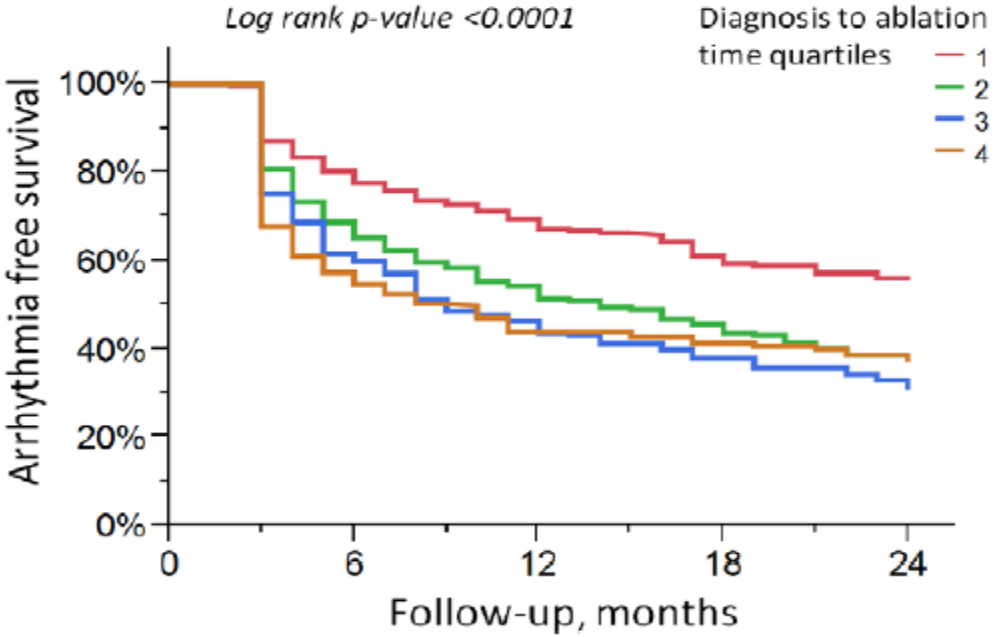


Figure 2. Kaplan–Meier curves presenting success of ablation of persistent atrial fibrillation as a function of the quartiles of the time interval between the very first diagnosis and the ablation procedure.

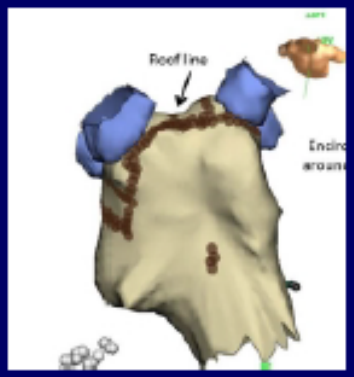
Conclusions—In patients with PersAF undergoing ablation, the time interval between the first diagnosis of PersAF and the catheter ablation procedure had a strong association with the ablation outcomes, such as shorter diagnosis-to-ablation times were associated with better outcomes and in direct association with markers of atrial remodeling. (*Circ Arrhythm Electrophysiol*. 2016;9:e003669. DOI: 10.1161/CIRCEP.115.003669.)

Stepwise approach – rhythm control in AF

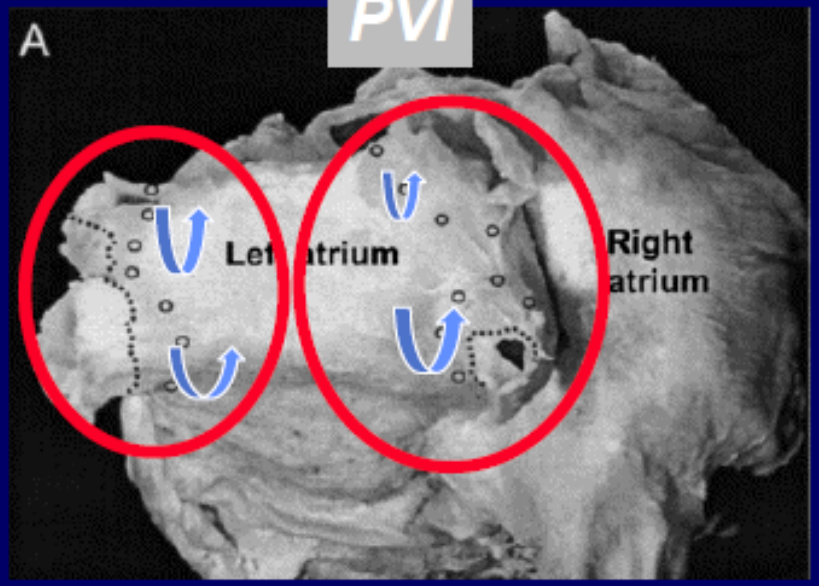
1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
7. When to ablate
8. How to ablate
9. Future perspectives

PV Antrum isolation is necessary for persistent AF ablation, but is it sufficient? Should we do more?

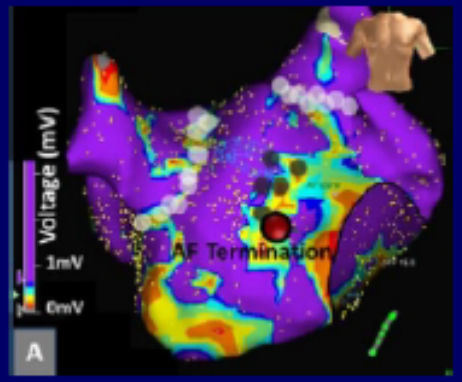
Lines?



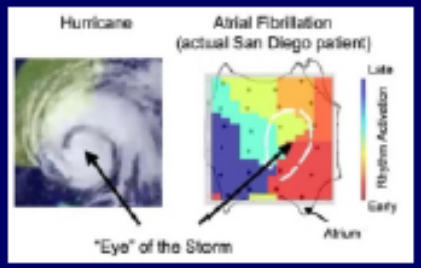
PVI



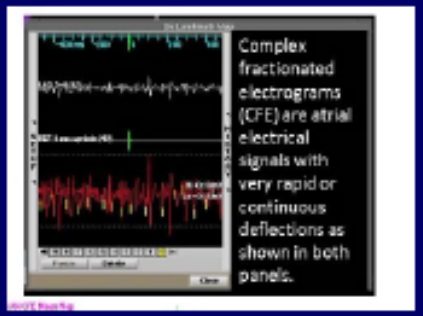
Scars?



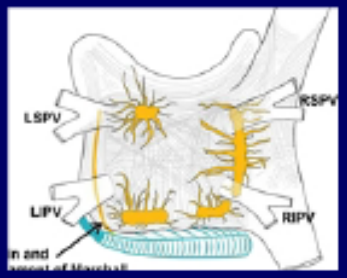
Rotors?



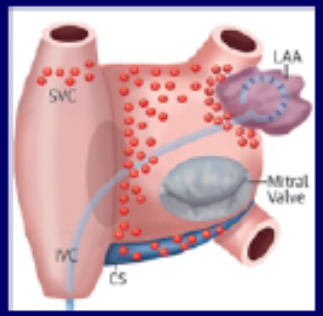
CAFE?



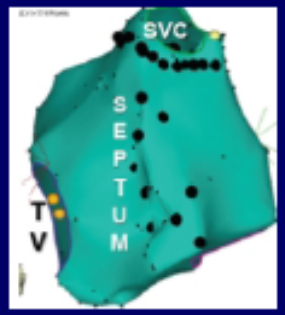
Autonomic Ganglia?



LA Appendage?



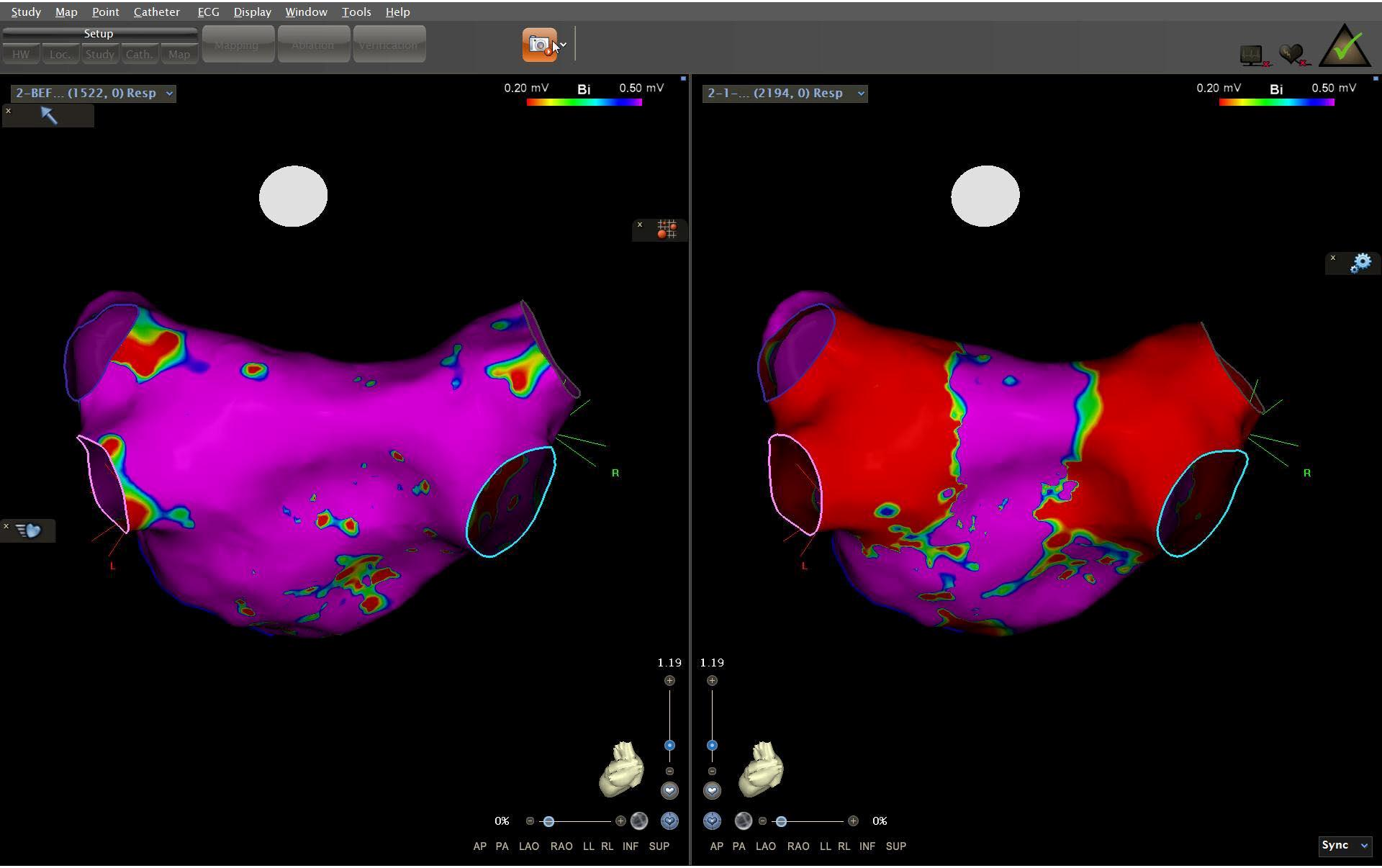
Non PV Triggers?



5S approach as the first approach

(based on recommendations)

- Safe
- Simple
- Single Shot
- Sedation


Study Map Point Catheter ECG Display Window Tools Help
Setup
HW Loc. Study Cath. Map
Mapping Ablation Verification
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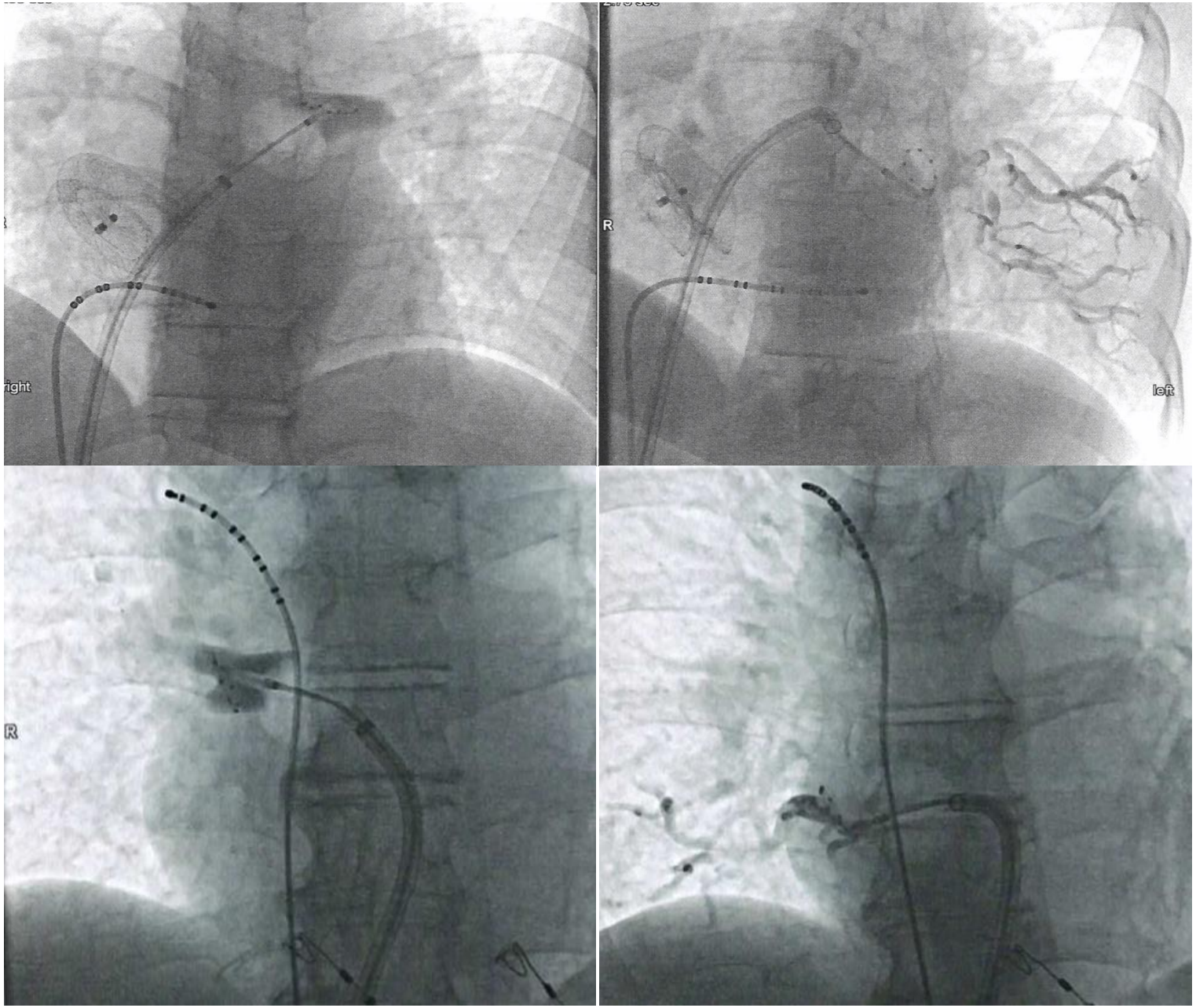
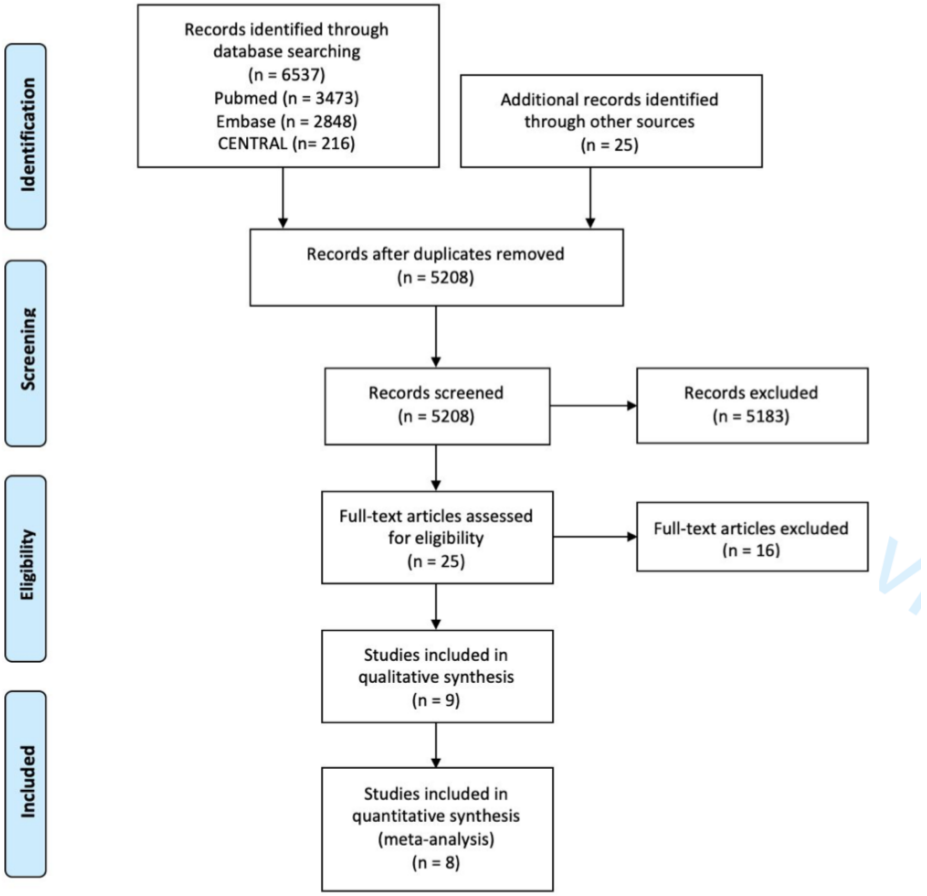
0.20 mV Bi 0.50 mV
R
L
1.19
0%
AP PA LAO RAO LL RL INF SUP
2-1-... (2194, 0) Resp
0.20 mV Bi 0.50 mV
R
L
1.19
0%
AP PA LAO RAO LL RL INF SUP
Sync

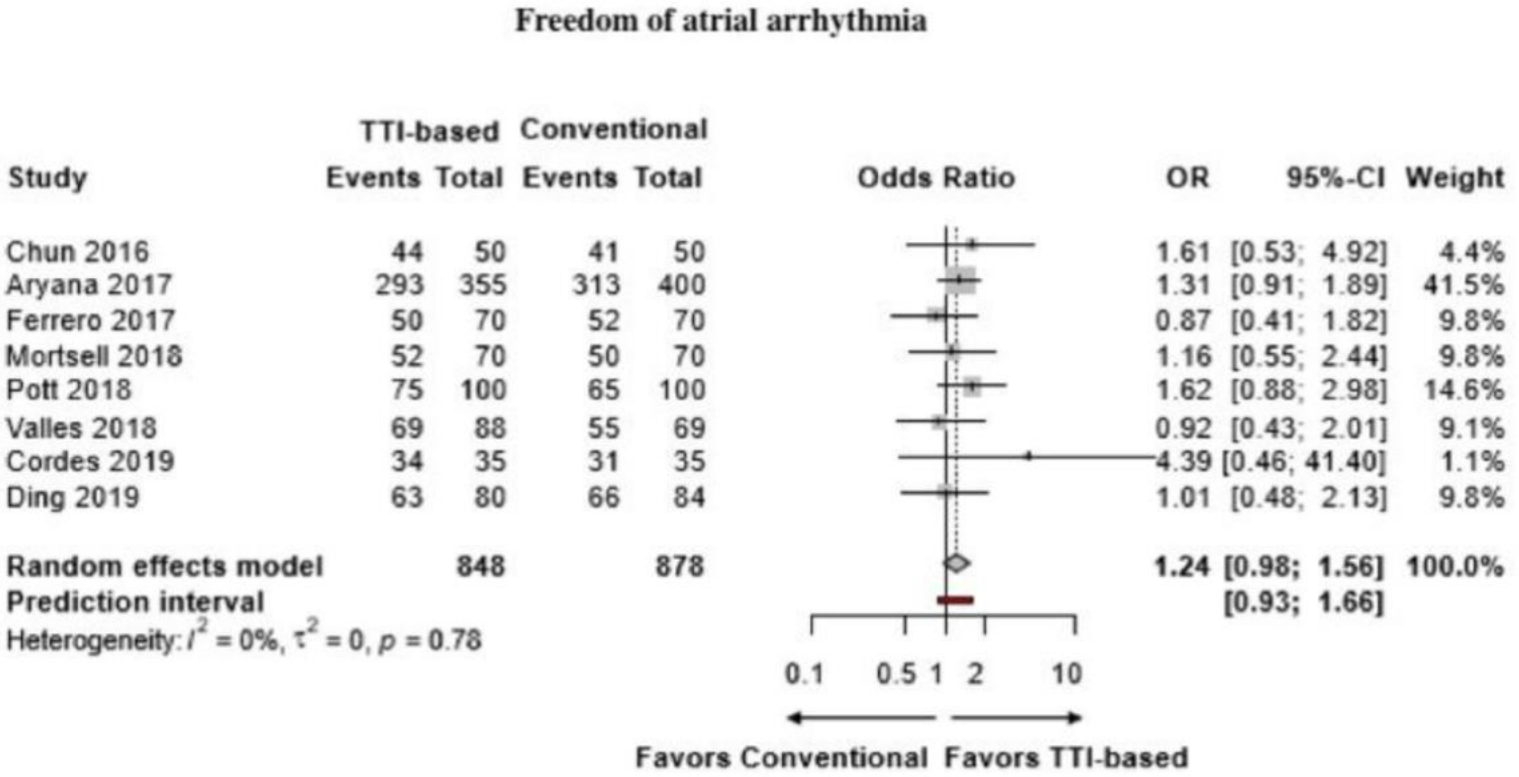

ight
R
left
R

Effectiveness and safety of a time to isolation strategy of cryoballoon ablation of atrial fibrillation: A systematic review and meta-analysis

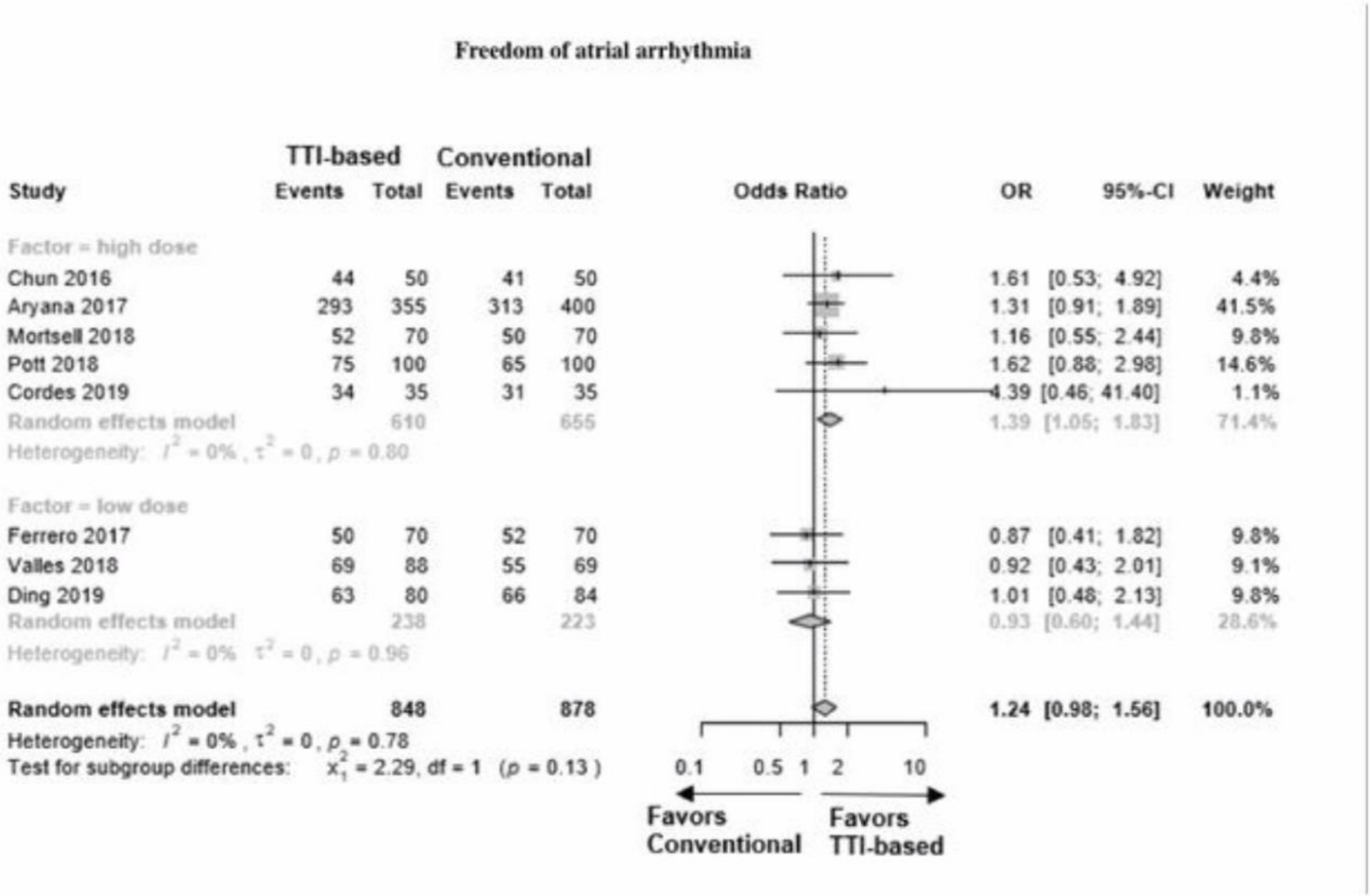
Dimitris Tsiachris[1], Ioannis Doundoulakis[1,2], Christos-Konstantinos Antoniou[1], Eirini Pagkalidou[3], Stefanos Zafeiropoulos[4,5], Athanasios Kordalis[1,2], Konstantinos A Gatzoulis[2], Gian-Battista Chierchia[6], Carlo de Asmundis[6], Konstantinos Tsioufis[2], Christodoulos Stefanadis[1,7]



TTI is crucial



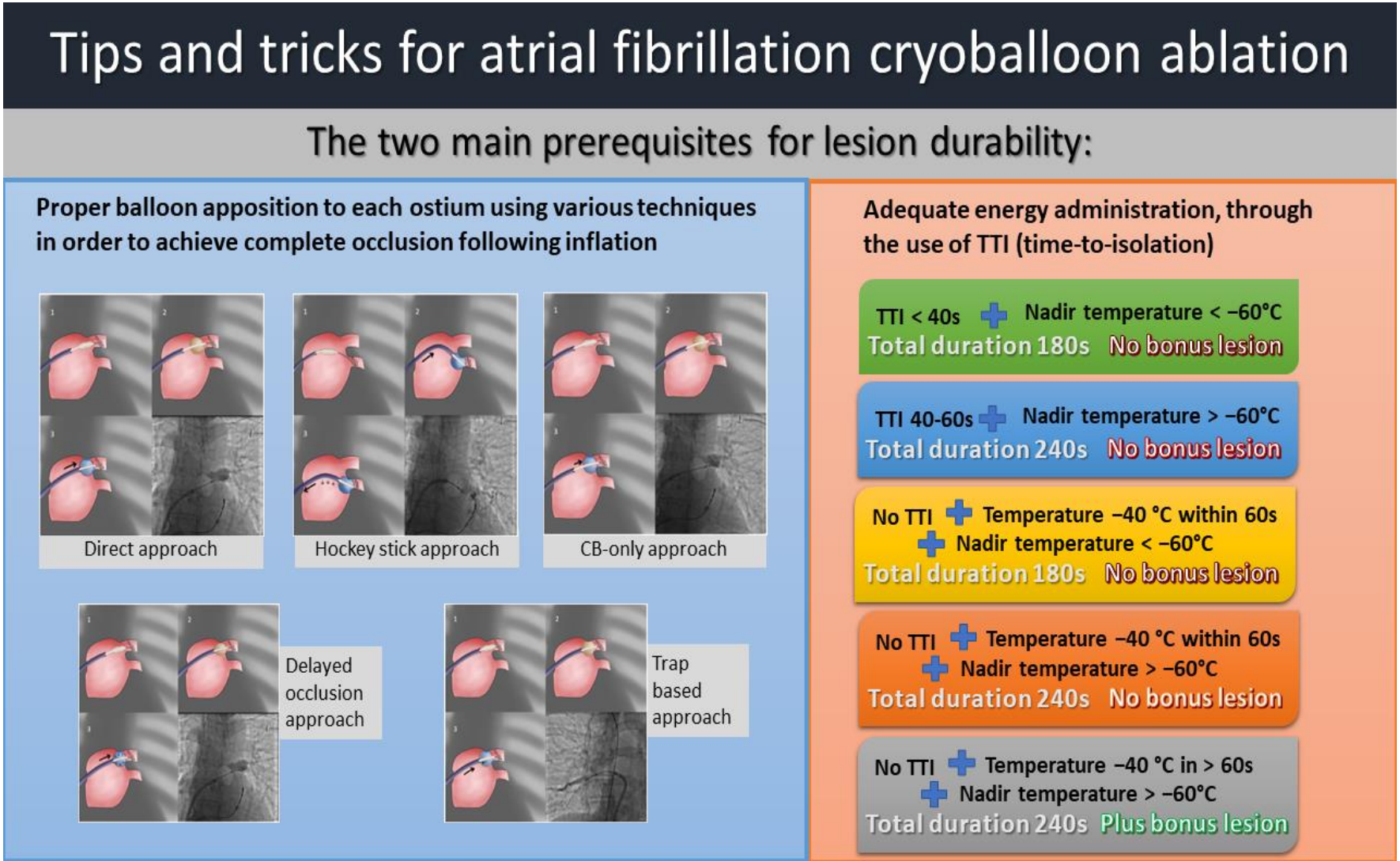
TTI +120 sec = cryoablation index



Review

Best practice guide for cryoballoon ablation in atrial fibrillation: The compilation experience of more than 1000 procedures

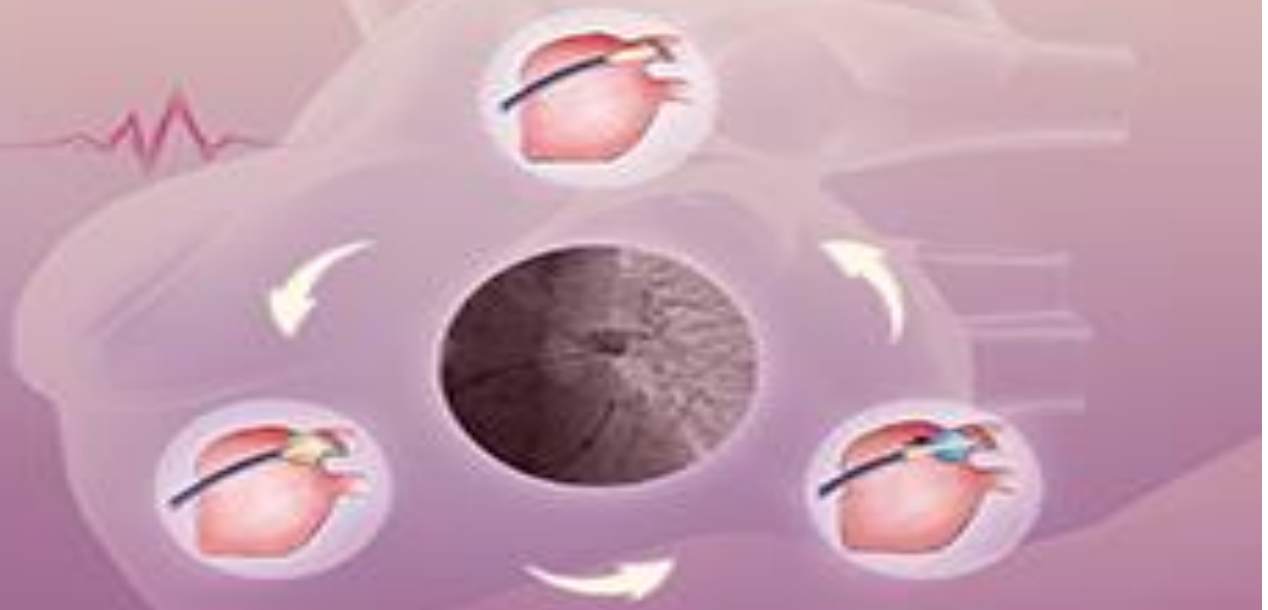
Dimitrios Tsiachris [1,2,*], Christos-Konstantinos Antoniou [1], Ioannis Doundoulakis [1,2,*], Panagiota Manolakou [1], Demetrios Sougiannis[1], Athanasios Kordalis [2], Konstantinos A Gatzoulis [2], Gian-Battista Chierchia [4], Carlo de Asmundis [4], Christodoulos Stefanadis [1,3], Konstantinos Tsioufis [2]



Journal of
Cardiovascular
Development and Disease

IMPACT FACTOR 4.415

Indexed in PubMed



Tips and Tricks for Atrial Fibrillation Cryoballoon Ablation

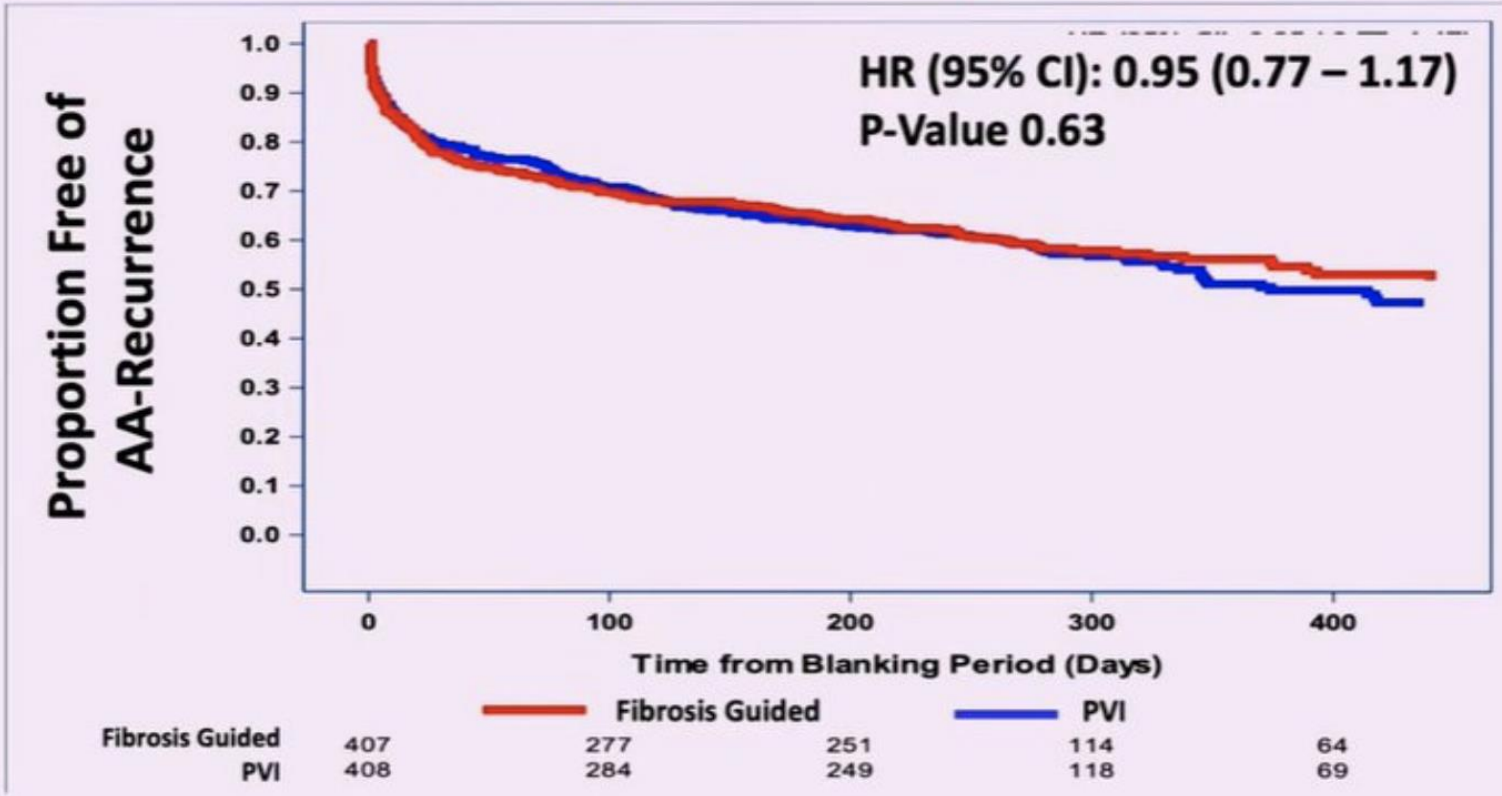
Volume 10 · Issue 2 | February 2023

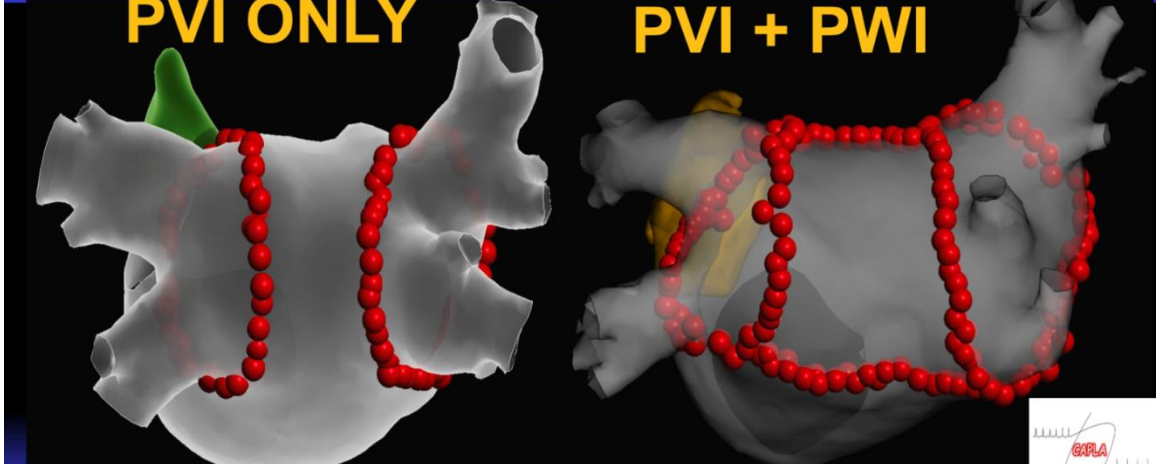
MDPI

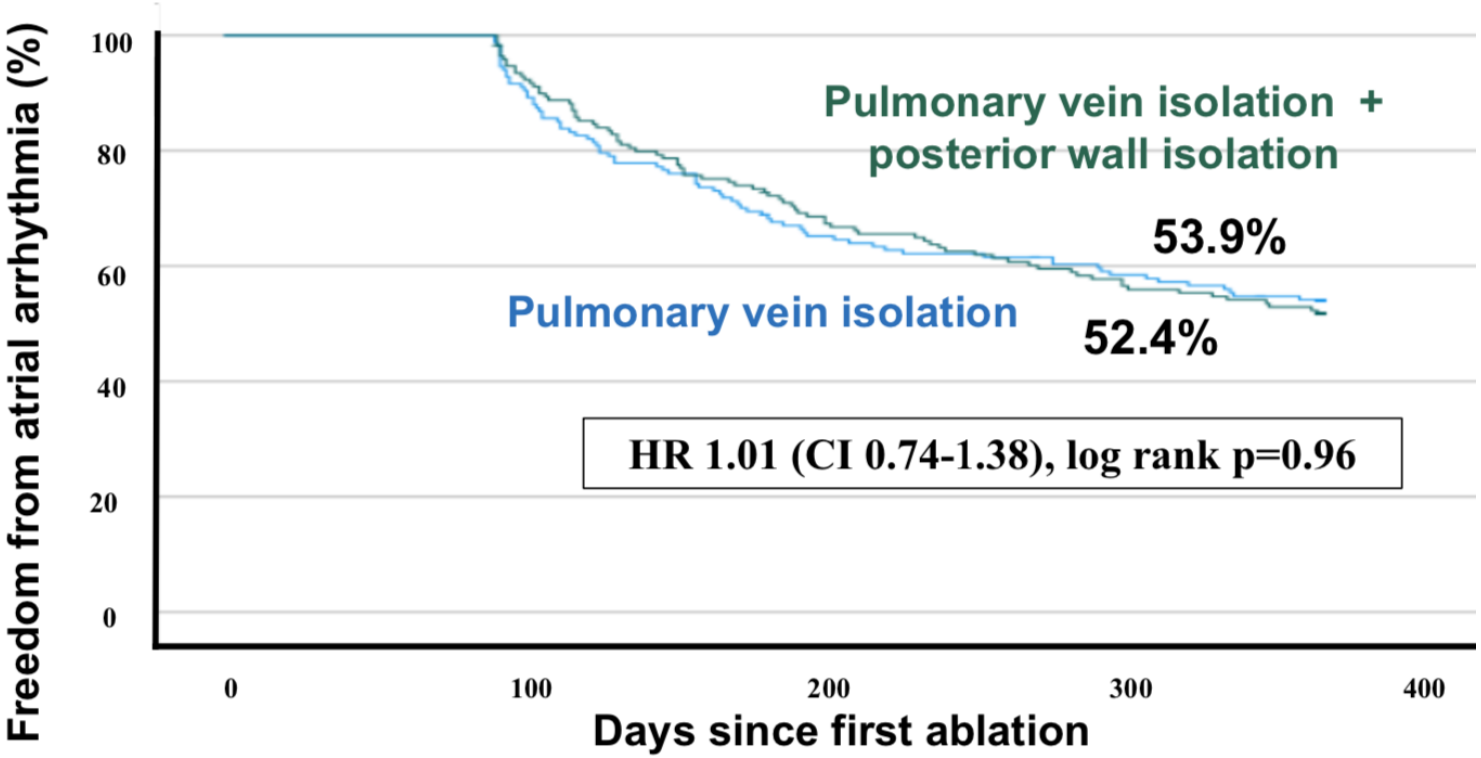
mdpi.com/journal/jcdd
ISSN 2308-3425

DECAAF II: Results

ITT Analysis of Primary Endpoint







No. at risk					
PVI alone	167	152	107	95	86
PVI + PWI	170	158	114	94	88

The role of posterior wall isolation in catheter ablation of persistent atrial fibrillation

Key mechanisms for AF perpetuation

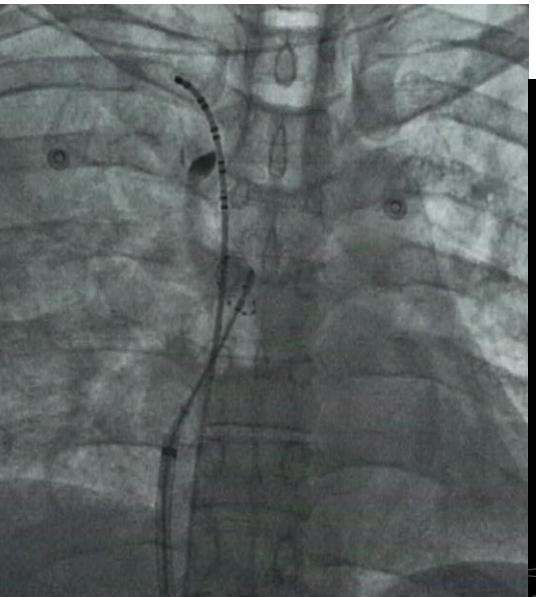
- **Drivers** (focal activations and rotors) detected via phase mapping, are commonly found in the LAPW
- **Multiple wavelets** (frequent fibrosis of the LAPW facilitates heterogenous conduction velocity, functional block, and anisotropy
- **Endocardial-epicardial dissociation** is comparatively greater in the LAPW (interposed adipose separating the septoatrial and septopulmonary bundles may contribute to EED in the LAPW)

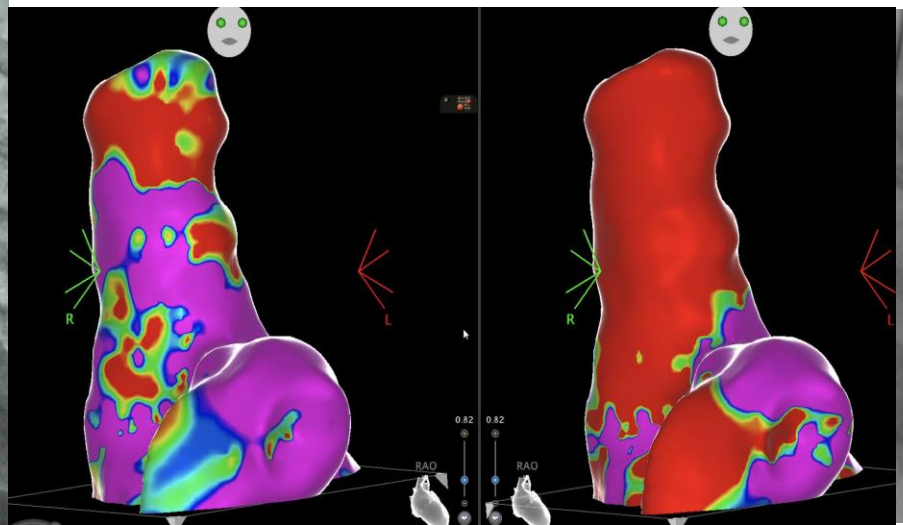
Chronic AF results in endomysial fibrosis that separates individual muscle fibers within the epicardial layer

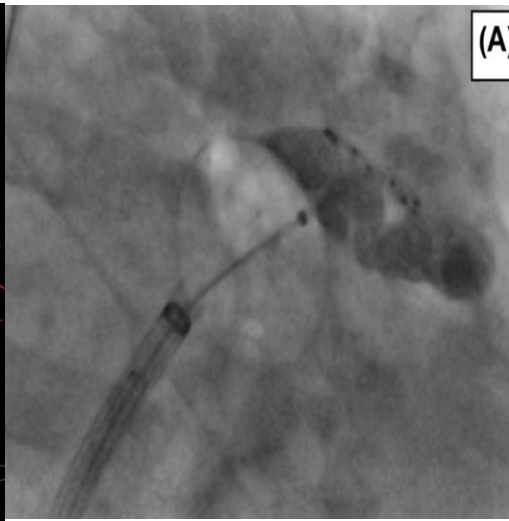
Persistent AF ablation (LA<50-55mm)

- 1st ablation: PVI (+ SVC ± AT)
- 2nd ablation: PVI (+ SVC ± PWA ± AT)
- 3rd ablation: Hybrid

The larger the atrium
The younger the patient
The greater the duration of AF







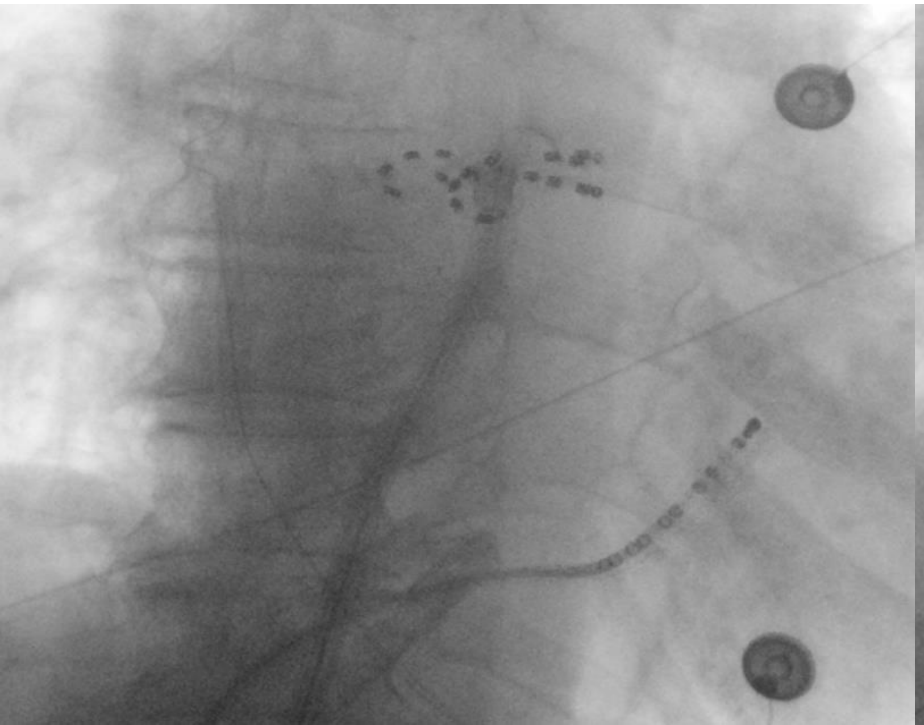
Stepwise approach – rhythm control in AF

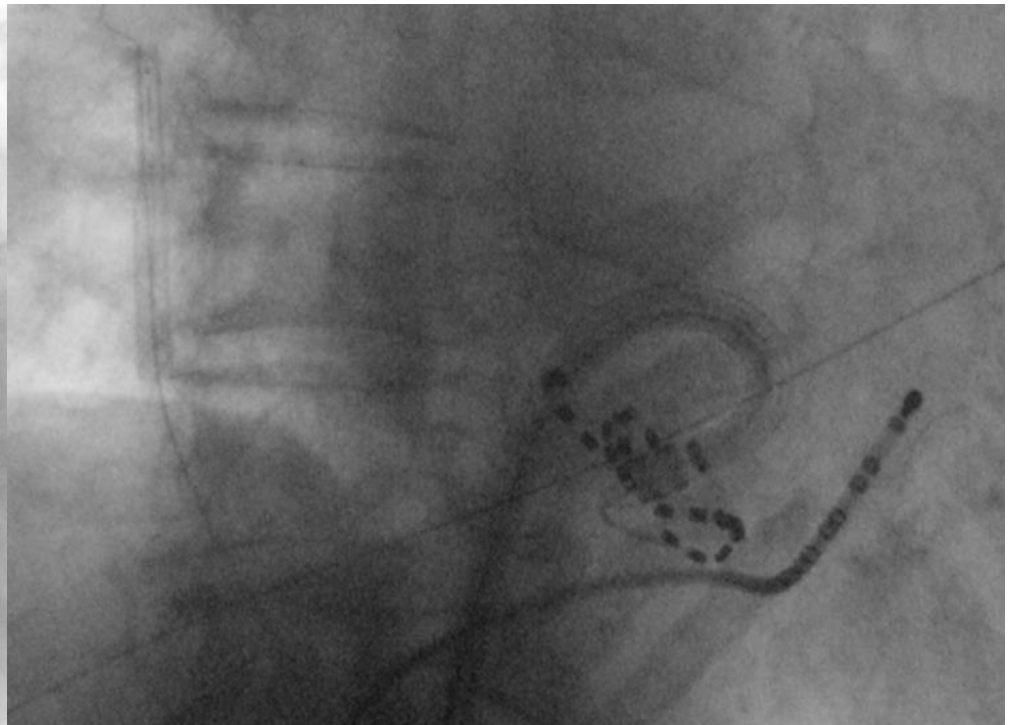
1. When to coagulate?
2. Rhythm or rate control
3. Burden or cure?
4. Arrhythmia prevention – lifestyle measures
5. Hospitalization reduction
6. Which benefits more from AF ablation?
7. When to ablate
8. How to ablate
9. Future perspectives

26-9-2022

October 11, First Cardiology Clinic

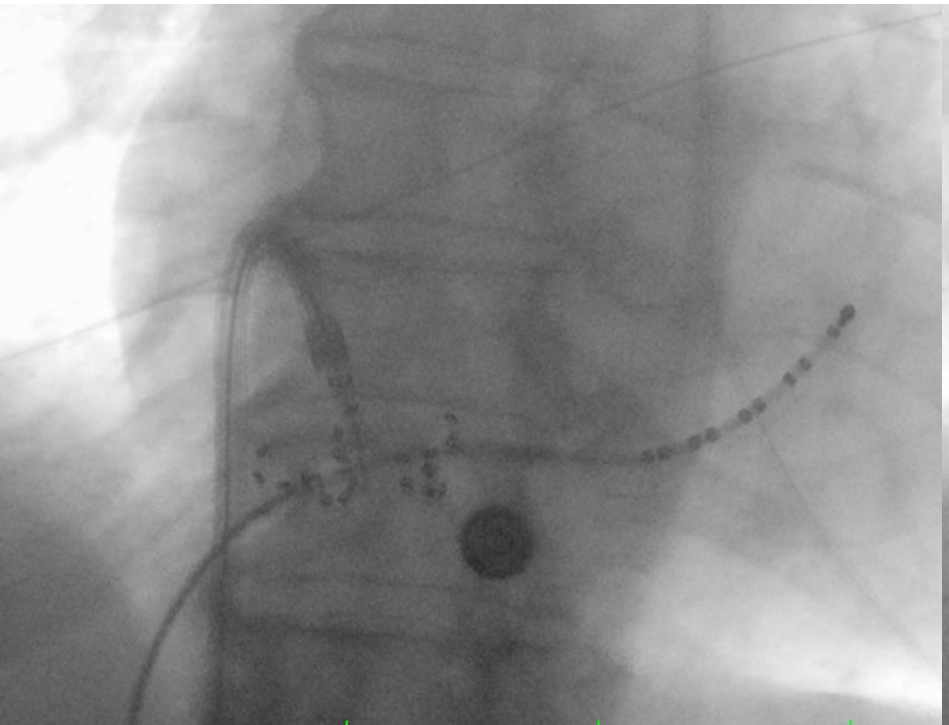
- Roof isolation with AT termination
- Posterior wall isolation
- Septum PFA application

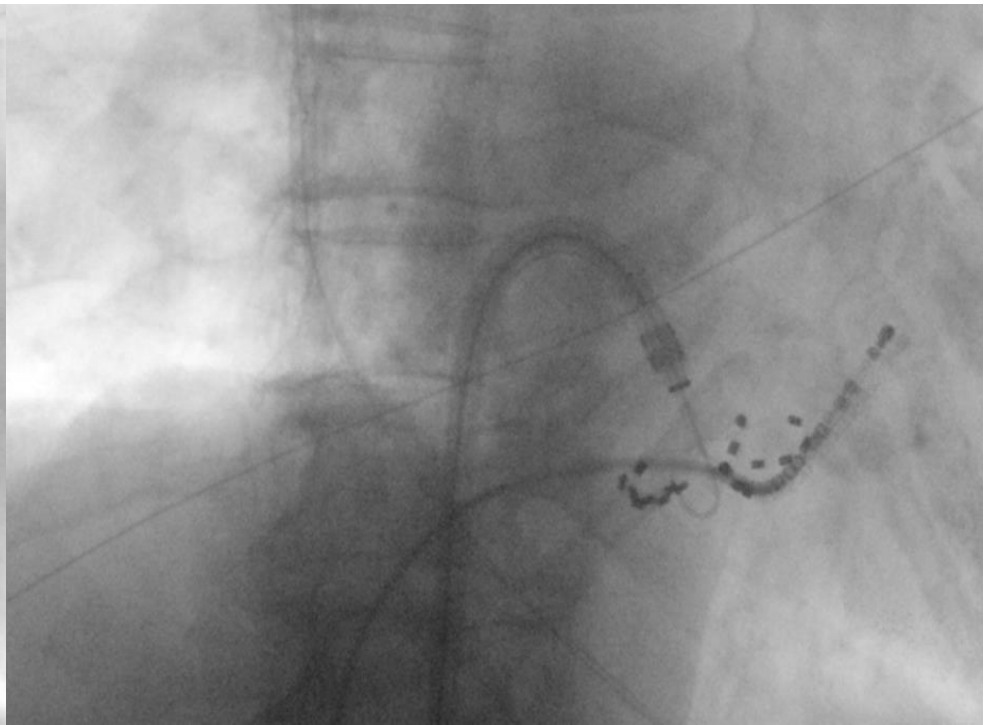




October 11, First Cardiology Clinic

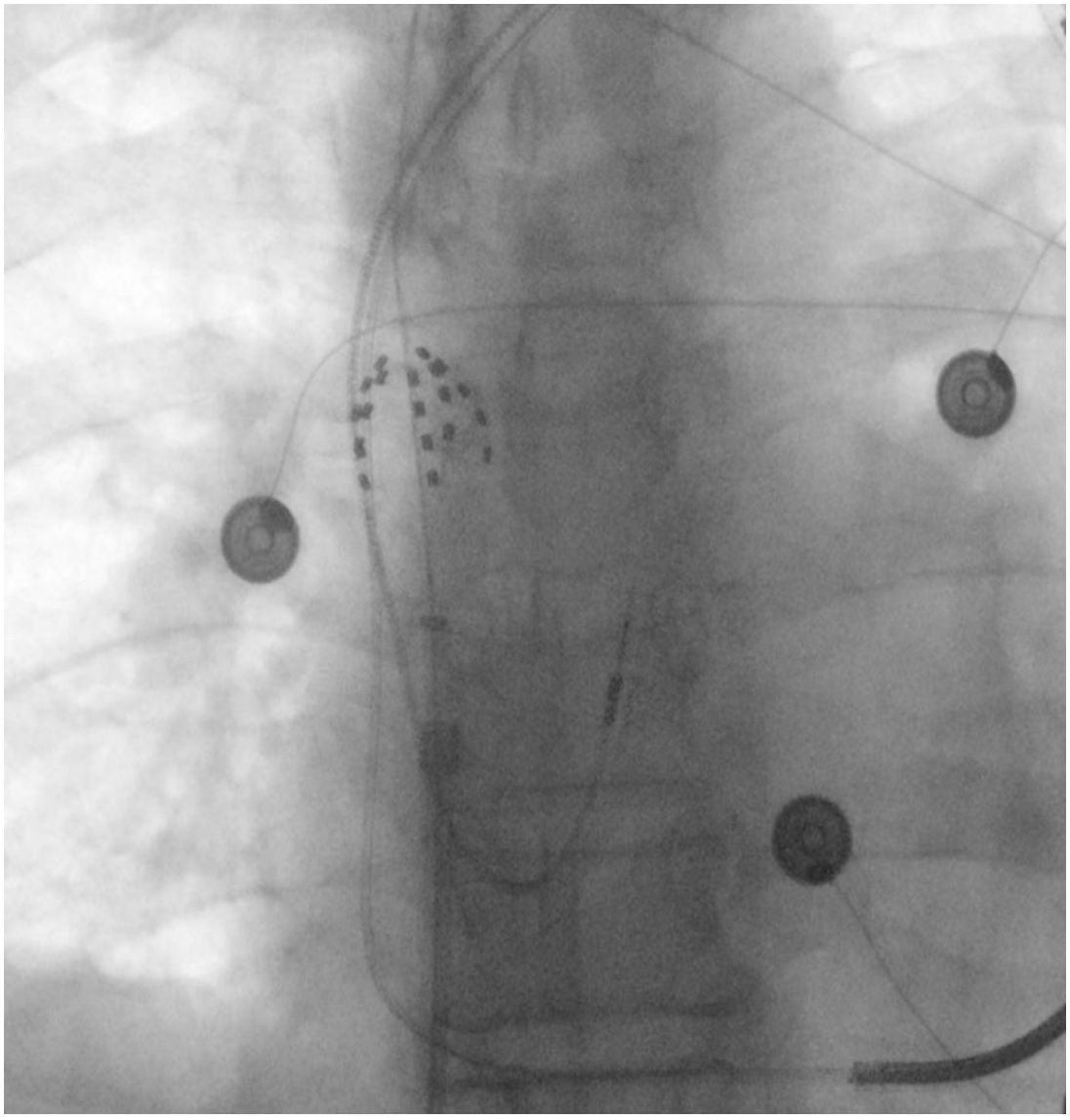
- Cavotricuspid isthmus ablation
- IV nitrate preparation
- Bidirectional block



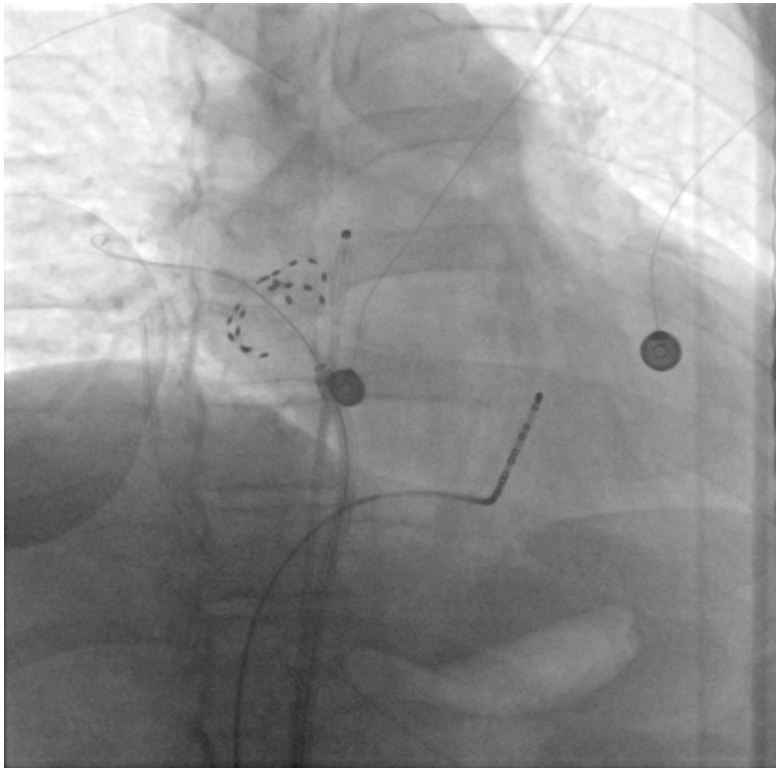


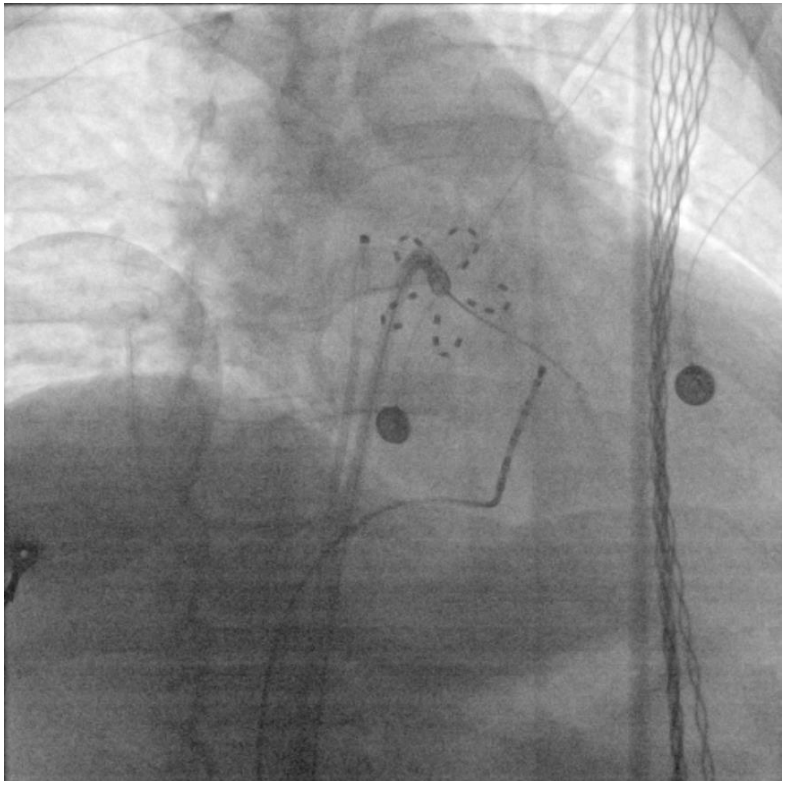
October 11, First Cardiology Clinic

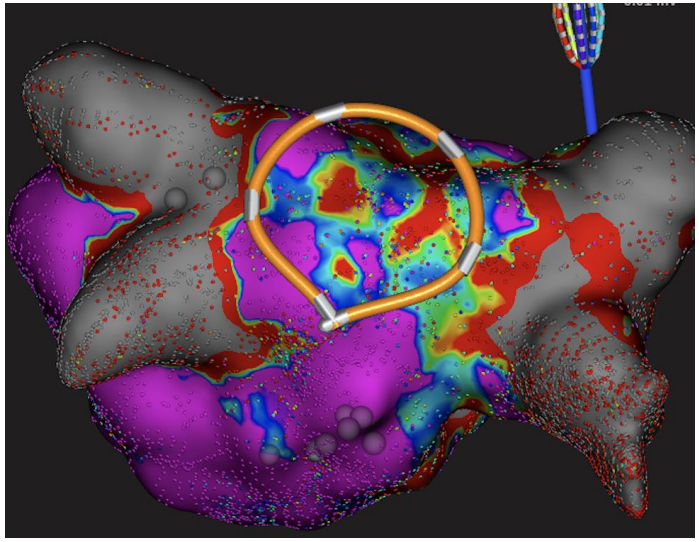
- SVC isolation
- Intact SR
- Steady lead measurements

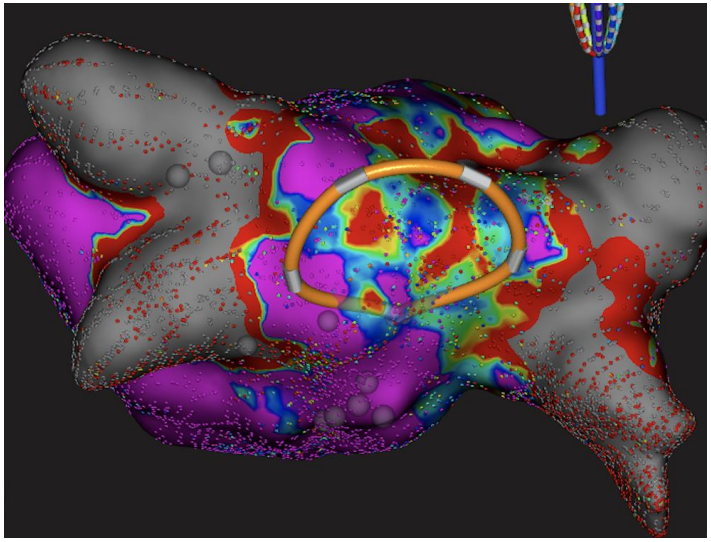


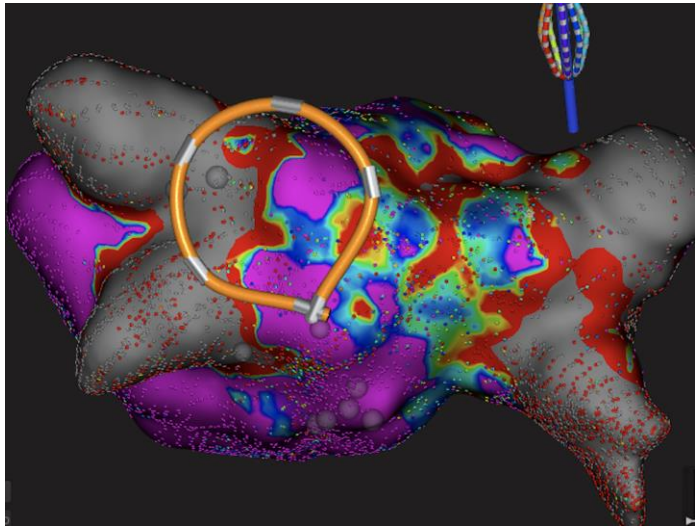
First display of PFA in EAM

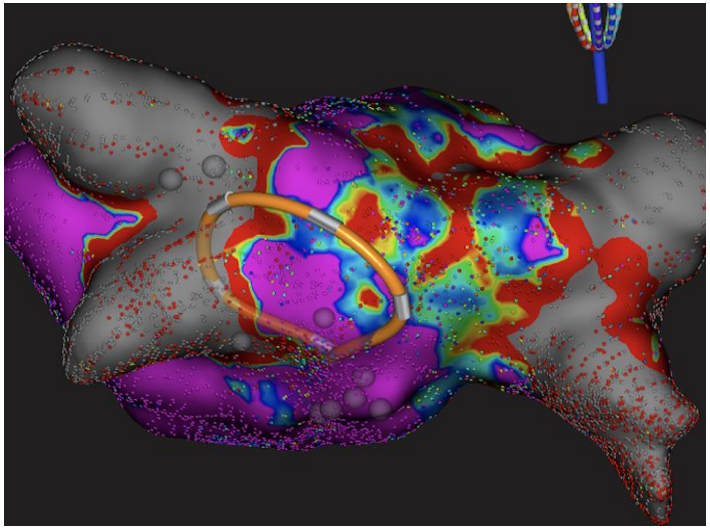




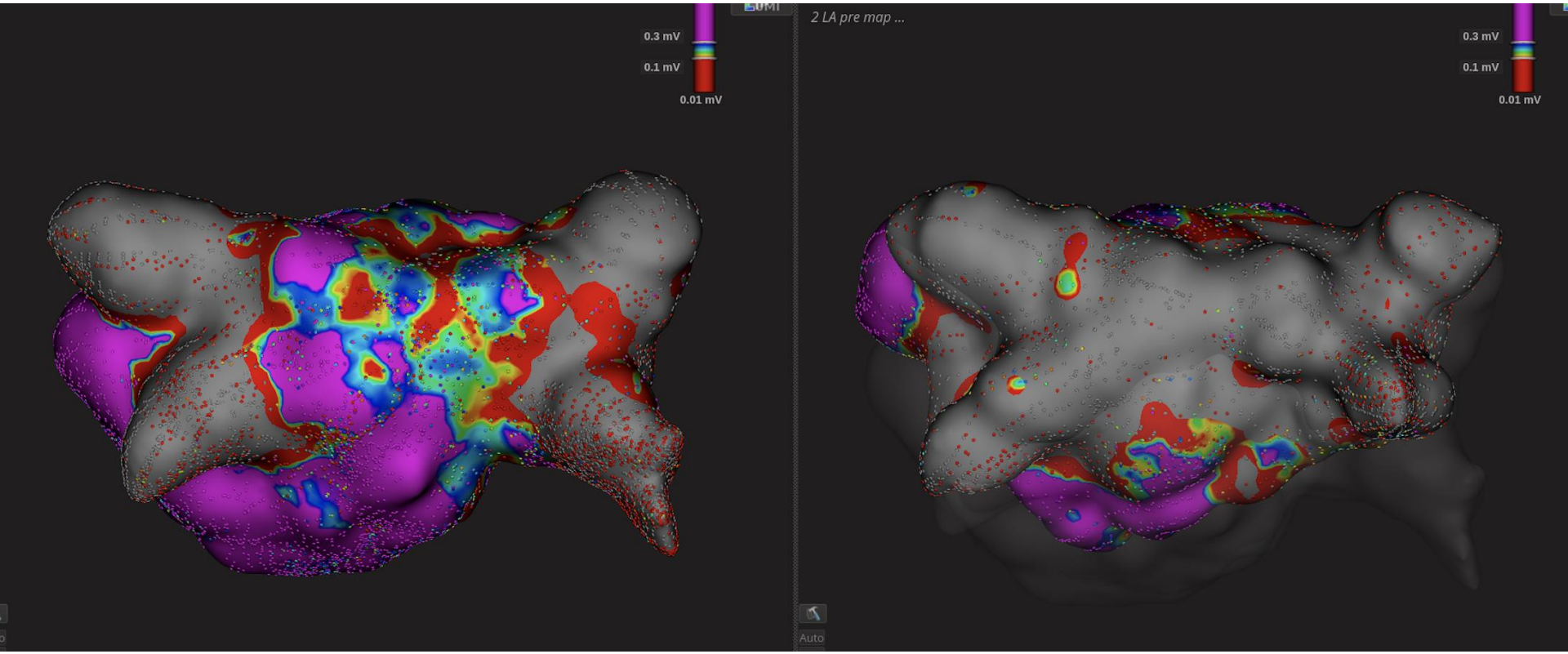








Wide Posterior Wall ablation and isolation



First-in-Human Experience and Acute Procedural Outcomes Using a Novel Pulsed Field Ablation System: The PULSED AF Pilot Trial

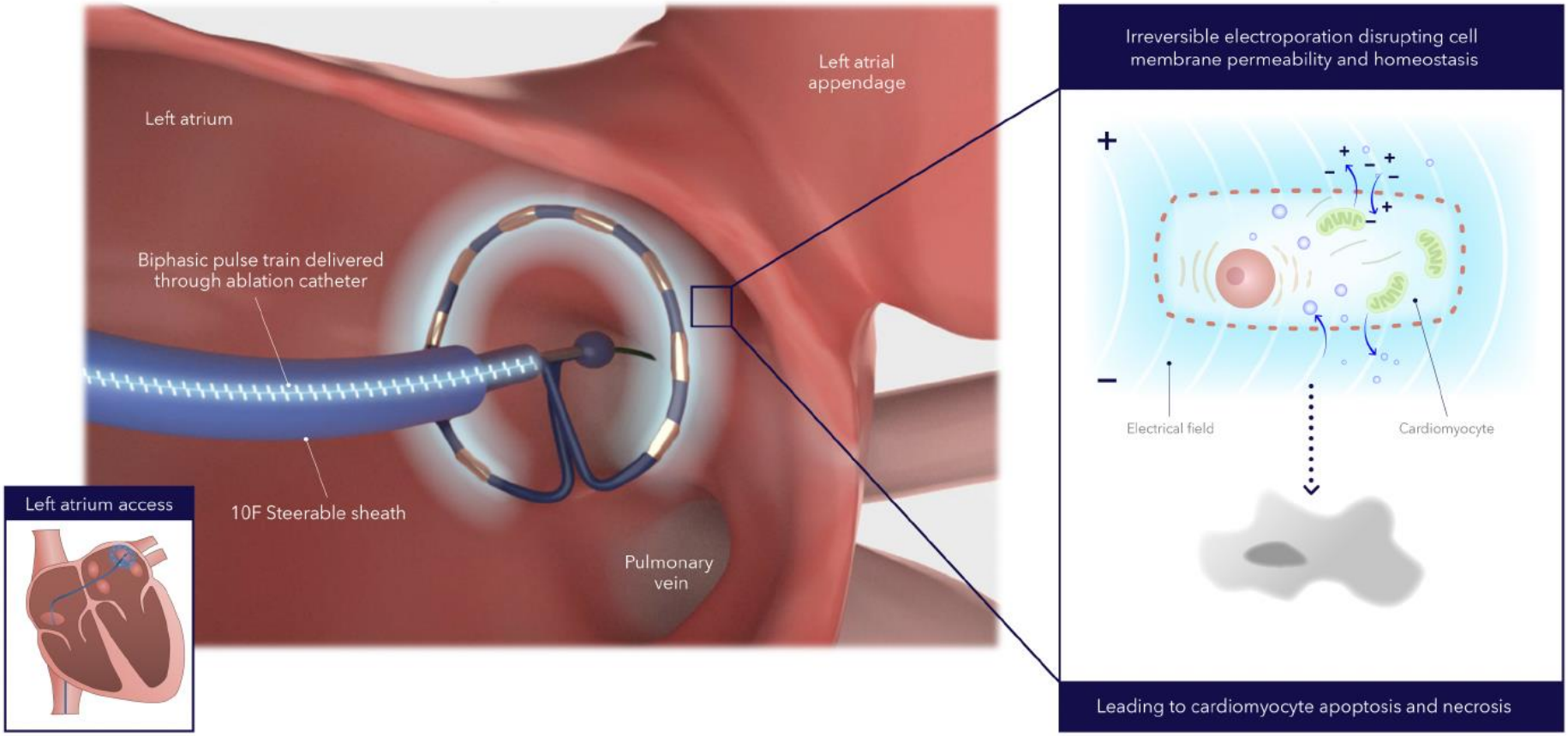
Atul Verma, MD; Lucas Boersma, MD; David E. Haines, MD; Andrea Natale, MD; Francis E. Marchlinski, MD; Prashanthan Sanders, MBBS; Hugh Calkins, MD; Douglas L. Packer, MD; John Hummel, MD; Birce Onal, PhD; Sofi Rosen, PhD; Karl-Heinz Kuck, MD; Gerhard Hindricks, MD; Bradley Wilsmore, MBBS

BACKGROUND: Pulsed field ablation (PFA) is a novel form of ablation using electrical fields to ablate cardiac tissue. There are only limited data assessing the feasibility and safety of this type of ablation in humans.

METHODS: PULSED AF (Pulsed Field Ablation to Irreversibly Electroporate Tissue and Treat AF; https://www.clinicaltrials.gov; unique identifier: NCT04198701) is a nonrandomized, prospective, multicenter, global, premarket clinical study. The first-in-human pilot phase evaluated the feasibility and efficacy of pulmonary vein isolation using a novel PFA system delivering bipolar, biphasic electrical fields through a circular multielectrode array catheter (PulseSelect; Medtronic, Inc). Thirty-eight patients with paroxysmal or persistent atrial fibrillation were treated in 6 centers in Australia, Canada, the United States, and the Netherlands. The primary outcomes were ability to achieve acute pulmonary vein isolation intraprocedurally and safety at 30 days.

RESULTS: Acute electrical isolation was achieved in 100% of pulmonary veins (n=152) in the 38 patients. Skin-to-skin procedure time was 160±91 minutes, left atrial dwell time was 82±35 minutes, and fluoroscopy time was 28±9 minutes. No serious adverse events related to the PFA system occurred in the 30-day follow-up including phrenic nerve injury, esophageal injury, stroke, or death.

CONCLUSIONS: In this first-in-human clinical study, 100% pulmonary vein isolation was achieved using only PFA with no PFA system–related serious adverse events.



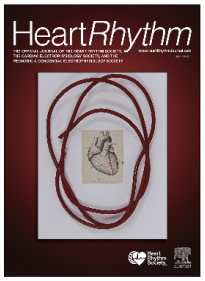
One application = 4 bipolar, biphasic trains lasting 100-200 ms, 2800-3000 V peak to peak

April 3rd 2024 (8th center in Europe)

Pulse select world-wide first experiences published

- EAM based
- Fluoro based
- Posterior wall ablation
- SVC isolation
- SVC isolation in PM, ICD
- CTI, MI, AT

Journal Pre-proof



Methods and Techniques to Optimize Energy Delivery Using the Circular Array Pulsed Field Ablation Catheter

Stavros Mountantonakis, MD, Nicholas Beccarino, MD, Mark Abrams, MD, Nikhil Sharma, MD, Nicholas Skipitaris, MD, Neil Bernstein, MD, Kelly Jia, MD, Kabir Bhasin, MD, Takashi Kanda, MD, Kordalis Athanasios, MD, Dimitris Tsiachris, MD, Kristie Coleman, MPH, RN

Single-center initial experience with a new pulsed-field ablation system: pulmonary vein isolation lesions and beyond

Dimitrios Tsiachris, Christos-Konstantinos Antoniou, Ioannis Doundoulakis, Athanasios Kordalis, Christodoulos Stefanadis & Konstantinos Tsioufis

Received 14 Jul 2024, Accepted 04 Oct 2024, Published online: 19 Nov 2024

Verification of persistent pulmonary vein isolation with electroanatomical mapping 3 months after ablation using a novel PFA platform.

Athanasios Kordalis, MD, MSc, PhD, Dimitrios Tsiachris, MD, PhD, Christos-Konstantinos Antoniou, MD, PhD, Ioannis Doundoulakis, MD, MSc, PhD, Konstantinos Tsioufis, MD, PhD

PII: S1109-9666(24)00232-X

DOI: https://doi.org/10.1016/j.hjc.2024.11.002

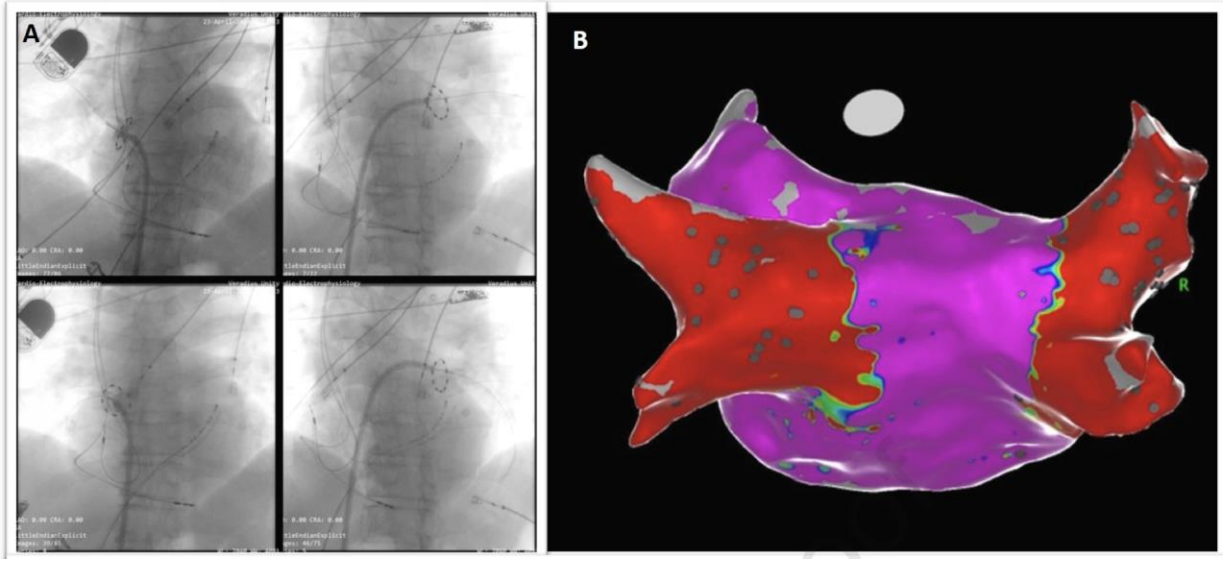
Reference: HJC 985

To appear in: *Hellenic Journal of Cardiology*

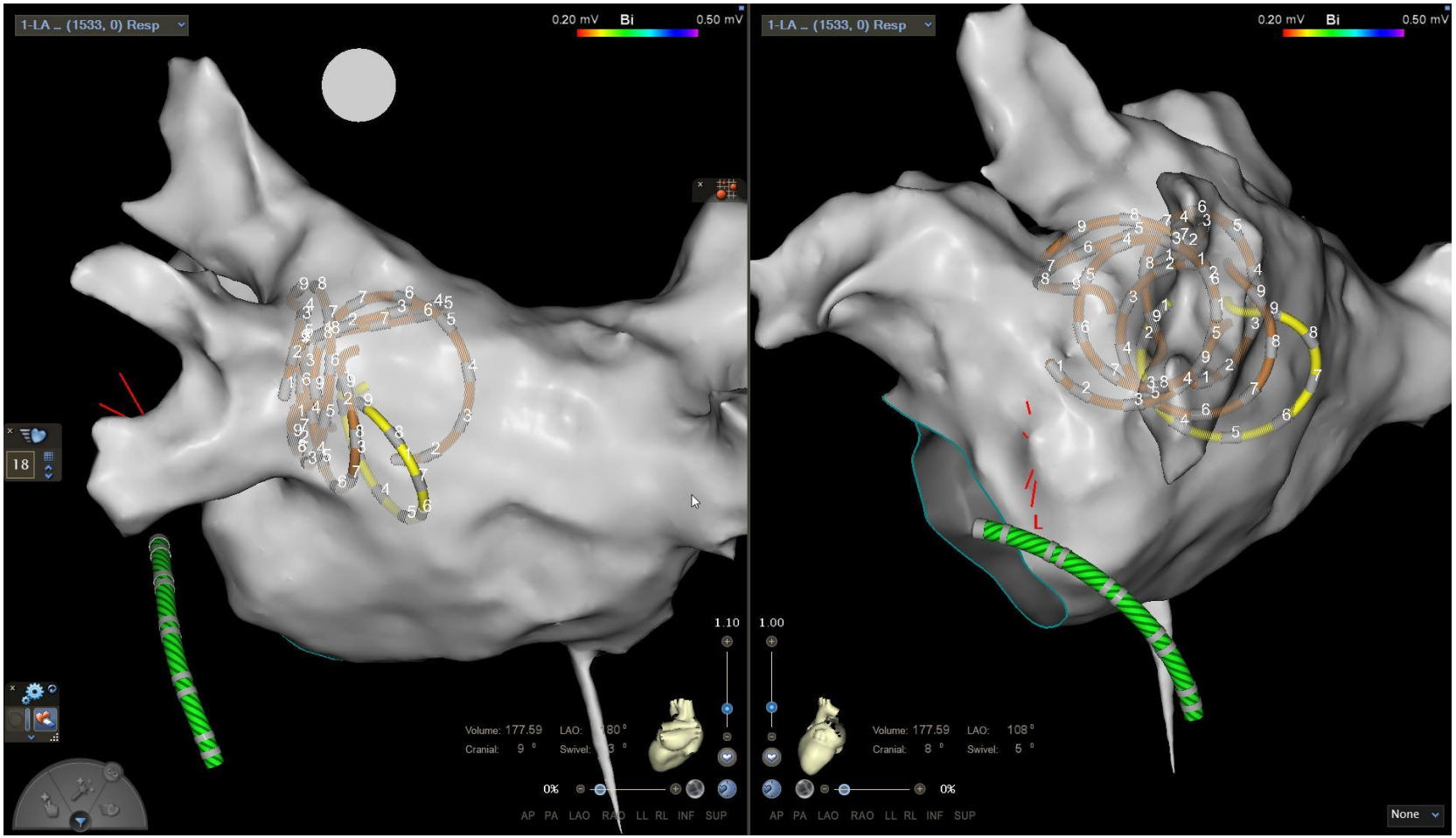
Received Date: 19 July 2024

Revised Date: 3 November 2024

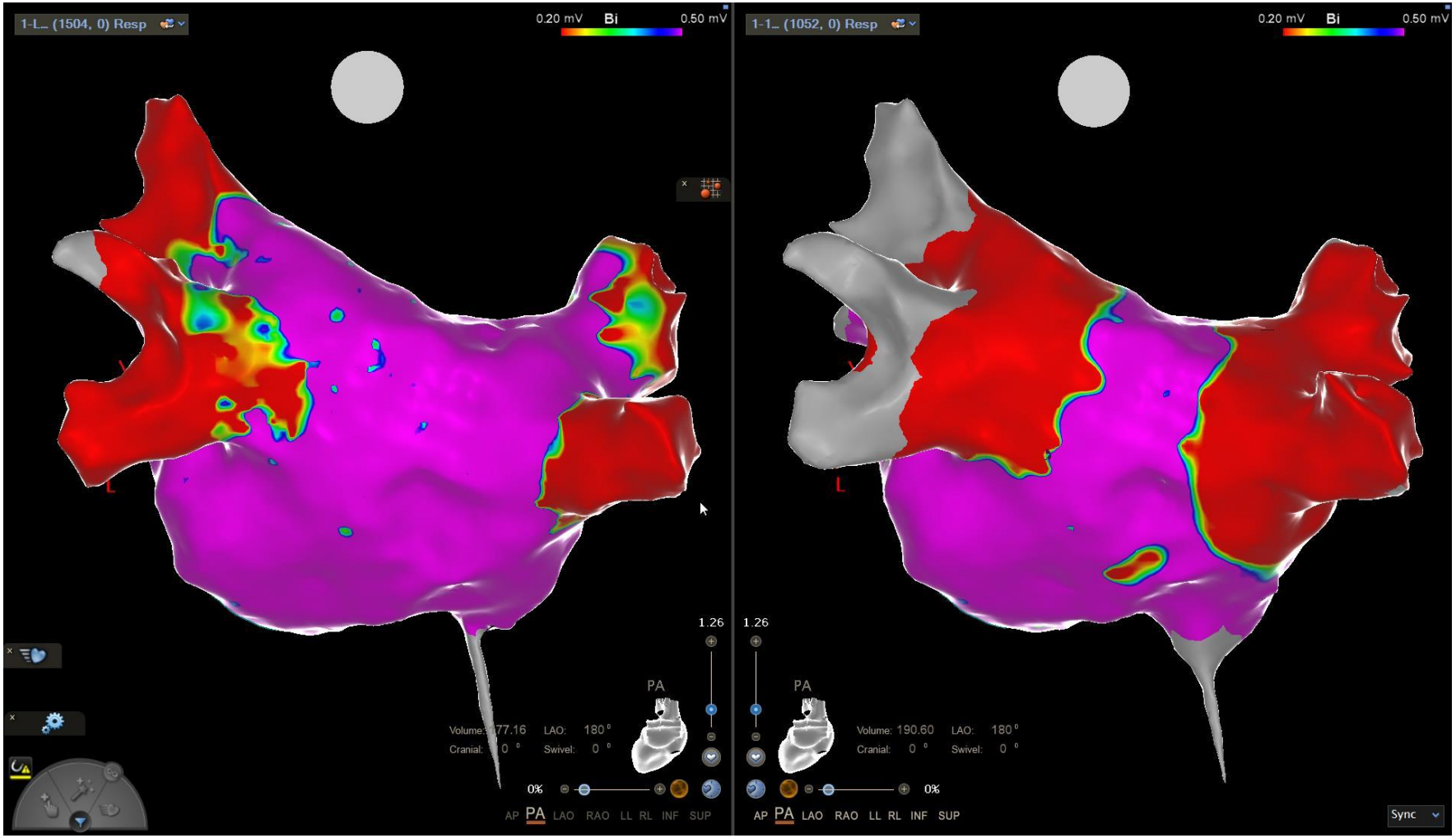
Accepted Date: 12 November 2024

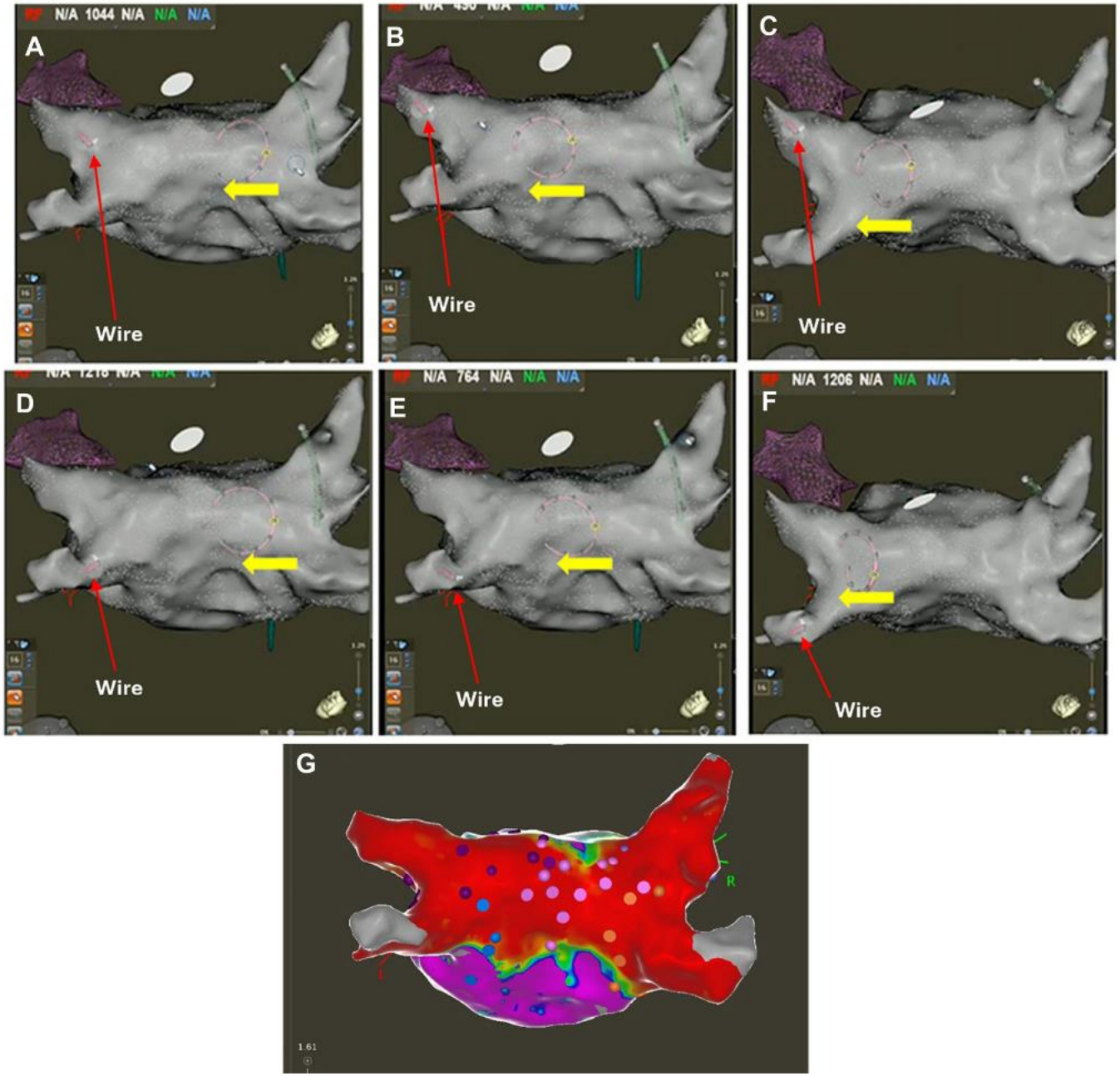


EAM based (CARTO)



Pre and post mapping




A
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B
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C
Wire
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E
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R
1.61

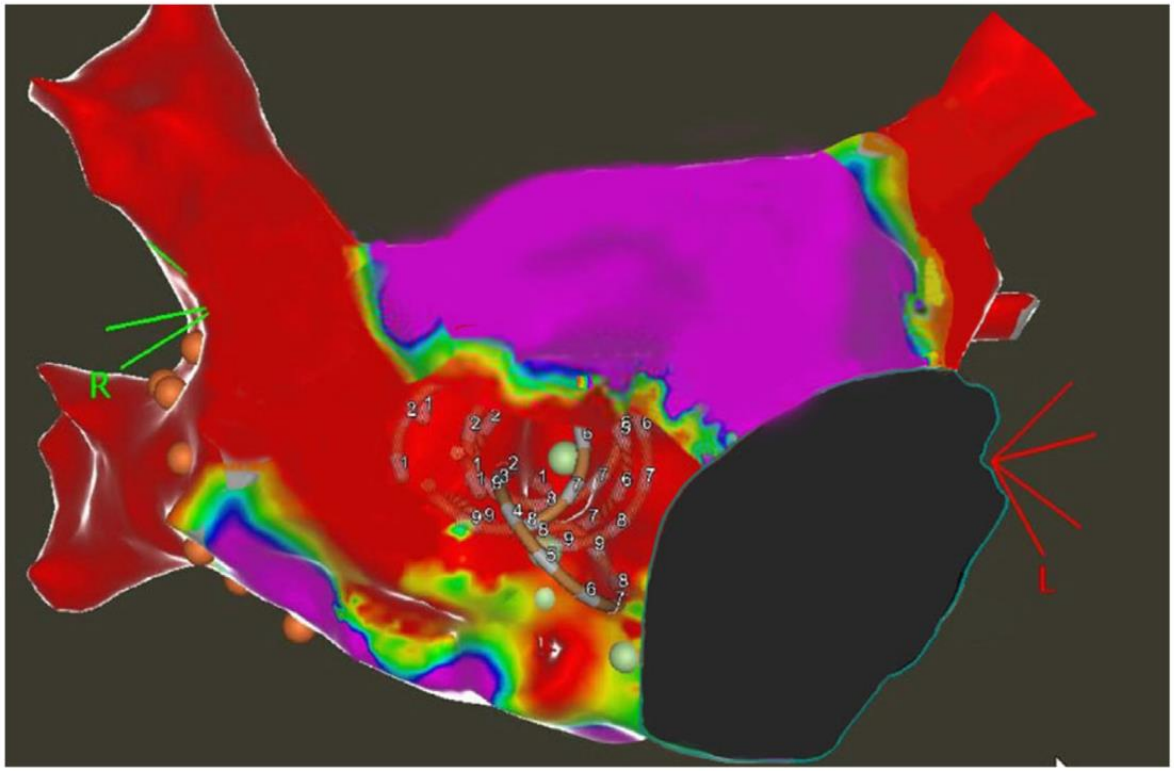
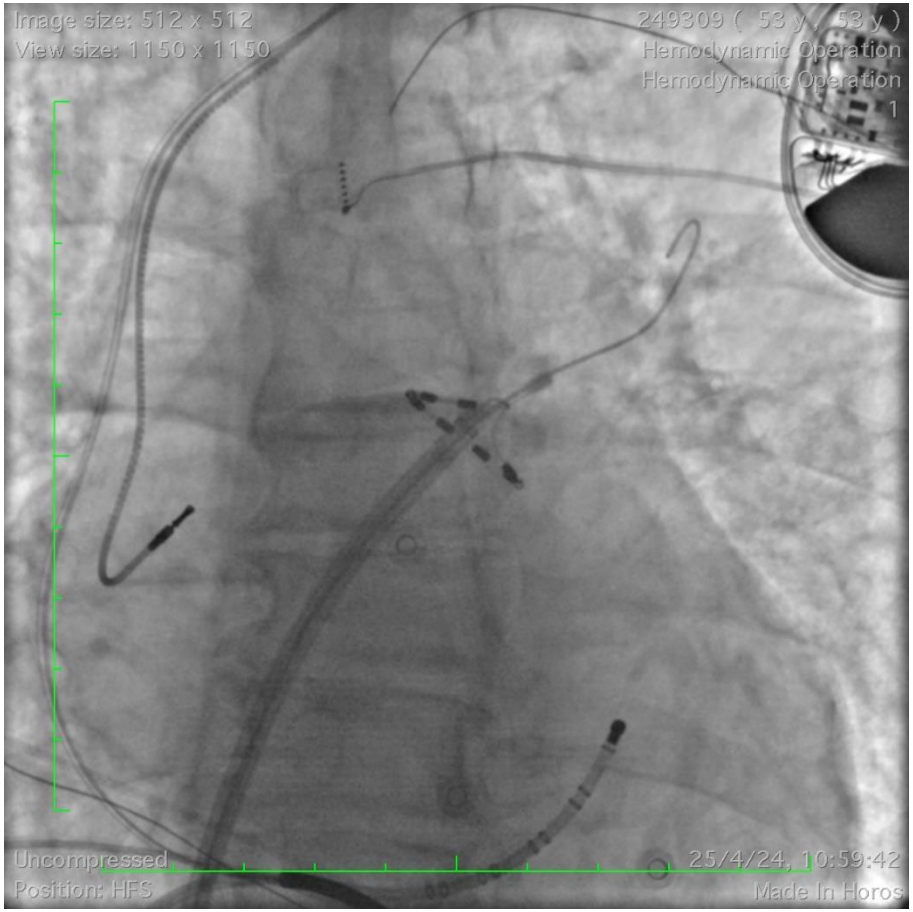
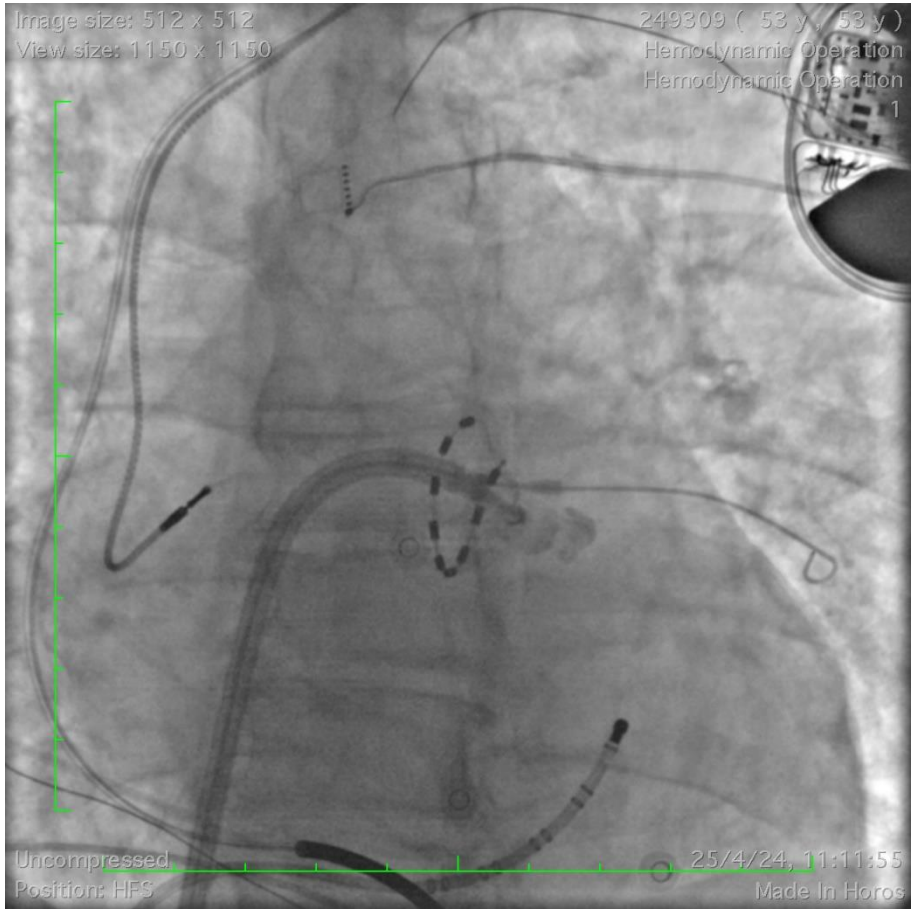


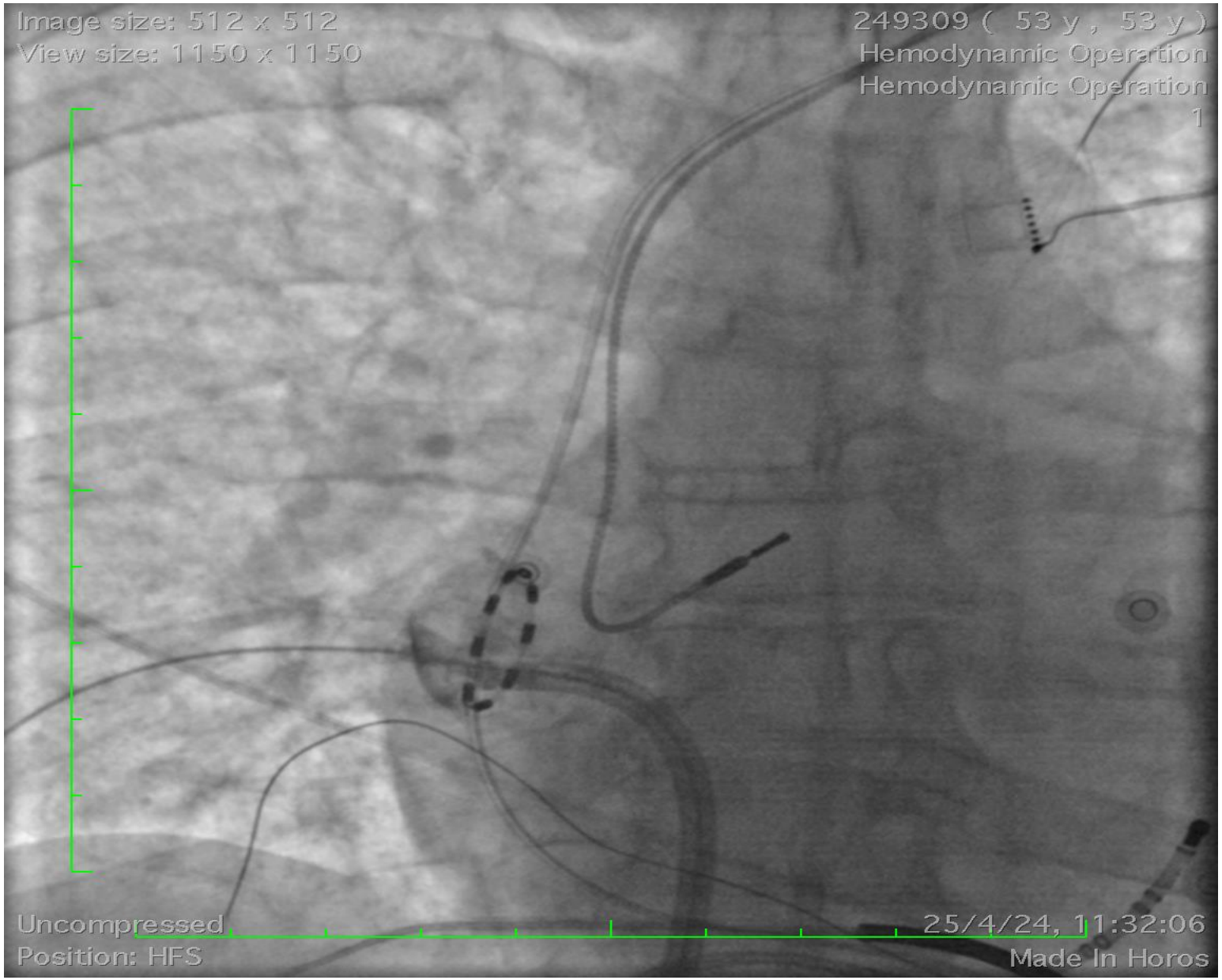
Figure 9

Anterior mitral line ablation for mitral flutter. Electroanatomic left atrial voltage map created following pulmonary vein isolation and creation of an anterior mitral line for treatment of mitral flutter. Catheter shadows and points taken based on the location of pole 5 during lesion delivery are seen across the anterior wall.

Fluoro based approach



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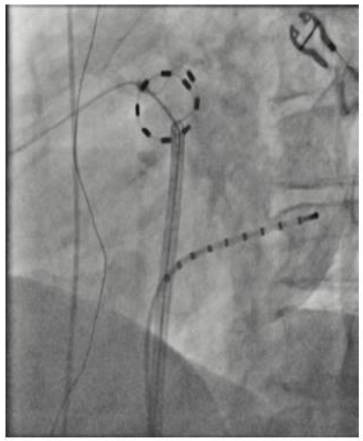
249309 (53 y , 53 y)
Hemodynamic Operation
Hemodynamic Operation
1
Uncompressed
Position: HFS
25/4/24, 11:32:06
Made In Horos

Pulse Select in clinical practice



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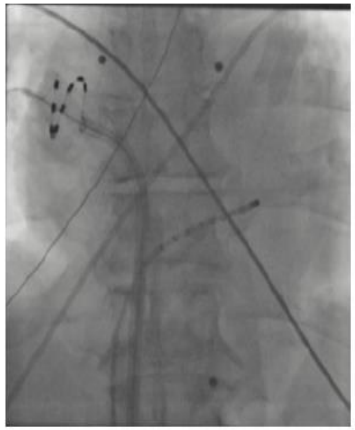

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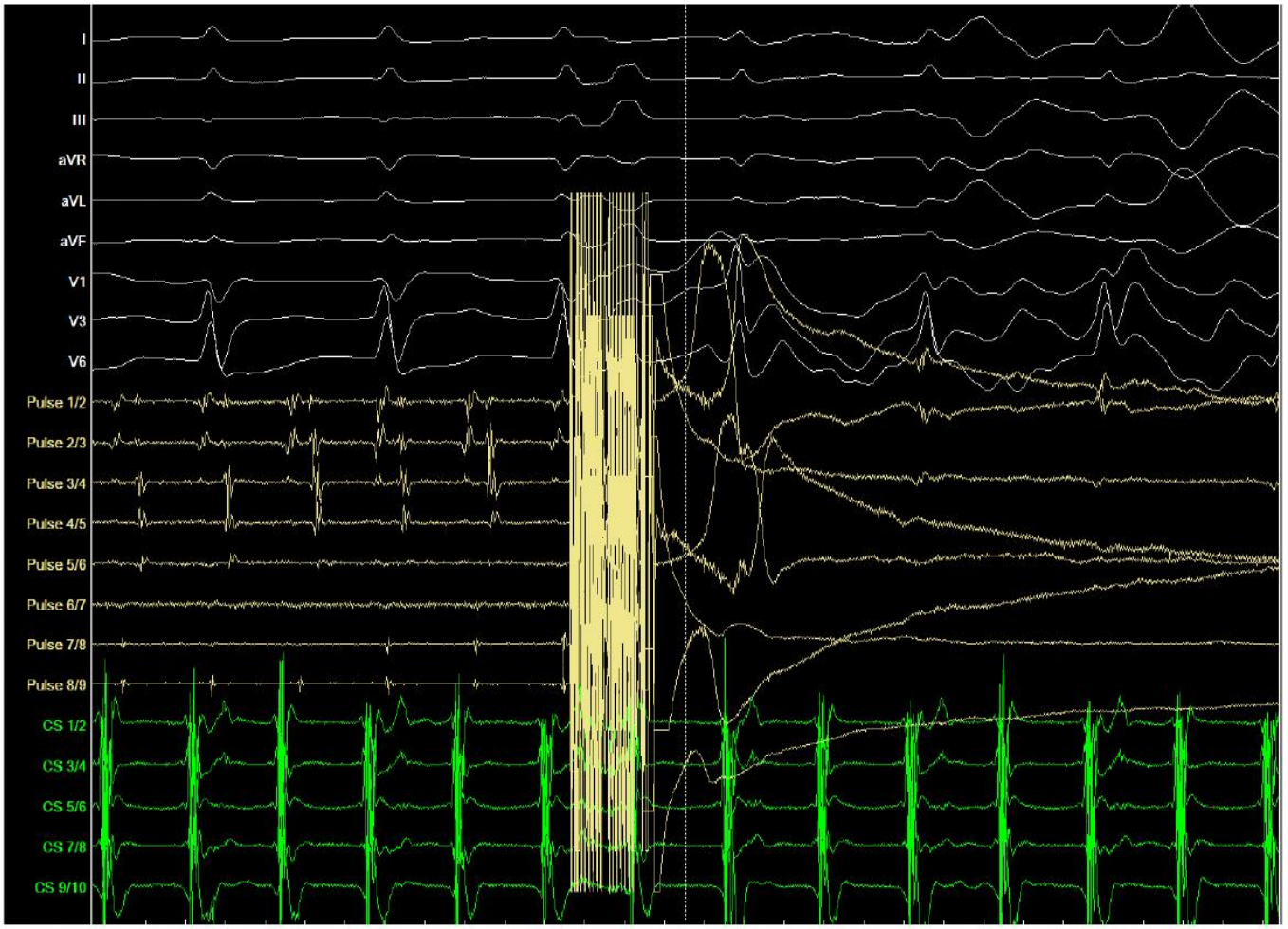
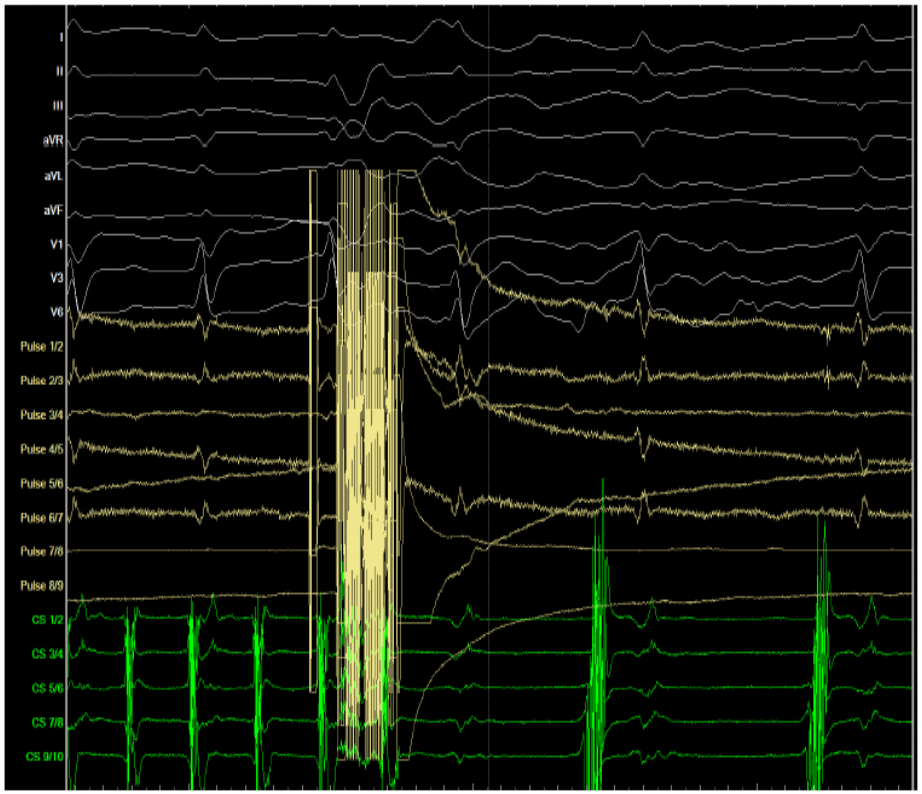
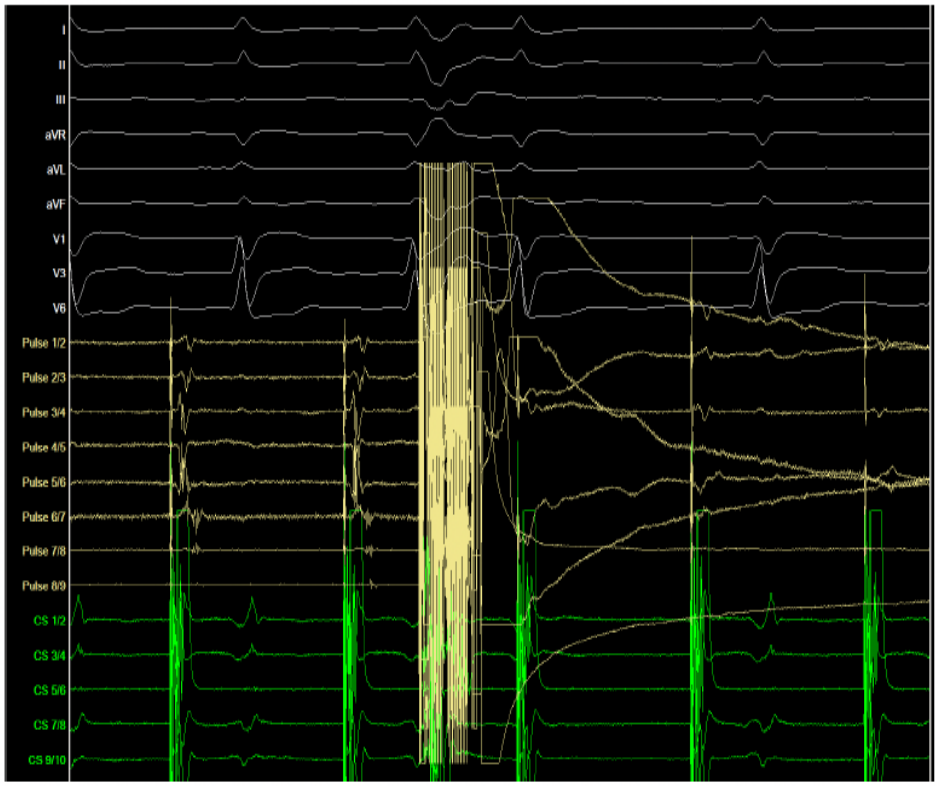
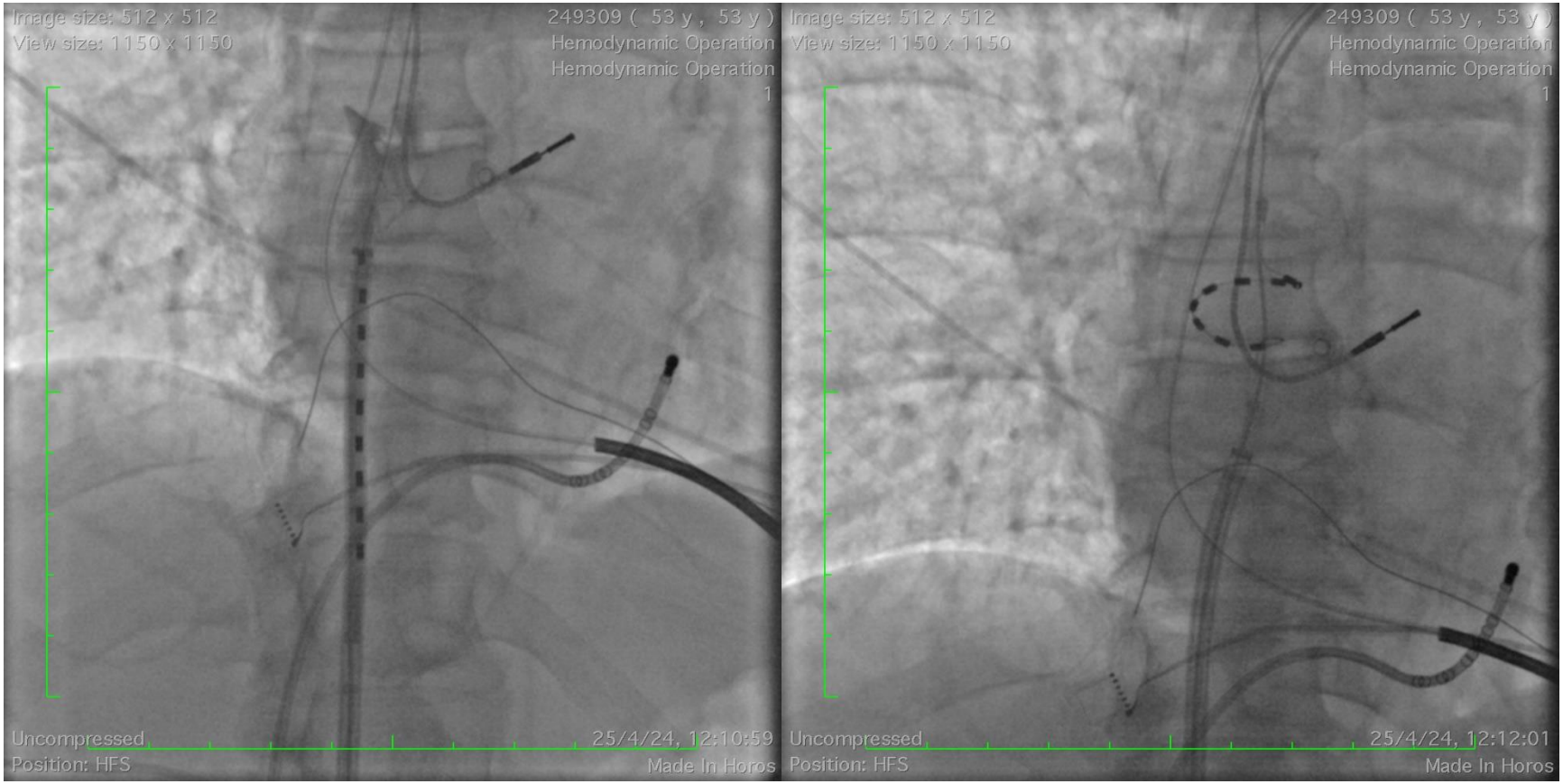


Pulse Select in clinical practice

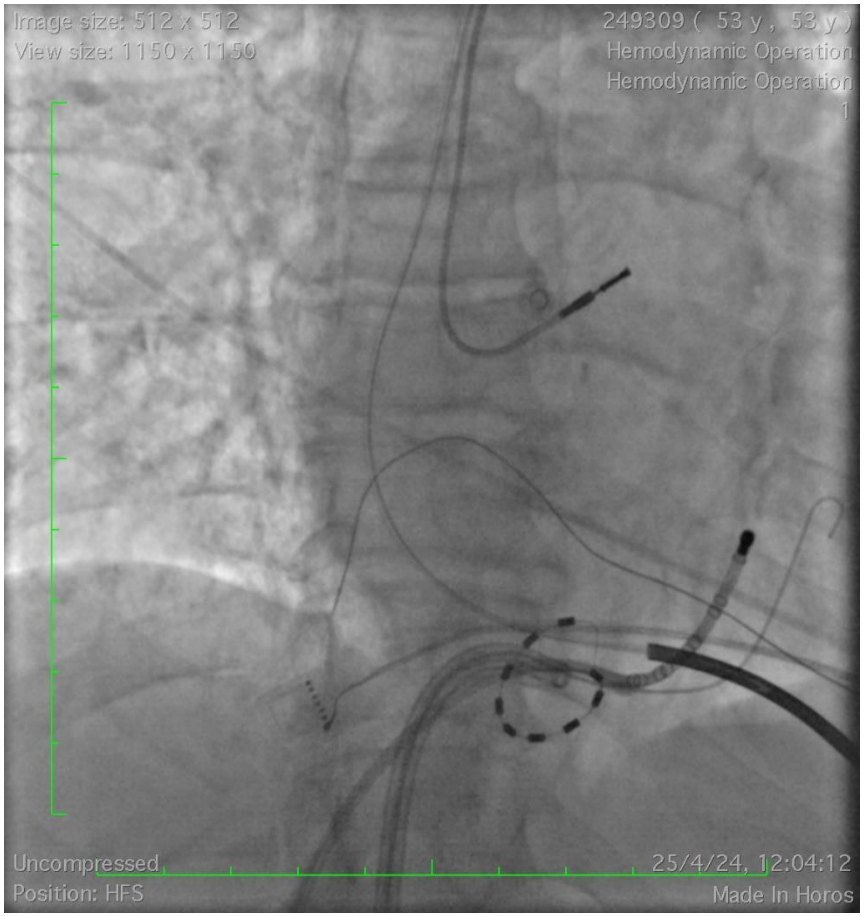


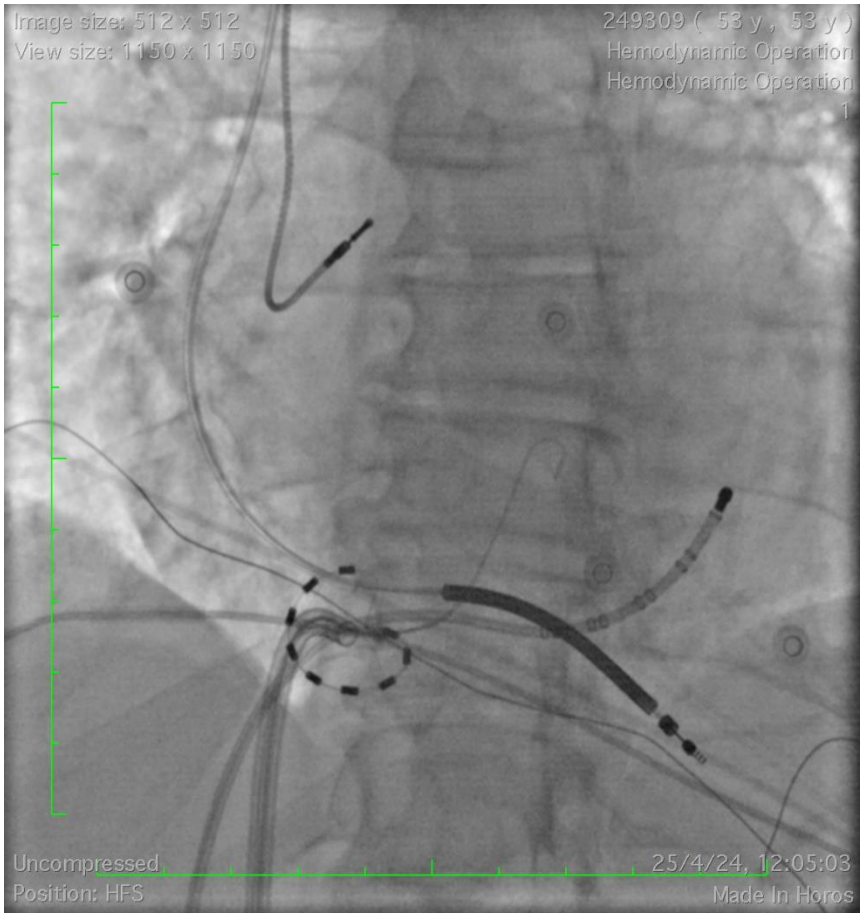


SVC ablation (+ device)

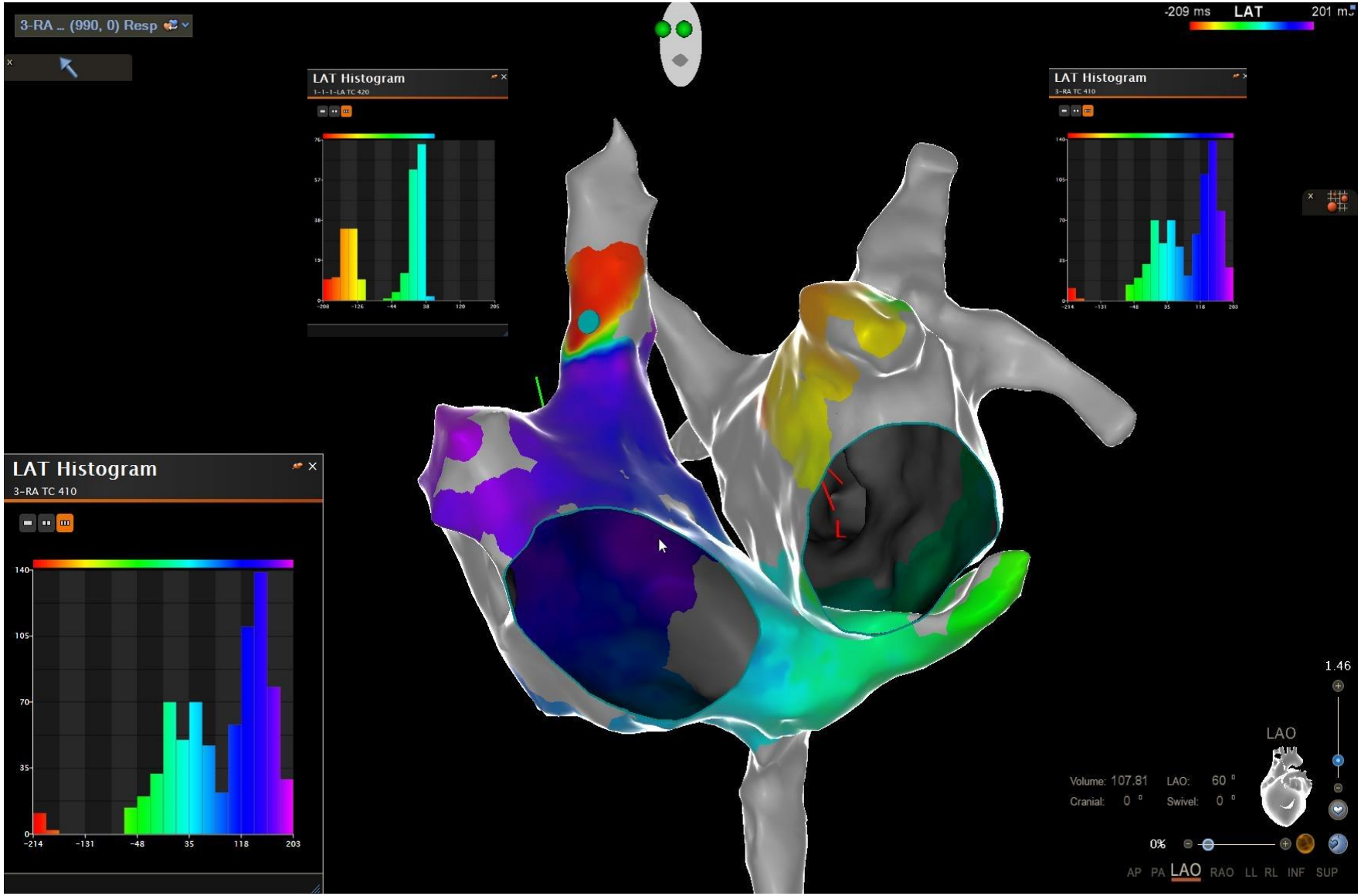


Pulse select based CTI





BI-ATRIAL FLUTTER



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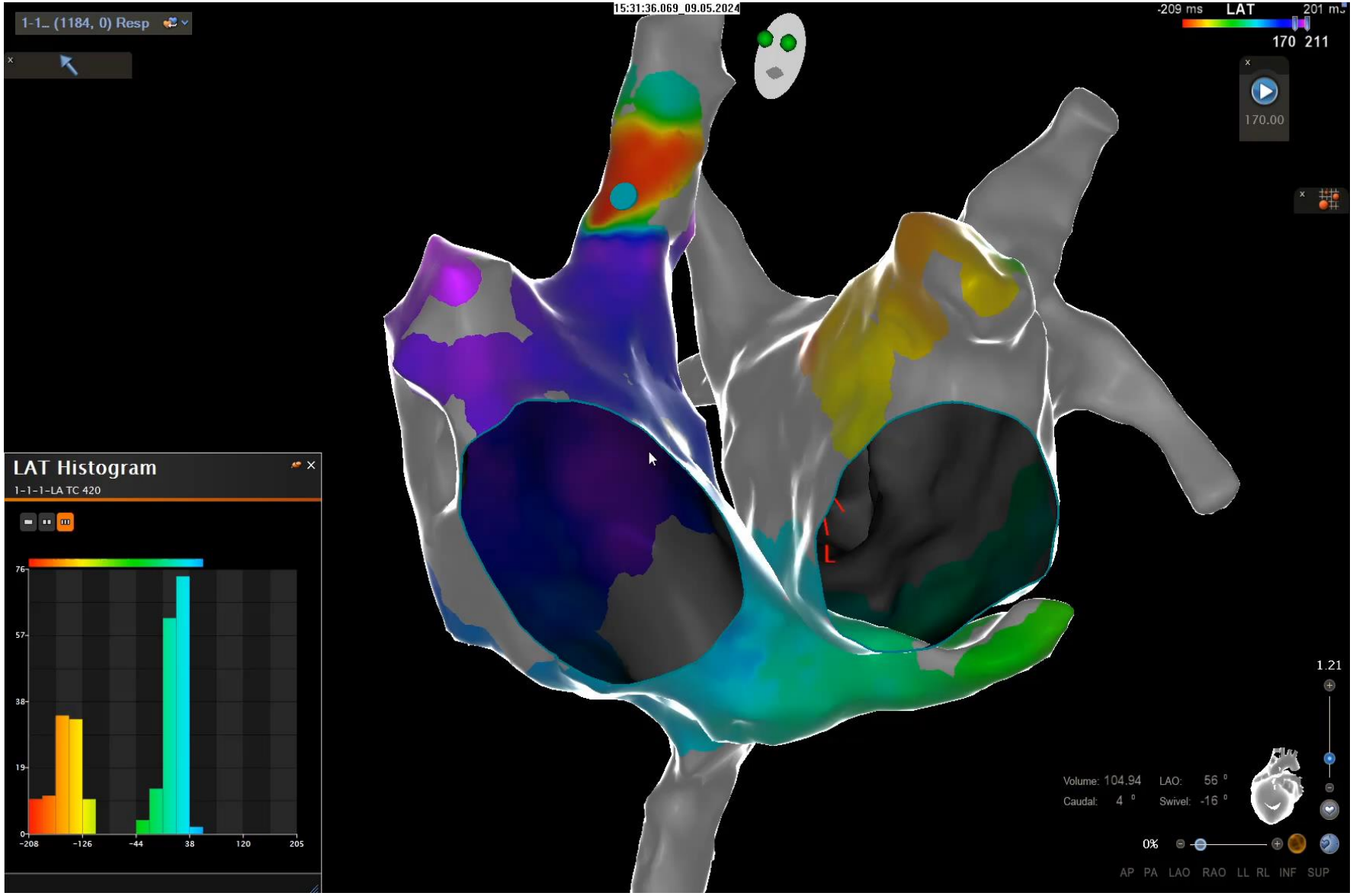

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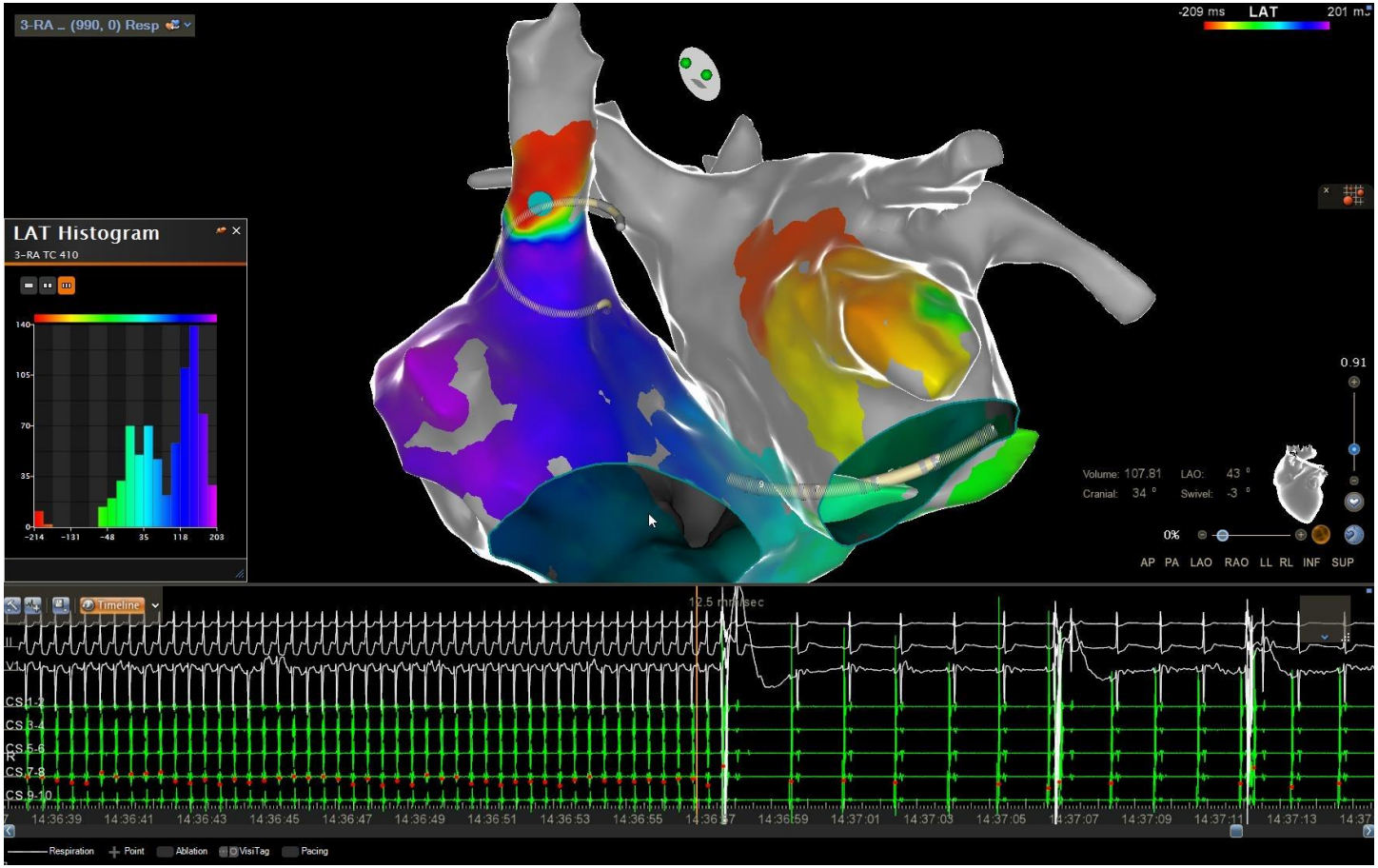

SELECT-PF Clinical survey

A Western European initiative, to investigate the safety and cost effectiveness of PulseSelect in a real-world population

What it is

- A retrospective clinical survey, to be filled out by hospital staff, capturing procedure data for each patient receiving an ablation with PulseSelect and safety data up to 30 days post ablation
- SELECT-PF is complimentary to the REAL-Pulse Post approval Registry
- Data provided to Medtronic will be aggregated as per the sub-groups defined
  - Sub-groups must have > 5 patients

What its not

- Medtronic will not have the possibility to see individual patient data
  - Sites own the patient level data and will be able to perform their own analysis on individual patient data
- Medtronic will not be able to link patient survey data to different time points (ie. 1yr. follow-up)
  - Sites could decide to collect 1yr follow-up data, with appropriate hospital approvals