ATRIAL FIBRILLATION
RATE AND RHYTHM MANAGEMENT

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ESC
European Society of Cardiology
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doi:10.1093/eurheartj/ehaa612

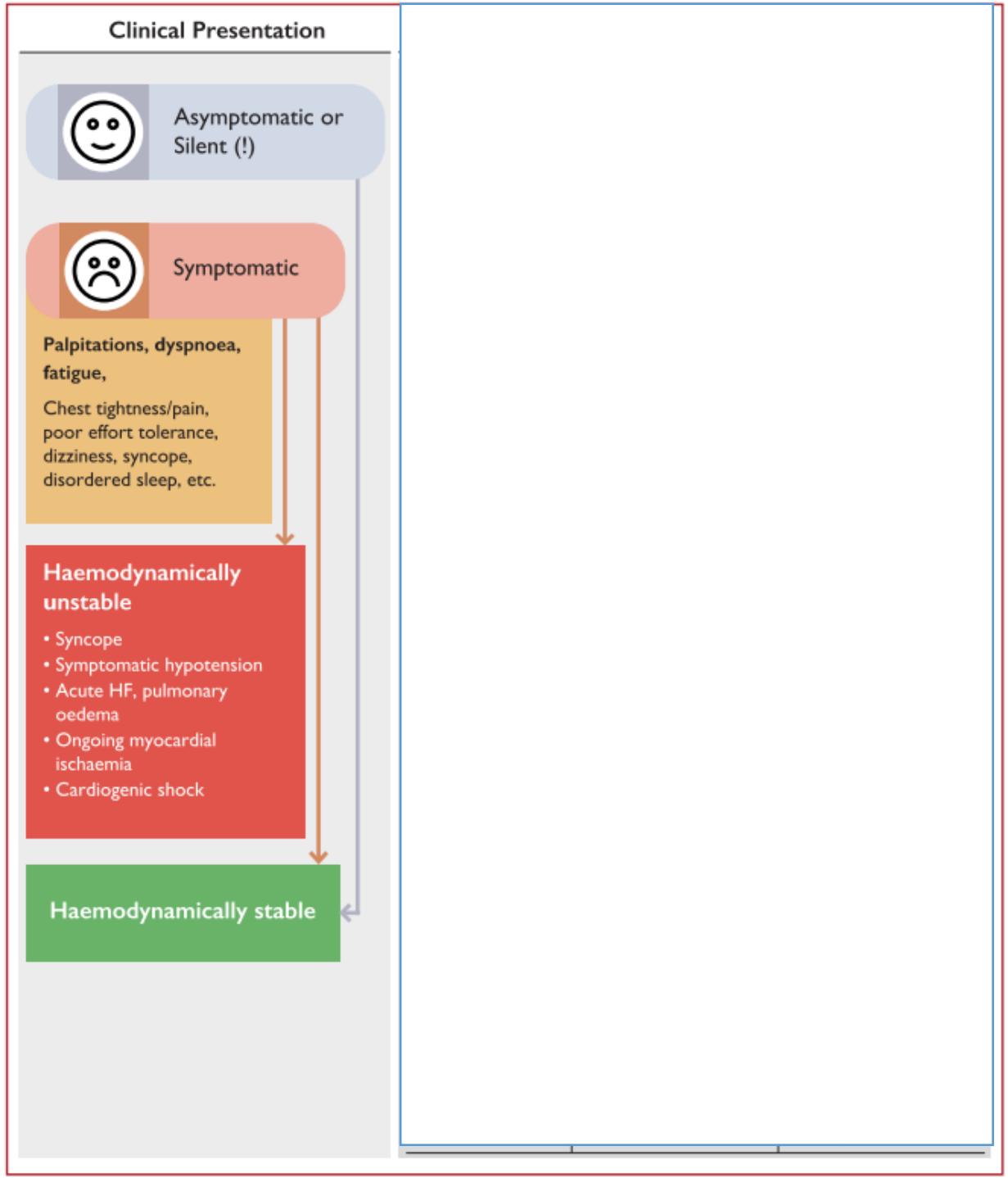
ESC GUIDELINES

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association of Cardio-Thoracic Surgery (EACTS)

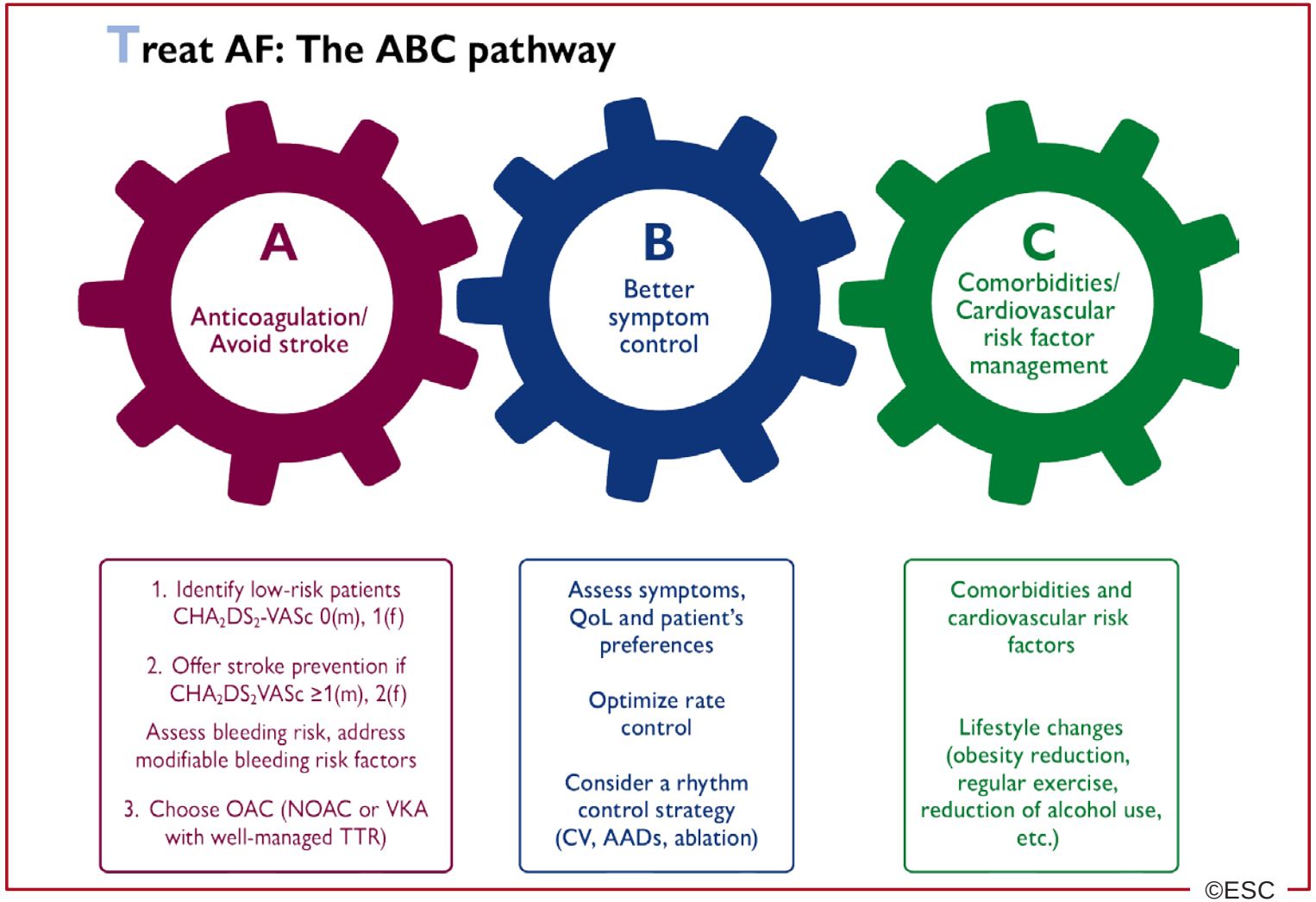
Canadian Journal of Cardiology ■ (2020) 1–102

Society Guidelines

The 2020 Canadian Cardiovascular Society/Canadian Heart Rhythm Society Comprehensive Guidelines for the Management of Atrial Fibrillation


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

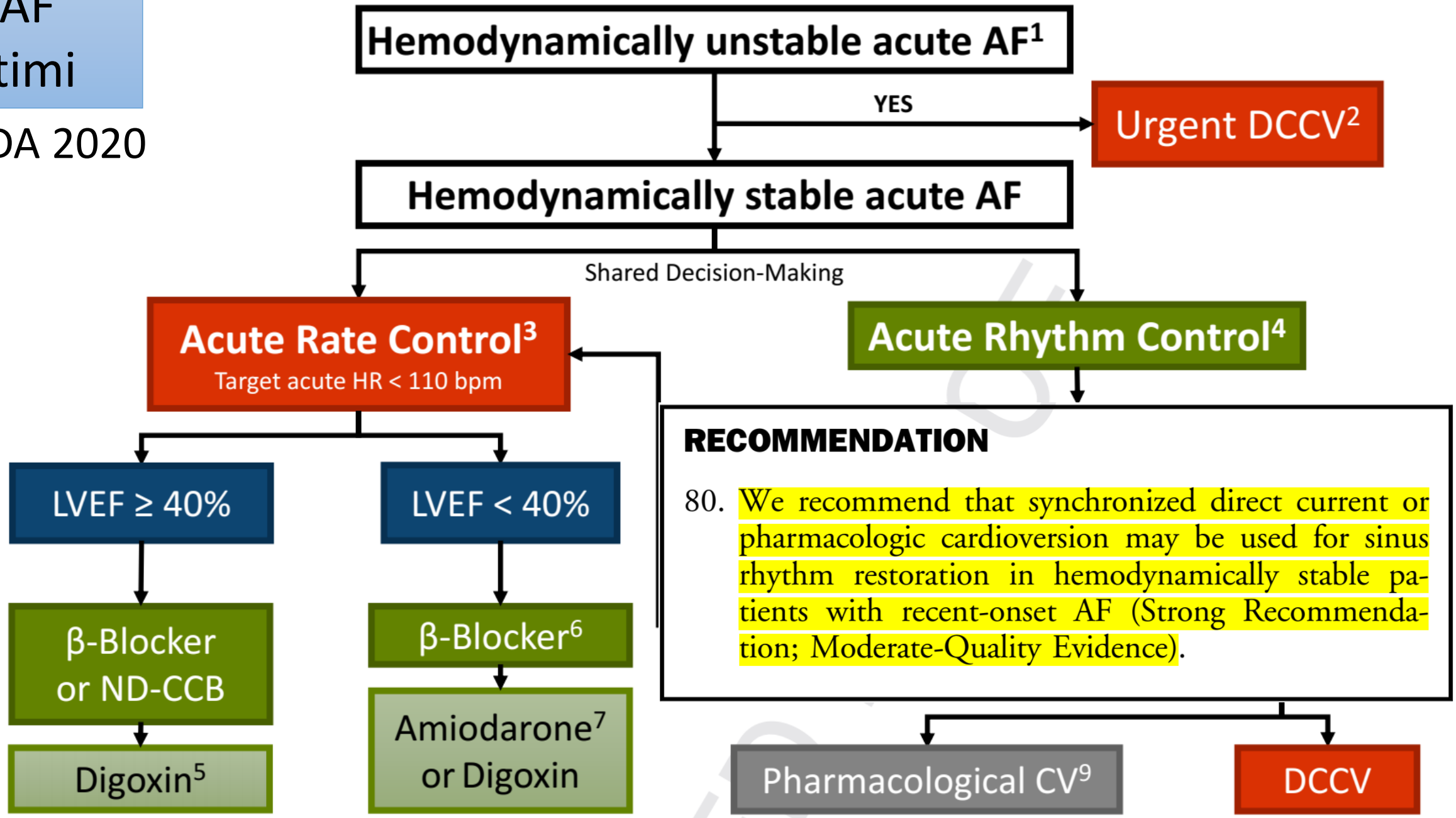
Central Illustration Management of AF (2)



2020 ESC Guidelines for the diagnosis and management of atrial fibrillation
(European Heart Journal 2020-doi/10.1093/eurheartj/ehaa612)

Akut AF Yönetimi

CANADA 2020



9.1.2.1.4. Amiodarone

With the exception of patients with structural heart disease, amiodarone is not recommended for acute rhythm control because of a delay in conversion (approximately 8 hours).[525,532,557] The most common adverse drug reactions with I.V. administration are phlebitis, hypotension, and bradycardia.[525,532] Although there is potential for prolongation of the QT interval, the incidence of TdP is rare.[532,557]

9.1.2.1.5. Flecainide and propafenone

I.V. flecainide and propafenone are superior to placebo for conversion in the acute setting but are not currently available in Canada.[525,558] The oral formulations, however, have similar, if slightly delayed, efficacy as their I.V. counterparts.[558,559] Three hours after administration of a single dose of oral flecainide, between 57% and 68% of patients will convert.[532] Success rates with oral propafenone are similar.[532,559] Although the time to cardioversion (approximately 2-6 hours) is longer than with I.V. formulations, the major clinical benefit is that patients are able to treat their AF episodes at home ("pill-in-the-pocket"), which reduces the need to visit the ED for recurrences. A key caveat to this approach is that the first treatment attempt must be administered in a monitored environment, to verify efficacy and exclude treatment-related adverse reactions.[557,560-563] A β-blocker or ND-CCB should be given ≥ 30 minutes before administration of a class Ic antiarrhythmic to prevent the risk of 1:1 AV conduction during AFL. One study suggests that rare adverse events can occur even after successful use in a monitored environment[563]; therefore, clear instructions must be given to these patients about when to seek emergency care (Supplemental Table S12). It is important to note that flecainide and propafenone should not be used in patients with structural heart disease, including a history of ischemic heart disease.

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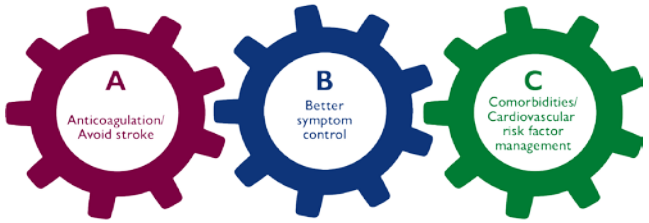
HIZ KONTROL
STRATEJİSİ

Treat AF: The ABC pathway



'B' — Better symptom control

Outline of rate control therapy

- Background therapy in all AF patients
- First choice therapy in patients with no or minor symptoms
- Therapy after failure of rhythm control
- Therapy when risks restoring SR outweigh benefits

- Lenient rate control
- Heart rate <110 bpm (12 lead ECG)

- Symptoms or deterioration of LV function or CRT (CRT-P or CRT-D)

- Lower heart rate: aim heart rate <80 bpm (12 lead ECG)
- Lower heart rate in CRT aimed at continuous biventricular pacing
- Assess heart rate during exercise: gradual increase of heart rate: heart rate <110 bpm at 25% duration of maximal exercise time
- In CRT patients: assess continuous biventricular pacing during exercise
- Perform 24 hour Holter monitoring for safety

Consider rhythm control or atrioventricular node ablation if symptoms or deterioration of LV function / tachycardiomyopathy persist or when continuous biventricular pacing in CRT is not achieved

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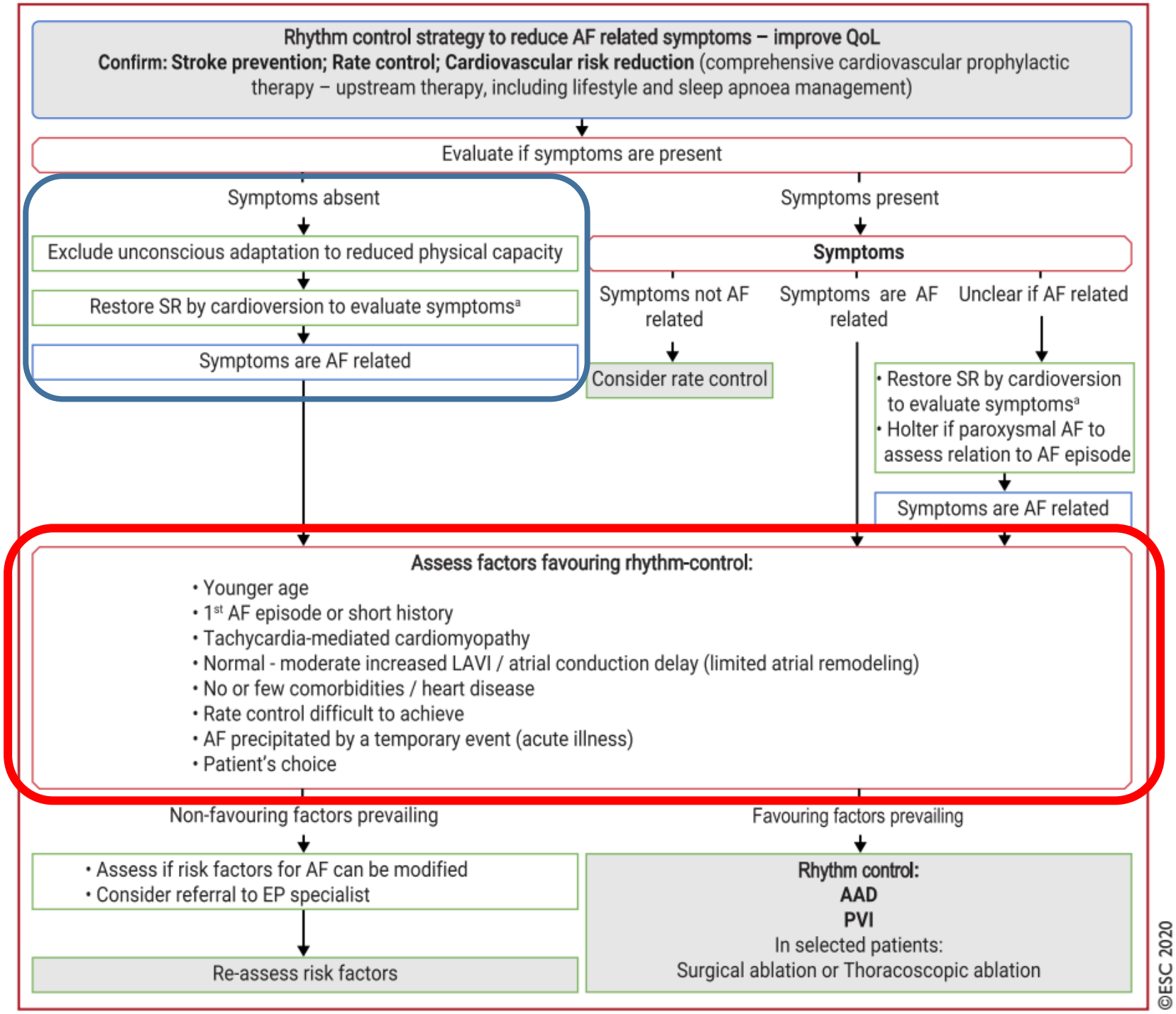
RİTİM KONTROL STRATEJİSİ

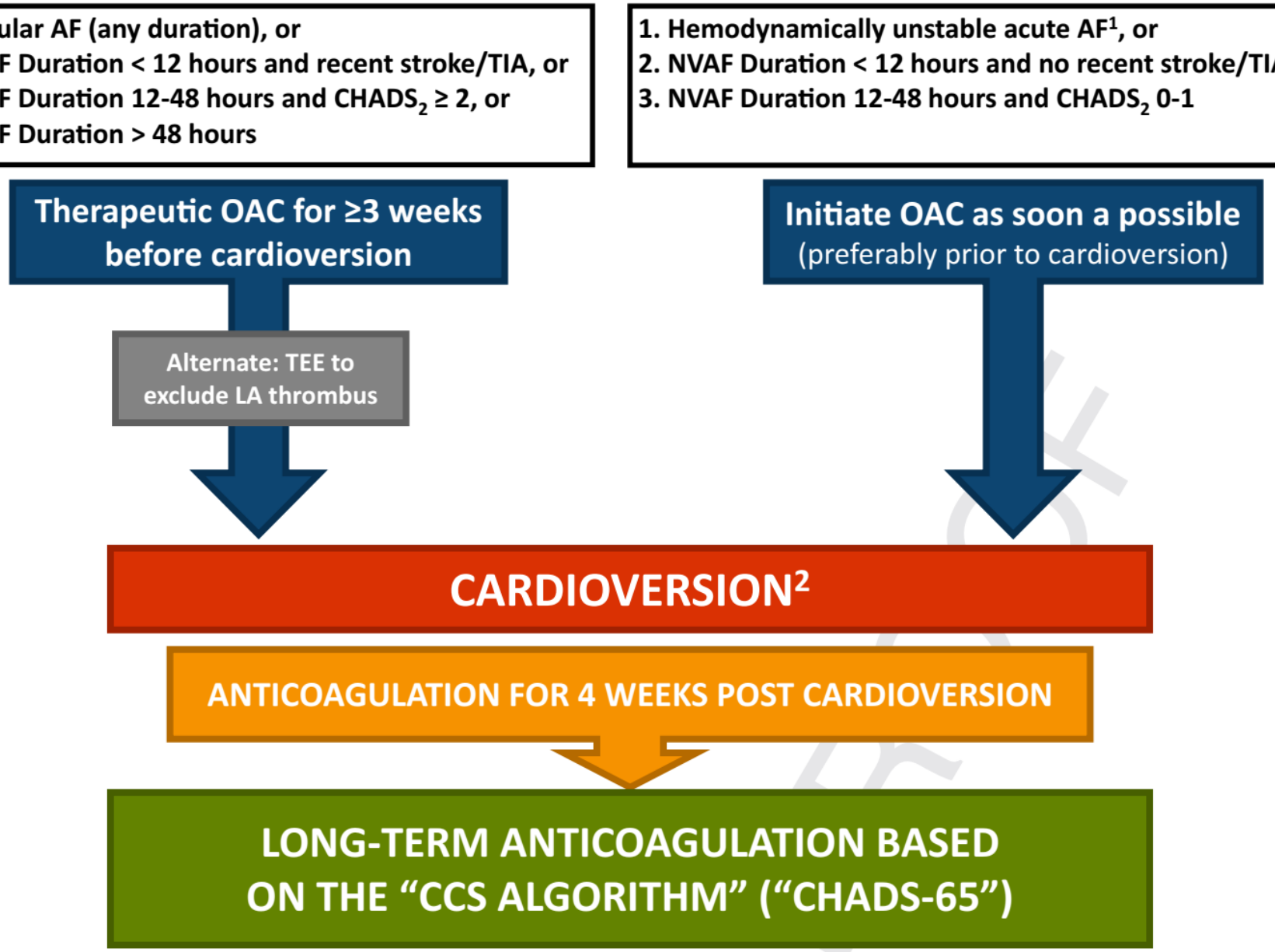


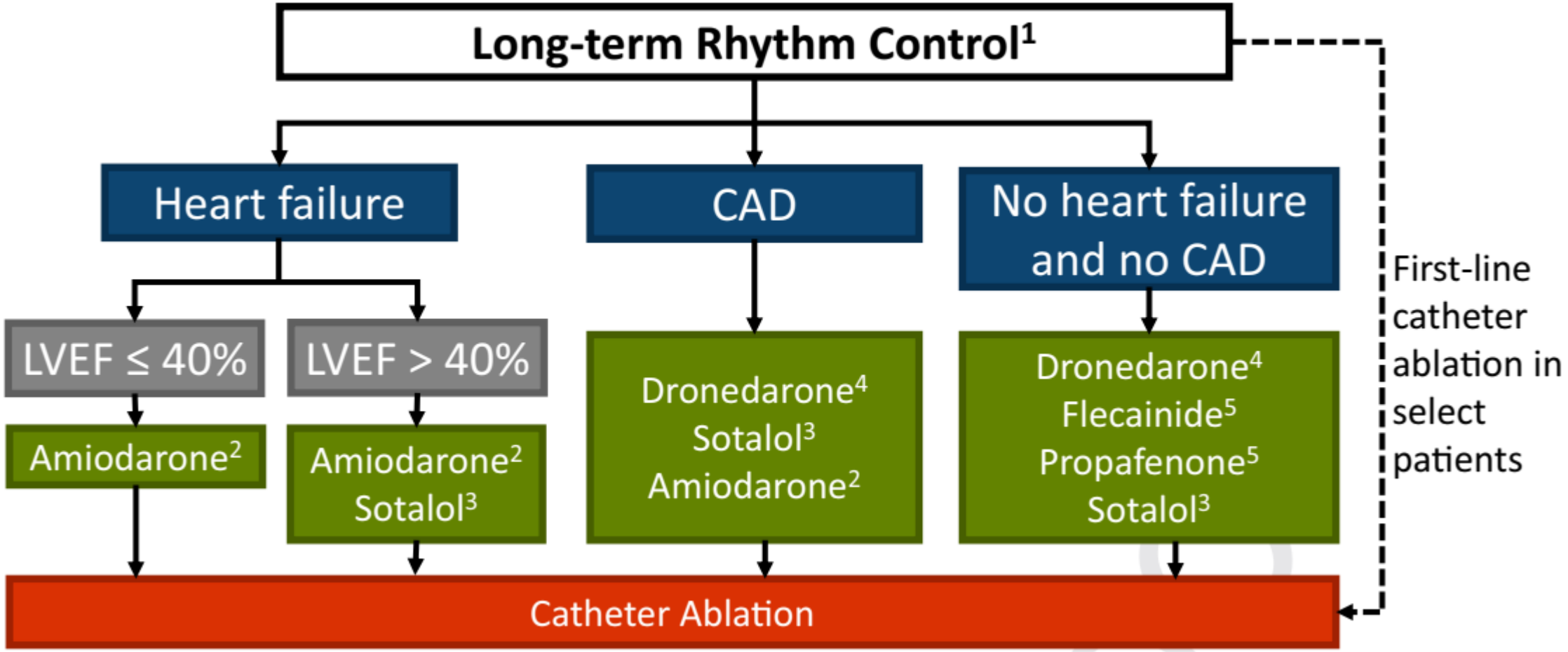
RİTİM KONTROL YÖNTEMLERİ

- ELEKTRİKSEL KARDİYOVERSİYON (DC CV)
- ANTİARİTMİK İLAÇLAR
- ABLASYON

Kardiyoversiyon

In summary, the risk
cardioversion is elevated, e
48 hours of AF onset. This
the method of cardioversio
with pharmacological car
version without 3 weeks
associated with a low risk o
patients who presenting w
patients who presenting 12
a low risk of stroke (eg, pa
with a $CHADS_2$ score of 0
higher risk of stroke sho





[1]Consider AF symptom burden, possibility of adverse drug reactions, and patient preference

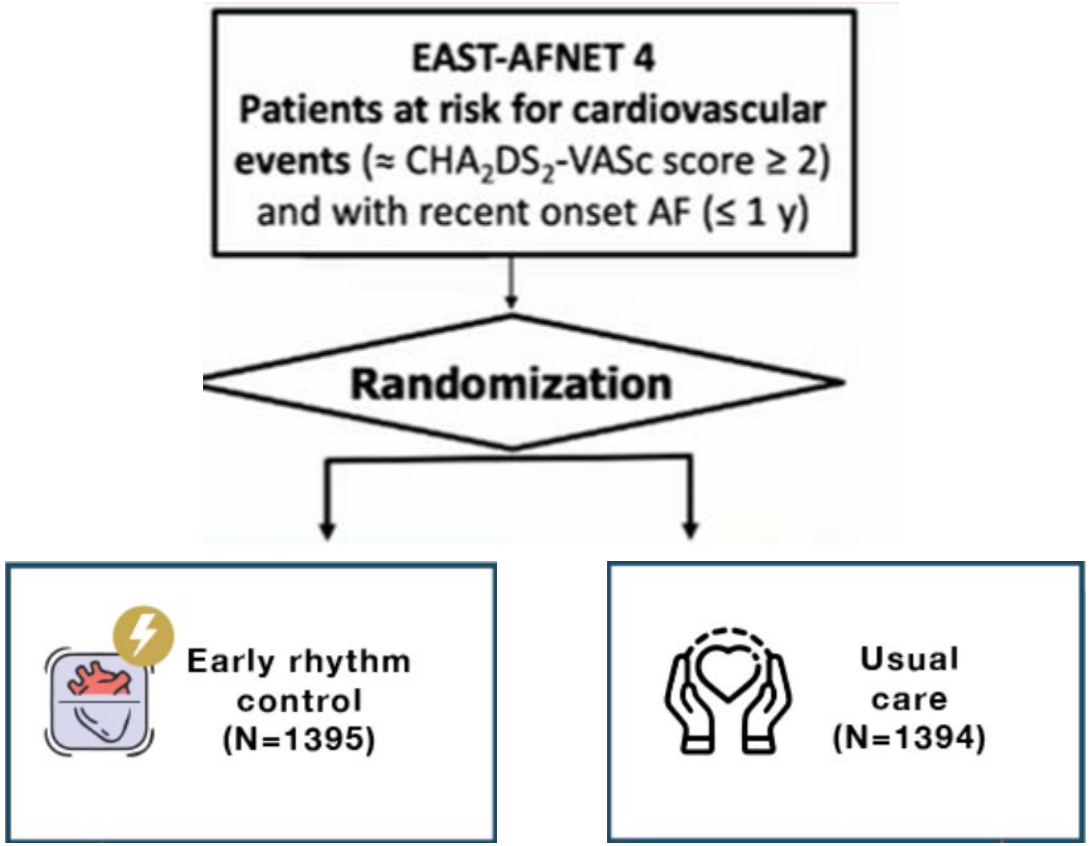
[2]Consider alternative AADs or ablation rather than long-term amiodarone (significant risk of extracardiac side effects)

[3]Sotalol should be used with caution with LVEF 35%-40%, and those with high-risk features for torsades de pointes (> 65 years, women, reduced renal function, concomitant potassium-wasting diuretics). Sotalol is not recommended for patients with LVH.

[4]Dronedarone should be used with caution in combination with digoxin.

[5]Class IC agent should be combined with AV-nodal blocking agent. Use caution for patients with LVH.

The NEW ENGLAND JOURNAL of MEDICINE



Median Follow-up: 5.1 y

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*

- **The first primary outcome**: composite of death from cardiovascular causes, stroke or hospitalization with worsening of heart failure or acute coronary syndrome
- **The second primary outcome:** the number of nights spent in the hospital per year.

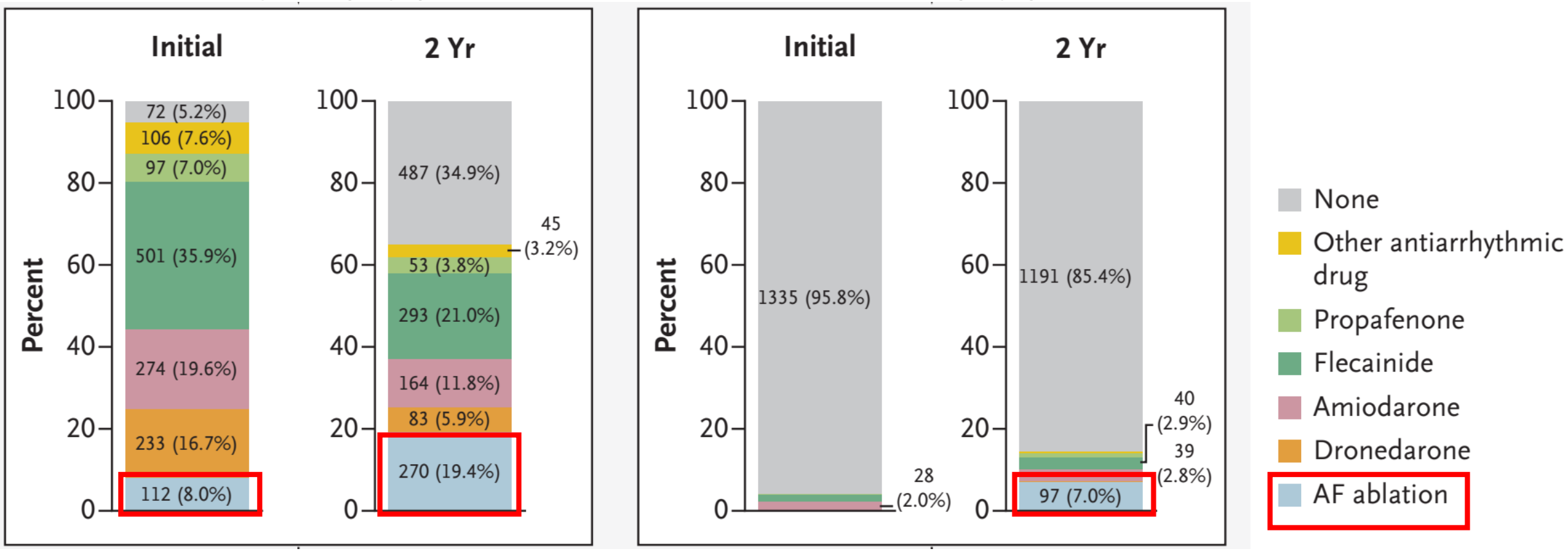
- **The primary safety outcome:** composite of death, stroke, or serious adverse events related to rhythm-control therapy

Table 1. Demographic and Clinical Characteristics of the Patients at Baseline.*

Characteristic	Early Rhythm Control (N = 1395)	Usual Care (N = 1394)
Age — yr	70.2±8.4	70.4±8.2
Female sex — no. (%)	645 (46.2)	648 (46.5)
Body-mass index†	29.2±5.4	29.3±5.4
Type of atrial fibrillation — no./total no. (%)		
First episode	528/1391 (38.0)	520/1394 (37.3)
Paroxysmal	501/1391 (36.0)	493/1394 (35.4)
Persistent	362/1391 (26.0)	381/1394 (27.3)
Sinus rhythm at baseline — no./total no. (%)	762/1389 (54.9)	743/1393 (53.3)
Median days since atrial fibrillation diagnosis (IQR)‡	36.0 (6.0–114.0)	36.0 (6.0–112.0)
Absence of atrial fibrillation symptoms — no./total no. (%)§	395/1305 (30.3)	406/1328 (30.6)
Previous cardioversion — no./total no. (%)	546/1364 (40.0)	543/1389 (39.1)

Ritim Kontrol

Hız Kontrol



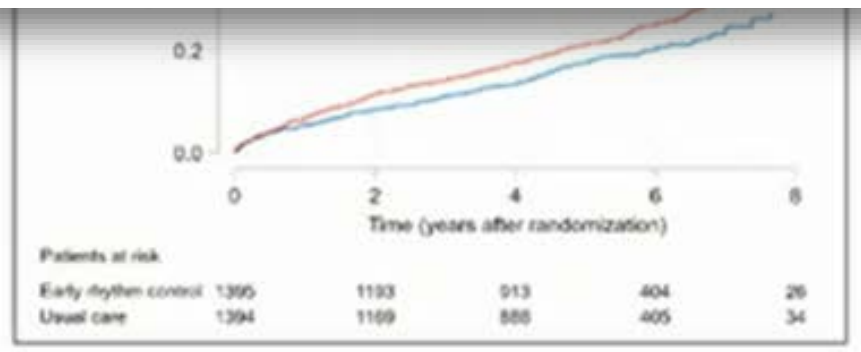
The EAST–AFNET 4 trial: summary of main findings

Intervention vs. Usual Care

	Event rates per 100 p-y		
	ERC (n=1395)	UC (n=1394)	Crude HR [95% CI]

CONCLUSIONS

Early rhythm-control therapy was associated with a lower risk of cardiovascular outcomes than usual care among patients with early atrial fibrillation and cardiovascular conditions. (Funded by the German Ministry of Education and Research and others; EAST-AFNET 4 ISRCTN number, ISRCTN04708680; ClinicalTrials.gov number, NCT01288352; EudraCT number, 2010-021258-20.)



No significant difference in the change of:

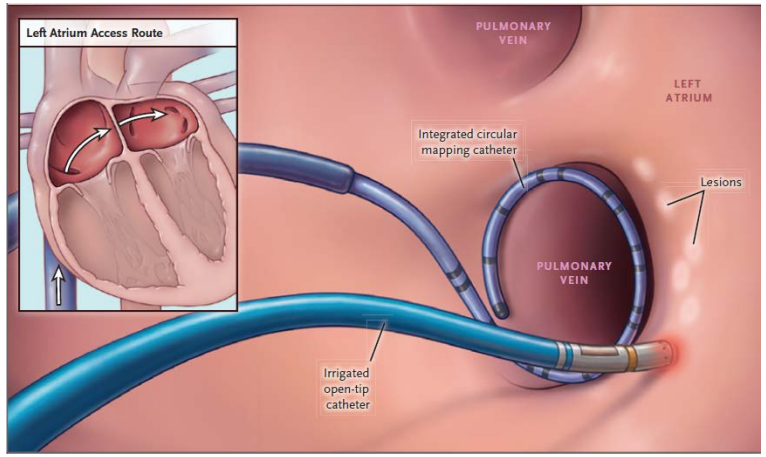
- LV function,
- Cognitive function
- Quality of life (EHRA scale, EQ-5D)

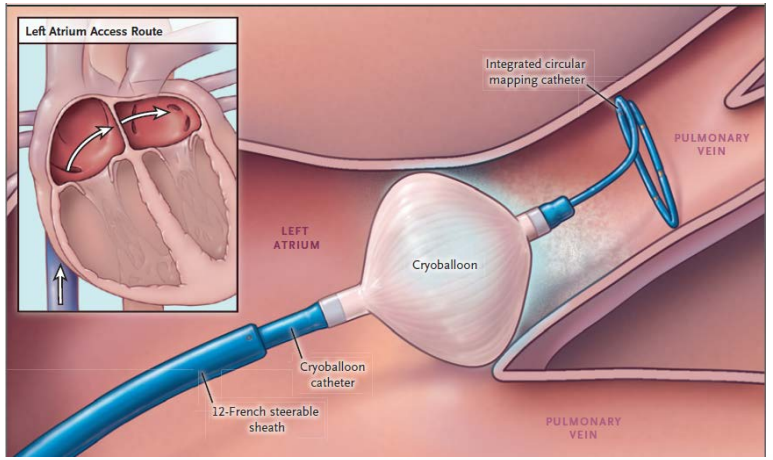
The SF-12 mental component more improved in the UC arm (p=0.002)

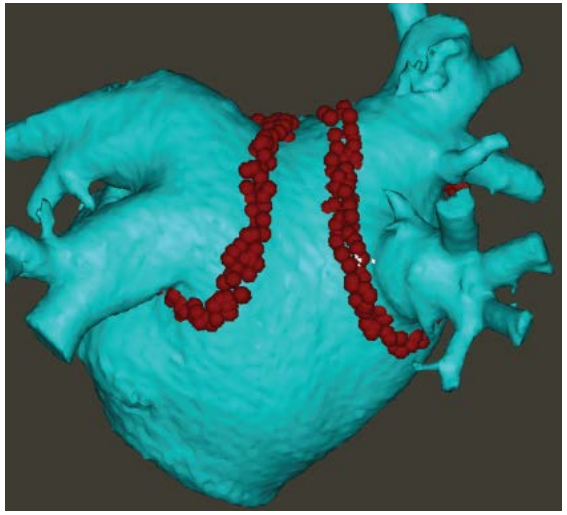
Sinus rhythm	921/1122 (82.1)	687/1135 (60.5)	3.13 [2.55 - 3.84]
Asymptomatic (EHRA I)	861/1159 (74.3)	850/1171 (72.6)	1.14 [0.93 - 1.40]

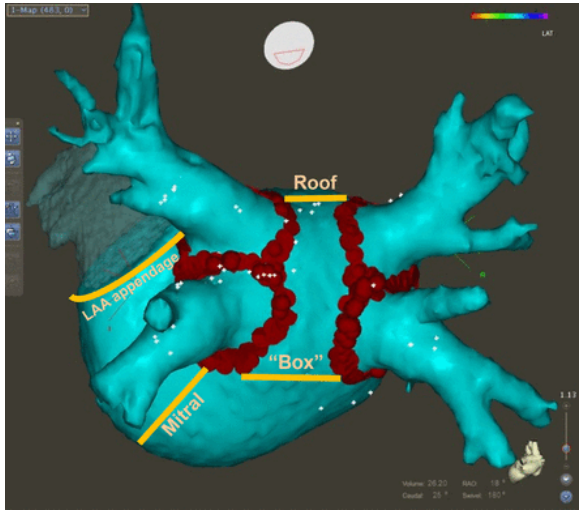
TEKNİK ve TEKNOLOJİ

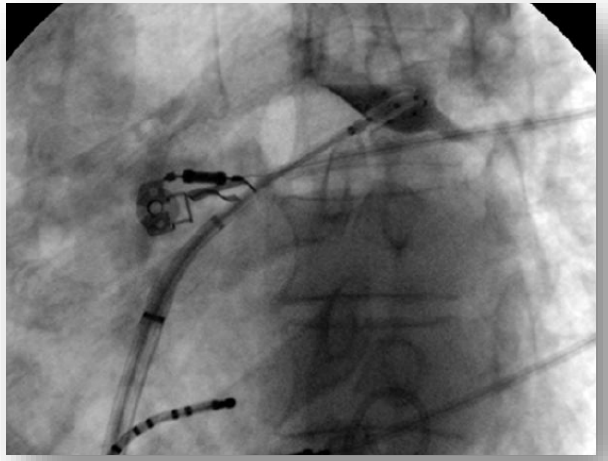
Radyofrekans (RF)
Cryogenic enerji
PFA (Elektroporasyon)
Laser
Ultrasound

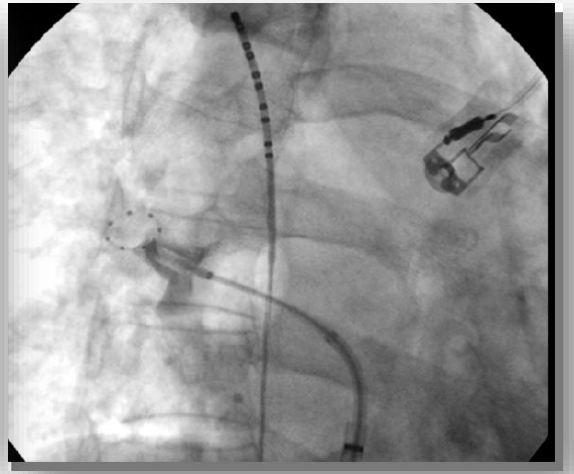












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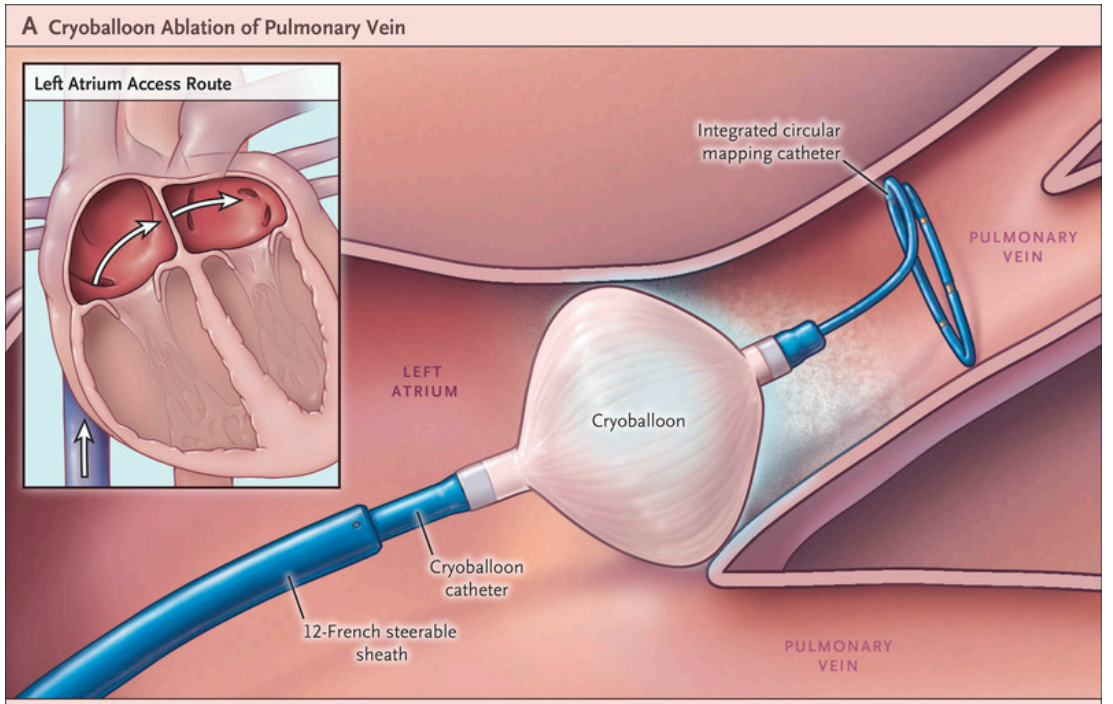
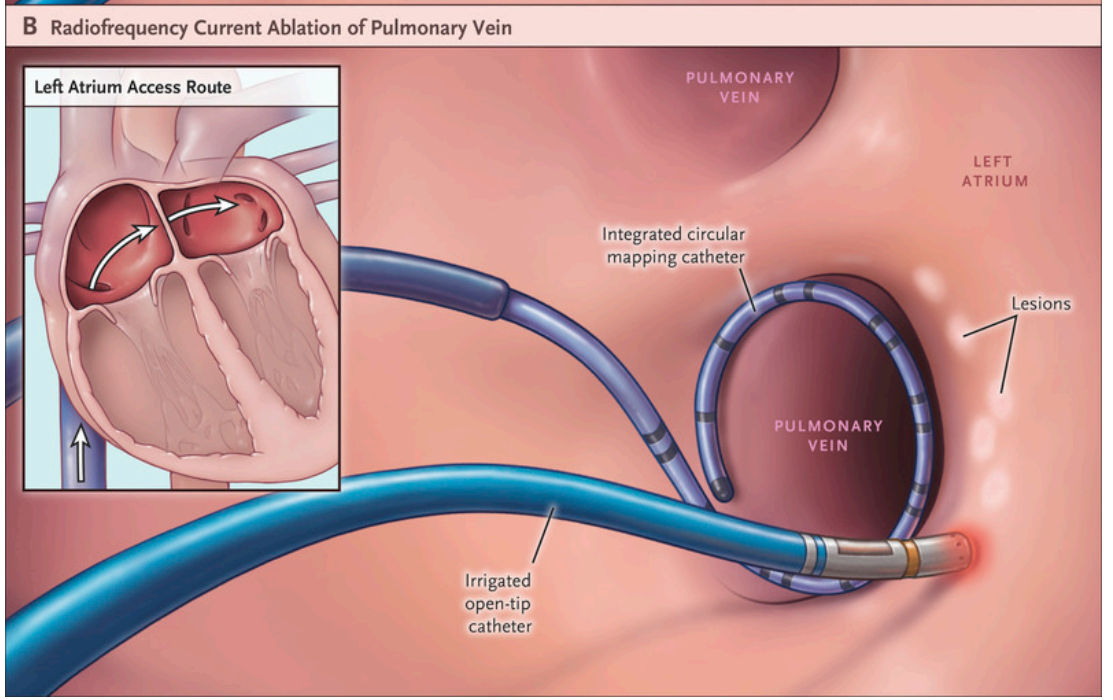
Patient selection, peri-procedural management, and ablation techniques for catheter ablation of atrial fibrillation: an EHRA survey

ABLASYON YÖNTEMİ

- RF:%56
- CRYO: %40
- DİĞER:%4





Ablasyon önerileri-ESC 2020

AF catheter ablation after failure of drug therapy		
AF catheter ablation for PVI is recommended for rhythm control after one failed or intolerant class I or III AAD, to improve symptoms of AF recurrences in patients with[235–238,247,605–609,612,613,615–617,654,677,678,680,682,685,758,779,780,815]:		
• Paroxysmal AF, or	I	A
• Persistent AF without major risk factors for AF recurrence, or		A
• Persistent AF with major risk factors for AF recurrence.		B
AF catheter ablation for PVI should be considered for rhythm control after one failed or intolerant to beta-blocker treatment to improve symptoms of AF recurrences in patients with paroxysmal and persistent AF.[246]	IIa	B

Ablasyon önerileri-ESC 2020

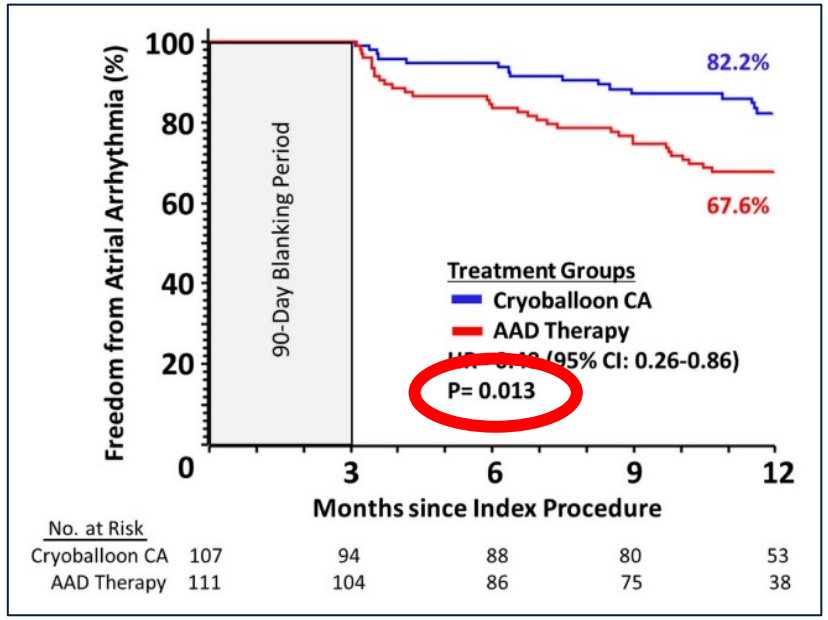
First-line therapy		
AF catheter ablation for PVI should/may be considered as first-line rhythm control therapy to improve symptoms in selected patients with symptomatic:		
• Paroxysmal AF episodes,[240–242,614,615] or	IIa	B
• Persistent AF without major risk factors for AF recurrence.[253–255,264,598–601,609,610,633,636,641,724,745,746,832]	IIb	C
as an alternative to AAD class I or III, considering patient choice, benefit, and risk.		

AF catheter ablation:		
• Is recommended to reverse LV dysfunction in AF patients when tachycardia-induced cardiomyopathy is highly probable, independent of their symptom status.[666,675,676]	I	B
• Should be considered in selected AF patients with HF with reduced LVEF to improve survival and reduce HF hospitalization.[612,659,662–666,668–671,817–826]	IIa	B
AF catheter ablation for PVI should be considered as a strategy to avoid pacemaker implantation in patients with AF-related bradycardia or symptomatic pre-automaticity pause after AF conversion considering the clinical situation.[816–818]	IIa	C

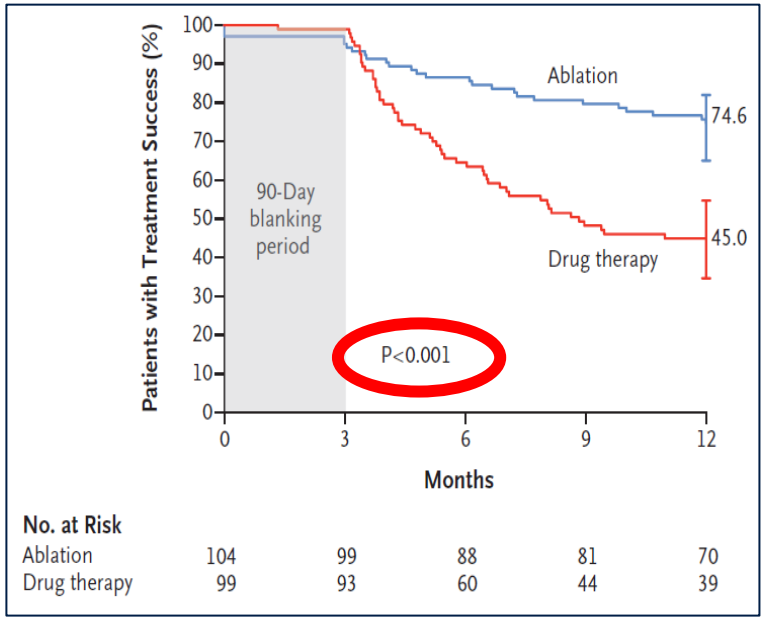
First-line cryoablation evidence

Consistent Efficacy results

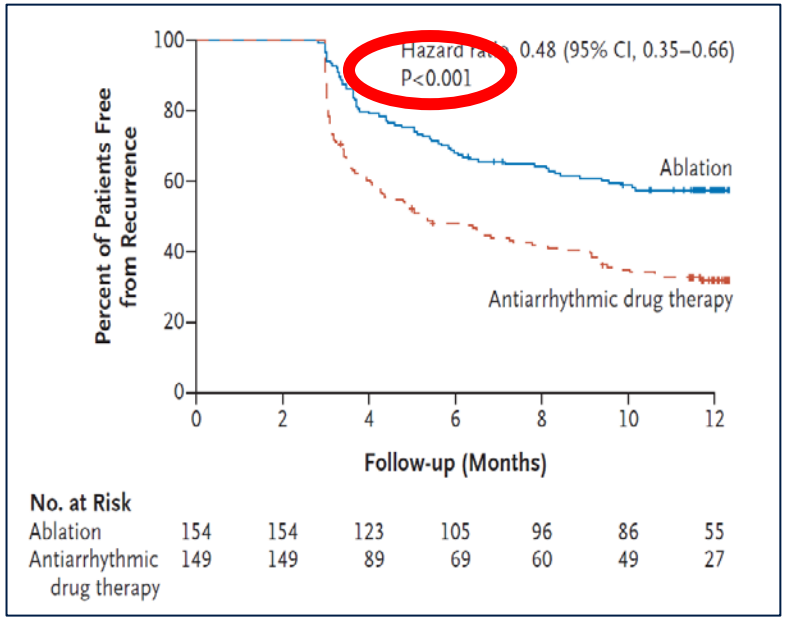
Cryo-FIRST



STOP AF First



EARLY-AF

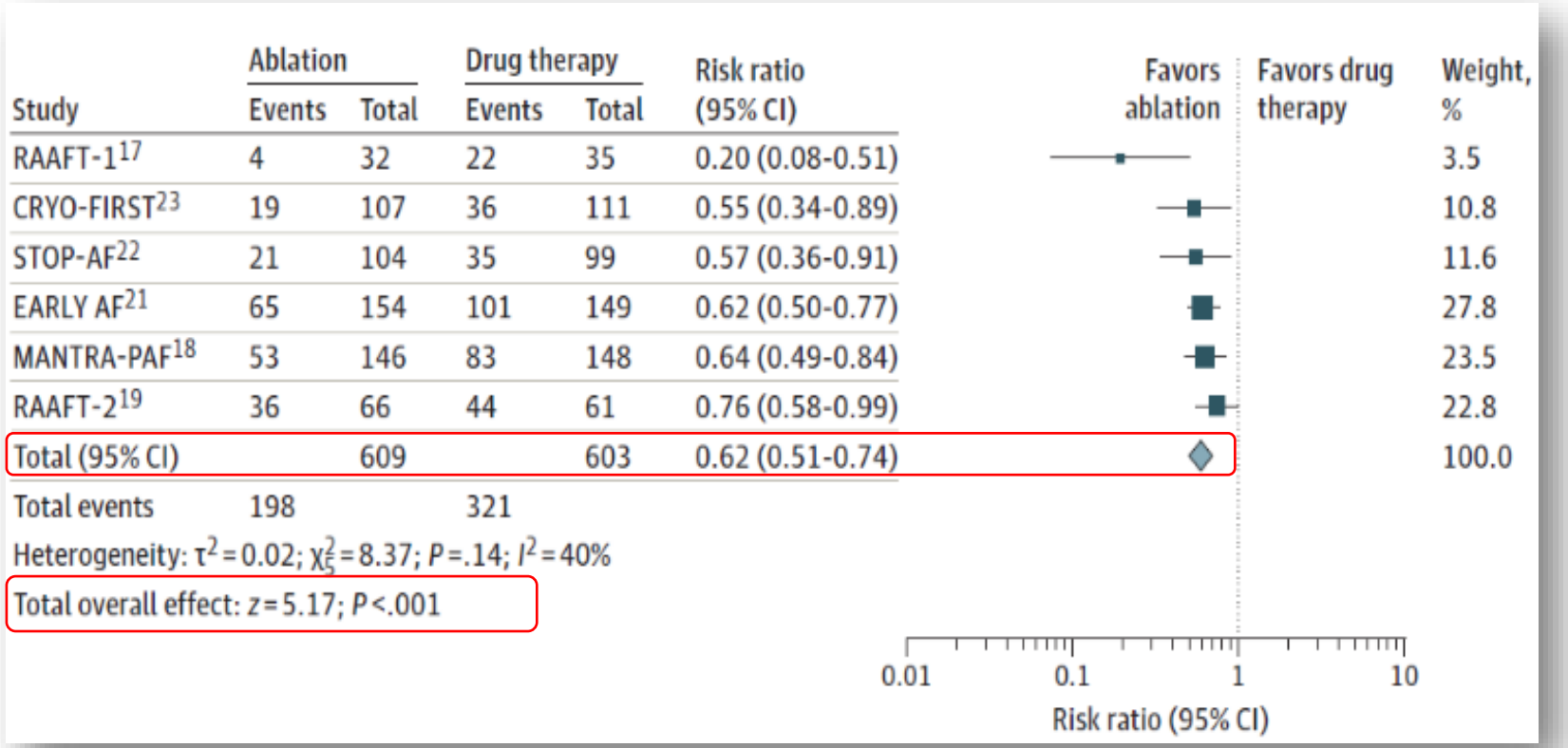


ALL 3 TRIALS DEMONSTRATE THAT AS A FIRST-LINE TREATMENT,
CRYOBALLOON IS SUPERIOR
TO AAD FOR PREVENTION OF ATRIAL ARRHYTHMIA RECURRENCE

First-line ablation meta-analysis

1212 patients from 6 randomised clinical trials were included in the meta-analysis: Cryo-FIRST, EARLY-AF, STOP AF First, RAAFT-1, RAAFT-2, MANTRA-PAF.

- Catheter ablation was associated with **a 38% reduction in recurrence** of atrial arrhythmias and **68% reduction in hospitalisations** compared with AAD therapy
- **There was no significant difference in the composite of major adverse events between the two groups.**



Study	Ablation Events	Ablation Total	Drug therapy Events	Drug therapy Total	Risk ratio (95% CI)
RAAFT-1[17]	4	32	22	35	0.20 (0.08-0.51)
CRYO-FIRST[23]	19	107	36	111	0.55 (0.34-0.89)
STOP-AF[22]	21	104	35	99	0.57 (0.36-0.91)
EARLY AF[21]	65	154	101	149	0.62 (0.50-0.77)
MANTRA-PAF[18]	53	146	83	148	0.64 (0.49-0.84)
RAAFT-2[19]	36	66	44	61	0.76 (0.58-0.99)
Total (95% CI)		609		603	0.62 (0.51-0.74)
Total events	198		321		

Heterogeneity: $\tau^2 = 0.02$; $\chi^2_5 = 8.37$; $P = .14$; $I^2 = 40\%$

Total overall effect: $z = 5.17$; $P < .001$

Turagam et al. JAMA Cardiology. 2021.

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Patient selection, peri-procedural management, and ablation techniques for catheter ablation of atrial fibrillation: an EHRA survey

36 Ülke
258 EHRA Üyesi Elektrofizyolog

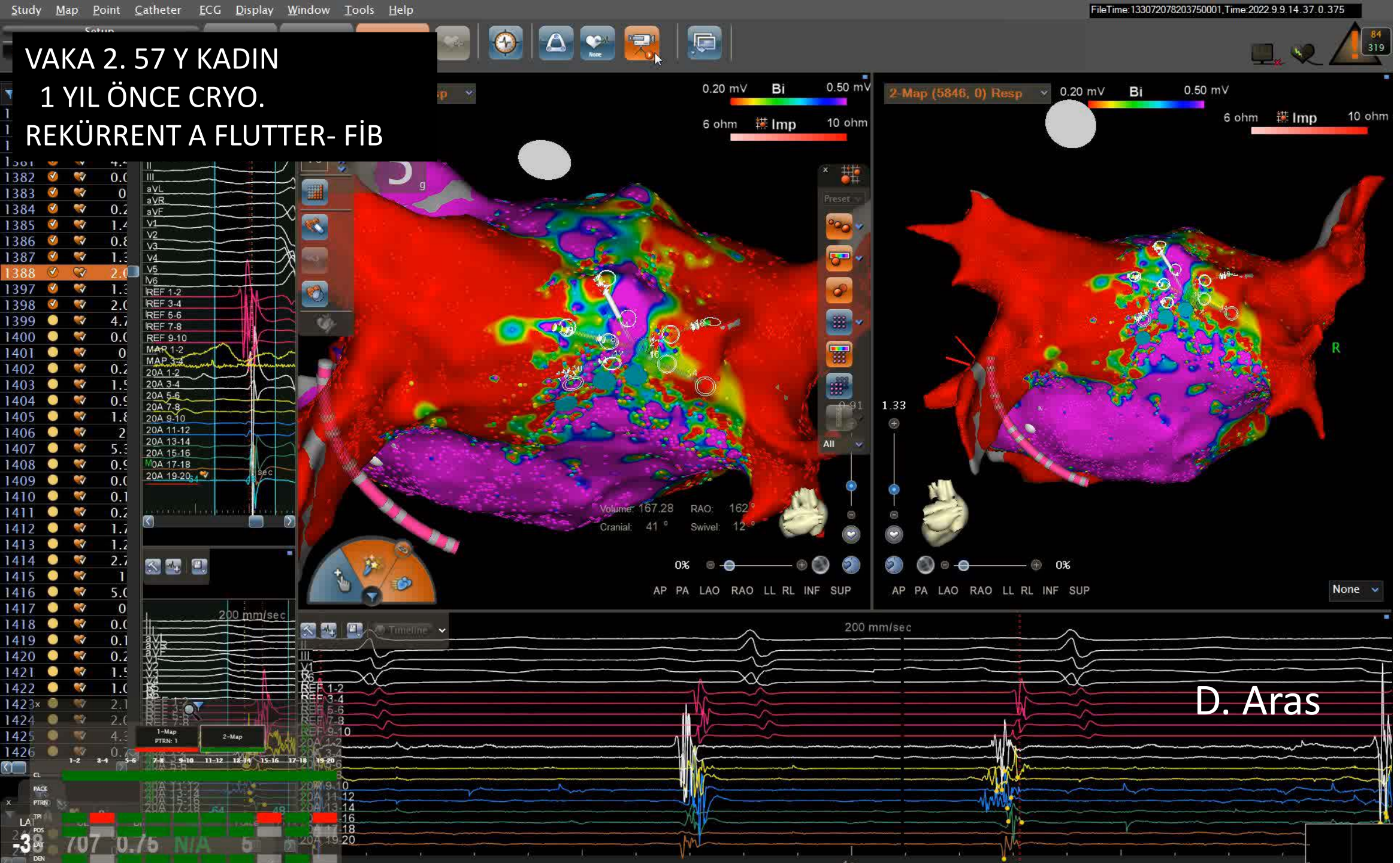
First-line AF ablation – PAF

- routinely performed by 42% respondents in patients with symptomatic paroxysmal AF,
- in the absence of HF, or other co-morbidities, whereas 8% would not perform first-line CA of paroxysmal AF.
- The remaining 50% would perform it only in selected patients (e.g. those aged and/or upon specific patient request)

First-line AF ablation- Persistent AF

- routinely performed 7% in patients with persistent AF in the absence of HF, or other comorbidities, in whom the rhythm control strategy is deemed feasible.
- 27% would not perform first-line CA at all in the same category of patients with persistent AF.
- The remaining physicians would perform first-line AF ablation for persistent AF in selected cases only (e.g. age and/or upon specific patient request)

2015 yılındaki surveyde First-line oranı %11'di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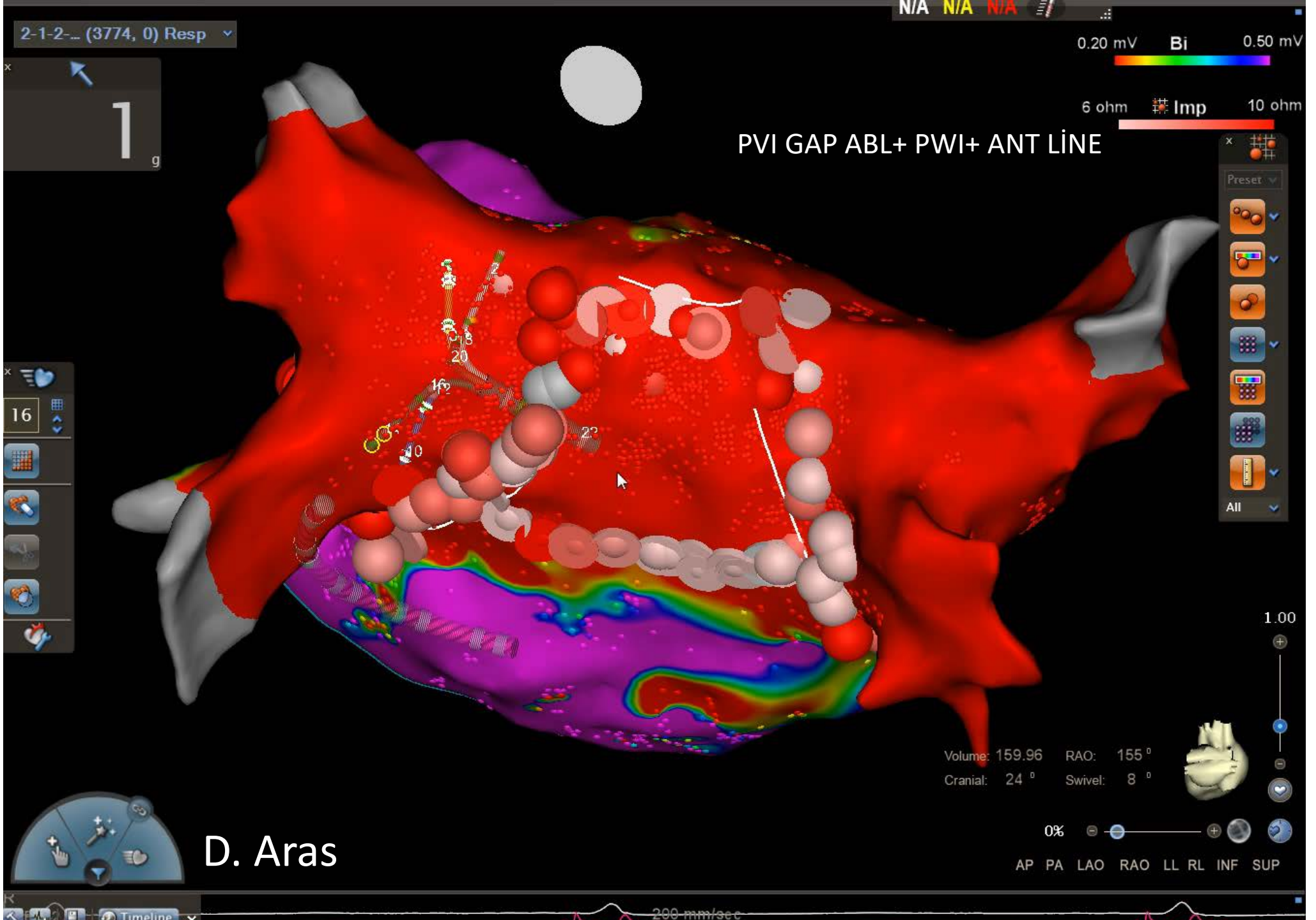
6 ohm Imp 10 ohm
2-Map (5846, 0) Resp
Volume: 167.28 RAO: 162
Cranial: 41 Swivel: 12
AP PA LAO RAO LL RL INF SUP
200 mm/sec
D. Aras


PVI GAP ABL+ PWI+ ANT LİNE
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