Kantonsspital St.Gallen

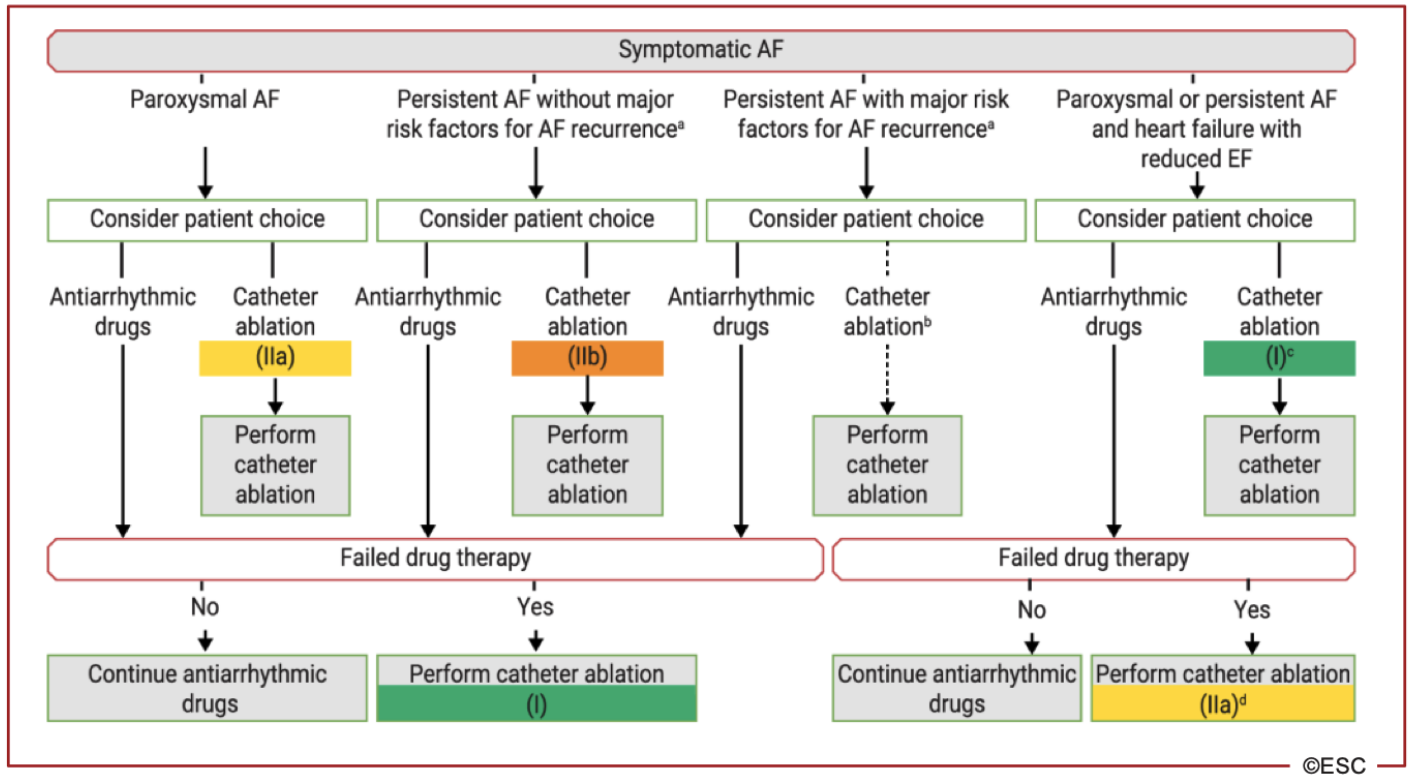
Kantonsspital Graubünden

Patient selection and timing for AF ablation in 2023

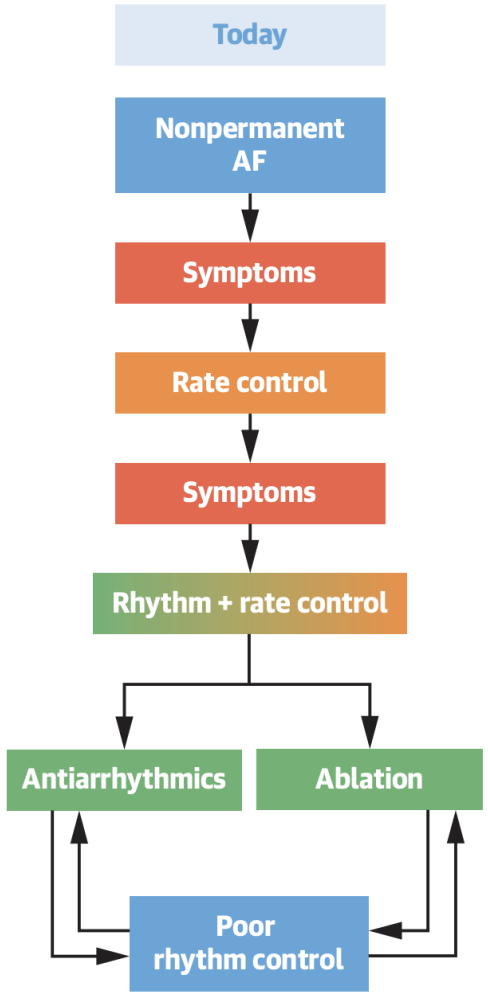
Kardiologisches Kolloquium: Rhythmologie im Praxisalltag

Sebastian Seidl, M.D.

Evolution of Atrial Fibrillation Rhythm Management



2020 ESC Guidelines for the diagnosis and management of atrial fibrillation. European Heart Journal 2020-doi/10.1093/eurheart/ehaa612



Camm J, et al. J Am Coll Cardiol. 2022;79(19):1932-1948

Rhythm control and the delay of progression of AF

	Andrade et al. EARLY-AF/PROGRESSIVE-AF	Kuck et al. ATTEST-AF	Pokushalov et al.
Number of Participants	303	255	154
Population	Paroxysmal AF	Paroxysmal AF	Paroxysmal AF
• Previous Interventions	Treatment Naive	Previous AAD Failure	Previous AAD failure & Previous Ablation failure
• Enrichment for outcome	none	HATCH Score 1-4 (older, more comorbidities)	none
• Time from AF diagnosis	1 year	4.1 years	4.5 years
Randomization	ABL vs AAD	ABL vs AAD	Redo-ABL vs AAD
Follow-up	3 years	3 years	3 years
• Completeness of f/u	95%	38%	100%
Arrhythmia Monitoring	Continuous Monitoring (Reveal Linq)	Intermittent Monitoring (TTM weekly x 300d then monthly)	Continuous Monitoring (Reveal XT)

L. Macale. AF Symposium (February 2023)

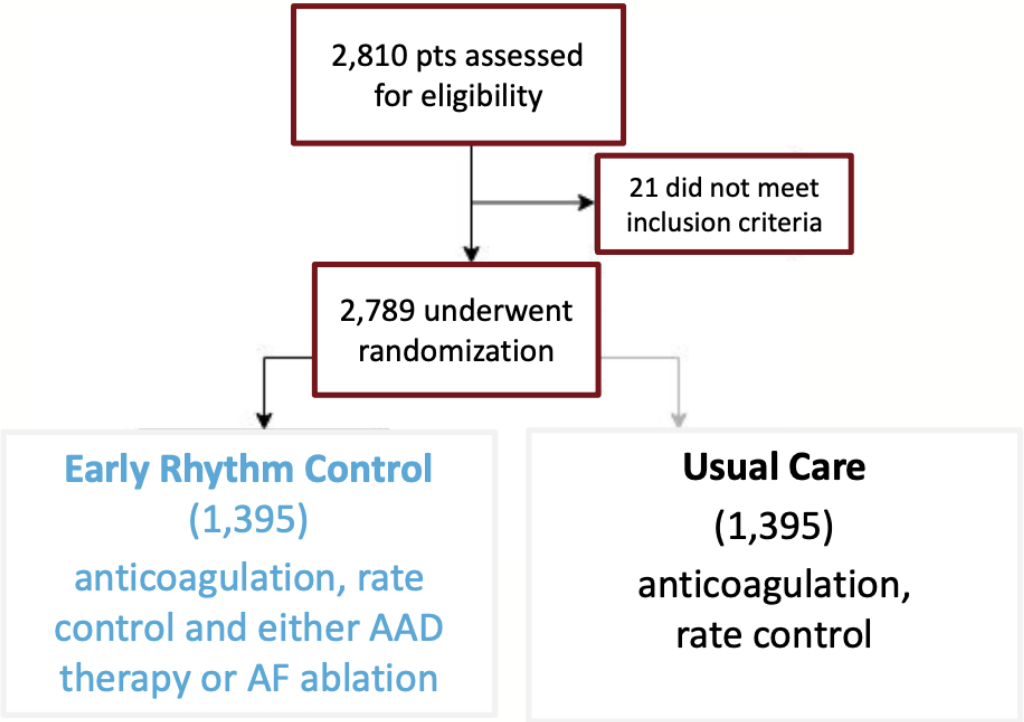
Rhythm control and the delay of progression of AF

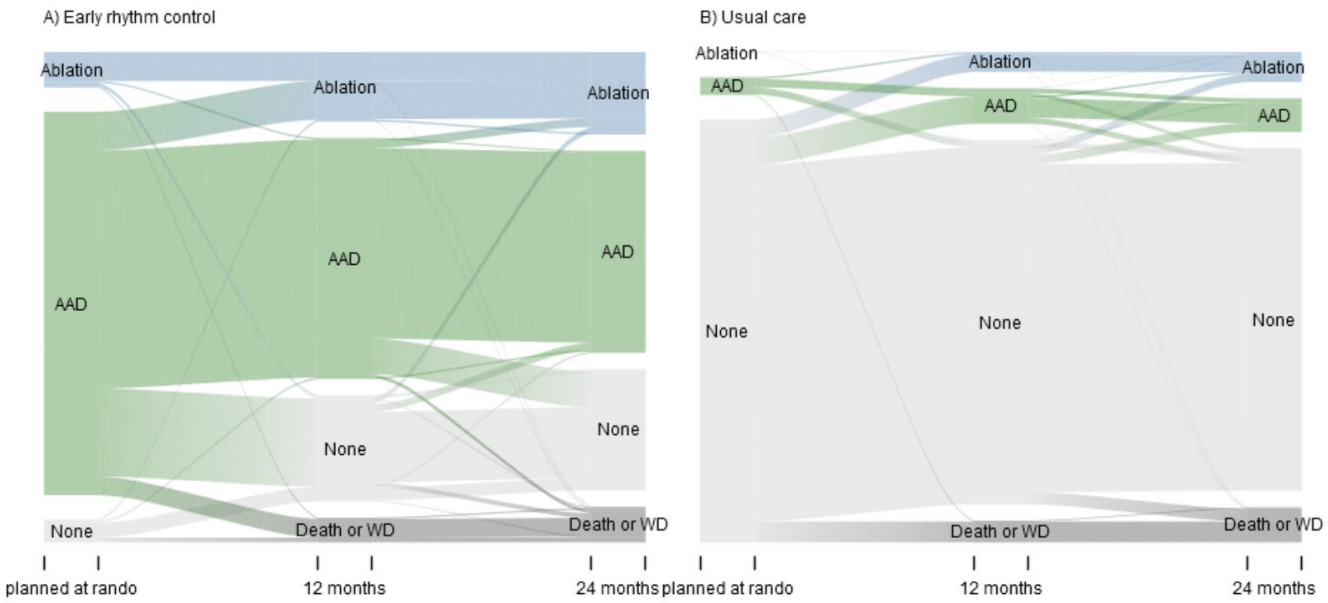
	Andrade et al. EARLY-AF/PROGRESSIVE-AF	Kuck et al. ATTEST-AF	Pokushalov et al.
Number of Participants	303	255	154
Efficacy Outcomes			
• Progression to Persistent AF	**HR 0.25** (95%CI 0.07-0.70)	**HR 0.11** (95%CI 0.02-0.47)	**RR 0.17** (95%CI 0.05-0.54)
• AF recurrence	**HR 0.51** (95%CI 0.38-0.67) 56.5% vs. 77.2%	**RR 0.58** (95%CI 0.48-0.70) 49.2% vs. 84.8%	**RR 0.47** (95%CI 0.36-0.62) 41.6% vs. 88.3%
• AF burden	0.00% vs. 0.24%	---	5.6% vs. 18.8%
• Quality of Life	AFEQT +7.4 (ABL vs. AAD) EQ-5D +0.05 (ABL vs. AAD)	---	---
• Hospitalisation	RR 0.31 (95%CI 0.14-0.66)	---	---
Safety Outcomes			
• Any Adverse Event	11.0% (ABL) vs. 23.5% (AAD)	16.7% (ABL) vs. 5.6% (AAD)	7% (ABL) vs. 6% (AAD)

L. Macale. AF Symposium (February 2023)

Early Rhythm control reduces CV events in recently diagnosed AF

Patients at risk for cardiovascular events (≈ CHA_2DS_2VASc score ≥ 2) with recent onset atrial fibrillation (’***early AF***’, ≤ 1 year duration or first documented by ECG). Primary outcome: Stroke, cardiovascular Death, HF or ACS hospitalization

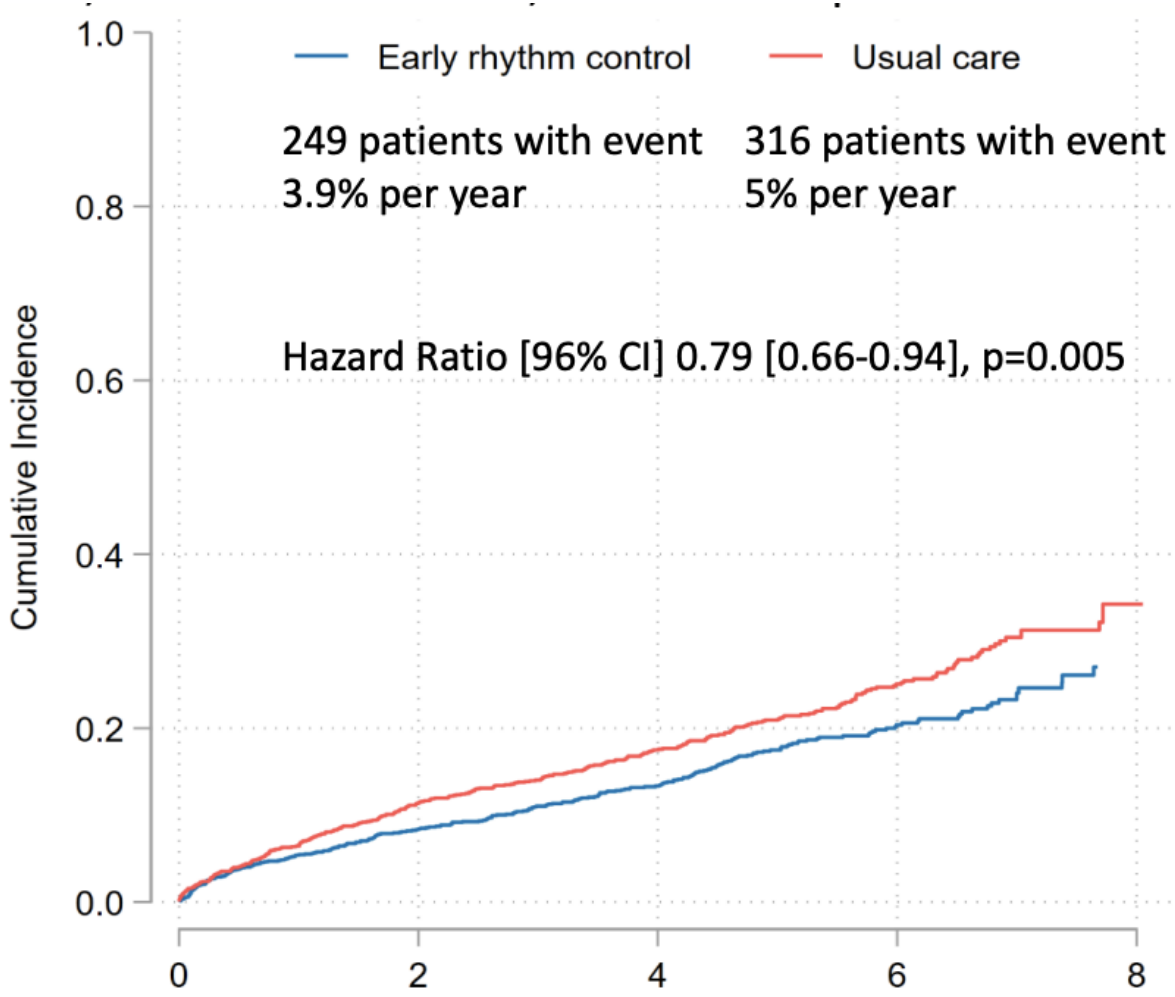




Kirchhof P, et al. NEJM 383;1305-1316

Metzner A, et al. Europace, doi: 10.1093/europace/euab277

Early Rhythm control reduces CV events in recently diagnosed AF



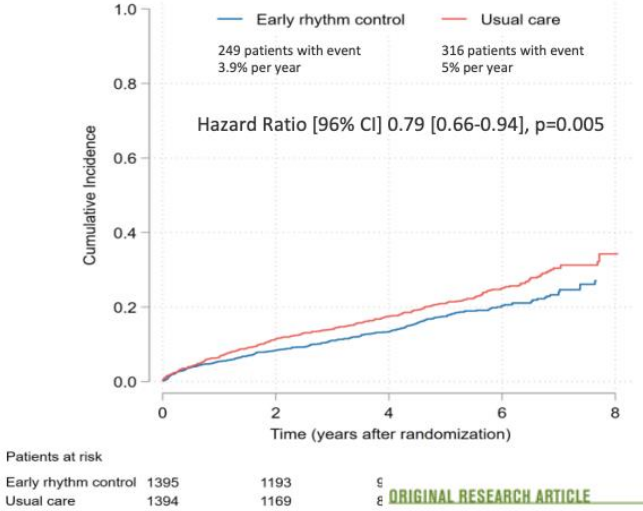
Primary Outcome

<u>Prevention of every fifth</u>

- CV death
- Stroke
- Hospitalization with worsening of heart failure or acute coronary syndrome

Kirchhof P, et al. NEJM 383;1305-1316

Early Rhythm control reduces CV events in recently diagnosed AF



Heart failure patients

Asymptomatic patients

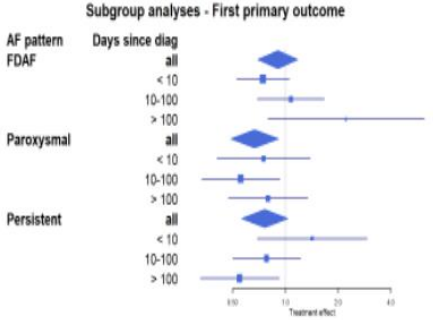
Treatment patterns

Men and women

Early rhythm-control therapy for atrial fibrillation in patients with a history of stroke: a secondary analysis of the EAST-AFNET 4 trial

Mirit Jensen, Anna Suling, Andreas Metzner, Renate B Schnabel, Katrin Borof, Andreas Goette, Karl Georg Haeusler, Antonia Zapf, Karl Wegscheider, Larissa Fabritz, Hans-Christoph Diener, Götz Thomalla, Paulus Kirchhof

Paroxysmal, persistent or first diagnosed AF



Attaining sinus rhythm at 12 months explains 80% of the effectiveness of the ERC strategy

Kirchhof P, et al. ***N Engl J Med*** ;383:1305-16.doi: 10.1056/NEJMoa2019422. (ESC hotline 2020)
Metzner A, et al. ***Europace*** .doi: 10.1093/europace/euab200. (EHRA hotline 2021)
Rillig A, et al. ***Circulation*** doi: 10.1161/CIRCULATIONAHA.121.056323. (HRS hotline 2021)
Willems S, et al. ***Eur Heart J*** ;43:1219-30.doi: 10.1093/eurheartj/ehab593 (ESC hotline 2021)
Goette A, et al. ***JACC***, 80:283-95.(2022) doi:10.1016/j.jacc.2022.04.058 (AHA hotline 2021)
van Gelder I, et al. , ***JACC***, in press (*EHRA hotline* 4 April 2022)
Rillig A, et al. ***Circulation*** 101161CIRCULATIONAHA122060274.(2022) (HRS hotline 2022)
Eckardt L, et al. ***Eur Heart J***.(2022) doi:10.1093/eurheartj/ehac471 (ESC clinical science hotline 2022)
Jensen M, et al. ***Lancet Neurol*** (2023), doi:10.1016/S1474-4422(22)00436-7

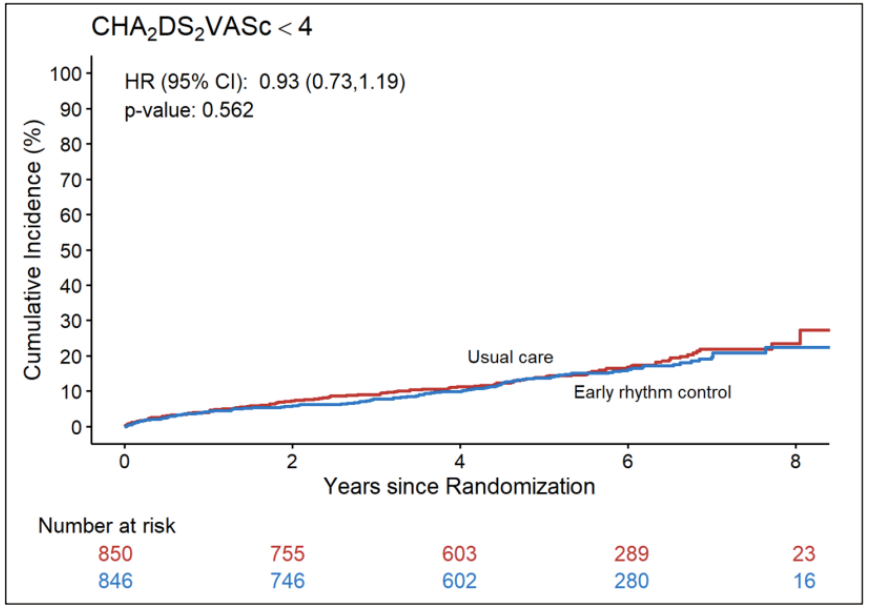
EHRA 2023

Willems S. EASTAFNET4 did affect my decision-making. EHRA 2023

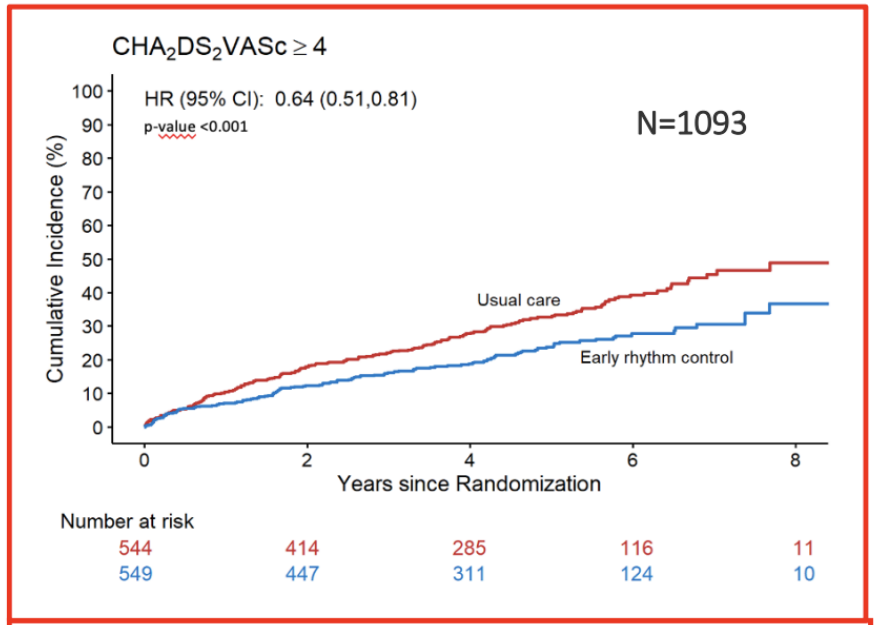
Interaction of early rhythm control with comorbitiy burden

Primary Outcome of EAST – AFNET4

Composite of: CV Death, Stroke, Hospitalization with worsening of heart failure or acute coronary syndrome



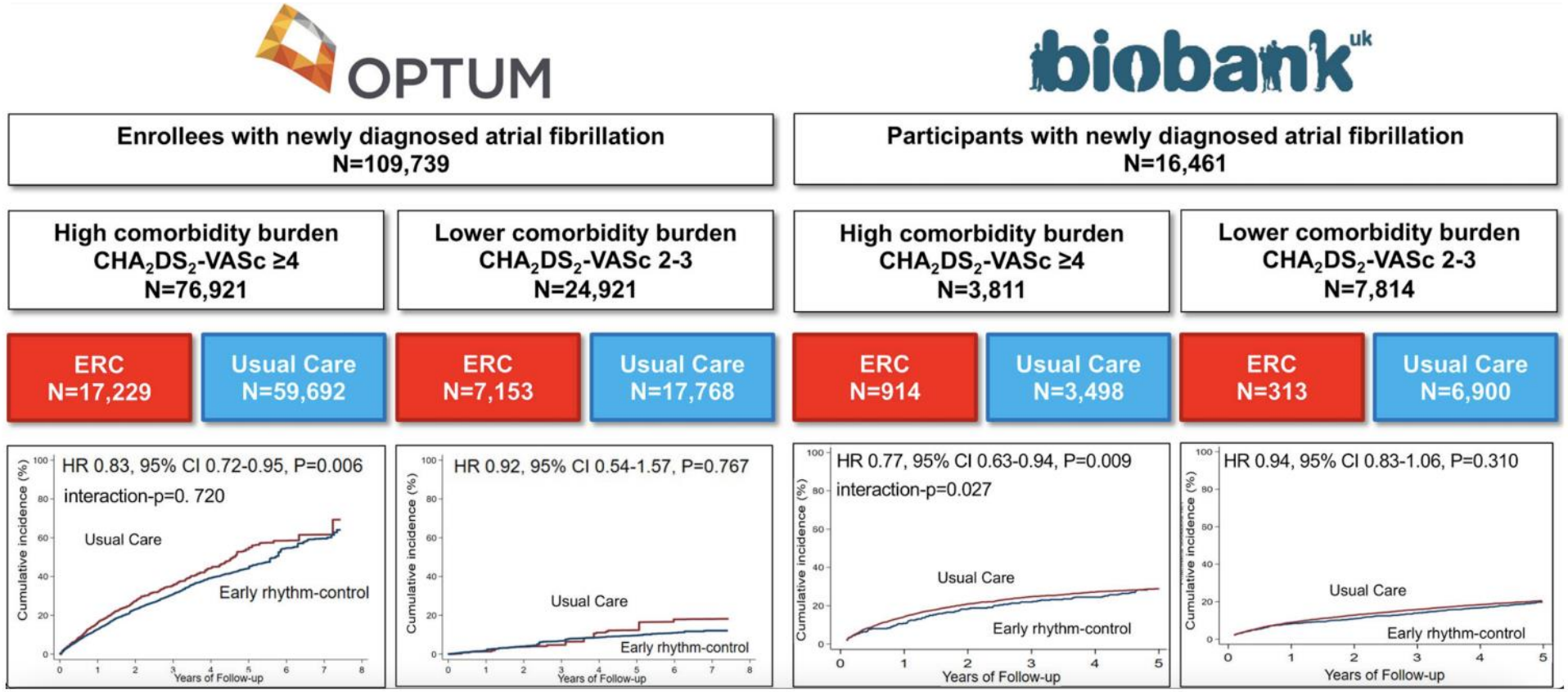
No impact on Primary outcome in patients with LOWER CHA_2DS_2-VASc score <4



Reduced primary outcome of patients with HIGH CHA_2DS_2-VASc score ≥4

Rillig A. Early rhythm control for all. EHRA 2023

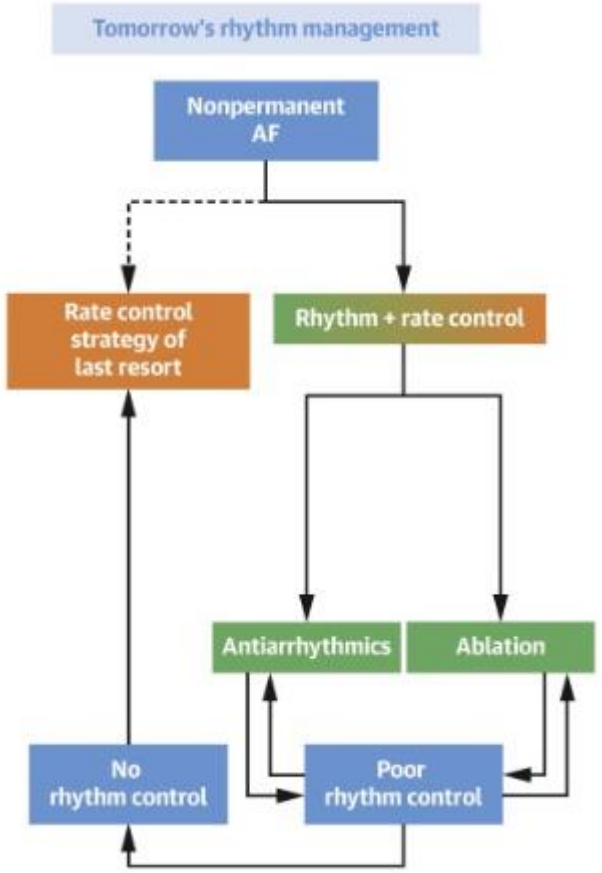
Early rhythm control with high comorbitiy burden in real-world cohorts



Rillig A. Early rhythm control for all. EHRA 2023

Conclusion

- **Early rhythm control in AF patients can prevent progression of AF**
- **Early rhythm control in AF patients reduces cardiovascular events**
- **Attaining sinus rhythm at 12 months explains 81% of the effect of ERC on cardiovascular events in EAST-AFNET 4**
- **Patients with recently diagnosed AF and multiple comorbidities (CHA_2DS_2-VASc ≥4) benefit most from ERC regarding the reduction of cardiovascular events**



Camm J, et al. J Am Coll Cardiol. 2022;79(19):1932-1948

Who / when not to ablate

Who / when not to ablate

Patient characteristic	Odds ratio [95% confidence interval]	*P* value
Primary Predictors of Interest		
Type of catheter ablation: ST versus CB2	0.86 [0.53, 1.41]	0.5544
Type of AF: PsAF versus PAF	1.08 [0.70, 1.67]	0.7376
Additional Predictors with Significance at 0.05 Level		
Chronic kidney disease (CKD)	2.81 [1.59, 4.94]	0.0003
Age, per year of increase	1.04 [1.01, 1.06]	0.0019
Ablation at site with ≥ 20 ablations in study	0.45 [0.26, 0.75]	0.0024
Chronic obstructive pulmonary disease (COPD)	1.83 [1.12, 2.98]	0.0153
Congestive heart failure (CHF)	1.70 [1.07, 2.70]	0.0260
Obesity	1.66 [1.03, 2.66]	0.0370
Ventricular tachycardia	2.99 [0.99, 9.08]	0.0529

Natale A. J Interv Card Electrophysiol. 2021 Apr;60(3):445-452

Age and the Effect of Catheter Ablation

Conclusion: *Octogenarian patients, despite more coexistent cardiovascular diseases, have favorable outcomes after AF ablation measured by successful rhythm management. On an average their hospital stay is longer, but no significant increase in short- or long-term complications was observed. These data support AF ablation in select octogenarians. (PACE 2010; 33:146–152)*

Bunch TJ. Pacing Clin Electrophysiol. 2010 Feb;33(2):146-52

Conclusions: Catheter ablation for atrial fibrillation in the very elderly shows favourable acute success and low complication rates. Long term success of catheter ablation and superiority to rate control in this patient population is unknown and requires investigation in the future.

Wahedi R. ESC Congress 2022 – 26-29 August

Frailty and the Effect of Catheter Ablation

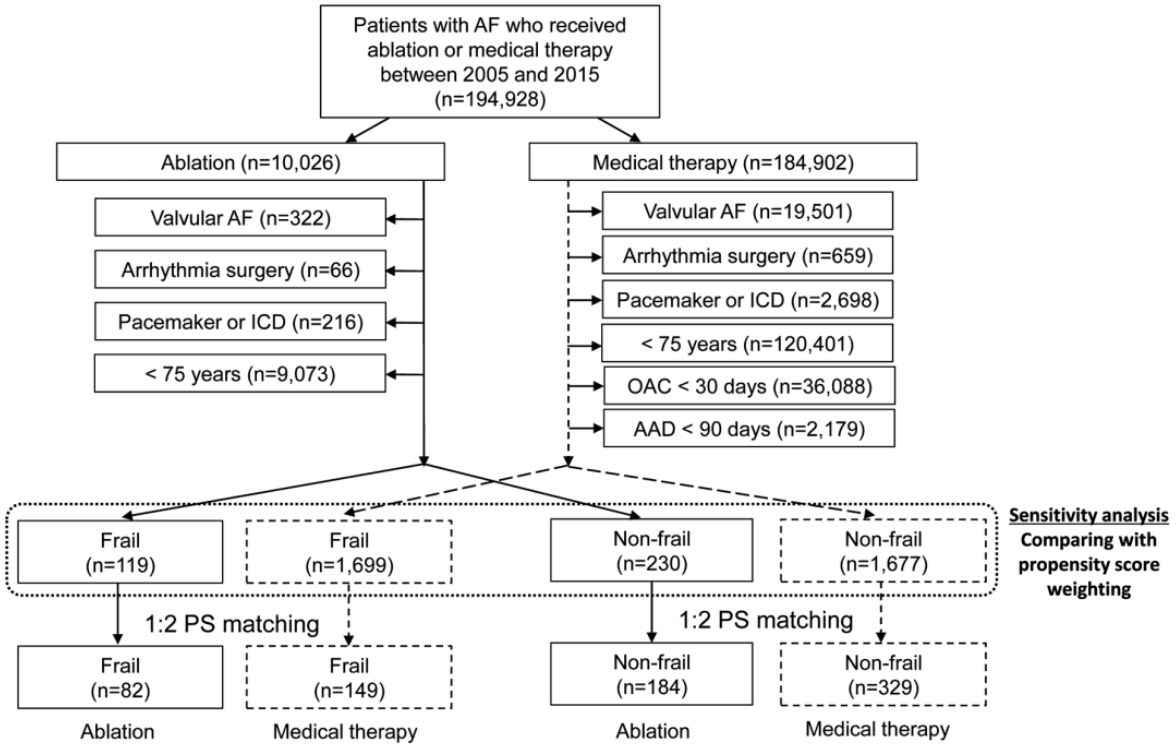


Figure 1. Flowchart of the enrollment and analysis of the study population. AAD, antiarrhythmic drug; AF, atrial fibrillation; ICD, implantable cardioverter–defibrillator; OAC, oral anticoagulant; PS, propensity score.

Yang PS. Circ. J. 2021 Jul 21;85(8):1305-1313

Frailty and the Effect of Catheter Ablation

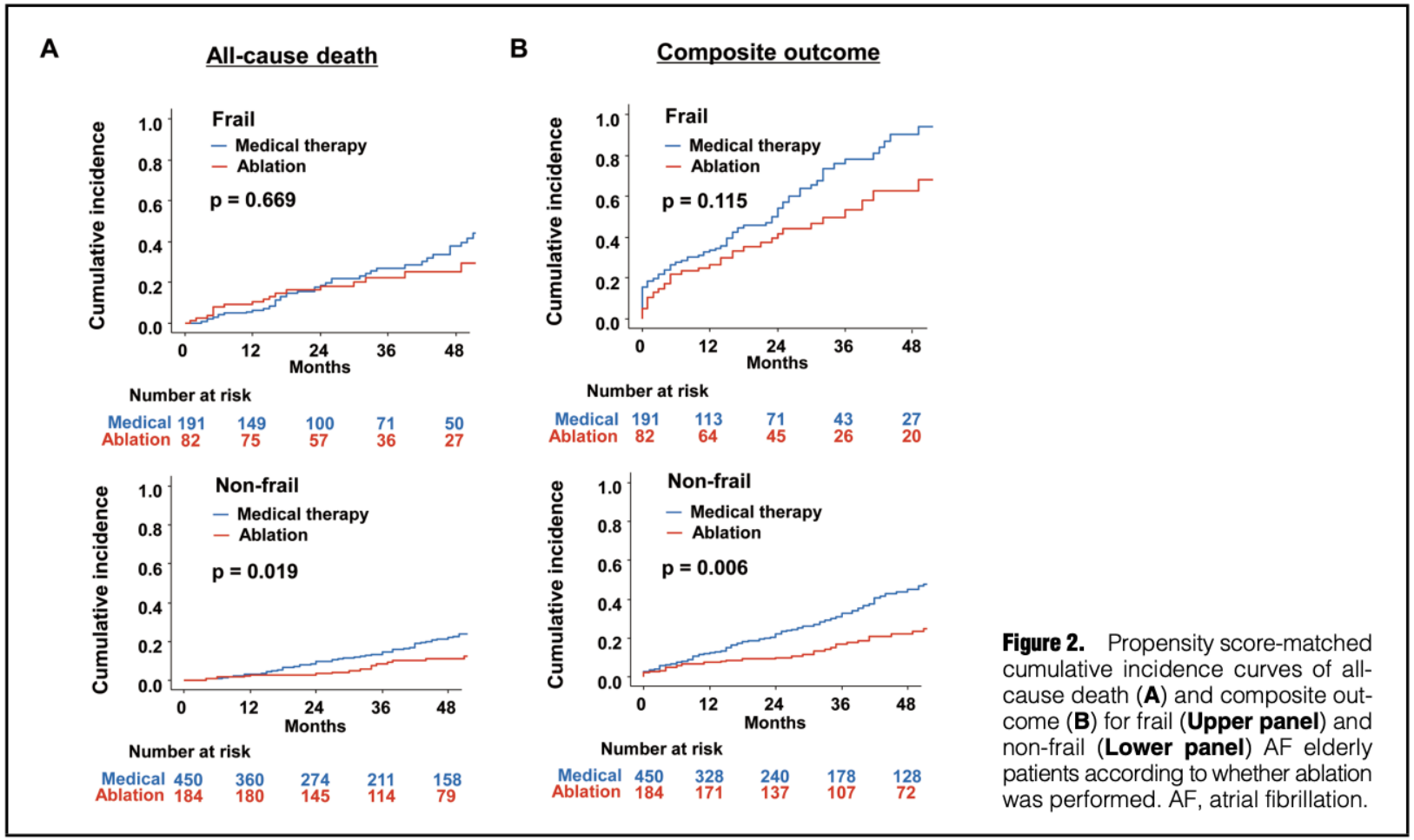


Figure 2. Propensity score-matched cumulative incidence curves of all-cause death (**A**) and composite outcome (**B**) for frail (**Upper panel**) and non-frail (**Lower panel**) AF elderly patients according to whether ablation was performed. AF, atrial fibrillation.

Yang PS. Circ. J. 2021 Jul 21;85(8):1305-1313

EHRA expert consensus document on the management of arrhythmias in frailty syndrome

Consensus statements

- Catheter ablation may be beneficial in selected old and very old patients, particularly if this a patient's choice and provided that improvement in symptoms and quality of life is expected.
- In the majority of frail patients, pharmacological rate control is a preferred option, based on the net clinical benefit, However, an individualized decision process—patient centred—considering the risk/benefit of each therapeutic regimen and patient preference should take place.

Savelieva I et al. EHRA expert consensus document on the management of arrhythmias in frailty syndrome. Europace. 2023 Apr 15;25(4):1249-76

Who / when not to ablate

Risk factor management:

- Obesity Reduction
- Physical Acitivity
- Alcohol Abstinence
- OSAS

Patient characteristic	Odds ratio [95% confidence interval]	*P* value
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Supervised Obesity Reduction Trial for AF ablation patients – SORT-AF

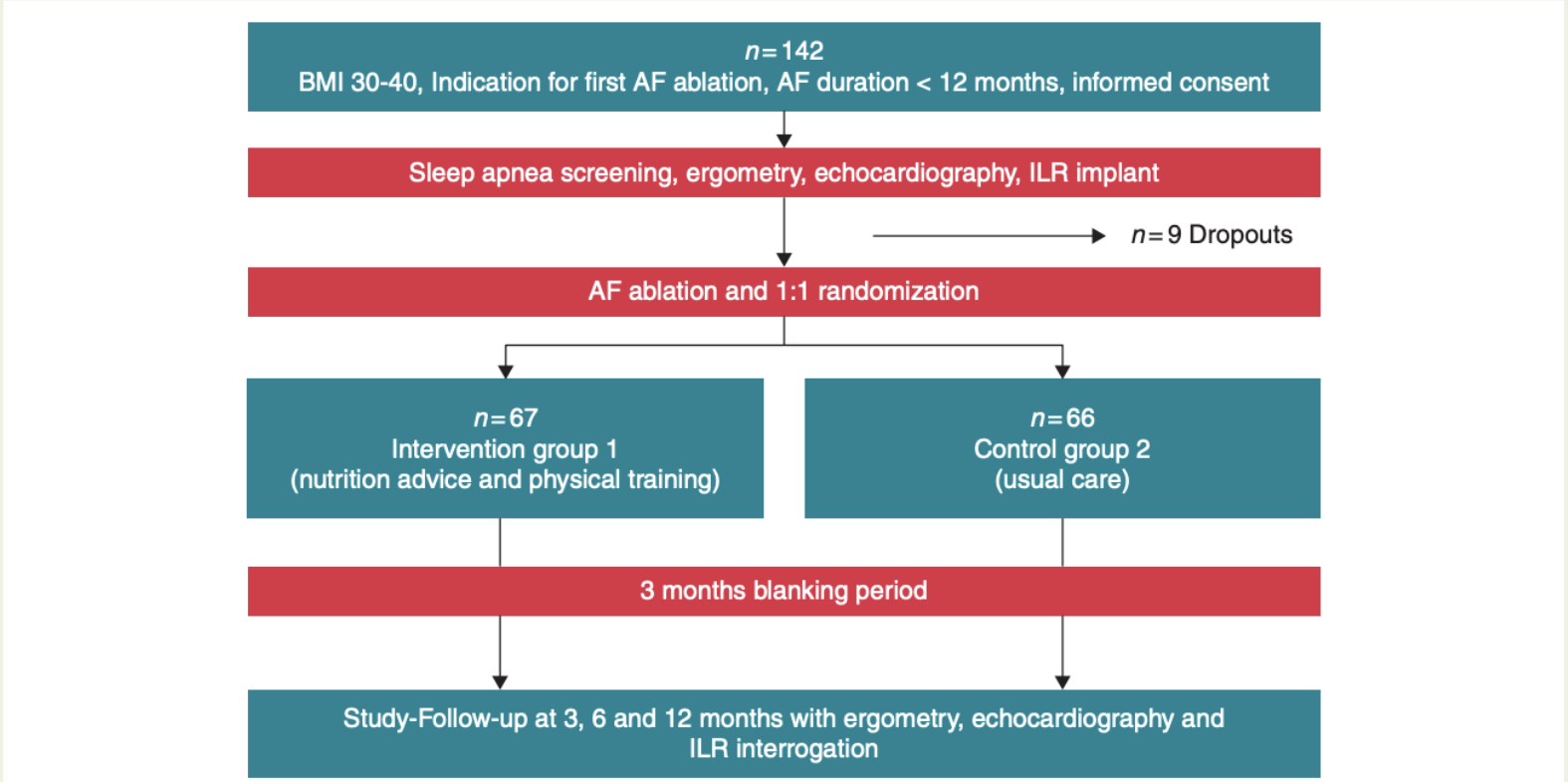


Figure 1 Flowchart of the trial.

Gessler N. Europace. 2021 Oct 9;23(10):1548-1558

Supervised Obesity Reduction Trial for AF ablation patients – SORT-AF

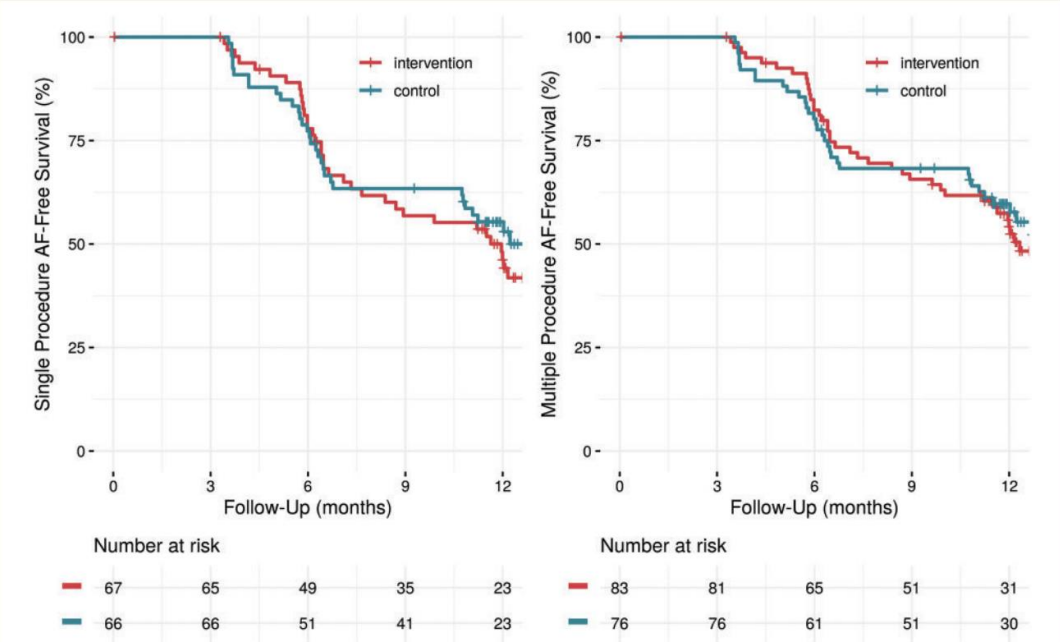


Figure 5 Recurrence free survival showing no significant difference between the groups (recurrence = AF episodes ≥30 s in ILR): single procedure ($P = 0.5777$); multiple procedure ($P = 0.7027$). AF, atrial fibrillation; ILR, implantable loop recorder.

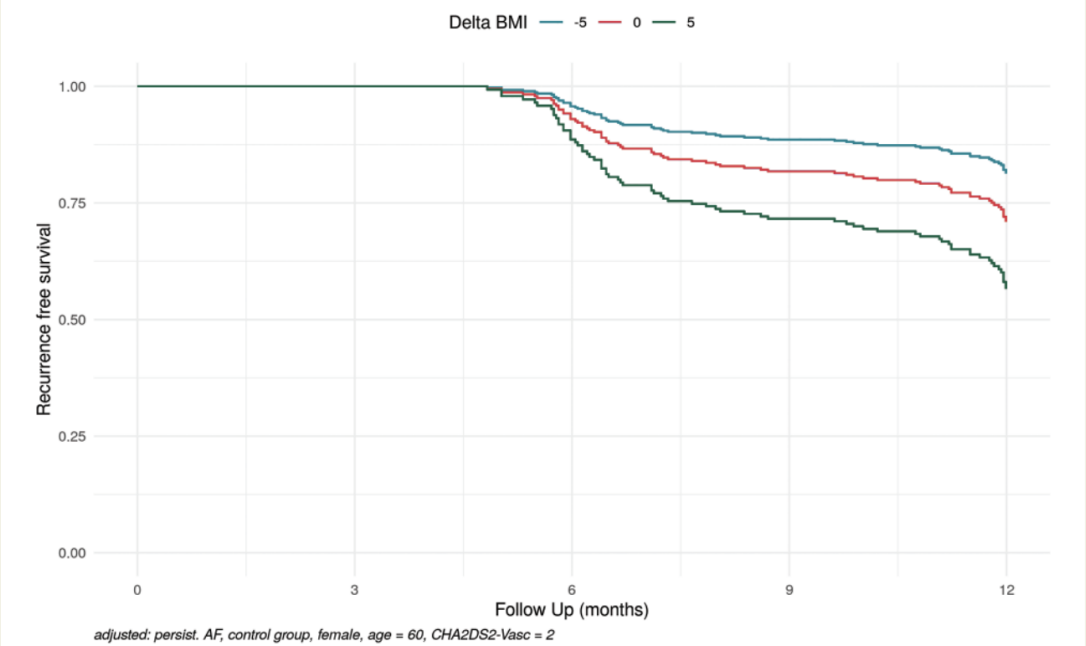
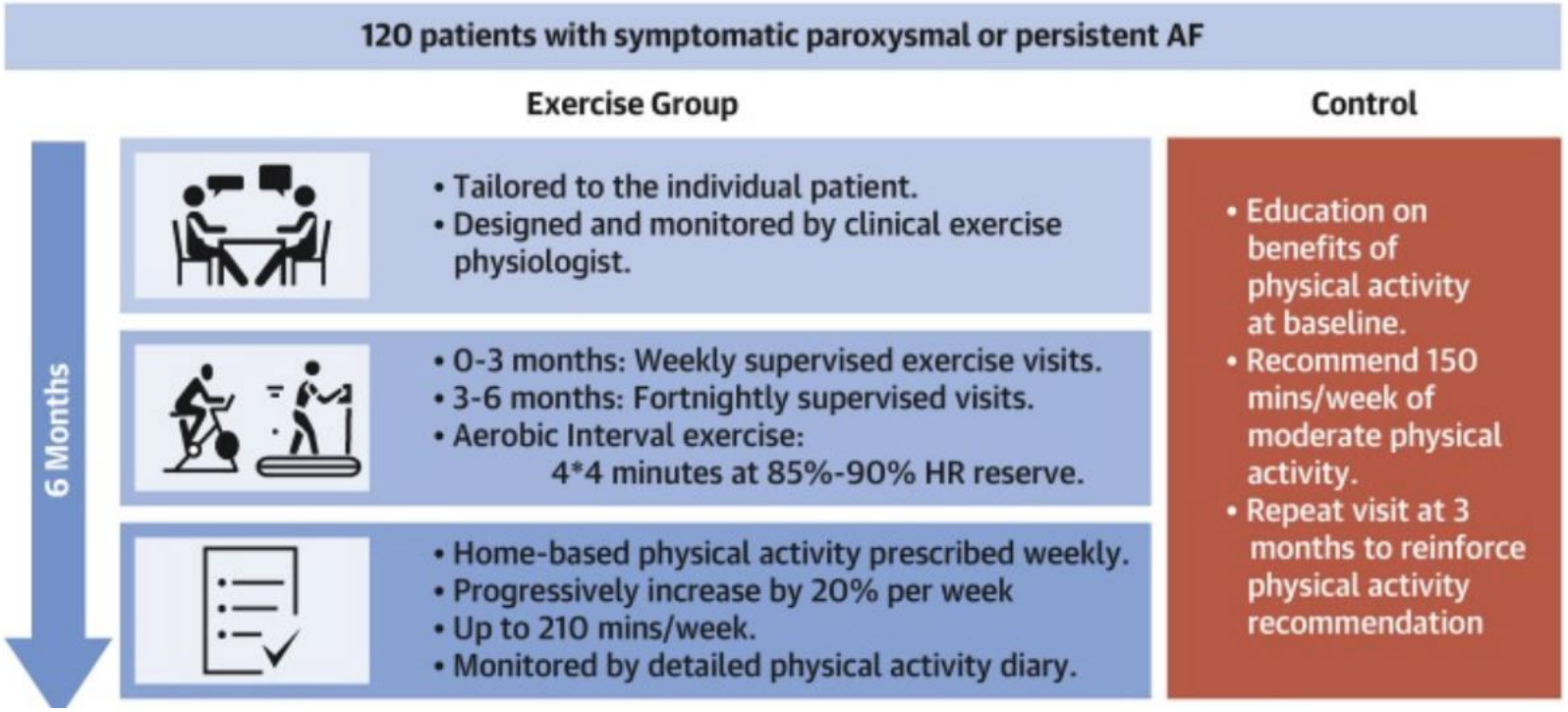


Figure 6 Model-based estimates of BMI change on recurrence free survival in persistent AF (adjusted: persistend AF, control group, female, age = 60, CHA_2DS_2-VASc score = 2). AF, atrial fibrillation; BMI, body mass index.

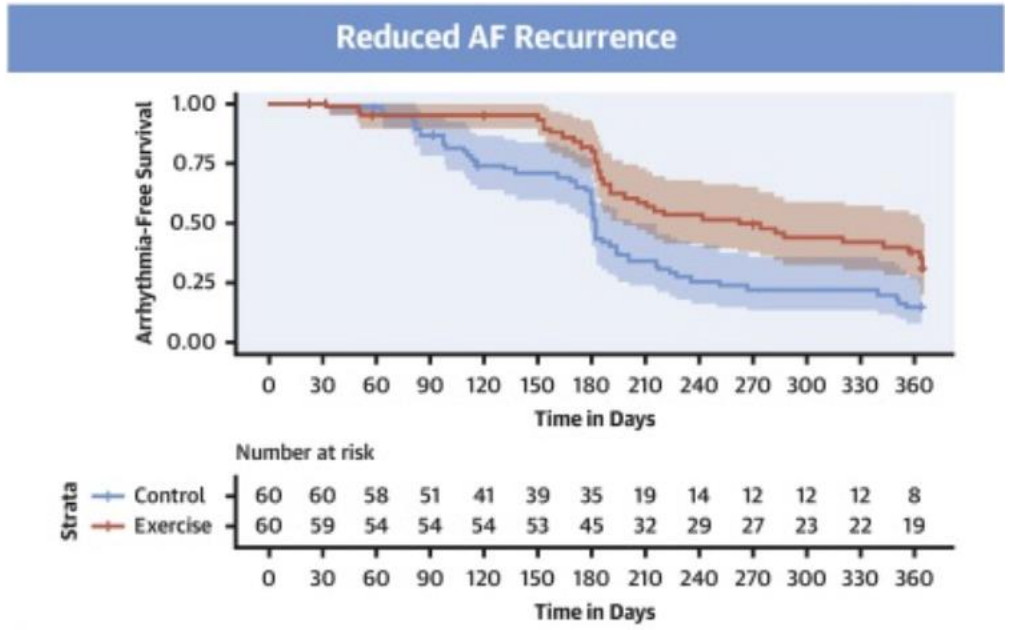
Gessler N. Europace. 2021 Oct 9;23(10):1548-1558

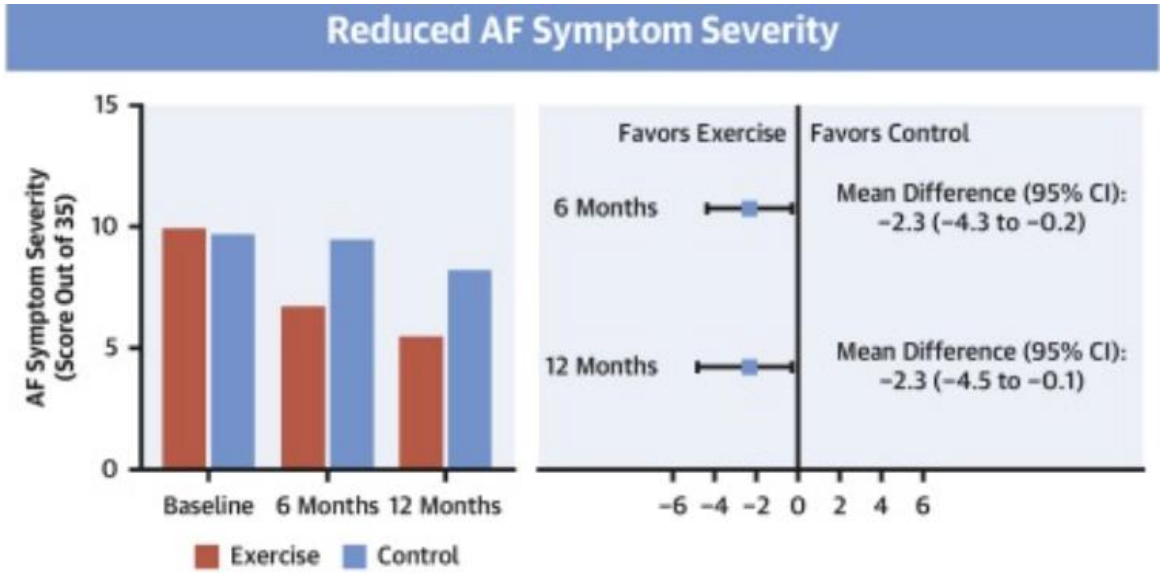
An Exercise and Physical Activity Program in Patients With Atrial Fibrillation – ACTIVE-AF



Elliott A. JACC Clin Electrophysiol. 2023 Apr;9(4):455-465

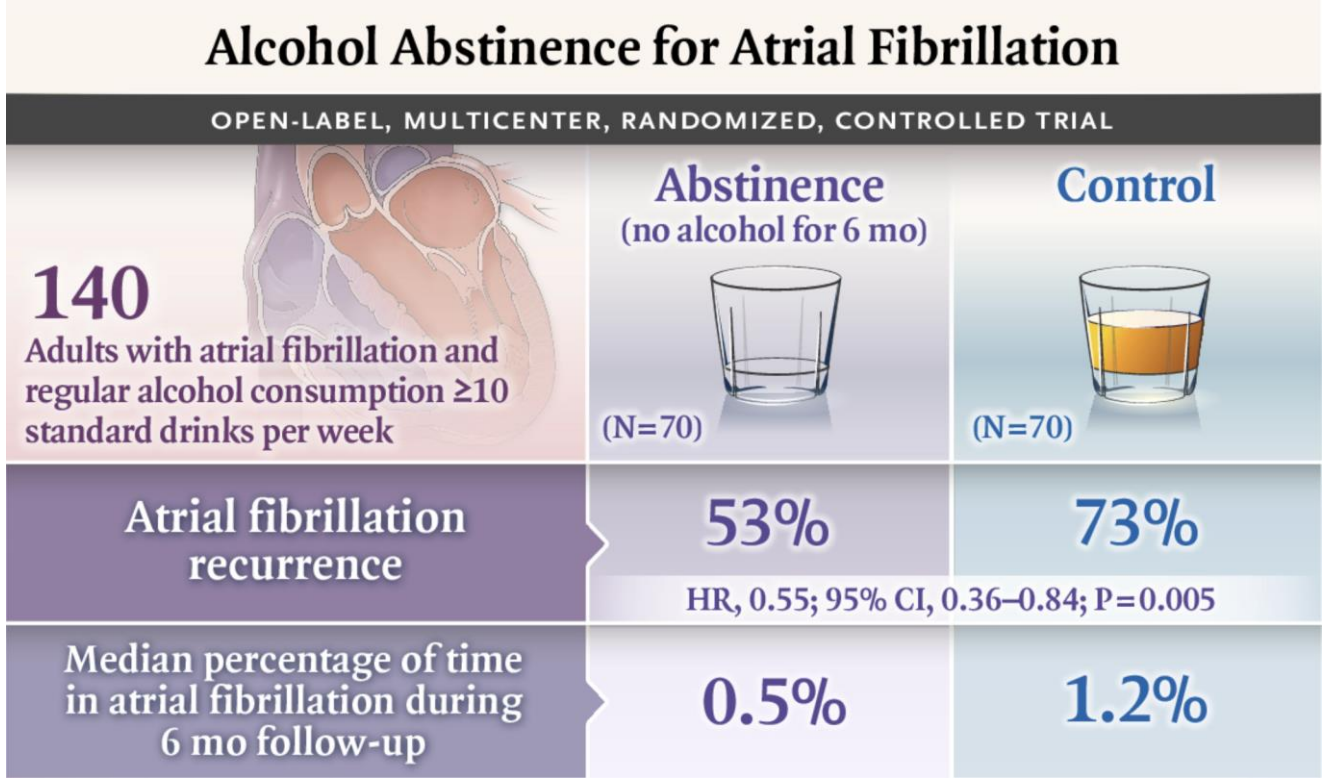
An Exercise and Physical Activity Program in Patients With Atrial Fibrillation – ACTIVE-AF

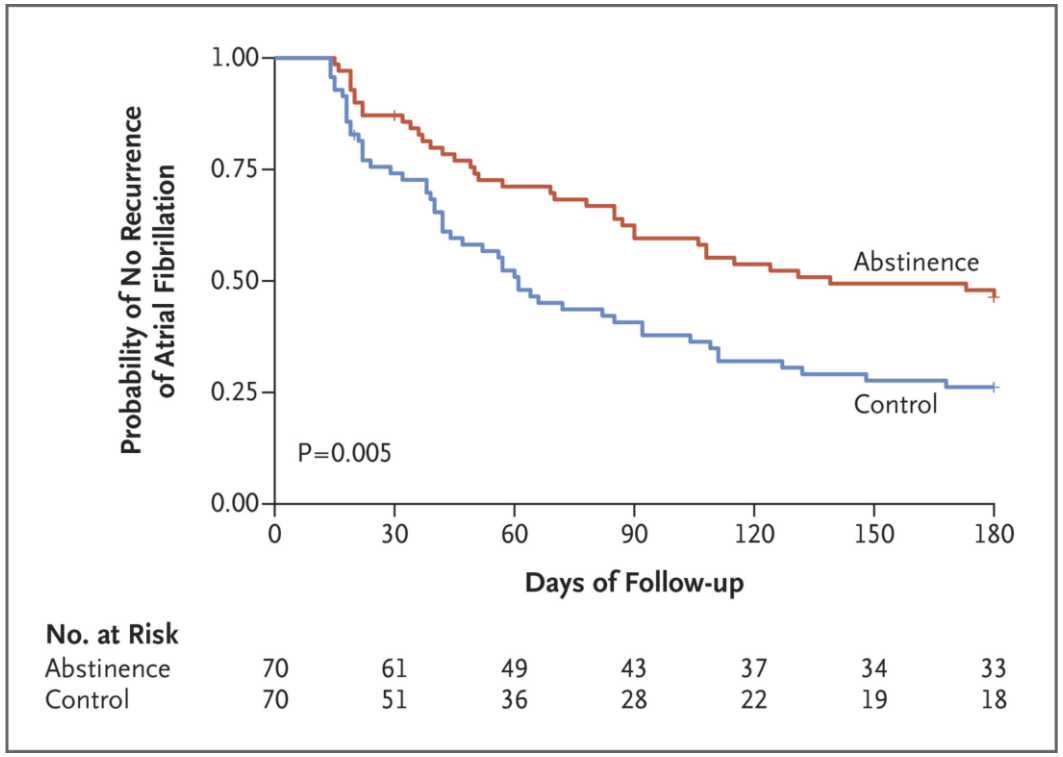




Elliott A. JACC Clin Electrophysiol. 2023 Apr;9(4):455-465

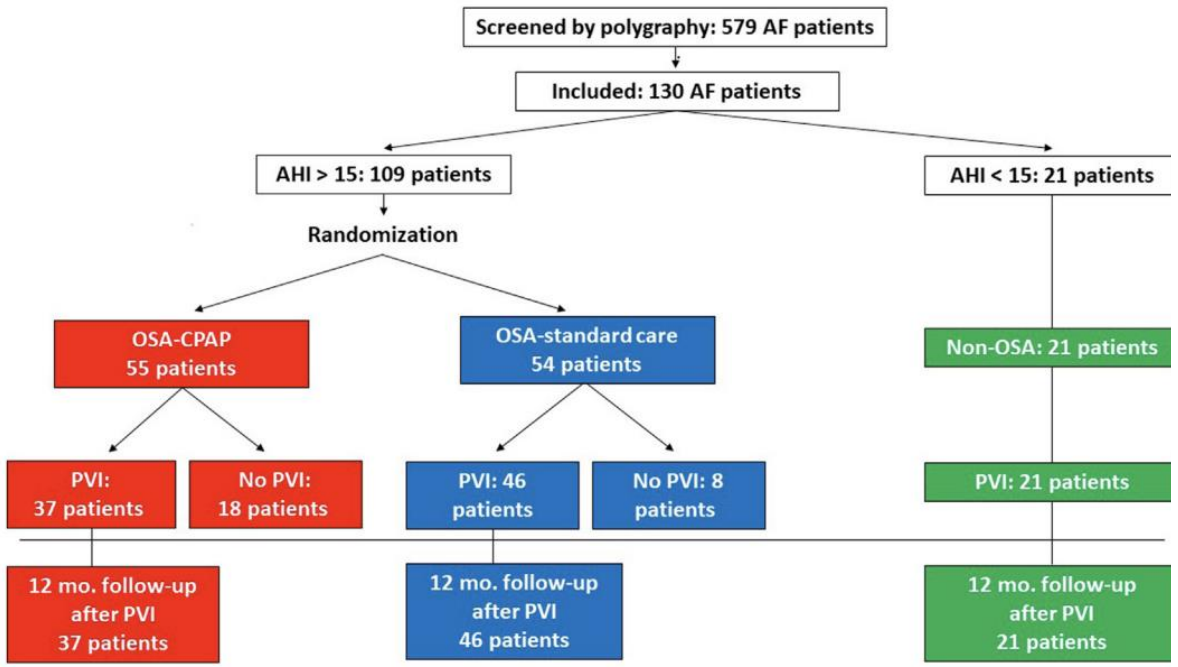
Alcohol Abstinence in Drinkers with Atrial Fibrillation

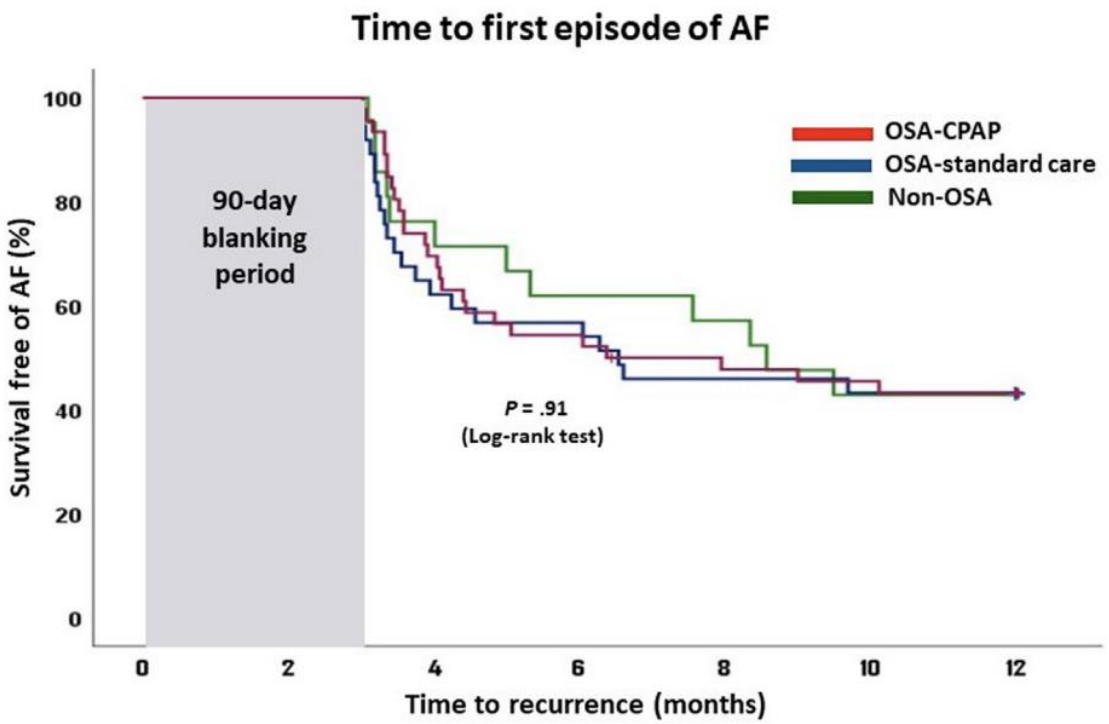




Voskoboinik A. NEJM. 2020 Jan 2;382(1):20-28

Effect of CPAP therapy on AF recurrence after PVI – A3 study





Hunt TE. Heart Rhythm. 2022 Sep;19(9):1433-1441

Impact of early versus delayed atrial fibrillation ablation

Design

- 100 symptomatic AF patients
- Randomized to either early or delayed ablation strategy
- Intensive postoperative rhythm monitoring for 12 months

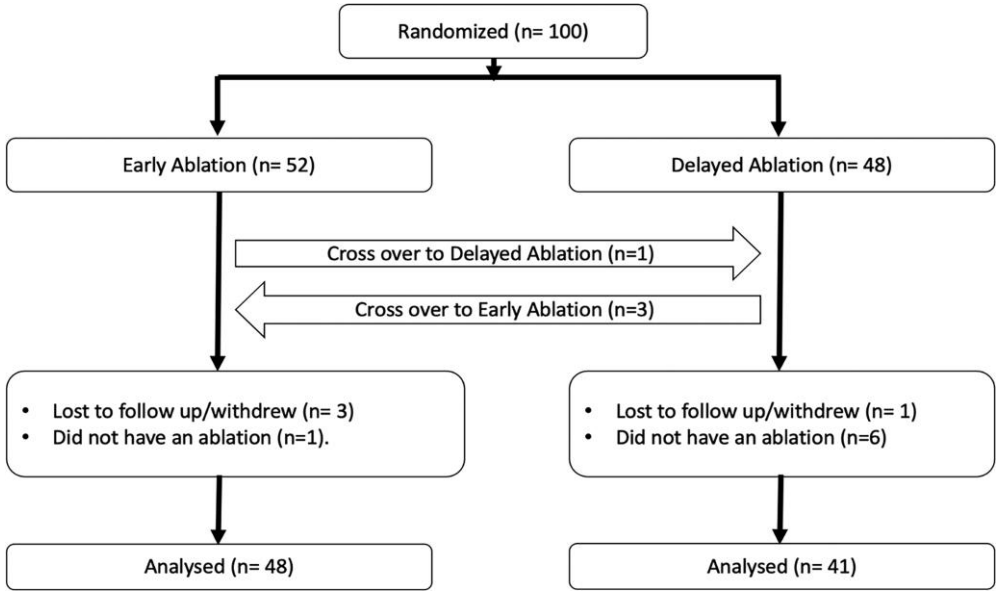
Endpoints

Primary

Arrhythmia-free survival at 12 months

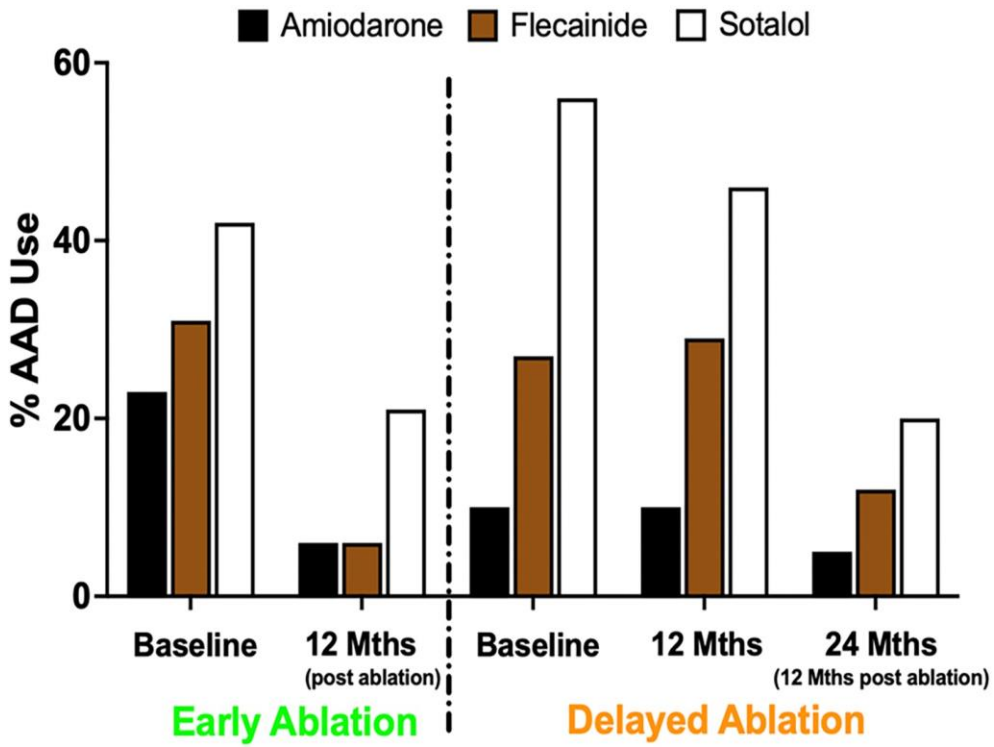
Secondary

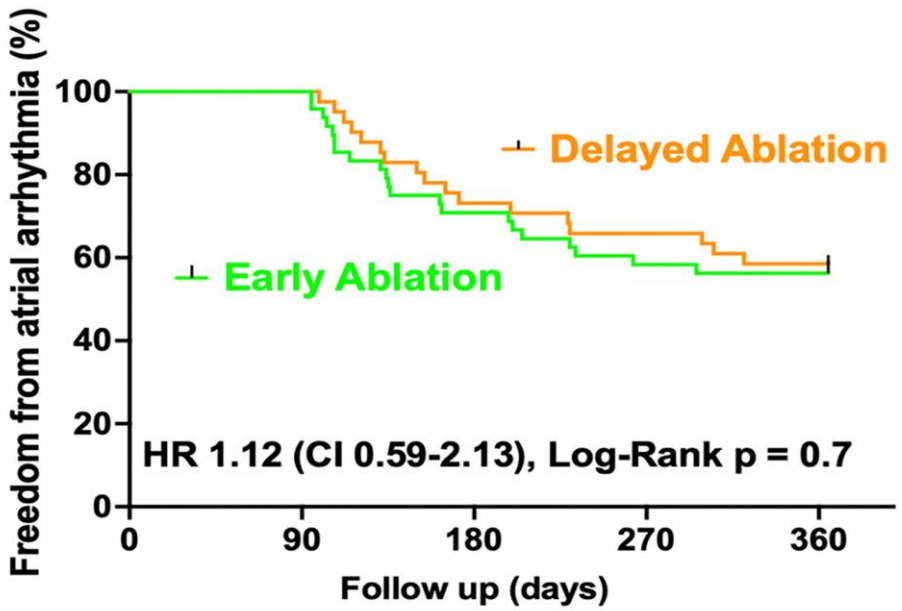
1. Median AF burden
2. Median AF burden by AF phenotype
3. AAD use



Kalman J. Eur Heart J, ehad247, https://doi.org/10.1093/eurheartj/ehad247

Impact of early versus delayed atrial fibrillation ablation





Days		0	90	180	270	365
At Risk	Early	48	48	35	29	27
	Delayed	41	41	31	28	24

Kalman J. Eur Heart J, ehad247, https://doi.org/10.1093/eurheartj/ehad247

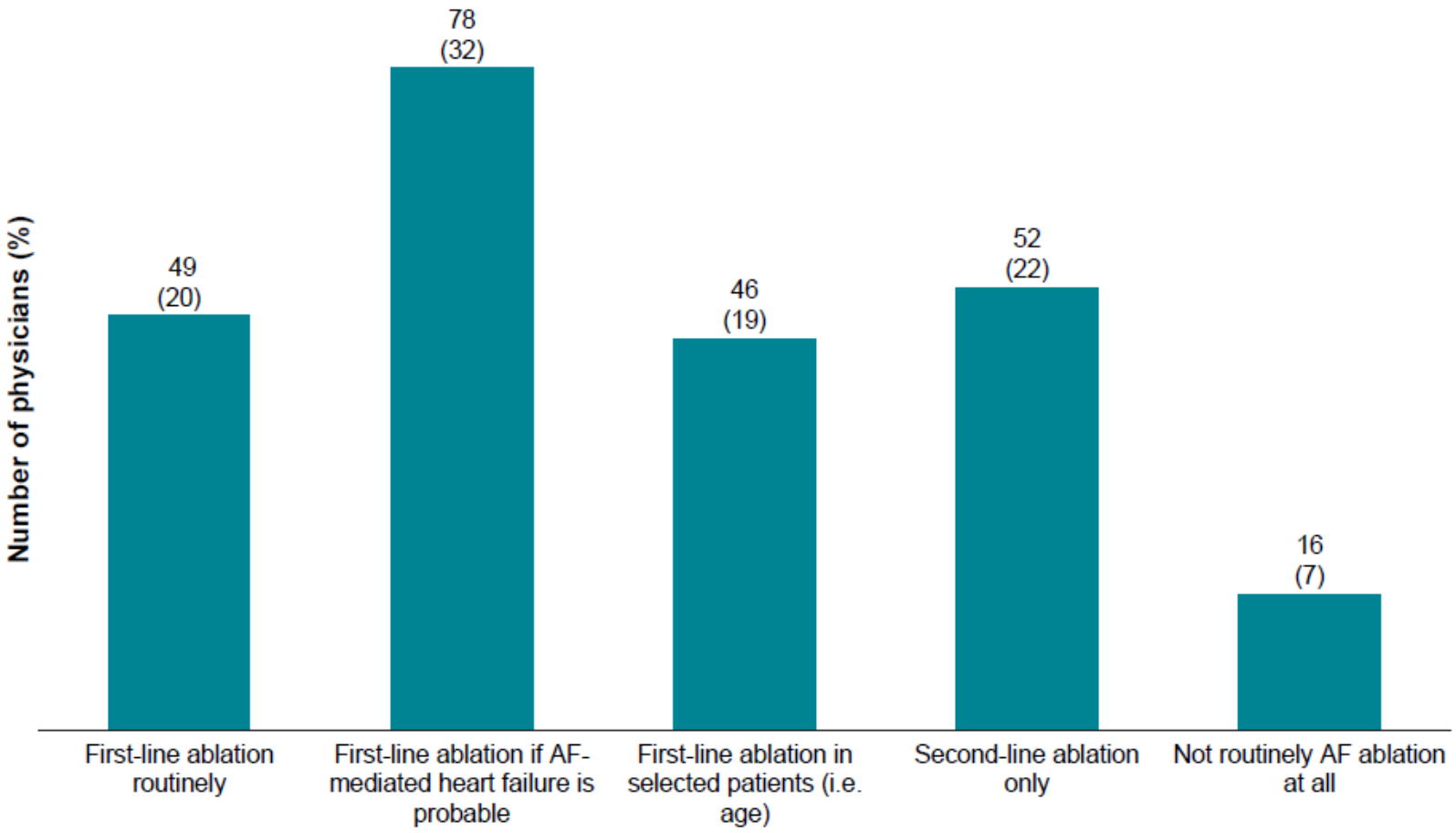
Impact of early versus delayed atrial fibrillation ablation

	Early Ablation Group ($n = 48$)	Delayed Ablation Group ($n = 41$)
Age, years, mean ± SD	58 ± 13	59 ± 11
Female sex, *n* (%)	16 (33)	10 (24)
Persistent AF, *n* (%)	26 (54)	15 (37)
CHA_2DS_2-VASc score, mean ± SD	1.8 ± 1.6	1.2 ± 1.1
BMI, kg/m^2, mean ± SD	30 ± 5.5	30 ± 5.3
Hypertension, *n* (%)	26 (54)	22 (54)
Diabetes, *n* (%)	3 (6)	1 (2)
Heart failure, *n* (%)	6 (13)	2 (5)
Stroke/TIA, *n* (%)	3 (6)	0
Vascular disease, *n* (%)	13 (27)	6 (15)
OSA, *n* (%)	7 (15)	11 (27)
Regular alcohol intake, *n* (%)	6 (13)	8 (19)
eGFR, mL/min, mean (SD)	80 (13)	81 (11)
Anticoagulation, *n* (%)	43 (90)	34 (83)
Beta blockers, *n* (%)	18 (37)	11 (27)
CCB, *n* (%)	5 (10)	4 (10)
Digoxin, *n* (%)	7 (15)	2 (5)
AAD use, *n* (%)	46 (96)	38 (93)
Amiodarone, *n* (%)	11 (23)	4 (10)
Flecainide, *n* (%)	15 (31)	11 (26)
Sotalol, *n* (%)	20 (42)	23 (56)
AFSSS, median (Q1–Q3)[a]	14 (8–22)	15 (12–22)
LV ejection fraction, %, mean ± SD	57 ± 8	61 ± 5
E/E', mean ± SD	9.2 ± 4	9.1 ± 3
LA volume, mL/m^2, mean ± SD	45.5 ± 15	40.6 ± 11
LA size, cm, mean ± SD	4.7 ± 0.7	4.4 ± 0.7
LA area, cm^2, mean ± SD	28 ± 6	24 ± 5

Kalman J. Eur Heart J, ehad247, https://doi.org/10.1093/eurheartj/ehad247

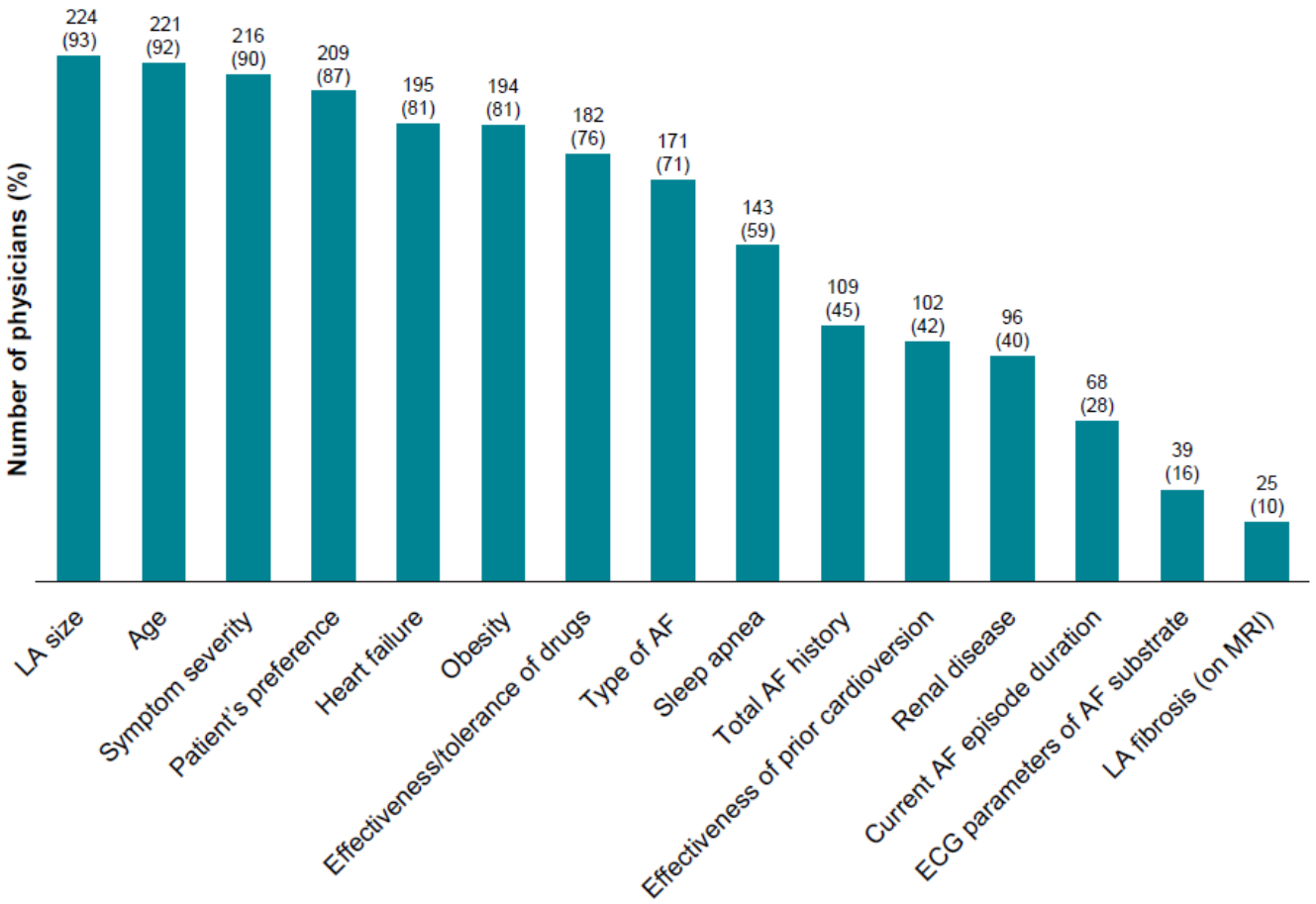
You can´t ablate Afib too early, but what happens a lot of time is, that you ablate it too late.

Circumstances under which AF ablation is performed



Iliodromitis K et al. Europace (2023) 25, 667–675

Parameters considered when selecting patients for AF ablation



Iliodromitis K et al. Europace (2023) 25, 667–675