



ΕΤΑΙΡΕΙΑ ΜΕΛΕΤΗΣ ΚΑΙ ΕΡΕΥΝΑΣ
ΤΗΣ ΚΑΡΔΙΑΚΗΣ ΑΝΕΠΑΡΚΕΙΑΣ

25^ο ΠΑΝΕΛΛΗΝΙΟ ΣΥΝΕΔΡΙΟ

Καρδιακής Ανεπάρκειας

**Νεότερα δεδομένα για την κατάλυση της κοιλιακής
μαρμαρυγής στην Προχωρημένη Καρδιακή Ανεπάρκεια
*Είμαστε έτοιμοι;***

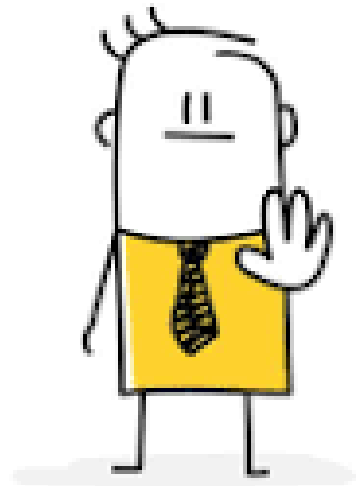
Γιώργος Ανδρικόπουλος, MD, PhD, FESC, FEHRA
Α Καρδιολογική Κλινική/Ηλεκτροφυσιολογίας Βηματοδότησης
«Ερρίκος Ντυνάν» Hospital Center, Αθήνα

Presenter Disclosure Information

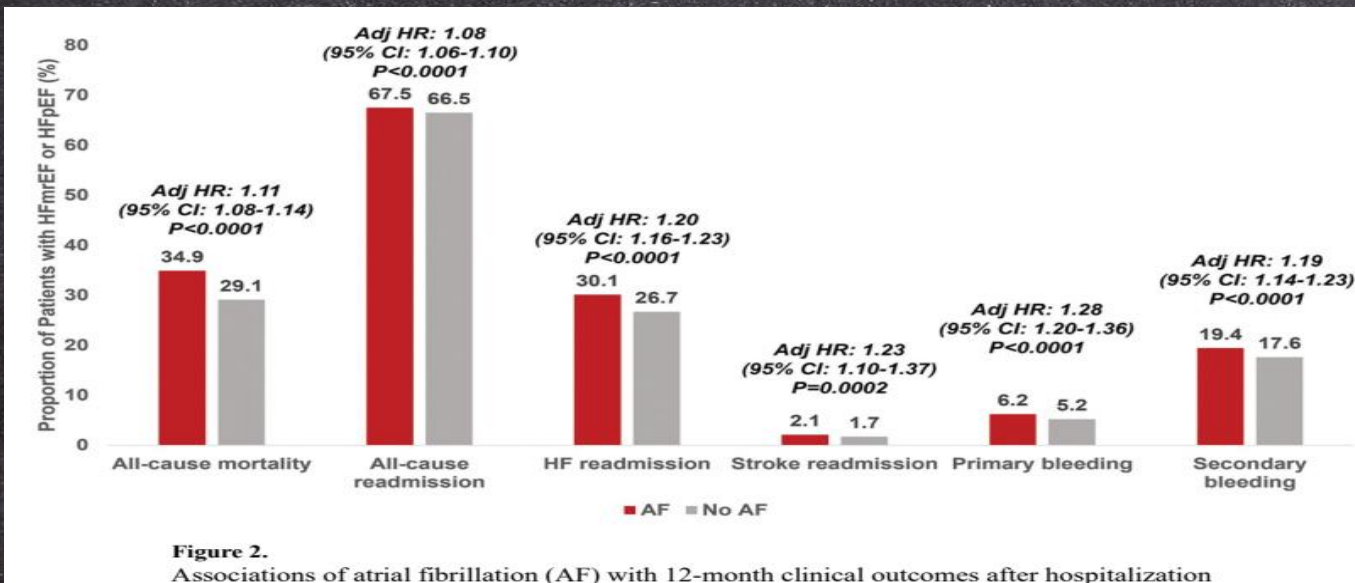
The presenter has received honoraria for participation in lectures and advisory boards from the following pharmaceutical and biotechnology companies:

- *Abbot*
- *AstraZeneca,*
- *Bard,*
- *Bayer Healthcare,*
- *Boehringer Ingelheim,*
- *Boston Scientific,*
- *Bristol-Myers Squibb,*
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- *Galenica,*
- *Lilly,*
- *Medtronic,*
- *Menarini,*
- *MSD,*
- *Pfizer,*
- *Sanofi,*
- *Servier,*
- *Unifarma,*
- *Vianex.*

OXI



Intersection of atrial fibrillation and heart failure with mildly reduced and preserved ejection fraction in >400 000 participants in the Get With The Guidelines-Heart Failure Registry



“Anti-arrhythmic drug use after heart failure hospitalization was low (**18%**) and increased modestly over time. Amiodarone accounted for **71%** of total anti-arrhythmic drug prescriptions.”

2703 (2.6%) underwent cardioversion and 428 (0.4%) underwent AF **ablation** during their HF hospitalization.

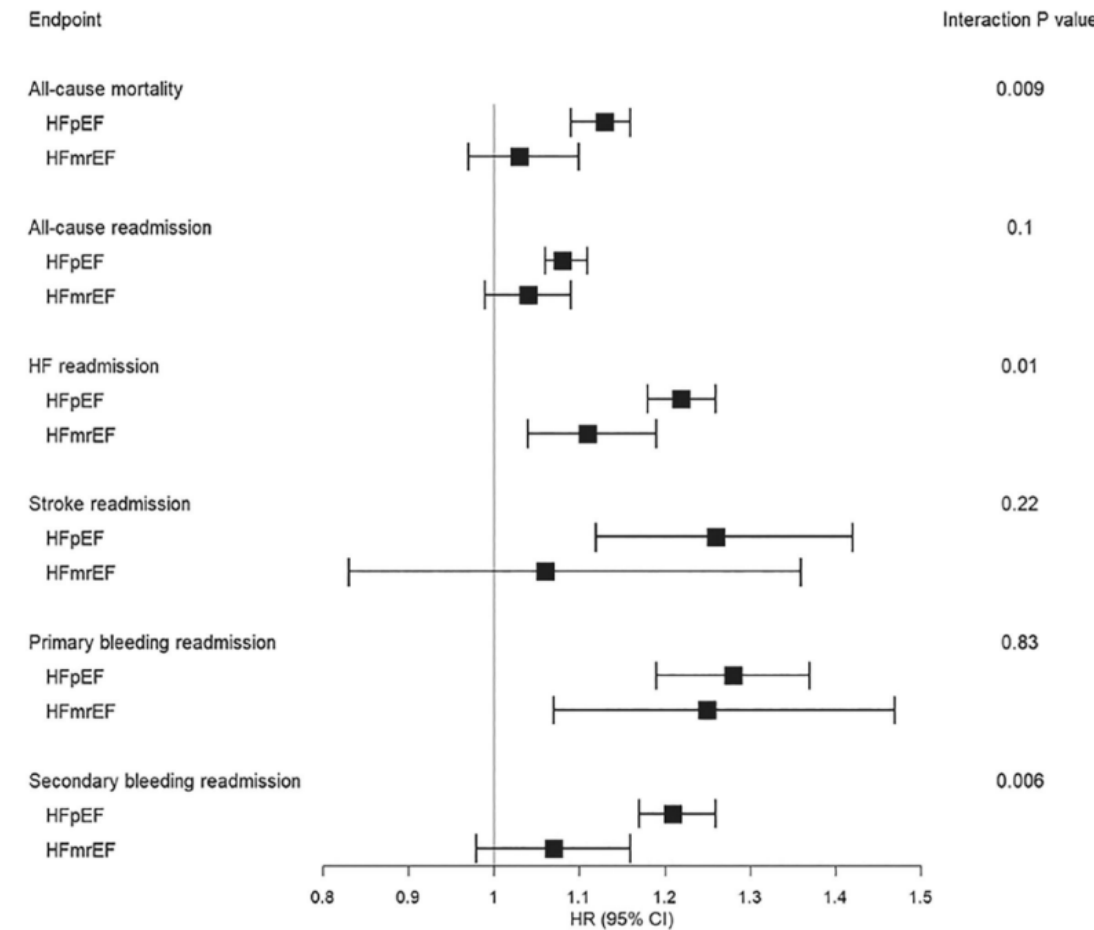
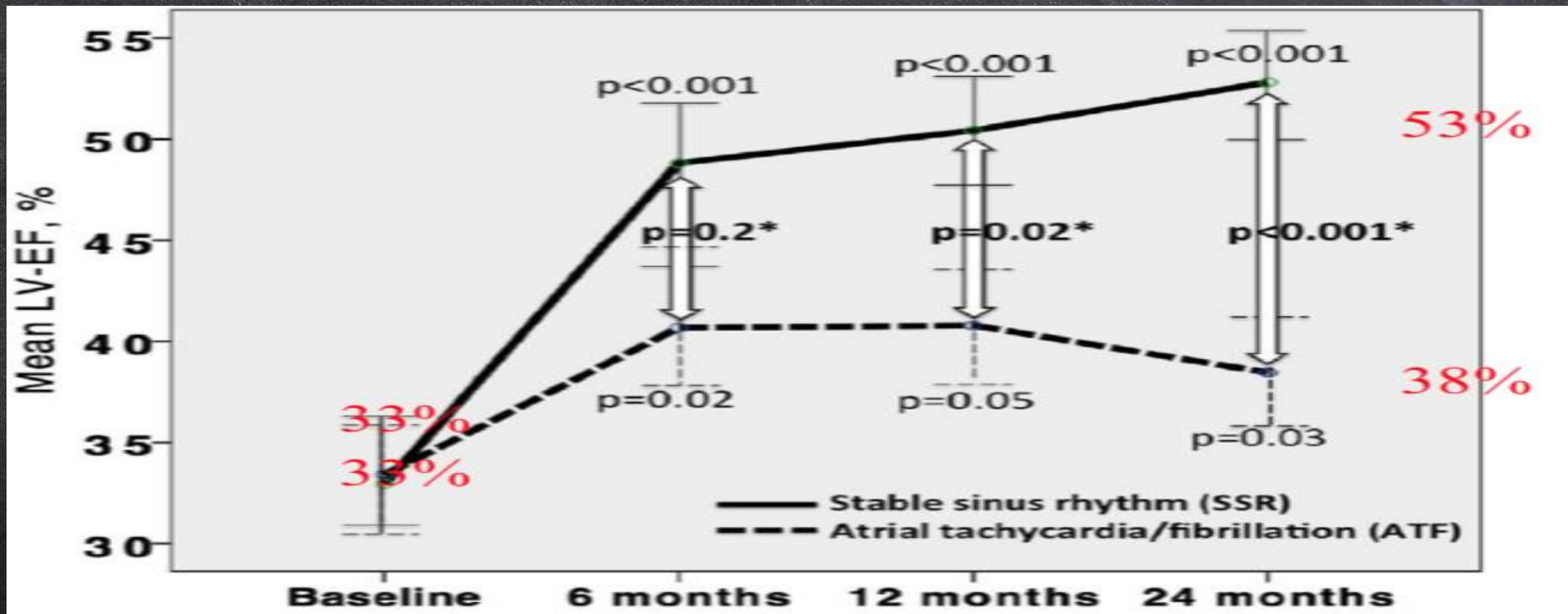


Figure 3. Associations of atrial fibrillation with clinical outcomes by heart failure (HF) subtype. CI, confidence interval; HFmrEF, heart failure with mildly reduced ejection fraction; HFpEF, heart failure with preserved ejection fraction; HR, hazard ratio.

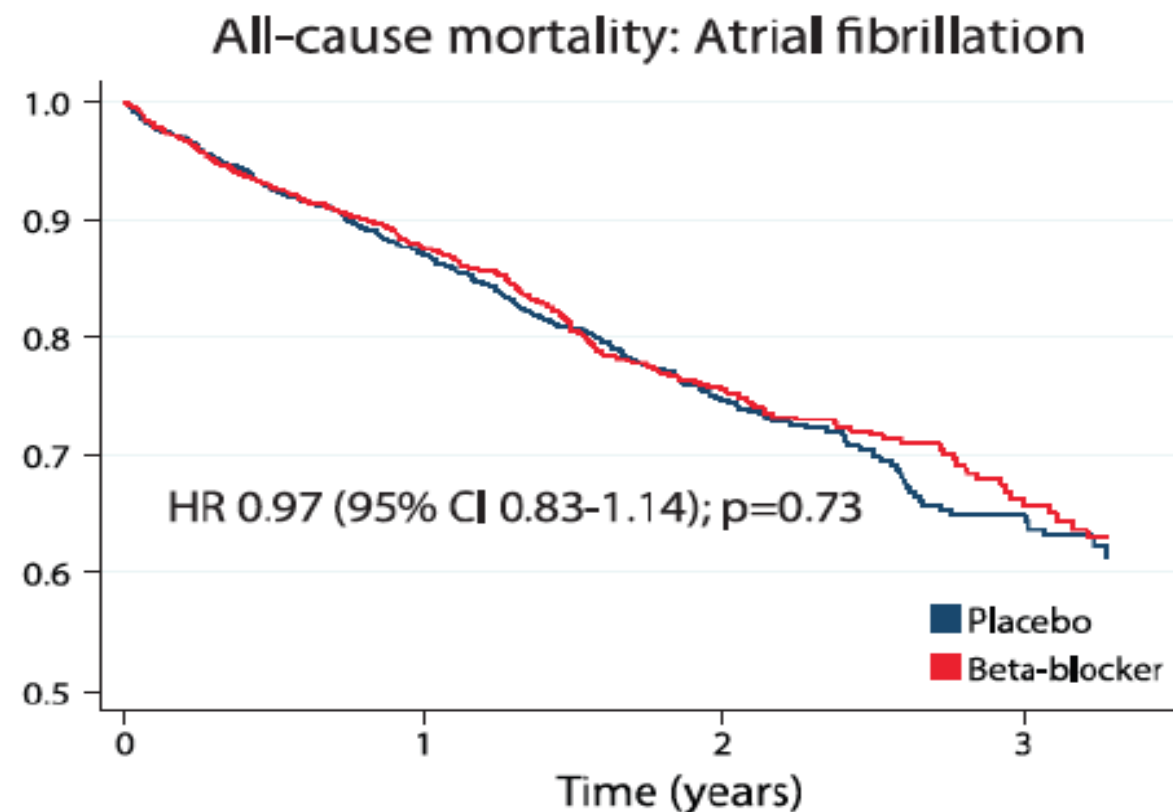
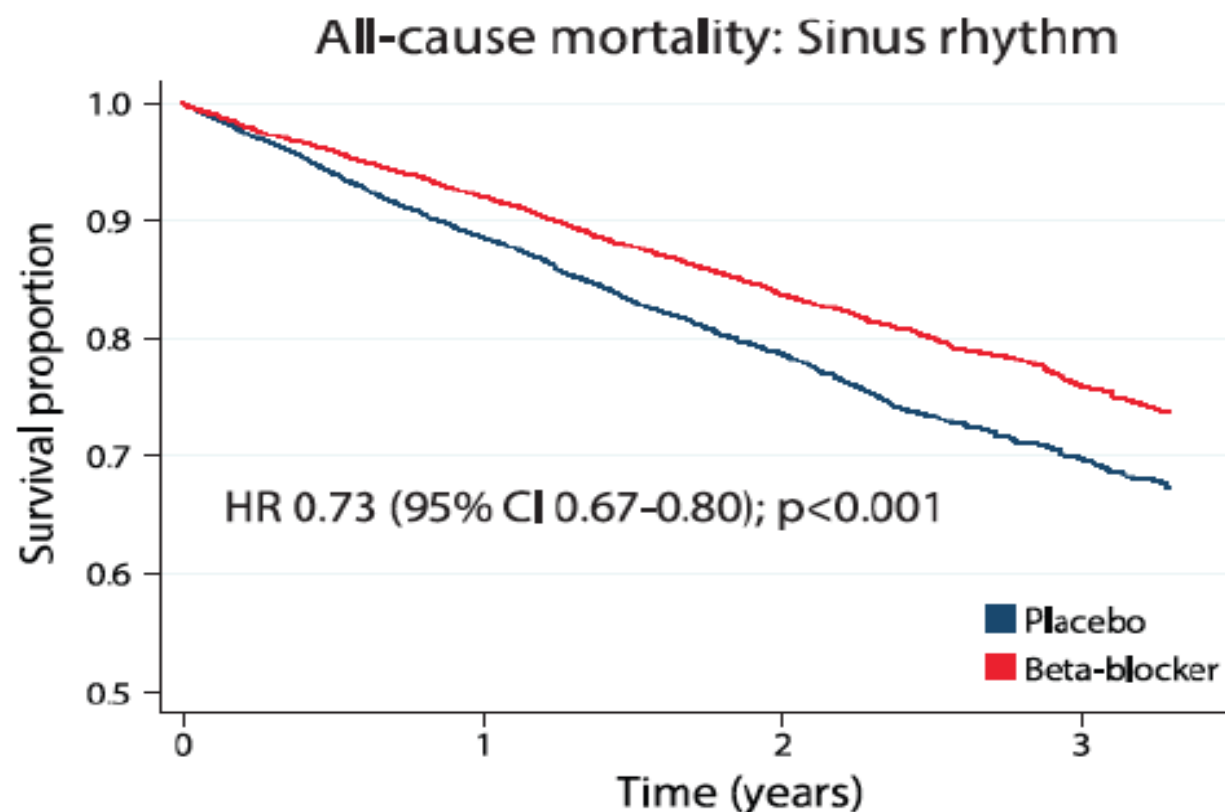
Η ΚΟΛΠΙΚΗ ΜΑΡΜΑΡΥΓΗ ΕΙΝΑΙ ΚΑΘΟΡΙΣΤΙΚΟΣ ΠΑΡΑΓΩΝ ΣΤΗ ΦΥΣΙΚΗ ΠΟΡΕΙΑ ΤΗΣ ΚΑΡΔΙΑΚΗΣ ΑΝΕΠΑΡΚΕΙΑΣ

Variable	Group	Baseline	6 mo	12 mo	24 mo	p
LVEF (%)	Total	33 ± 6	46 ± 14	47 ± 13	48 ± 13	<.001
	SSR	33 ± 6	49 ± 13	50 ± 12*	53 ± 10*	<.001
	ATF	33 ± 6	41 ± 14	41 ± 12*	38 ± 12*	<.001



Efficacy of β blockers in patients with heart failure plus AFib: an individual-patient data meta-analysis

Kotecha et al. Lancet 2014



Number at risk

Beta-blocker	7123	5014	1798	722	1521	997	331	113
Placebo	6819	4604	1530	561	1542	1020	346	115

Digoxin-associated mortality: a systematic review and meta-analysis of the literature

Mate Vamos, Julia W. Erath, and Stefan H. Hohnloser*

Department of Cardiology, Division of Clinical Electrophysiology, J.W. Goethe University, Theodor-Stern-Kai 7, 60590 Frankfurt am Main, Germany

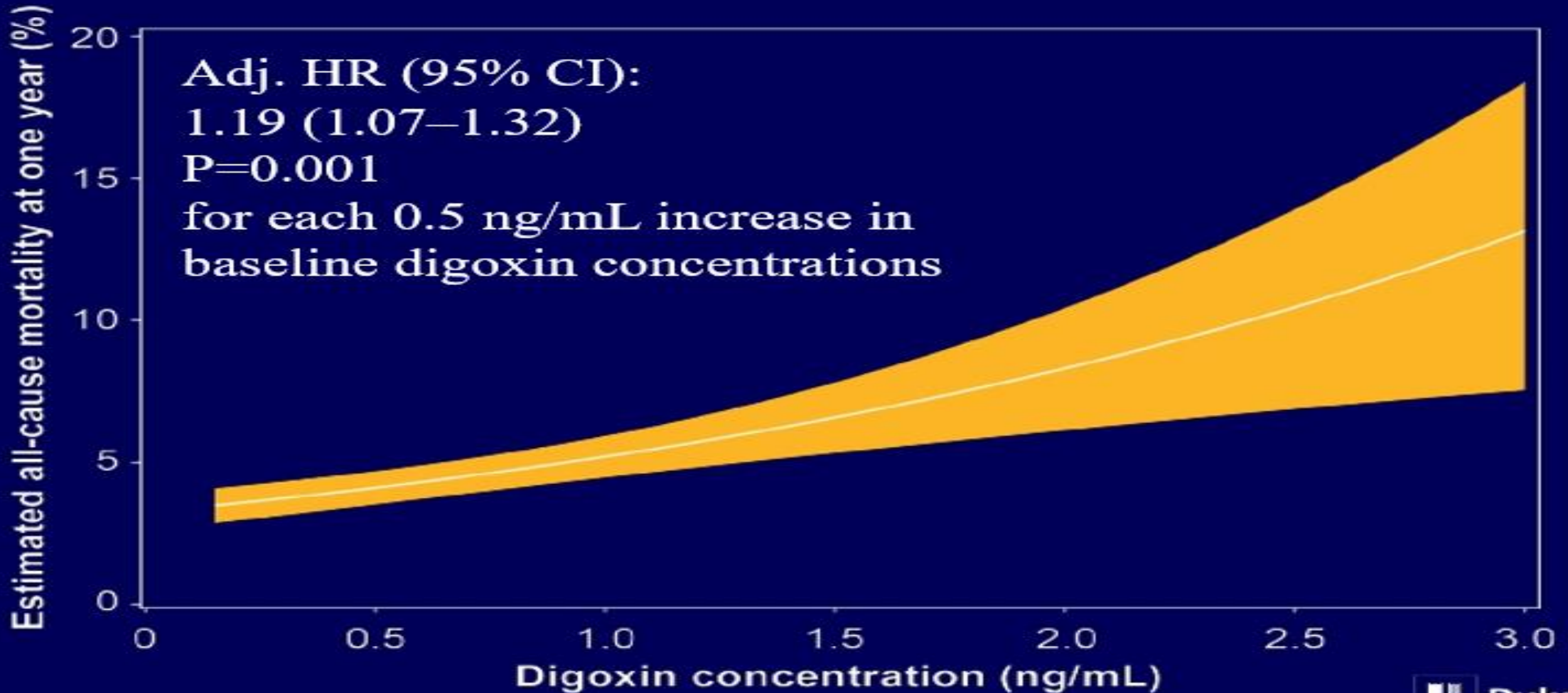
Received 22 January 2015; revised 16 March 2015; accepted 8 April 2015; online publish-ahead-of-print 4 May 2015

There are conflicting data regarding the effect of digoxin use on mortality in patients with atrial fibrillation (AF) or with congestive heart failure (CHF). The aim of this meta-analysis was to provide detailed analysis of the currently available study reports. We performed a MEDLINE and a COCHRANE search (1993–2014) of the English literature dealing with the effects of digoxin on all-cause-mortality in subjects with AF or CHF. Only full-sized articles published in peer-reviewed journals were considered for this meta-analysis. A total of 19 reports were identified. Nine reports dealt with AF patients, seven with patients suffering from CHF, and three with both clinical conditions. Based on the analysis of adjusted mortality results of all 19 studies comprising 326 426 patients, digoxin use was associated with an increased relative risk of all-cause mortality [Hazard ratio (HR) 1.21, 95% confidence interval (CI) 1.07 to 1.38, $P < 0.01$]. Compared with subjects not receiving glycosides, digoxin was associated with a 29% increased mortality risk (HR 1.29; 95% CI, 1.21 to 1.39) in the subgroup of publications comprising 235 047 AF patients. Among 91,379 heart failure patients, digoxin-associated mortality risk increased by 14% (HR 1.14, 95% CI, 1.06 to 1.22). The present systematic review and meta-analysis of all available data sources suggest that digoxin use is associated with an increased mortality risk, particularly among patients suffering from AF.

Clinical perspective

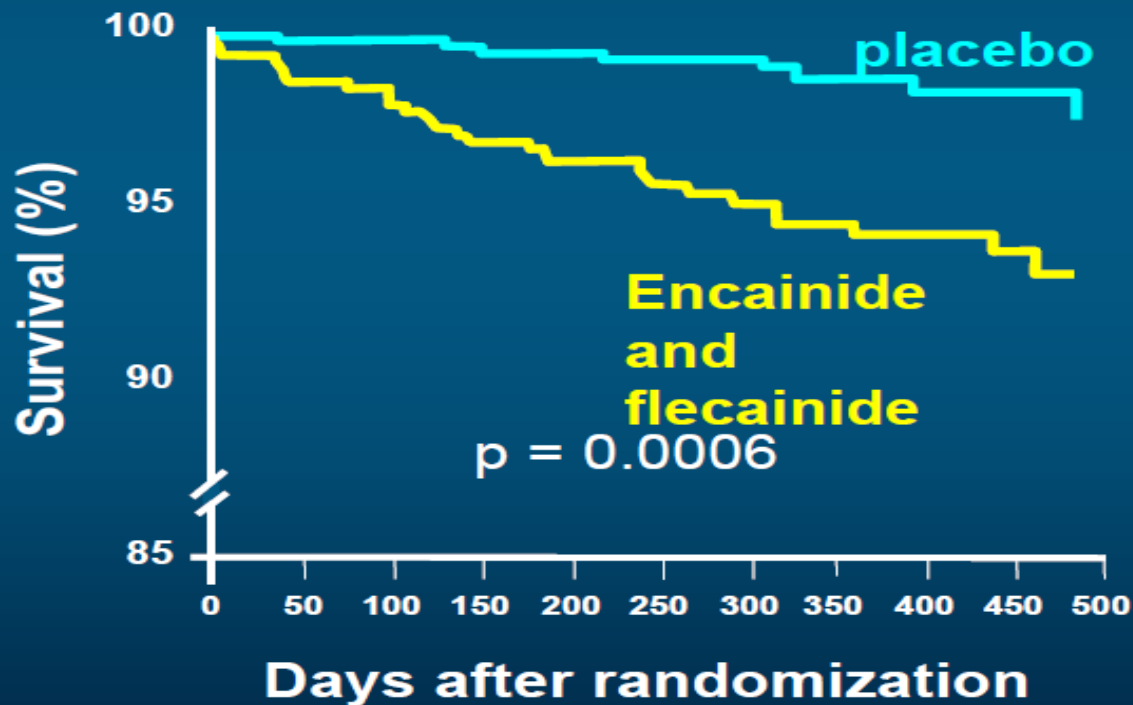
This systematic review and meta-analysis of the current literature indicates that digoxin therapy is associated with increased mortality in patients treated for atrial fibrillation or for heart failure. Our data call for randomized trials of dose-adjusted digoxin therapy in these two clinical entities under contemporary conditions.

Adjusted Mortality by Digoxin Concentration in the ARISTOTLE study



Pro-arrhythmia with Class IC AADs

- Class IC drugs (encainide/flecainide) increases mortality from arrhythmia in patients with ischaemic heart disease



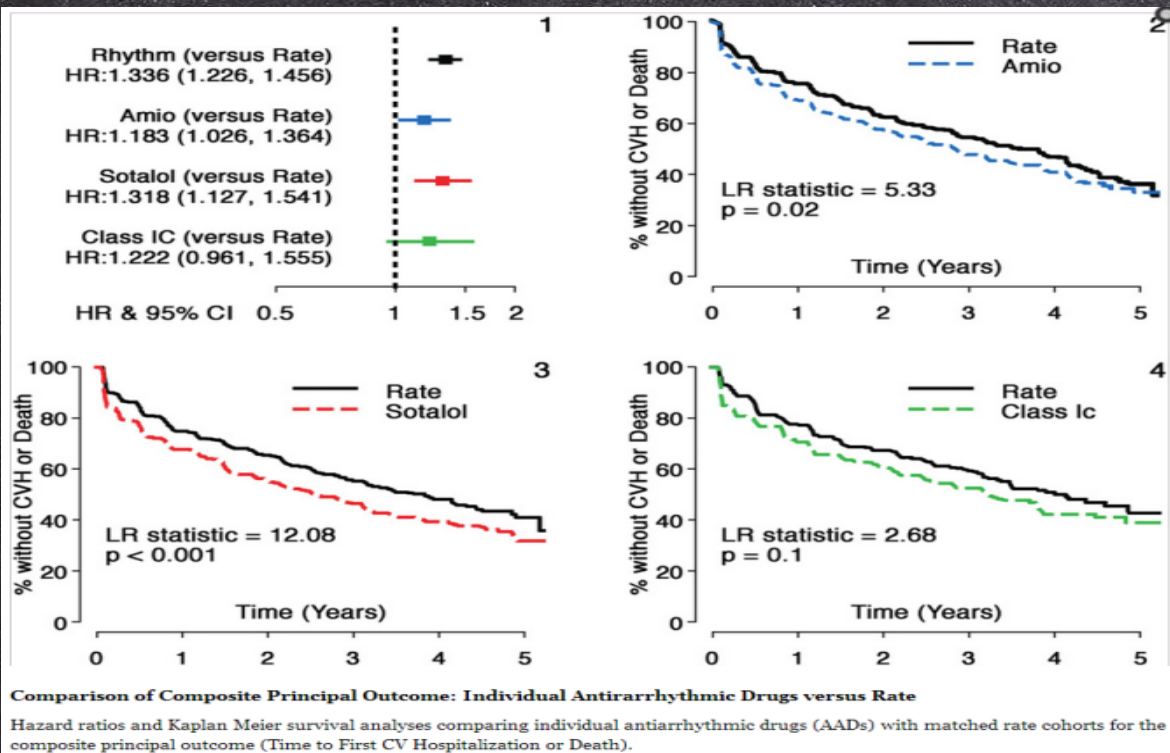
Outcome	Placebo	Active Drug
Death + CA	26	63
Nonfatal MI	33	19
New/ Unstable AP	88	65
All Events	147	147

CAST=Cardiac Arrhythmia Suppression Trial

CAST Investigators. *N Engl J Med* 1989; 321: 406–12

Greenberg HM, *Br Heart J*. 1995;74:631-5

Cardiovascular Outcomes in the AFFIRM Trial: An Assessment of Individual Antiarrhythmic Drug Therapies compared to Rate Control Using Propensity Score Matched Analyses



Results—729 amiodarone patients, 606 sotalol patients & 268 class 1C patients were matched. The composite outcome of mortality or CV hospitalizations (CVH) showed better outcomes with Rate compared to amiodarone (Hazard Ratio [HR] 1.18, 95% confidence intervals {CI}:1.03–1.36, p=0.02), sotalol (HR=1.32, CI: 1.13–1.54, p<0.001) and class 1C (HR=1.22, CI: 0.97–1.56, p=0.10). There was a non-significant increase in mortality with amiodarone (HR=1.20, CI: 0.94–1.53, p=0.15) with the risk of non-CV death, being significantly higher with amiodarone versus Rate. (HR=1.11, CI: 1.01–1.24, p=0.04). First CVH event rates at 3 years were 47% for amiodarone, 50% for sotalol and 44% for class 1C versus 40%, 40% and 36% respectively for Rate (amiodarone HR=1.20, CI:1.03–1.40, p=0.02, sotalol HR=1.364, CI:1.16–1.611, p<0.001, class 1C HR=1.24, CI:0.96–1.60, p=0.09). Time to CVH with intensive care unit stay (ICUH) or death was shorter with amiodarone (HR=1.22, CI: 1.02–1.46, p=0.03).

■ Potential benefit of rhythm control offset by antiarrhythmic drug toxicity

Conclusions—

1. In AFFIRM, composite mortality and CVH outcomes differed for Rate and AADs due to differences in CVH; CVH event rates during follow-up were high for all cohorts, but they were higher for all groups on AADs.
2. Death, ICUH and non-CV death were more frequent with amiodarone.

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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*

ABSTRACT

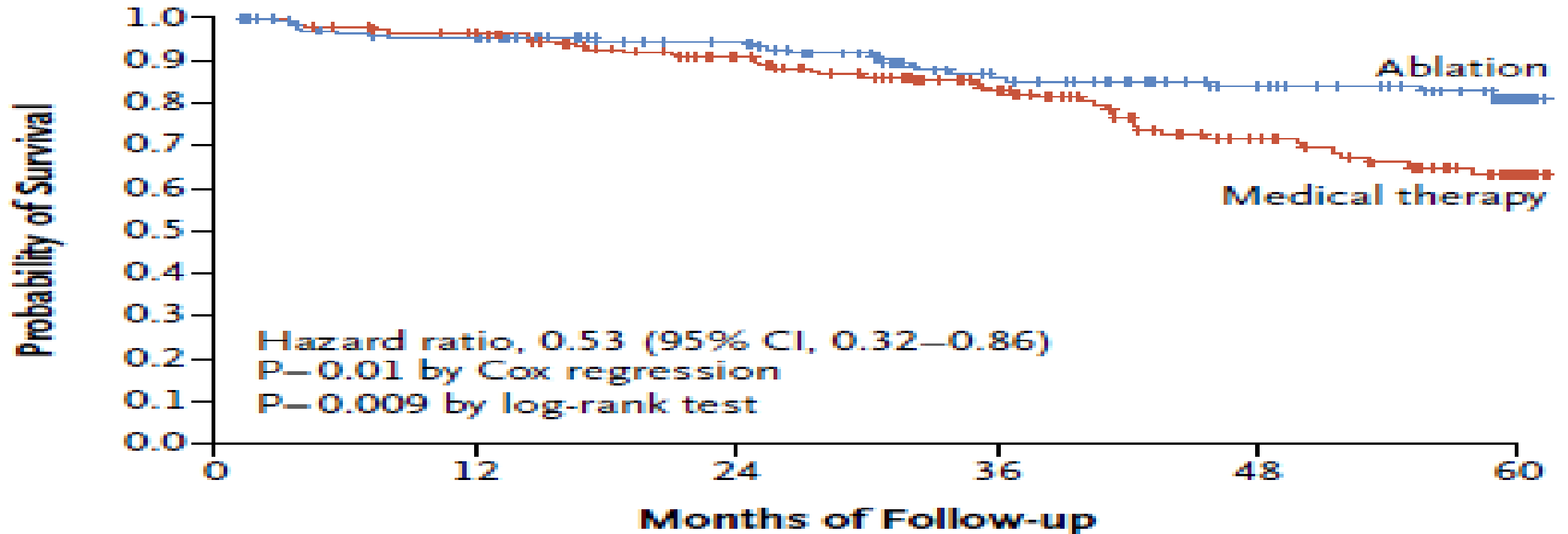
BACKGROUND

Mortality and morbidity are higher among patients with atrial fibrillation and heart failure than among those with heart failure alone. Catheter ablation for atrial fibrillation has been proposed as a means of improving outcomes among patients with heart failure who are otherwise receiving appropriate treatment.

From the Comprehensive Arrhythmia Research and Management Center, Division of Cardiovascular Medicine, School of Medicine, University of Utah Health, Salt Lake City (N.F.M.); Klinikum Coburg, Coburg (J.B.); Kardiologie an den Ev. Elisa-

Catheter Ablation for Atrial Fibrillation with Heart Failure

B Death from Any Cause

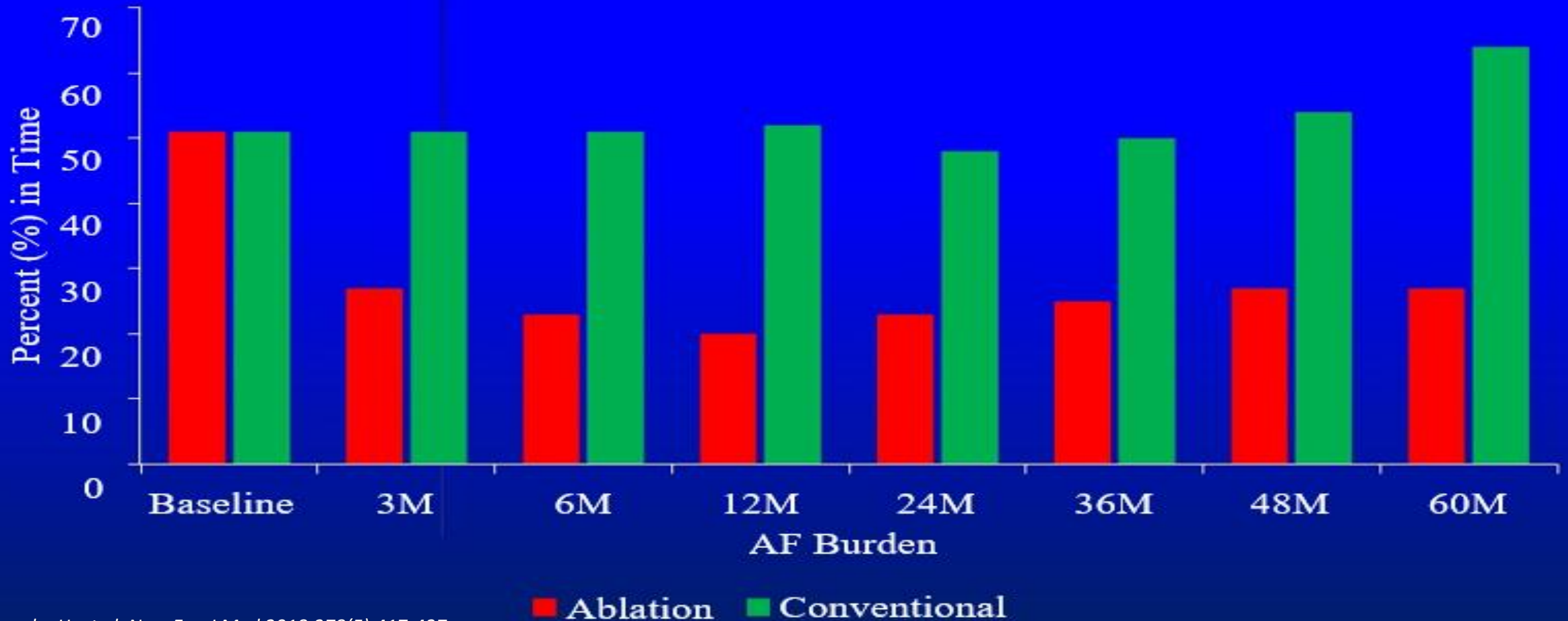


No. at Risk

Ablation	179	154	130	94	71	27
Medical therapy	184	168	138	97	63	19

Catheter Ablation for Atrial Fibrillation with Heart Failure

AF Burden Derived from Memory of Implanted Devices



CASTLE-HTx

Catheter Ablation versus Medical Therapy to Treat Atrial Fibrillation in End-stage Heart Failure

Christian Sohns, Maximilian Mörsdorf, Harry Crijns, Jan Tijssen and Philipp Sommer; for the CASTLE-HTx Investigators

Amsterdam, August 27th 2023



The NEW ENGLAND
JOURNAL of MEDICINE

ORIGINAL ARTICLE

Catheter Ablation in End-Stage Heart Failure with Atrial Fibrillation

Christian Sohns, M.D., Henrik Fox, M.D., Nassir F. Marrouche, M.D., Harry J.G.M. Crijns, M.D., Ph.D., Angelika Costard-Jaeckle, M.D., Leonard Bergau, M.D., Gerhard Hindricks, M.D., Nikolaos Dagres, M.D., Samuel Sossalla, M.D., Rene Schramm, M.D., Ph.D., Thomas Fink, M.D., Mustapha El Hamriti, M.D., Maximilian Moersdorf, M.D., Vanessa Sciacca, M.D., Frank Konietschke, Ph.D., Volker Rudolph, M.D., Jan Gummert, M.D., Jan G.P. Tijssen, Ph.D., and Philipp Sommer, M.D., for the CASTLE HTX Investigators

Main inclusion & exclusion criteria

Inclusion

- **Symptomatic atrial fibrillation**
- **Potential candidates for HTx**
- **LVEF \leq 35%**
- **NYHA class \geq II**
- **Device with telemonitoring**

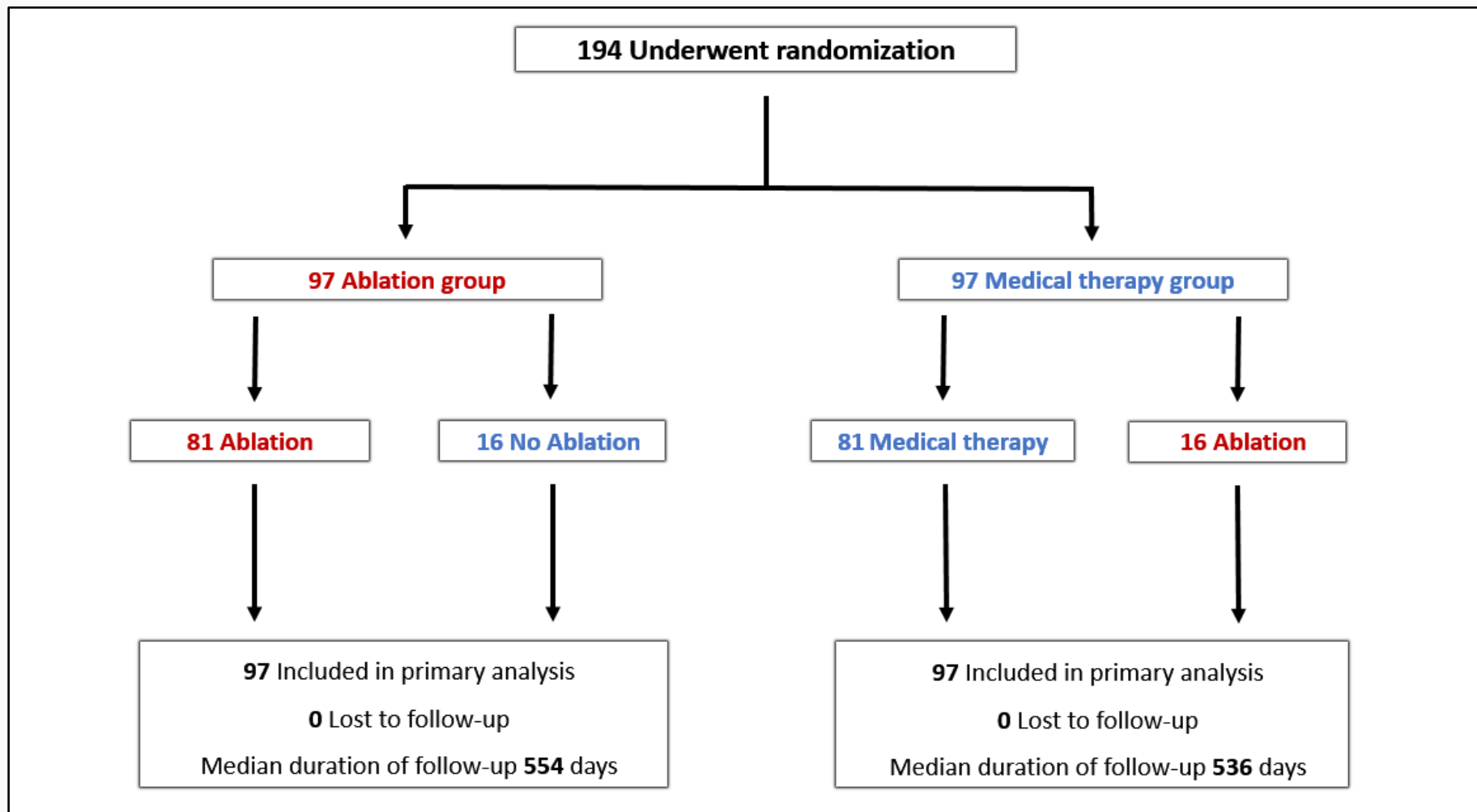
Exclusion

- **LA diameter $>$ 6 cm**
- **previous AF ablation**
- **Listed as 'high urgent' for HTx**
- **Cardiac assist device implanted**
- **Planend cardiovascular intervention**
- **Life expectancy \leq 12 months**
- **Requirement for dialysis due to end-stage renal failure**

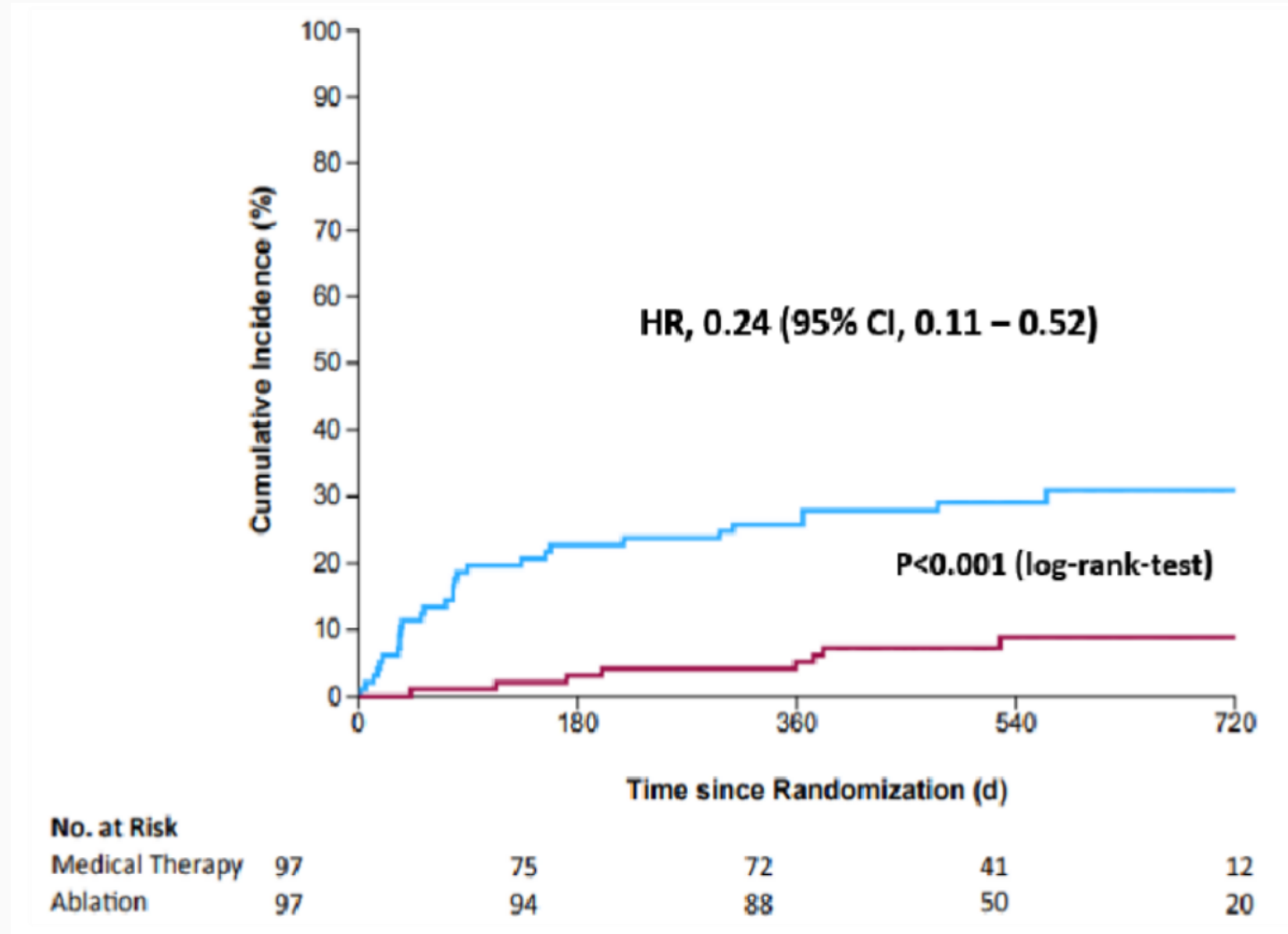
Patient characteristics

	Ablation Group (N=97)	Medical Therapy Group (N=97)
Age [years]	62±12	65±10
Male sex no. (%)	85 (88)	72 (74)
NYHA functional class [no. (%)]		
II	33 (34)	28 (29)
III	52 (54)	54 (56)
IV	12 (12)	15 (15)
Left ventricular ejection fraction (%)	29±6	25±6
Type of atrial fibrillation [no. (%)]		
Paroxysmal	28 (29)	31 (32)
Persistent	69 (71)	66 (68)
Cause of heart failure [no. (%)]		
Ischemic	37 (38)	39 (40)
Non-ischemic	60 (62)	58 (60)
Left atrial diameter (mm)	49±6	48±8
6-min walk test		
Distance (m)	308±69	299±66
Medications [no. (%)]		
Amiodarone	44 (45)	46 (47)
Beta-blocker	93 (96)	91 (94)
Diuretics	71 (73)	76 (78)
ACE inhibitor or ARB	31 (32)	40 (41)
MRA	45 (46)	53 (55)
Sacubitril-valsartan	66 (68)	57 (59)
SGLT2 inhibitor	23 (24)	24 (25)

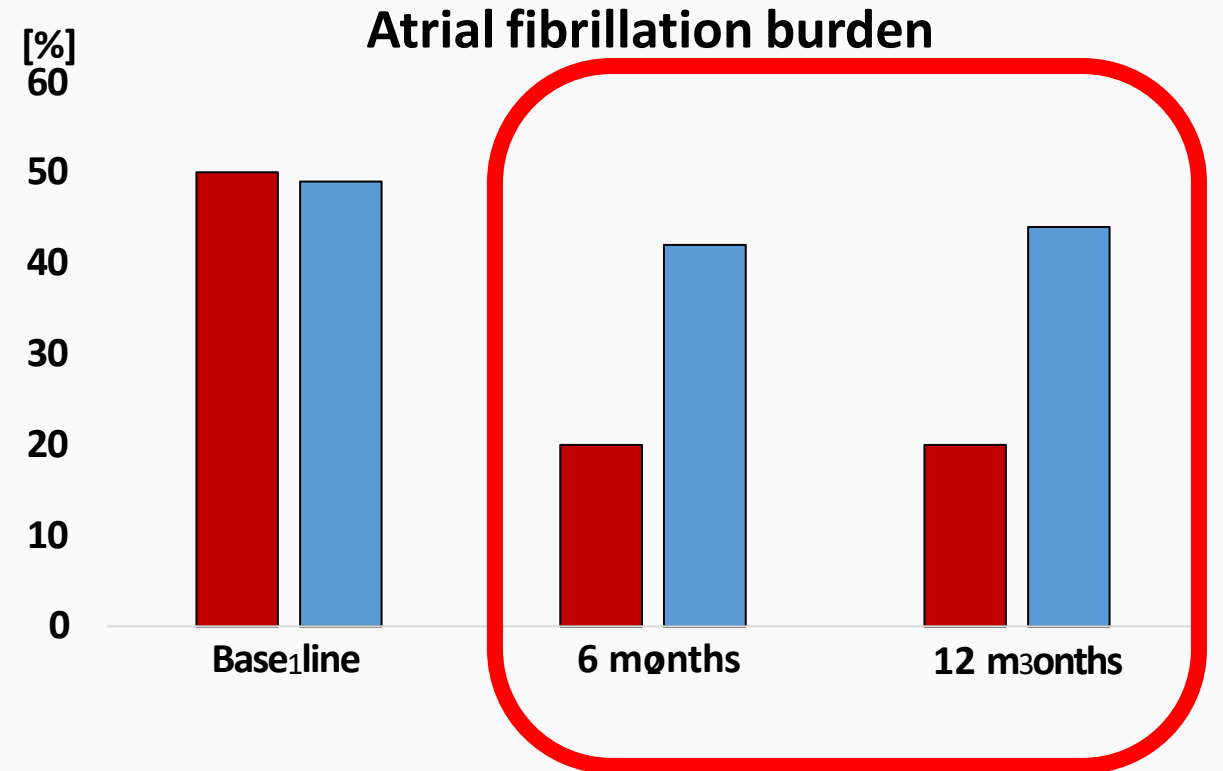
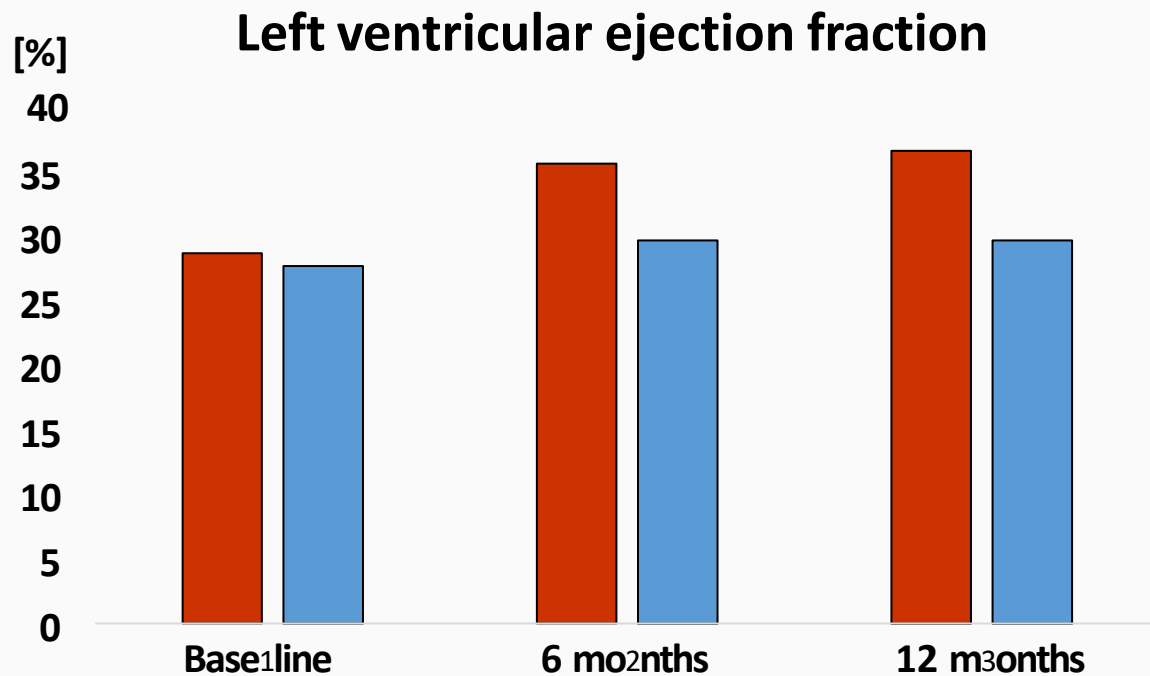
Treatment



Primary end-point



Impact on left ventricular function and AF burden

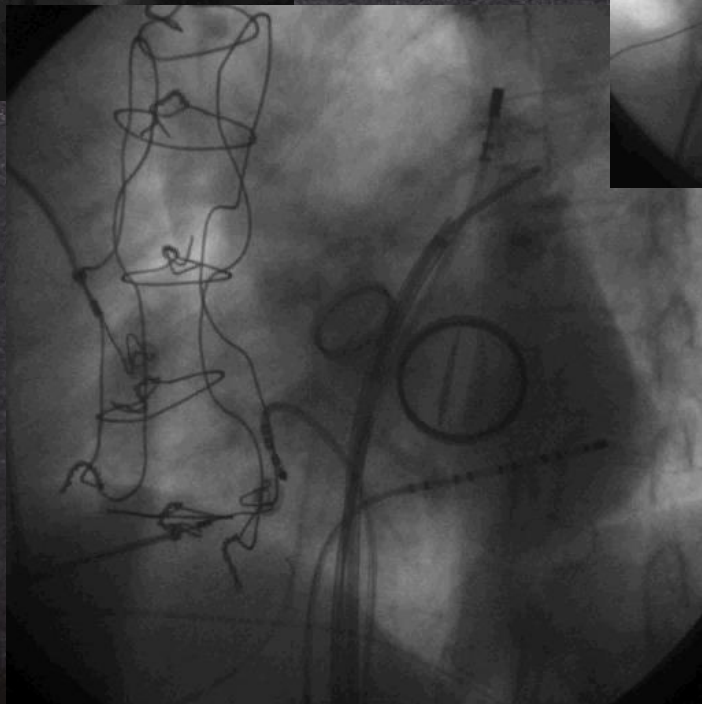
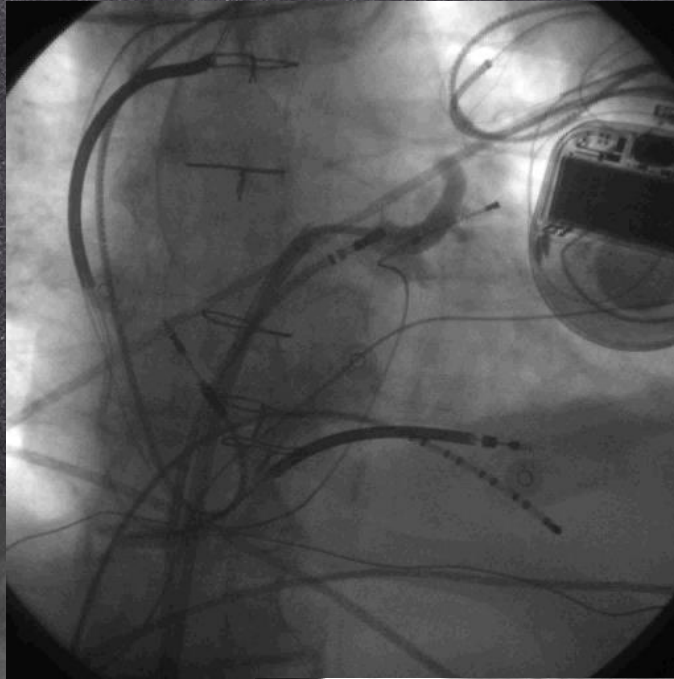
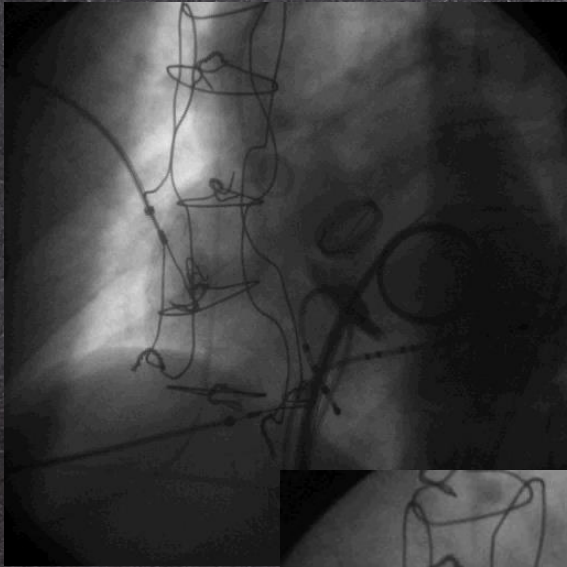


Ablation vs. Medical therapy

AF Ablation in patients with complex anatomy and uncertain long-term prognosis

(is ablation a wise choice?)

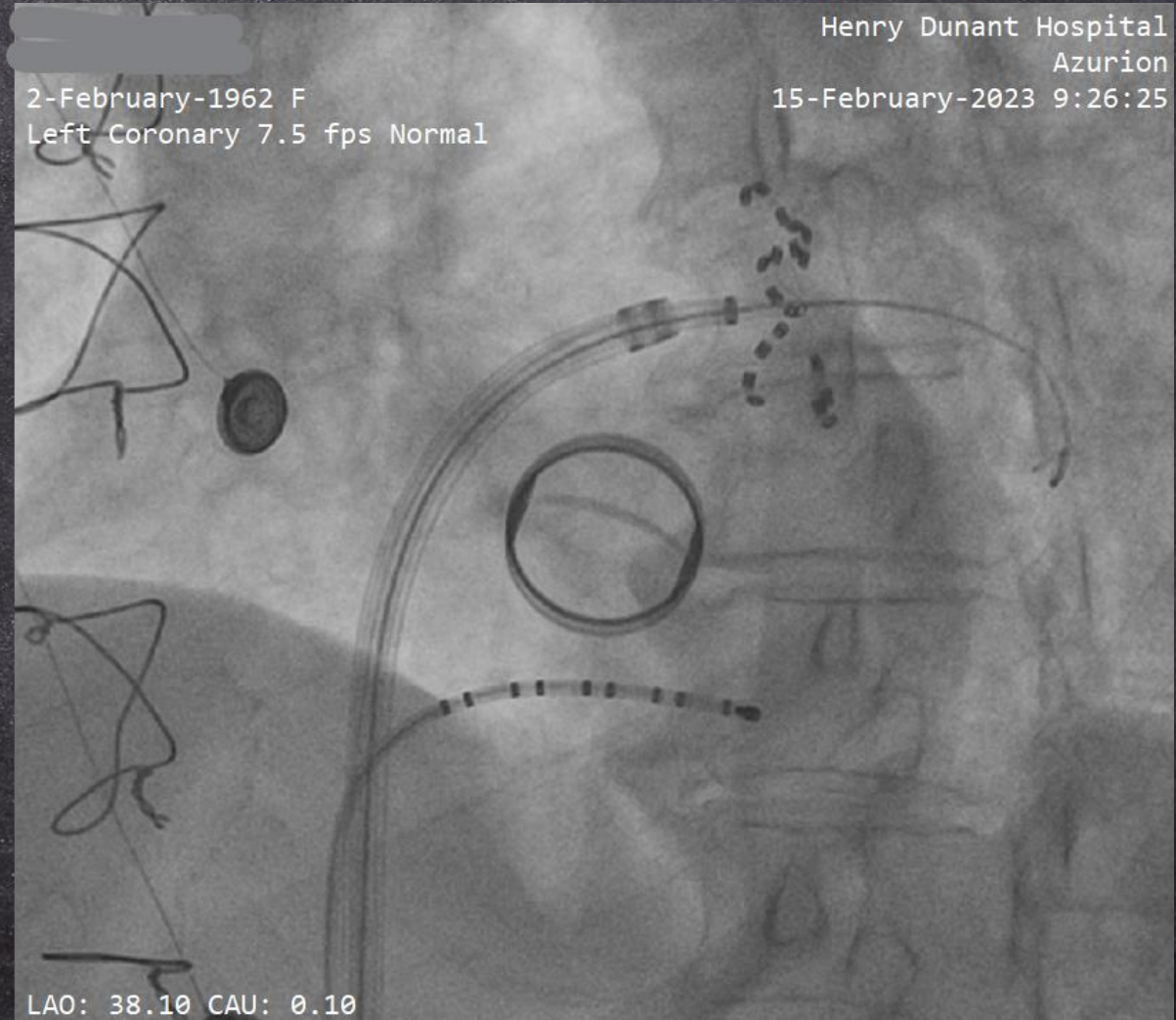
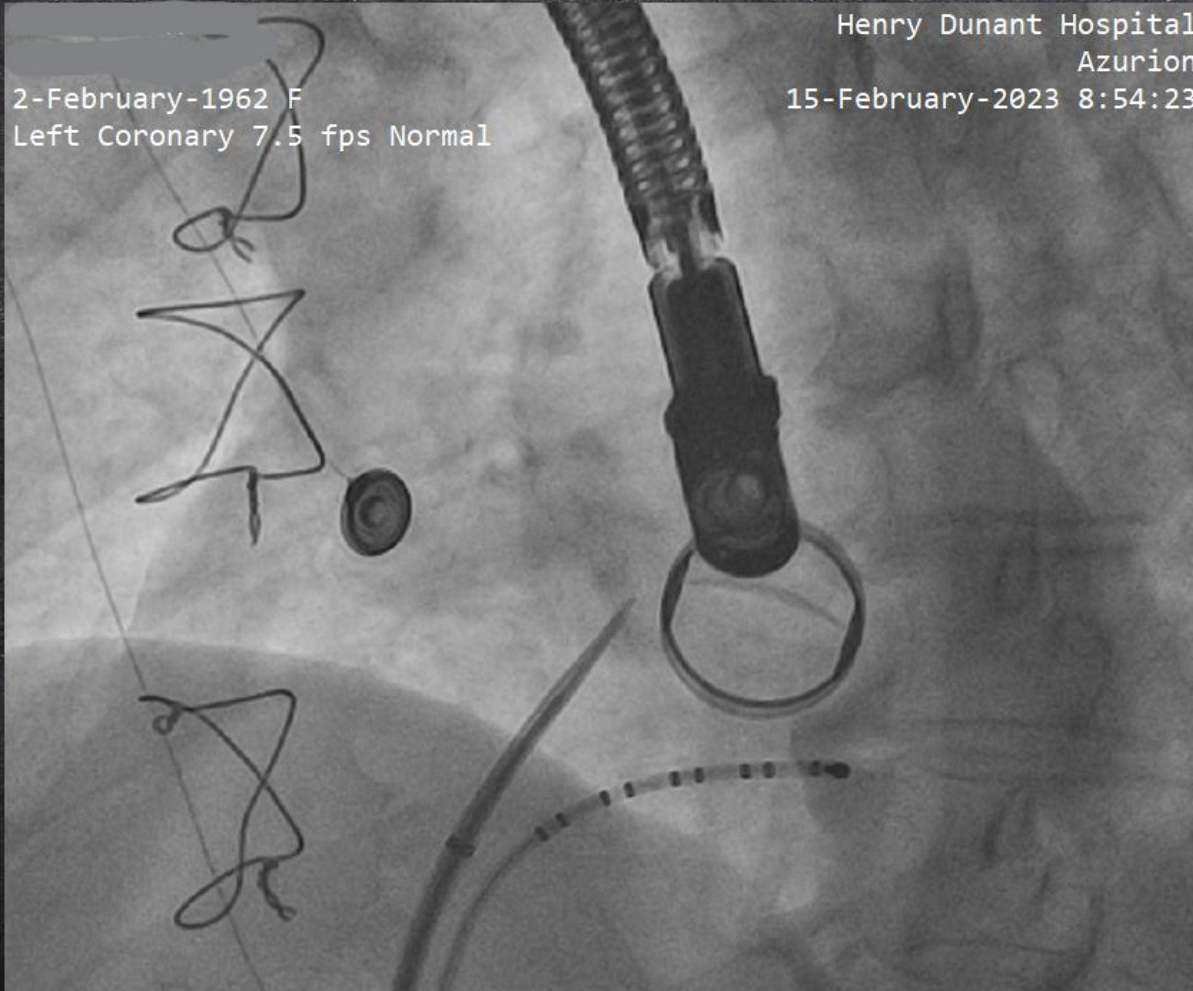
2 valves+intraoperative ablation



CRTD, LVEF=25%, MVR

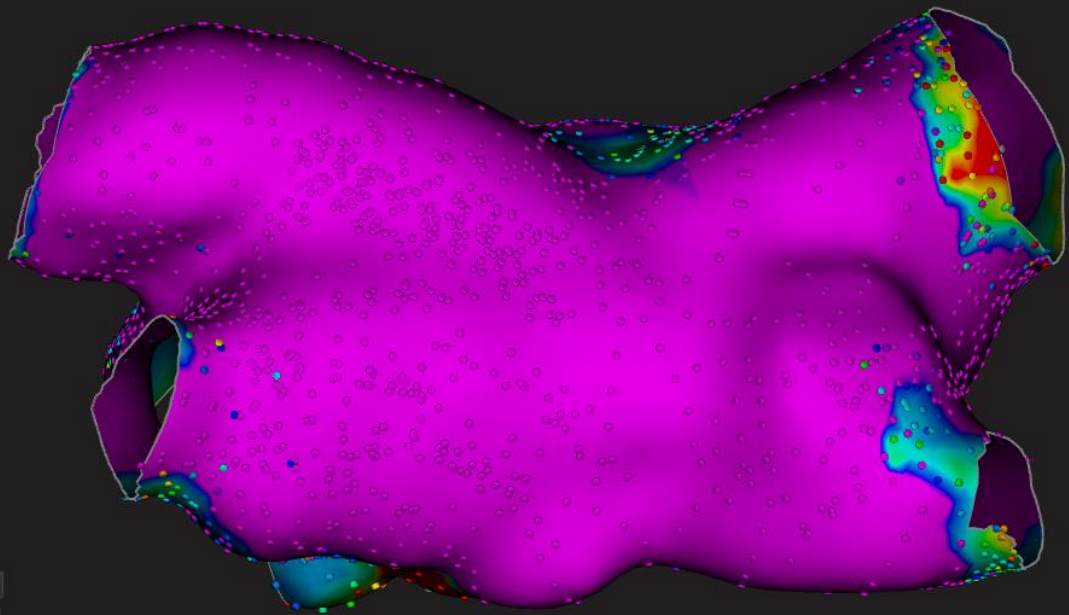
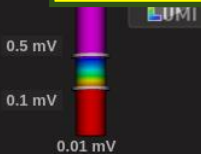
- Ασθενής, Ιατρός,
- ΚΕΑΚ=25%,
- ΝΥΗΑ II-III με SR,
- Σοβαρή
επιδείνωση ΚΑ επί
ΚΜ,
- ΑΚ=55 mm,
- MR (2-3/4)

**Ασθενής 61 ετών, με προθετική μιτροειδούς, με ΑΚ=52 mm και ΚΕΑΚ
υποφυσιολογικό με μεγάλη μείωσή του κατά τις περιόδους με εμμένουσα ΚΜ**



25 λεπτά

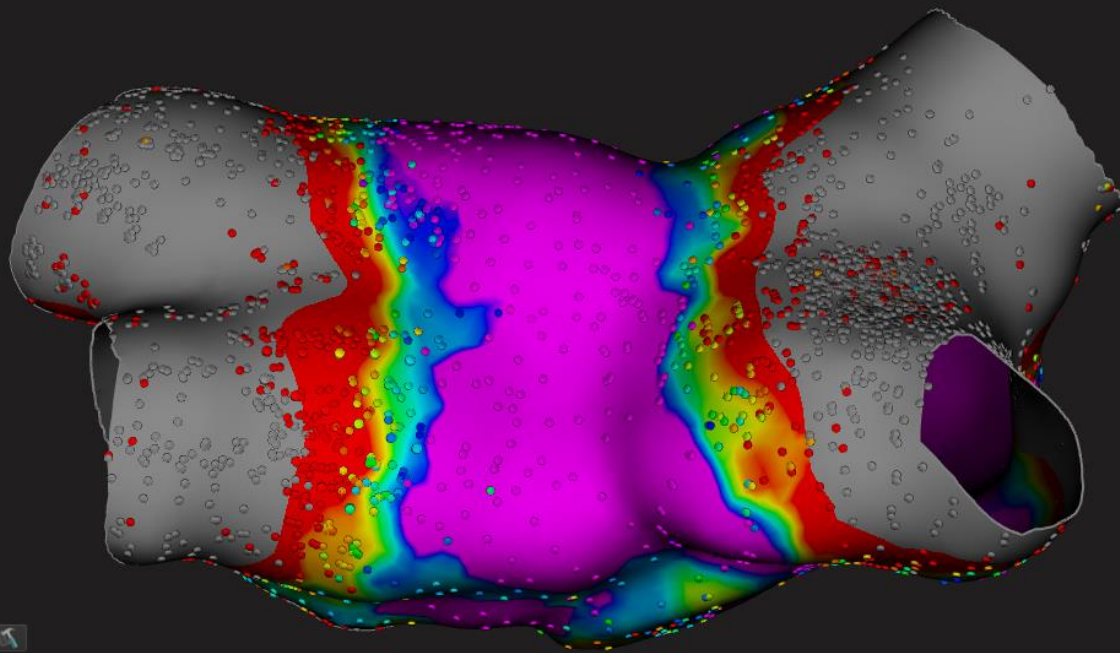
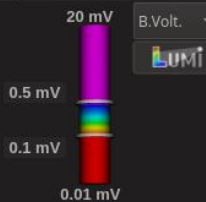
1 LA Pre



Time: 17:50 Beats: 502

Volume: 77.65 cc
EGMs: 5248

Slow/Fast 0
Study Li



Time: 14:30 Beats: 600

Volume: 72.05 cc
EGMs: 6296

Graph
or

Beat Review Graph | AutoTag Parameters Review



Auto



INF

SUP

RL

LL

RAO

LAO

PA

AP



Auto



INF

SUP

RL

LL

RAO

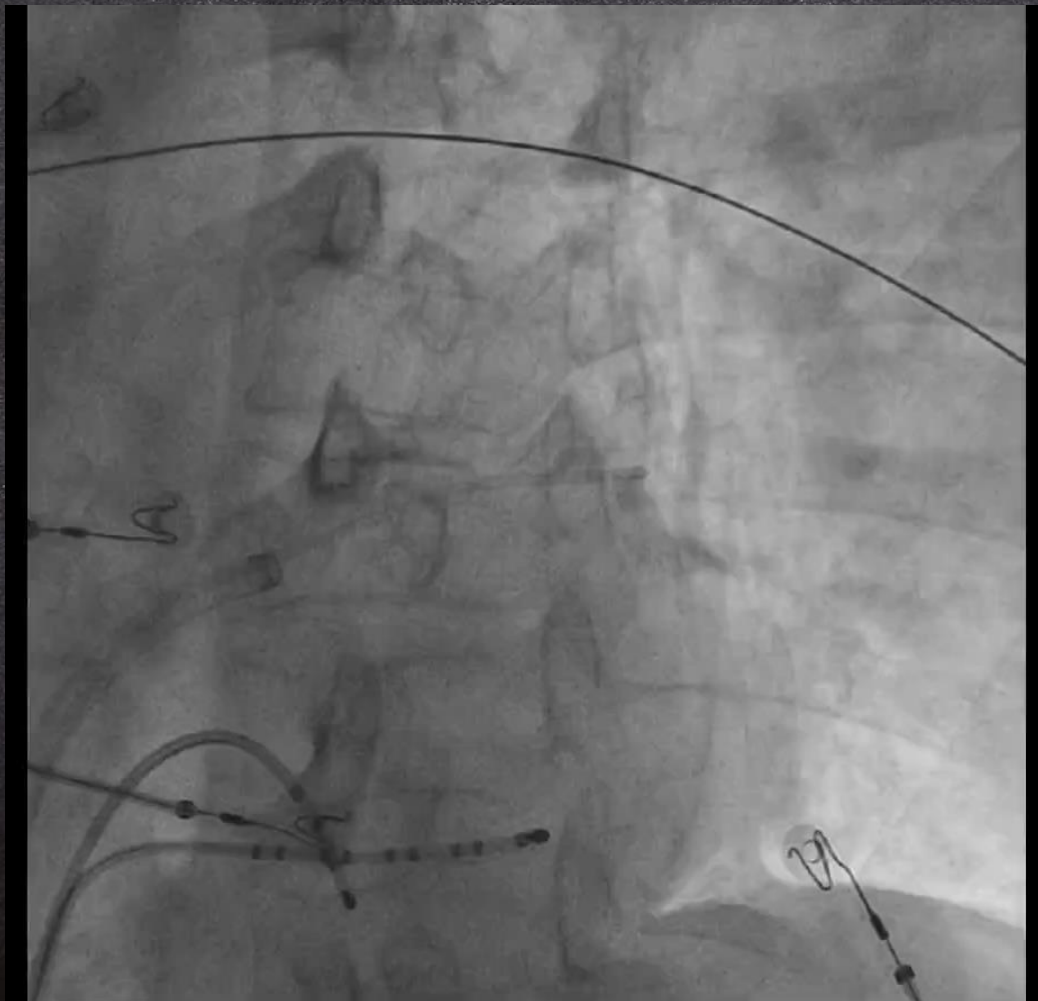
LAO

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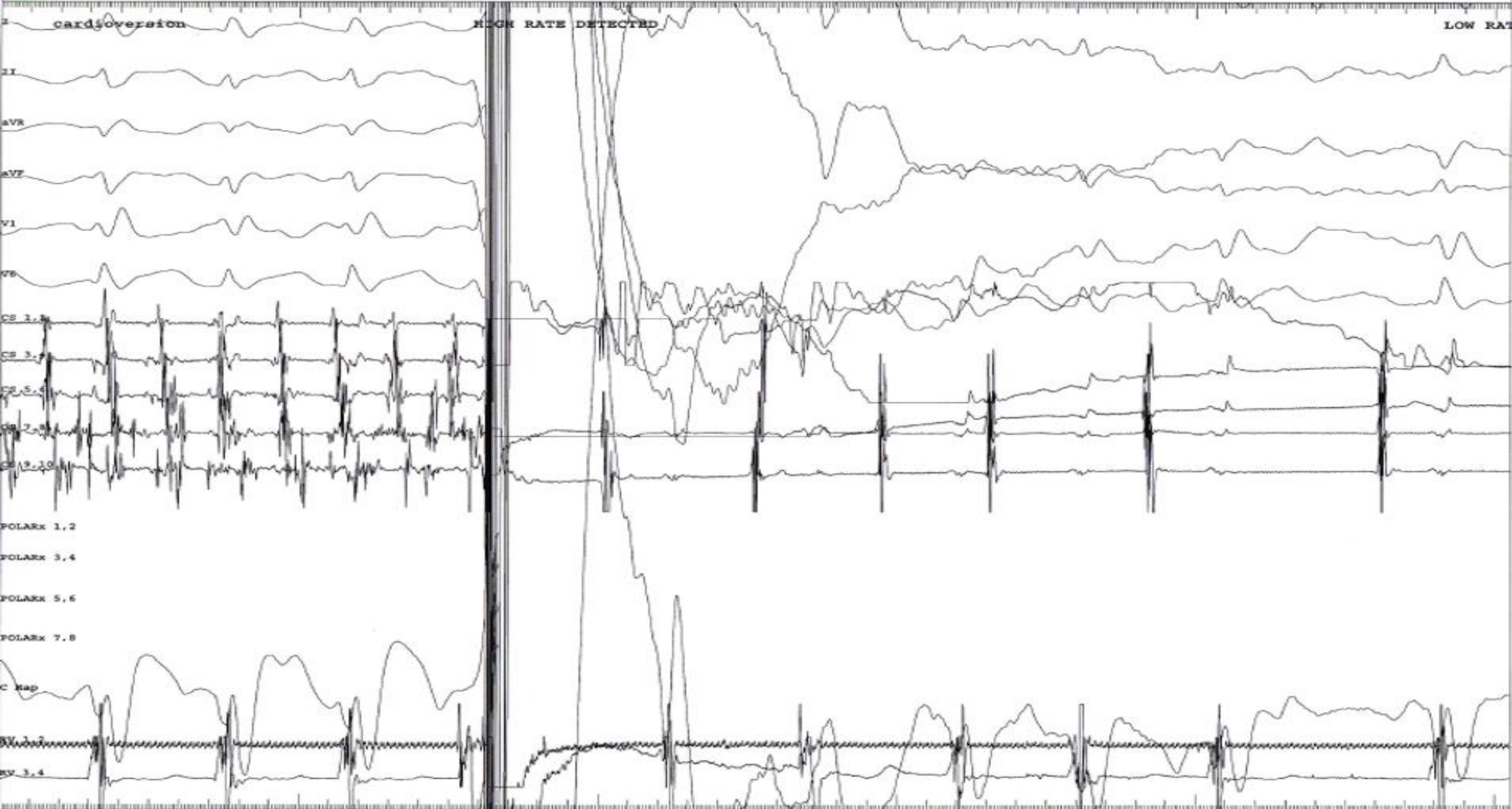
Ασθενής 74 ετών, άντρας
αγνώστου ενάρξεως κολπική μαρμαρυγή,
Σταθερή ΣΝ και ΚΕΑΚ=45% (ΚΕΑΚ<30% με ΚΜ)
Ορθόπνοια χωρίς ΗΚΓικά και κλινικά σημεία ισχαιμίας
Καρδιακή συχνότητα 110-130 ΒΡΜ εν ηρεμία
RBBB+LAH, SBP=100 mmHg

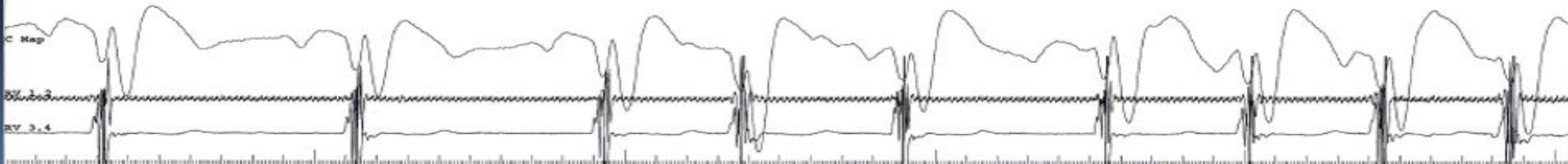
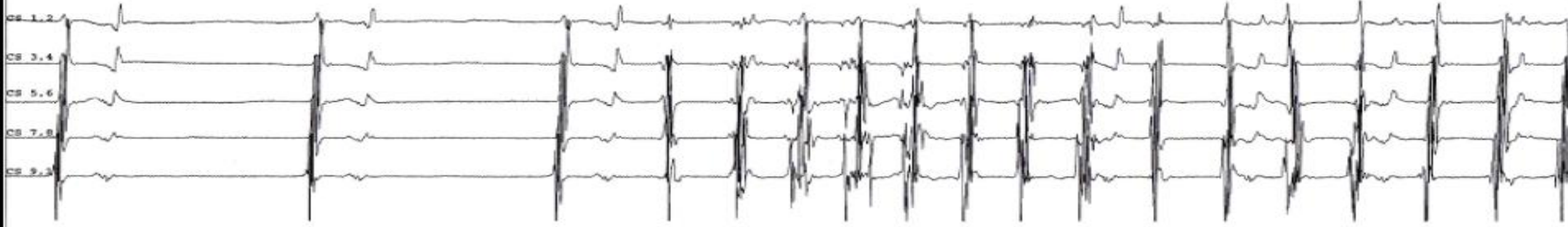
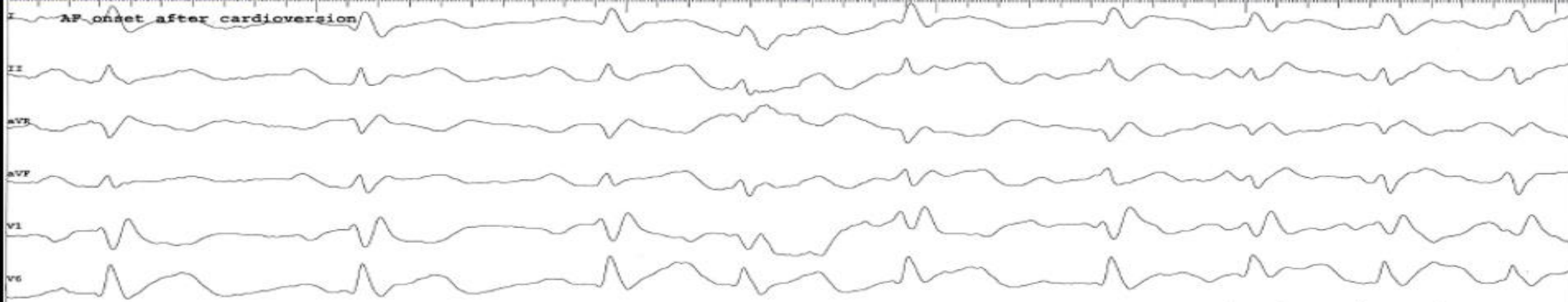


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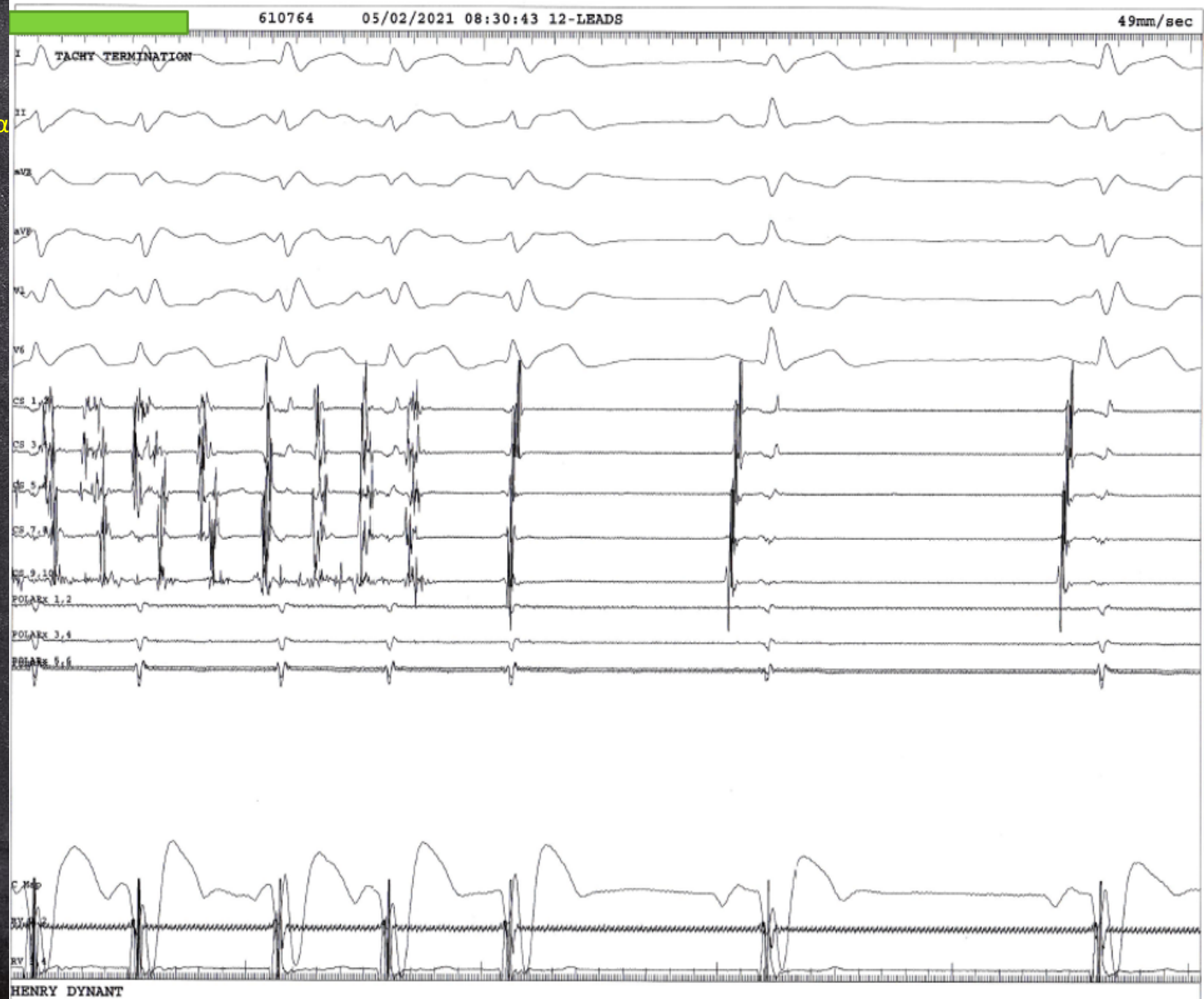
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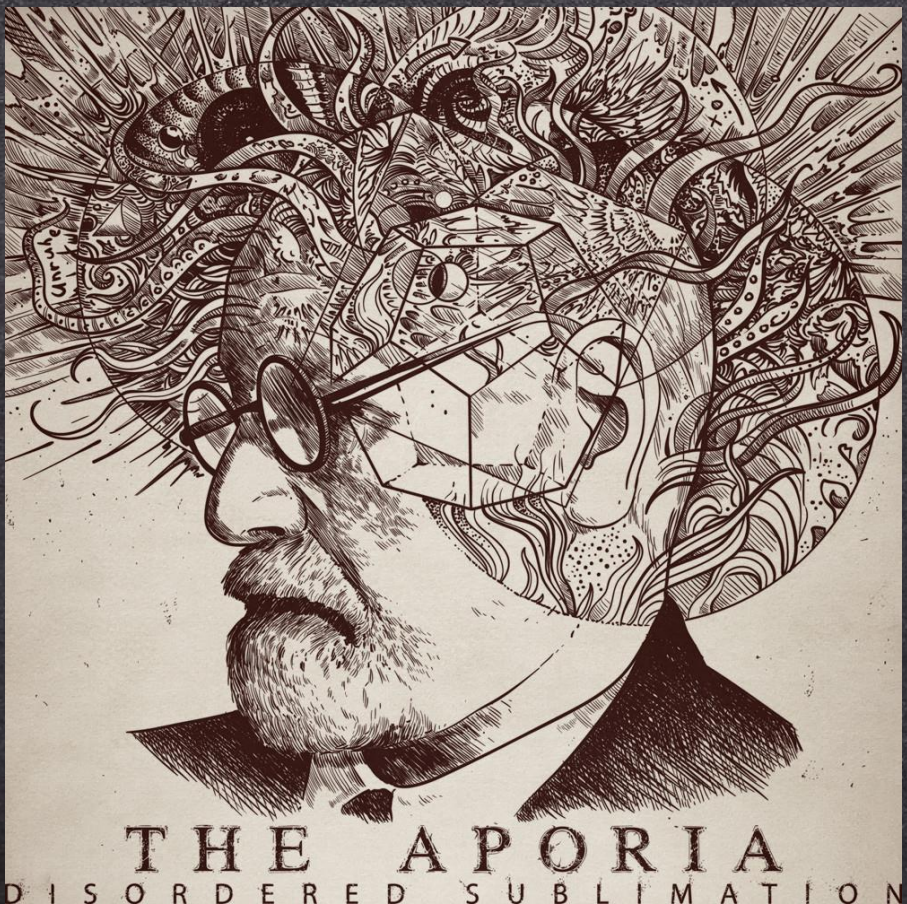


Ασθενής 74 ετών, άντρας
αγνώστου ενάρξεως κολπική μαρμαρυγή,
Σταθερή ΣΝ και ΚΕΑΚ=45% (ΚΕΑΚ<30% με ΚΜ)
Ορθόπνοια χωρίς ΗΚΓικά και κλινικά σημεία ισχαιμίας
Καρδιακή συχνότητα 110-130 ΒΡΜ εν ηρεμία
RBBB+LAH, SBP=100 mmHg



2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

ΟΛΑ ΗΤΑΝ IIb ή III !!!



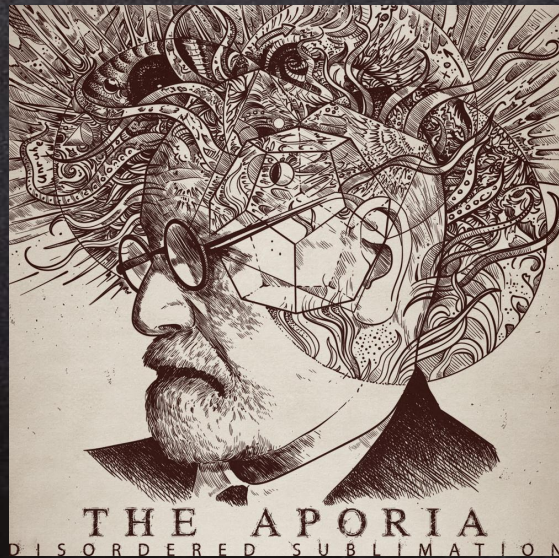
Recommendations for a rhythm control management strategy in patients with atrial fibrillation, symptomatic heart failure (NYHA Class II–IV) and left ventricular systolic dysfunction and no evidence of acute decompensation

Recommendations	Class ^a	Level ^b	Ref ^c
Electrical cardioversion or pharmacological cardioversion with amiodarone may be considered in patients with persisting symptoms and/or signs of HF, despite OMT and adequate control of ventricular rate, to improve clinical/symptomatic status.	IIb	B	344
AF ablation may be considered in order to restore sinus rhythm to improve symptoms in patients with persisting symptoms and/or signs of HF, despite OMT and adequate control of ventricular rate, to improve clinical/symptomatic status.	IIb	B	279, 363
Amiodarone may be considered prior to (and following) successful electrical cardioversion to maintain sinus rhythm.	IIb	B	342, 360
Dronedarone is not recommended because of an increased risk of hospital admissions for cardiovascular causes and an increased risk of premature death in NYHA Class III–IV patients.	III	A	247, 347
Class I antiarrhythmic agents are not recommended because of an increased risk of premature death.	III	A	248, 364, 365

2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

15 Key messages

(16) In addition to oral anticoagulation, a strategy of rhythm control including catheter ablation should be considered in patients whose symptoms and/or cardiac dysfunction are associated with AF.



Recommendations for the treatment of atrial fibrillation in patients with heart failure

AF catheter ablation

In cases of a clear association between paroxysmal or persistent AF and worsening of HF symptoms, which persist despite MT, catheter ablation should be considered for the prevention or treatment of AF. ^{552–554,557}

IIa B

3688 ESC Guidelines

Table 16 Treatment of adult congenital heart disease and heart failure in specialized centres

ACHD patients with chronic HF should be referred to specialized centres.

Specific guidelines for medical treatment of chronic HF in ACHD are lacking, and practitioners should follow the current guidelines for medical treatment of HF. It remains unknown whether the long-term use of neurohormonal modulators affects clinical outcomes and prognosis in ACHD.

Sevoflurane may decrease morbidity,^{551,552} however, no recommendation can be made at this moment based on the retrospective or anecdotal nature of these observations.

Contraindications to HF such as diabetes mellitus, AF, CSA, iron deficiency, and cachexia should be treated according to specific recommendations reported in this document.

In a bimolecular circulation, patients with an impaired systemic LV should be treated with conventional HF therapy; this may also be considered in symptomatic patients with a falling systemic right ventricle.

Duraxis are recommended to control symptoms of fluid retention.

Treatment of symptomatic patients with a falling single ventricle in a Fontan circulation, or in the case of a persistent right-to-left shunt, should always be carefully evaluated, taking the labile balance of ventricular preload and systemic afterload into account.

CRT may be a therapeutic option in ACHD patients with HF, but evidence in this specific setting is still lacking. Efficacy of CRT will depend on the underlying structural and functional substrate, such as anatomy of the systemic ventricle (left, right, or functionally single), presence and degree of structural systemic AV valve regurgitation, primary myocardial disease or scarring, and type of electrical conduction delay.⁵⁵³

Treatment of acute HF in ACHD patients should be in an expert centre, with proper knowledge of ischaemia, the suitability of non-invasive membrane oxygenation, and advanced bridging techniques.^{554,555}

Timely evaluation for transplantation by ACHD HF specialists in a transplant centre with ACHD expertise is recommended.

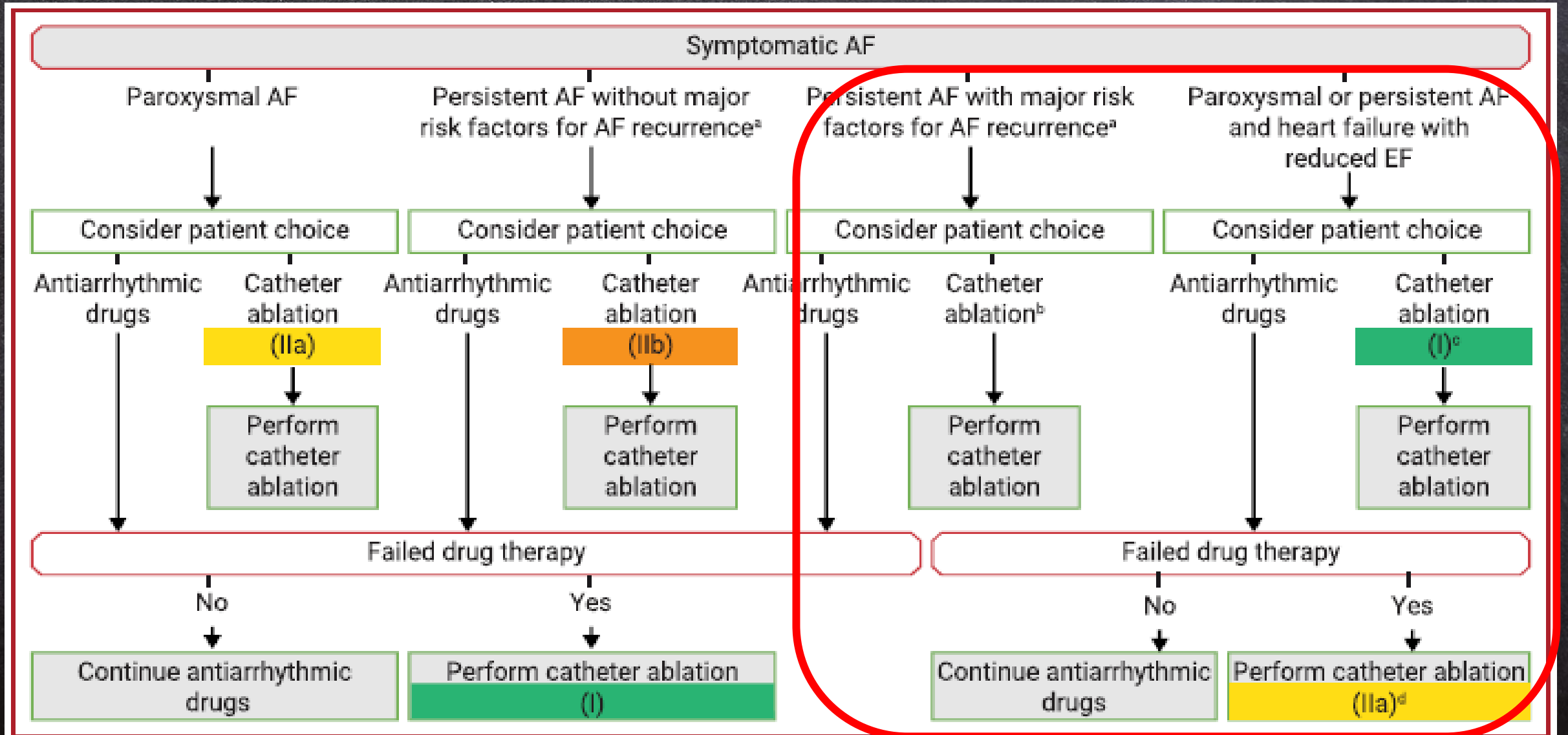
Ventricular assist devices can bridge patients to transplantation, or in a subgroup of patients, may be an option as destination therapy.

ACHD = adult congenital heart disease; AF = atrial fibrillation; AV = atrioventricular; CRT = cardiac resynchronization therapy; CSA = central sleep apnoea; HF = heart failure; LV = left ventricle.

15 Key messages

- (1) Patients with HF are classified based on their LVEF. Those with a LVEF between 41% and 49% are defined as 'midly reduced LVEF' (HFmrEF).
- (2) The treatment of HF and echocardiography have key roles in the diagnosis of HF.
- (3) ACE-I or ARNI, beta-blockers, MRA, and SGLT2 inhibitors are recommended as cornerstone therapies for patients with HFmrEF.
- (4) ICDs are recommended in selected patients with HFmrEF of an ischaemic aetiology and should be considered in those with a non-ischaemic aetiology.
- (5) CRT-P/D is recommended in those patients with HFmrEF in sinus rhythm, with a LBBB ≥ 150 ms and should be considered in those with a LBBB ≥ 130 –149 ms or non-LBBB ≥ 150 ms.
- (6) Advanced HF strategies (heart transplantation/PD) may be appropriate in selected patients.
- (7) ACE-ARNI, beta-blockers, and MRA may be considered in patients with HFmrEF.
- (8) The diagnosis of HFmrEF requires objective evidence of cardiac structural, or functional abnormalities as well as elevated plasma HF concentrations consistent with the presence of LV diastolic dysfunction and raised LV filling pressures. A diastolic stress test is recommended when these markers are equivocal.
- (9) To date, no treatment has been shown to reduce mortality and morbidity in patients with HFmrEF.
- (10) It is recommended that all patients with HF be enrolled in a multidisciplinary HF-FC.
- (11) Exercise is recommended for all patients who are able to improve exercise capacity and QoL, and reduce HF hospitalization.
- (12) Patients with advanced HF refractory to medical/device therapy and who do not have absolute contraindications should be referred for consideration of heart transplantation. MCS should also be considered as BTT or DT in selected patients.
- (13) Four major clinical presentations of acute HF may occur: ACHF, acute pulmonary oedema, AV failure, and cardiogenic shock.
- (14) Treatment of acute HF is based on diuretics for congestion, inotropes, and inotropic MCS for peripheral hypoperfusion.
- (15) Patients hospitalized for HF should be carefully evaluated to exclude persistent signs of congestion. Oral treatment should be optimized before discharge.
- (16) In addition to oral anticoagulation, a strategy of rhythm control including catheter ablation should be considered in patients whose symptoms and/or cardiac dysfunction are associated with AF.
- (17) SAHR or TAVI, as defined by the Heart Team, are recommended in patients with symptomatic severe aortic valve stenosis.
- (18) Patients with isolated significant SHR and CCMPT criteria should be considered for percutaneous edge-to-edge repair, whereas those with SHR and CAD, who need revascularization, should be considered for surgery.
- (19) It is recommended that patients with type II diabetes are treated with SGLT2 inhibitors.
- (20) Patients should be periodically screened for anaemia and iron deficiency and iv iron supplementation with ferric carboxymaltose should be considered in symptomatic patients with LVEF $< 40\%$ and iron deficiency, and in patients recently hospitalized for HF and with LVEF $\leq 50\%$ and iron deficiency.

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






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ESC GUIDELINES

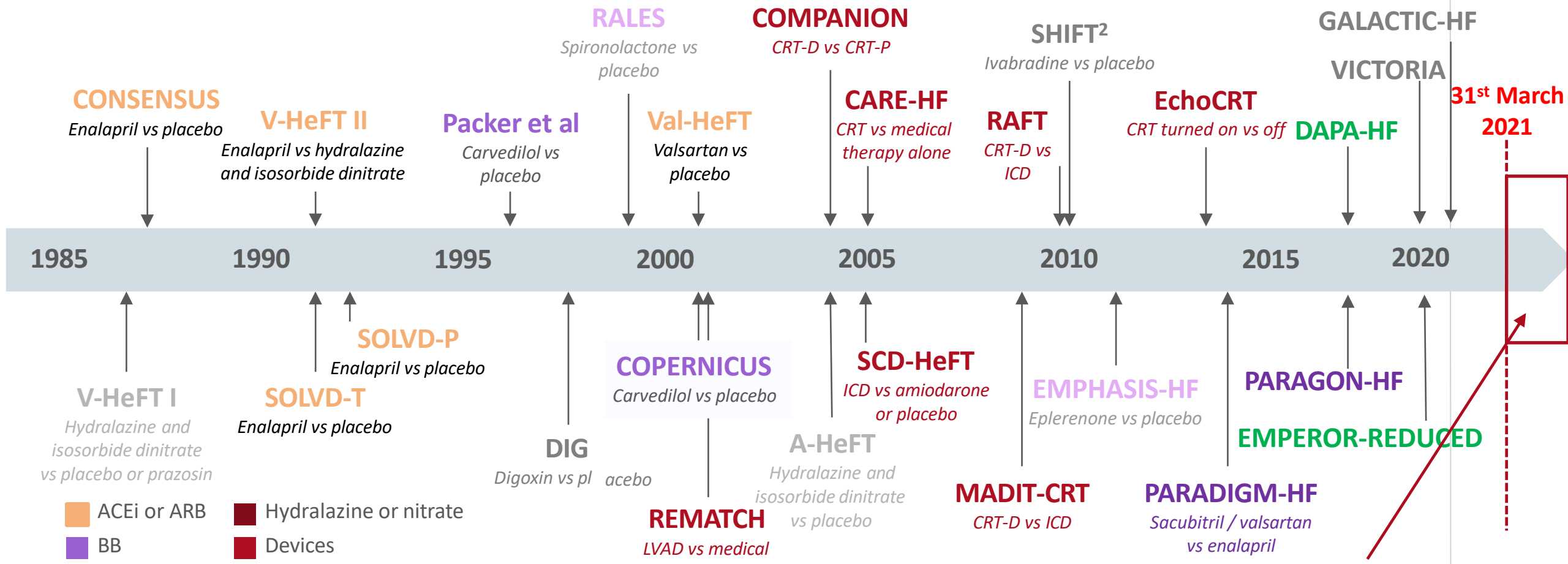
2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

Developed by the **Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC)**

With the special contribution of the **Heart Failure Association (HFA) of the ESC**

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In 2021, we had 34 years of heart failure therapy to consider



- ACEi or ARB
- BB
- MRA
- Sacubitril valsartan
- Hydralazine or nitrate
- Devices
- SGLT2i
- Others

What has happened since 2021?

Κατάλυση Κολπικής Μαρμαρυγής σε Ασθενή με Προχωρημένη Καρδιακή Ανεπάρκεια

- ❖ Δυνατότητα αιμοδυναμικής υποστήριξης
- ❖ Επέμβαση κατάλυσης ΜΕ αναισθησιολόγο
- ❖ Δυνατότητα μετεπεμβατικής νοσηλείας σε ΜΑΦ/ΜΕΘ ή/και νεφρικής κάθαρσης
- ❖ ΤΑΧΥΤΗΤΑ
- ❖ ΣΟΦΡΩΣΥΝΗ

« Η κόλαση είναι οι άλλοι»

Ζαν-Πολ Σαρτρ (από το θεατρικό “Το είναι και το μηδέν”)

Η ιστορία των Γκαρσέν,
Ινές και Εστέλ.....
...και της επέμβασης
κατάλυσης της ΚΜ στην
προχωρημένη καρδιακή
ανεπάρκεια



«Ο παράδεισος είναι ο ένας για τον άλλον» συνέντευξη του Ζαν-Πολ Σαρτρ για τη φράση αυτή το 1971