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Atrial Fibrillation 2022

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Disclosure of Financial Relationships

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Has no relationships with any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients.

Learning Objectives

1. Implement risk factor management in atrial fibrillation
2. Determine best rate control goal
3. Decide when to refer for rhythm control management

Clinic Patient: Mary

- 69-year-old female with paroxysmal AF
- History of HTN on hydrochlorothiazide, 145/94
- Normal LV function
- No diabetes, no TIA/CVA
- One beer at dinner, partner says she snores at night
- Mild/moderate SOB with Afib, HR 125 beats/min

Modifiable Risk Factors for AF

Which of the following has been identified as a modifiable risk factor for atrial fibrillation?

A. Coffee
B. Alcohol
C. Obesity
D. Diet
E. B and C

Population Attributable Risk of Afib

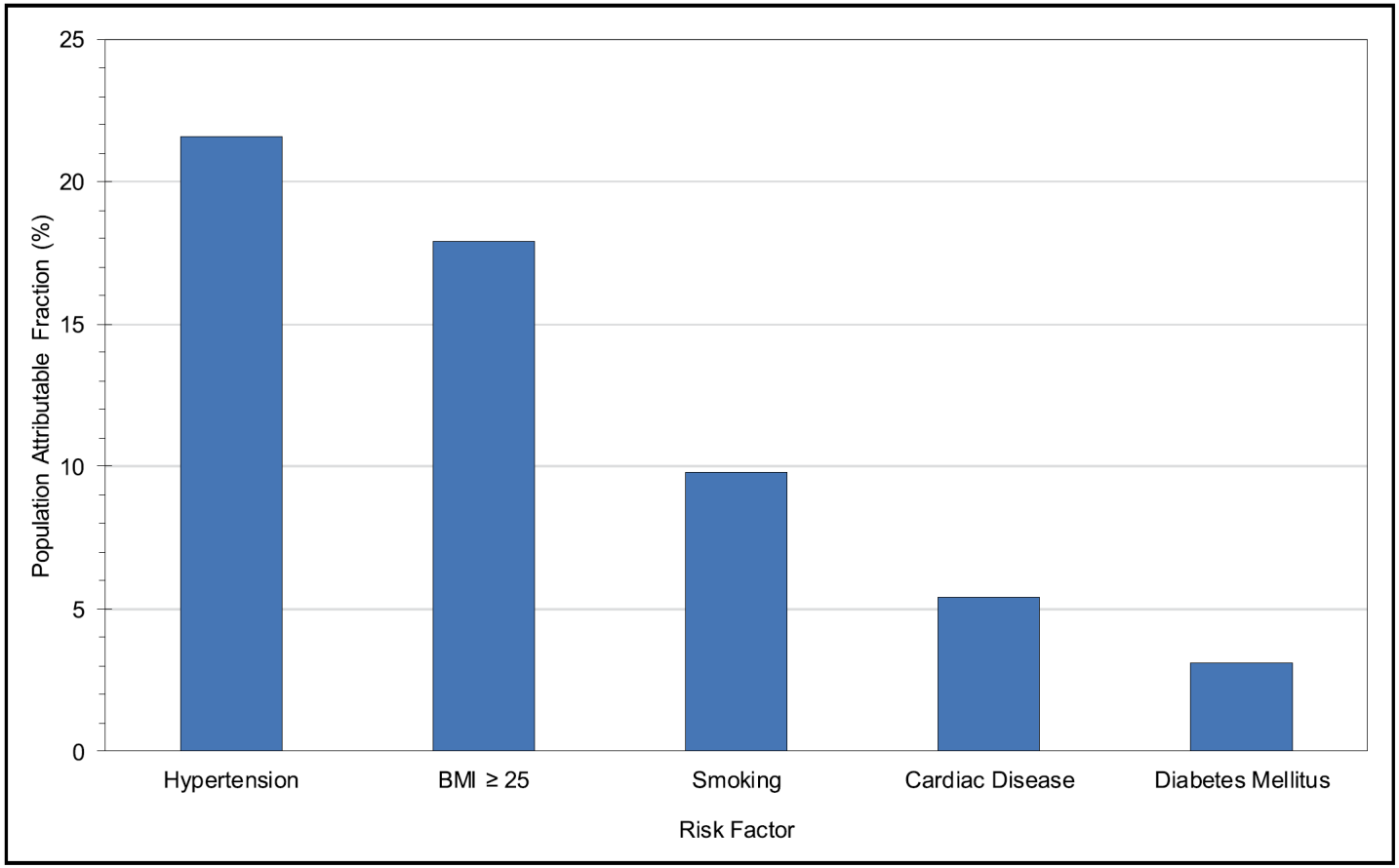


Chart 17-6. Population attributable fraction of major risk factors for atrial fibrillation in the ARIC study, 1987 to 2007.
ARIC indicates Atherosclerosis Risk in Communities; BMI, body mass index (in kg/m^2); cardiac disease, patients with history of coronary artery disease or heart failure; and smoking, current smoker.
Source: Data derived from Huxley et al.[81]

Weight Loss Improves Afib

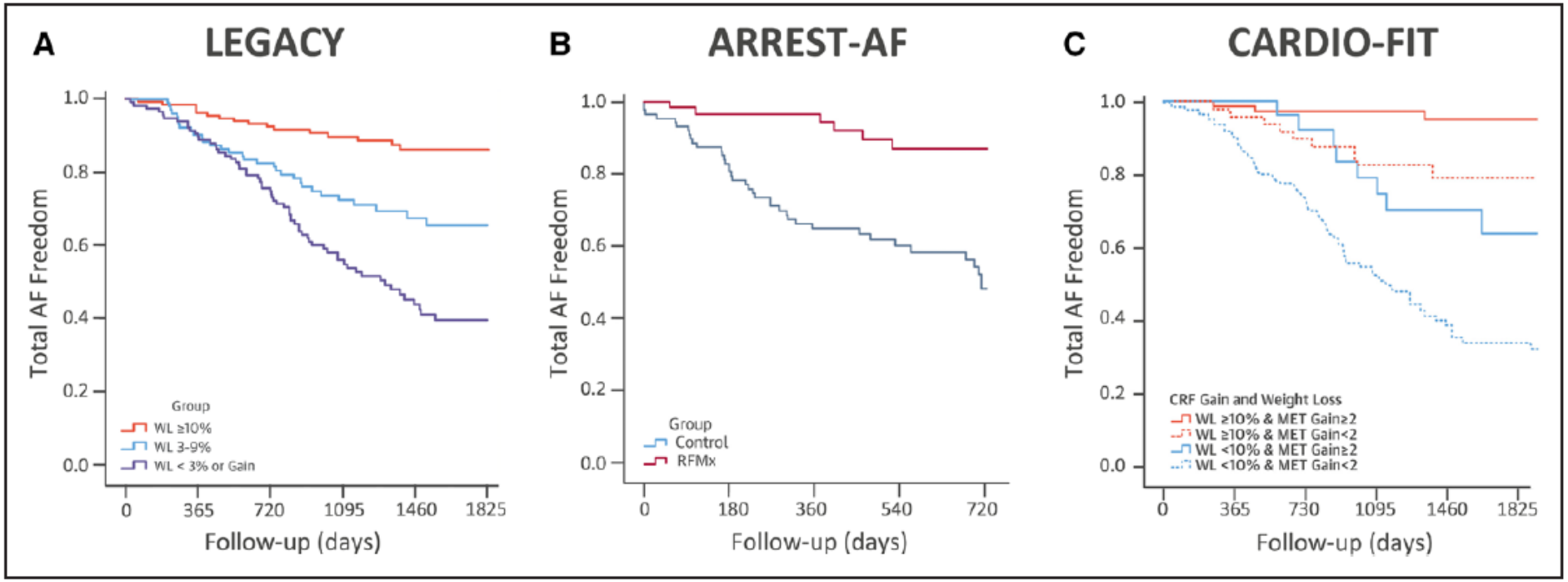
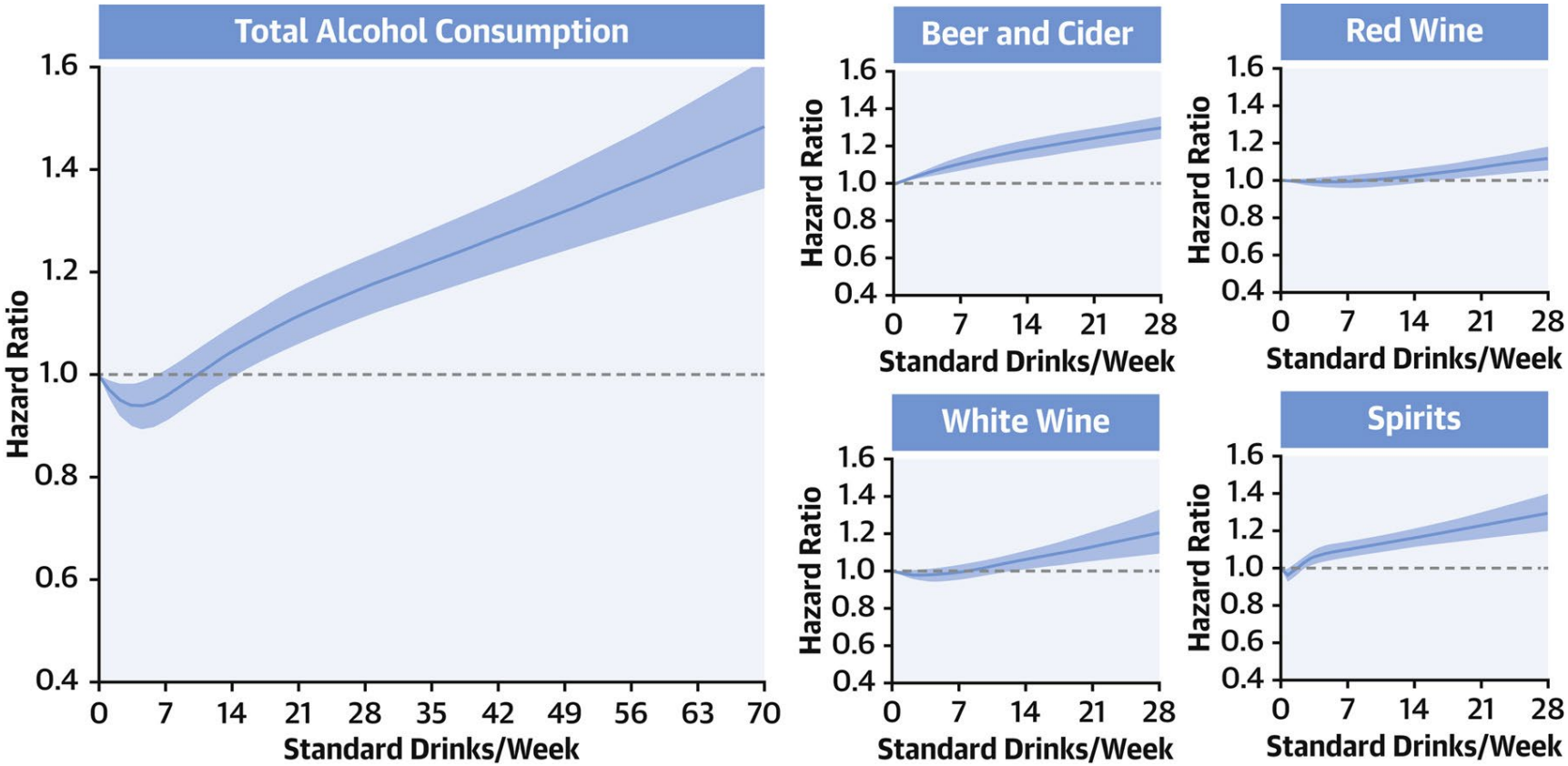


Figure 6. Kaplan-Meier curves of various lifestyle modifications.
The benefits of lifestyle and risk factor modifications on AF-free survival are evident from these Kaplan-Meier survival graphs adapted with permission from Pathak et al.[11–13] **A,** In the LEGACY study, greater freedom from AF was seen with greater degree of weight loss (WL) as a marker of overall management of risk factors. **B,** In the ARREST-AF Cohort Study, risk factor management (RFM) confers greater AF-free survival following catheter ablation procedure versus usual care. **C,** In the CARDIO-FIT study (Cardio-respiratory Fitness on Arrhythmia Recurrence in Obese Individuals With Atrial Fibrillation), gain in cardiorespiratory fitness (MET, metabolic equivalent) confers independent and incremental AF-free survival to changes in weight. AF indicates atrial fibrillation.

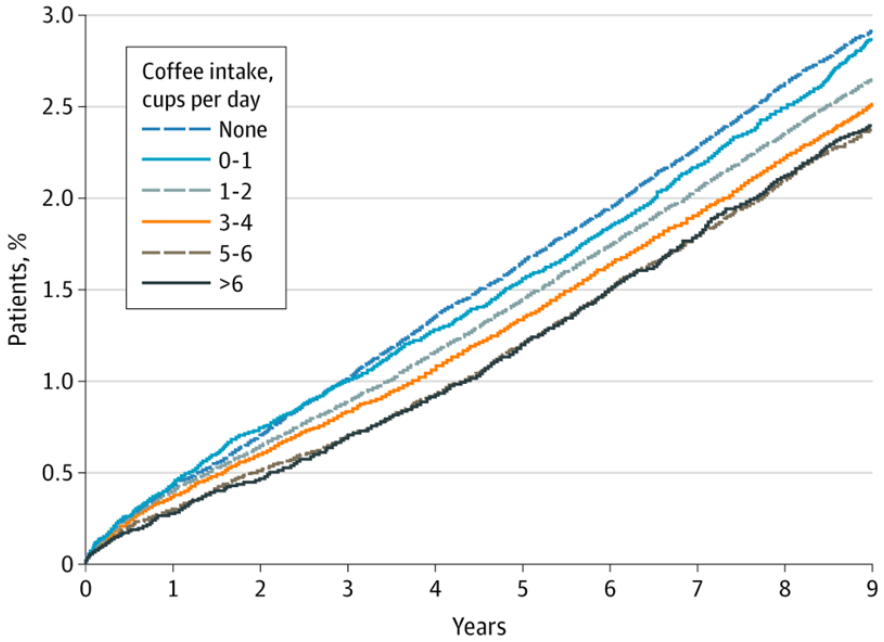
Lau et al. Circulation 2017;136:583-596.

Alcohol and Afib risk

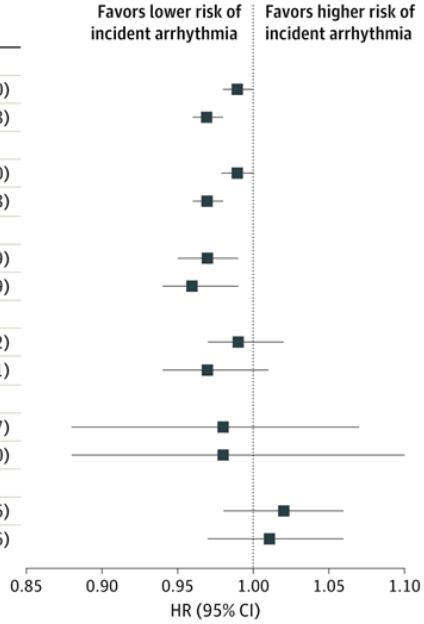


Tu et al. JACC: EP, online ahead of print

Coffee and new onset afib/arrhythmia

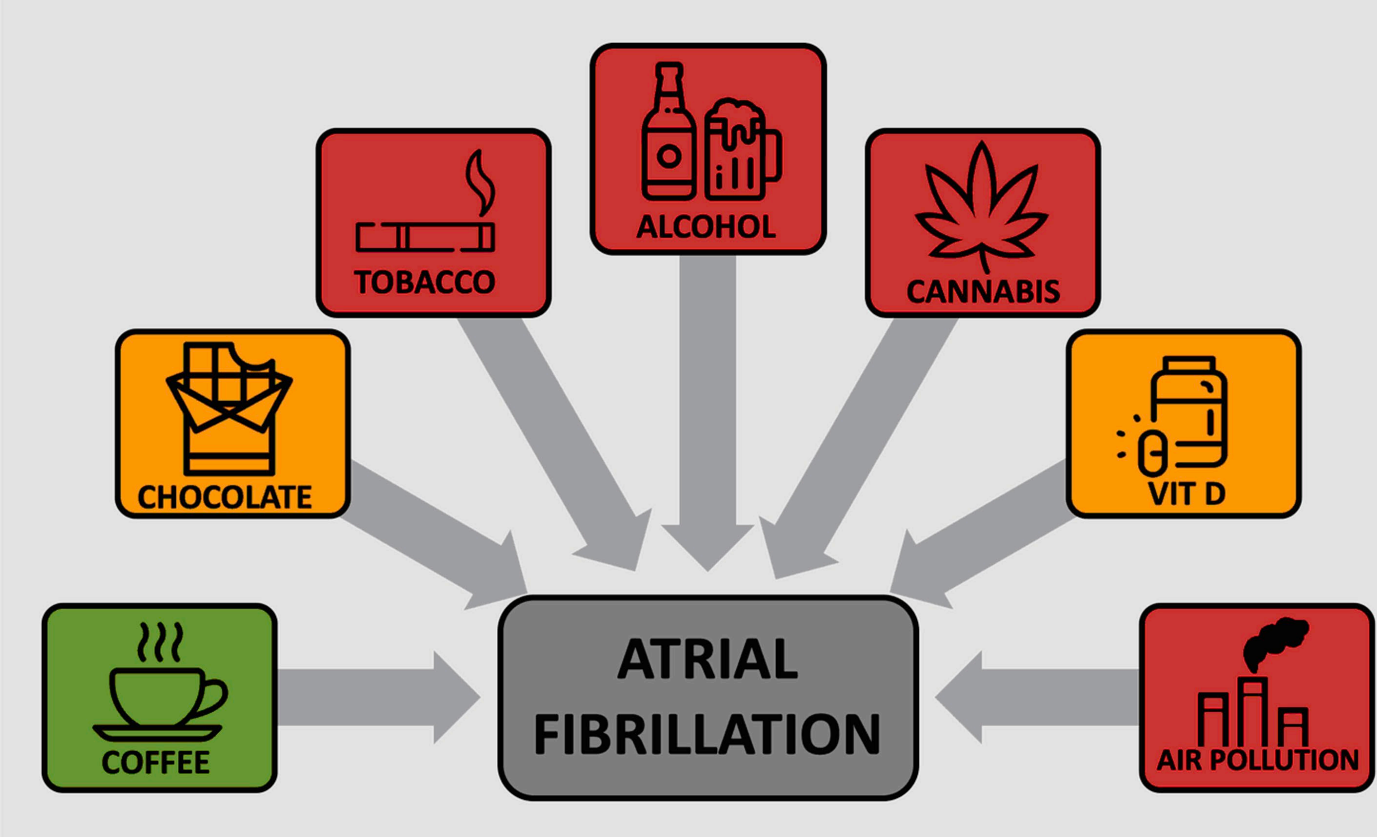


Group	HR (95% CI)	P value
All arrhythmia (n = 16 979)		
Unadjusted	0.99 (0.98-1.00)	.004
Adjusted	0.97 (0.96-0.98)	<.001
Atrial fibrillation/flutter (n = 12 811)		
Unadjusted	0.99 (0.98-1.00)	.01
Adjusted	0.97 (0.96-0.98)	<.001
Supraventricular tachycardia (n = 1920)		
Unadjusted	0.97 (0.95-0.99)	.007
Adjusted	0.96 (0.94-0.99)	.002
Ventricular tachycardia (n = 909)		
Unadjusted	0.99 (0.96-1.02)	.57
Adjusted	0.97 (0.94-1.01)	.14
Premature atrial complex (n = 97)		
Unadjusted	0.97 (0.88-1.07)	.56
Adjusted	0.98 (0.88-1.10)	.72
Premature ventricular complex (n = 632)		
Unadjusted	1.02 (0.98-1.06)	.36
Adjusted	1.01 (0.97-1.06)	.57



JAMA Intern Med. 2021;181(9):1185-1193

Social risk factors for AF



Red, evidence suggests increased AF risk; yellow, no association or more evidence is needed; and green, likely protective effect.

Cardiac Electrophysiol Clin 2021 Mar;13(1):165-172.

Pillars of AF Management

Chung et al. Circulation 2020;141:e750-e772

ACC/AHA Atrial Fibrillation Guidelines

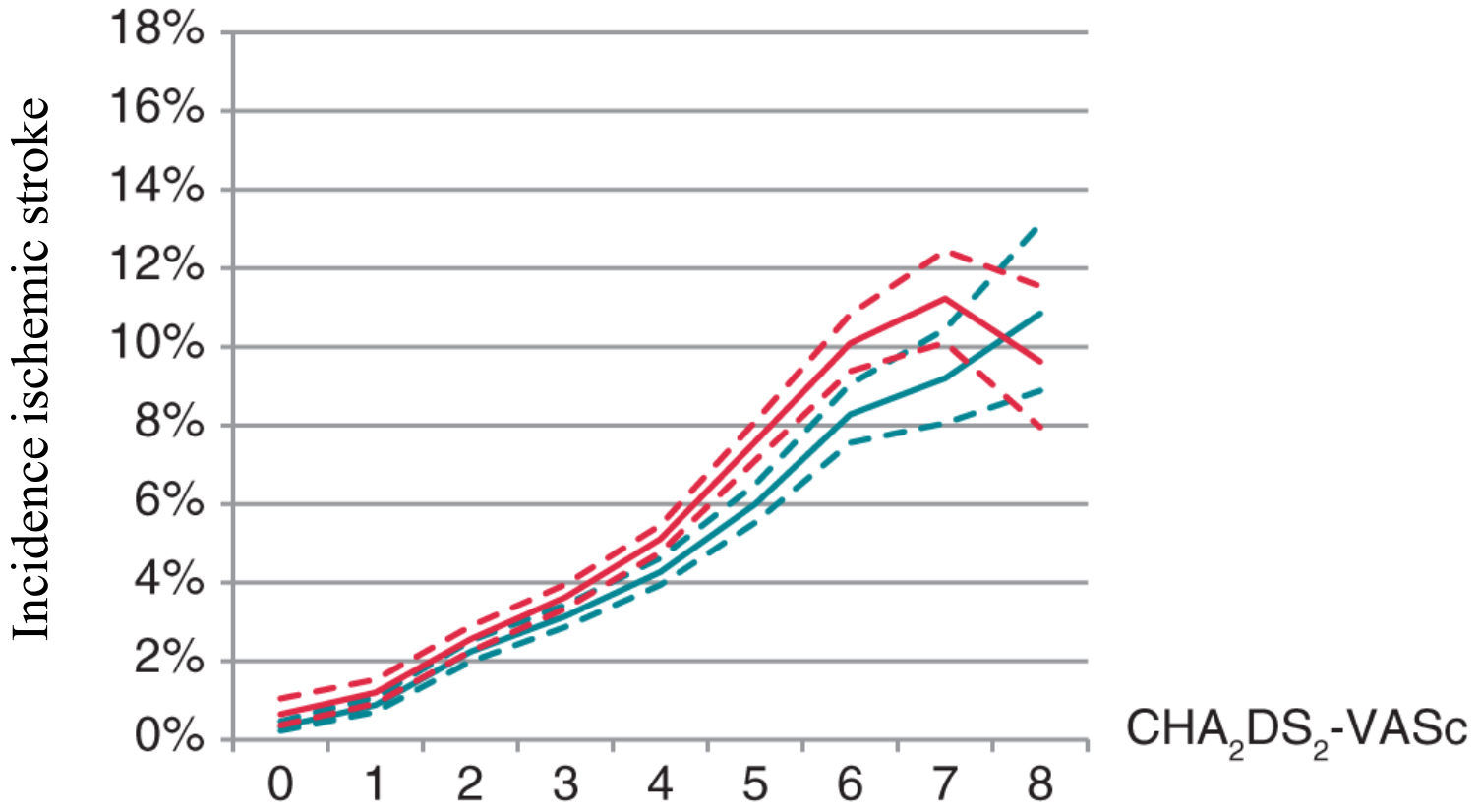
CHA_2DS_2-VAS_c score	Adjusted stroke rate (%/year)	Recommended antithrombotic therapy
0	0	ASA 75-325mg or no therapy
1	1.3	Either oral anticoagulation or ASA 75-325mg daily
2	2.2	Oral anticoagulation
3	3.2	Oral anticoagulation
4	4.0	Oral anticoagulation
5	6.7	Oral anticoagulation
6	9.8	Oral anticoagulation
7	9.6	Oral anticoagulation
8	6.7	Oral anticoagulation
9	15.2	Oral anticoagulation

January et al. JACC 2014;64:e1-e76

Little Benefit for Aspirin

Blue line represents no antithrombotic treatment, red line represents ASA

Broken lines are 95% CI.



Sjalander et al. Europace 2014;16:631-638

Back to Mary

- Start on apixaban (CHADS-VASc 3 – age, sex, HTN)
- Referred for sleep study
- Abstain from alcohol

For Mary's paroxysmal AF with heart rates of ~125 bpm, what would you do next:

A) Prescribe metoprolol, titrate to resting heart rate in AF < 80 bpm
B) Prescribe diltiazem, titrate to resting heart rate < 110 bpm
C) Refer to cardiology for rhythm control

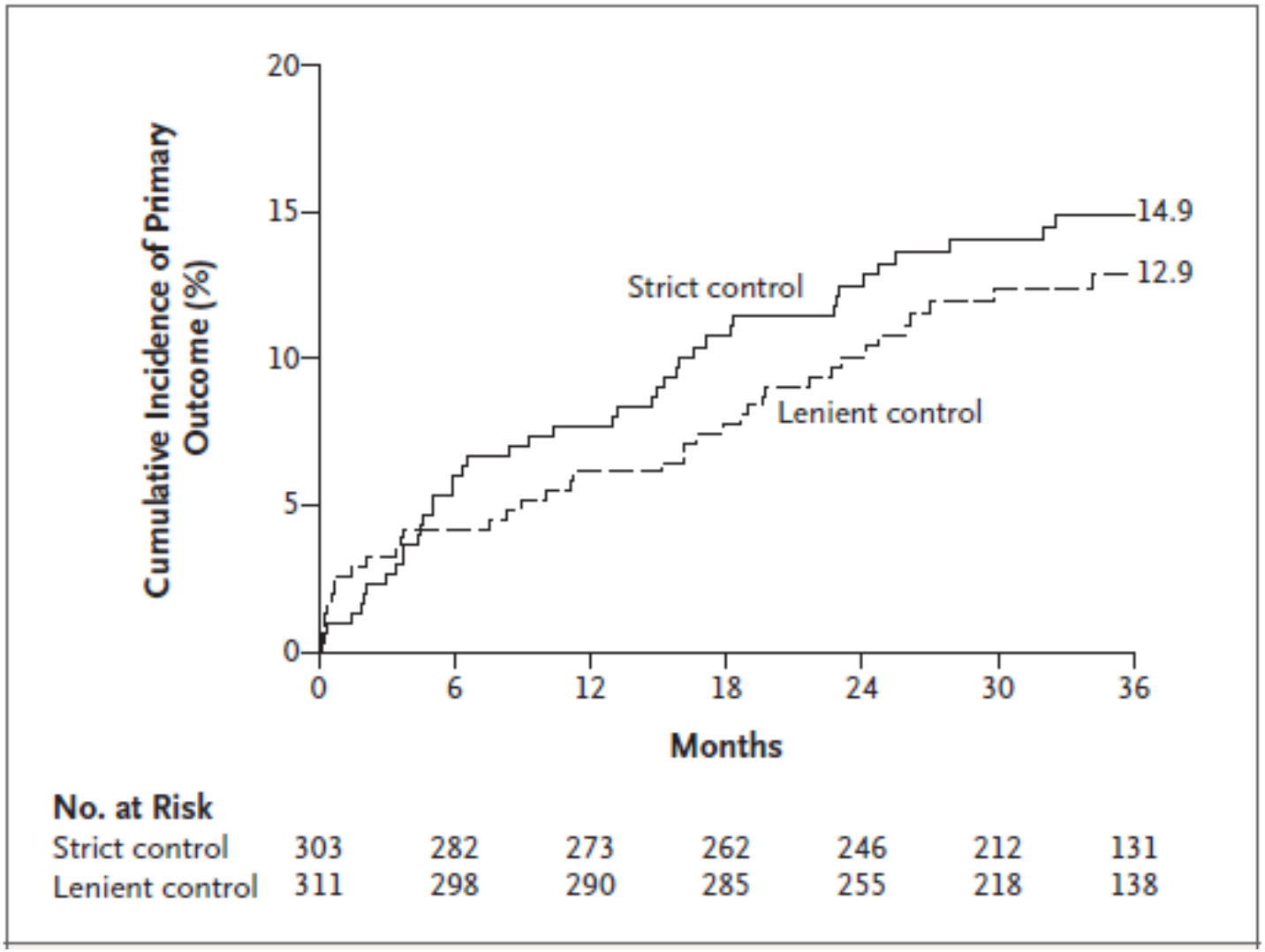
RATE CONTROL

RACE II

- Goal heart rate <80 beats/min vs <110 beats/min
- Permanent AF
- Primary outcome composite
  - Death from cardiovascular causes
  - Hospitalization for heart failure
  - Stroke or systemic embolism
  - Major bleeding
  - Arrhythmic events including syncope or VT
  - Implantation of pacemaker or ICD

Van Gelder et al. NEJM 2010;362:1363-1373

RACE II



Van Gelder, et al. *NEJM*. 2010;362:1363-1373.

Treatment Options

- First line
  - Diltiazem or verapamil
  - β blockers (i.e., metoprolol, atenolol, carvedilol)
- Digoxin as adjunct only, and then rarely
  - May use if heart failure also
- Amiodarone: rarely for rate control
- AV node ablation and pacing
- Do NOT use dronedarone for rate control

Wann LS, et al. *Circulation*. 2011;123:104-123.

Mary

- Three month follow up
- Titrated up to metoprolol XL 50 mg daily
- BP 114/70
- OSA on CPAP
- No EtOH
- Exercising 150 minutes per week
- Sinus 55 beats/min
- AF 70-100 beats/min
- Still symptomatic

AF Management

What would your next step be in this patient with symptomatic paroxysmal atrial fibrillation despite rate control?

A. Start flecainide 100mg BID
B. Start sotalol 80mg BID as outpatient
C. Start amiodarone
D. Start digoxin
E. Refer to electrophysiology

In whom do I use rhythm control?

- Symptomatic patients even with good HR
  - Likely undertreated population
- Tachy-brady syndrome
- HF patients, especially if precipitated by AF
- Younger patients

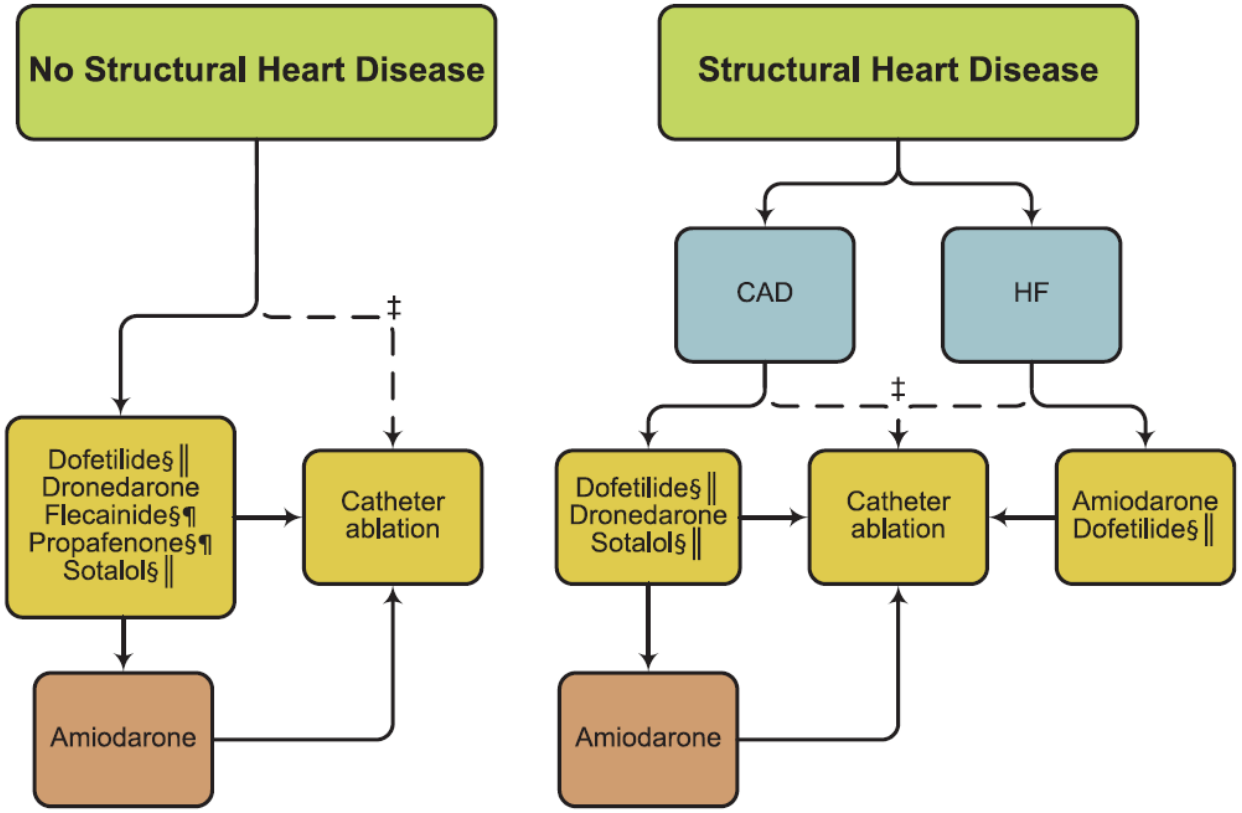


FIGURE 7 **Strategies for Rhythm Control in Patients With Paroxysmal* and Persistent AF†**

*Catheter ablation is only recommended as first-line therapy for patients with paroxysmal AF (Class IIa recommendation).

†Drugs are listed alphabetically.

‡Depending on patient preference when performed in experienced centers.

§Not recommended with severe LVH (wall thickness >1.5 cm).

‖Should be used with caution in patients at risk for torsades de pointes ventricular tachycardia.

¶Should be combined with AV nodal blocking agents.

AF indicates atrial fibrillation; AV, atrioventricular; CAD, coronary artery disease; HF, heart failure; and LVH, left ventricular hypertrophy.

January et al. JACC 2014:64:e1-e76.

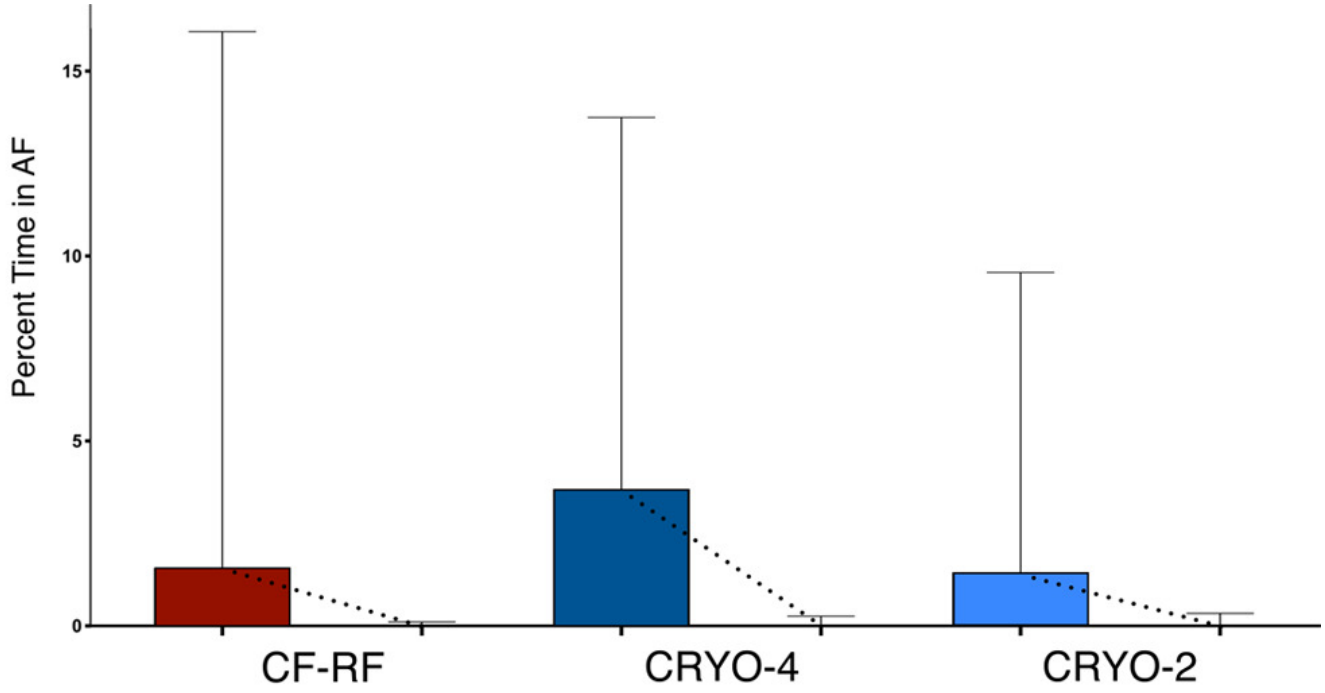
Mary

- Metoprolol discontinued
- Sotalol 120 mg BID

- 6 month follow up
  - Doing a little better
  - BP 124/82
  - But still having symptomatic episodes

ATRIAL FIBRILLATION ABLATION

CIRCA DOSE-Burden of Afib



	CF-RF		CRYO-4		CRYO-2	
	Pre	Post	Pre	Post	Pre	Post
AF Burden median (IQR)	1.57 (0.08, 16.09)	0.00 (0.00, 0.11)	3.71 (0.22, 13.78)	0.00 (0.00, 0.24)	1.46 (0.09, 9.17)	0.01 (0.00, 0.34)
Median reduction in AF burden compared to baseline	99.34% (67.76, 100.00)		99.93% (65.31, 100.00)		98.40% (56.24, 100.00)	

Andrade et al. Circulation 2019;140:1779-1788

CONCLUSIONS

Conclusions

- Lifestyle modification
- Goal HR<110 beats/min (if asymptomatic)
- Rhythm control if symptomatic
- Catheter ablation earlier
- Afib isn't just a binary outcome
  - Burden is important too!