



PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

ROMA

Centro Congressi
di Confindustria
Auditorium
della Tecnica

9^a Edizione

30 Settembre
1 Ottobre
2022

Aritmologia clinica e interventistica

**LA FIBRILLAZIONE NON E' MAI DA SOLA:
LA GESTIONE COMPLESSIVA DEL PZ. CON
FIBRILLAZIONE ATRIALE**

Caponi Domenico



Atrial fibrillation



Chaotic Rhythm





Epidemiology of AF: facts

>33 million:

#of people affected worldwide

=5million:

new cases per year worldwide

=2.7-6.1 million:

of people affected in US

=12.1-15.9 million:

estimated to be affected in US by 2050

37%:

lifetime risk of AF in people >55y of age

\$26 billion:

estimated increase in annual healthcare costs from AF in US from \$6 billion

**0,5%-9,3%:
per year:**

stroke risk in pts with AF lifetime risk of AF in people >55y of age



Epidemiology of AF: facts

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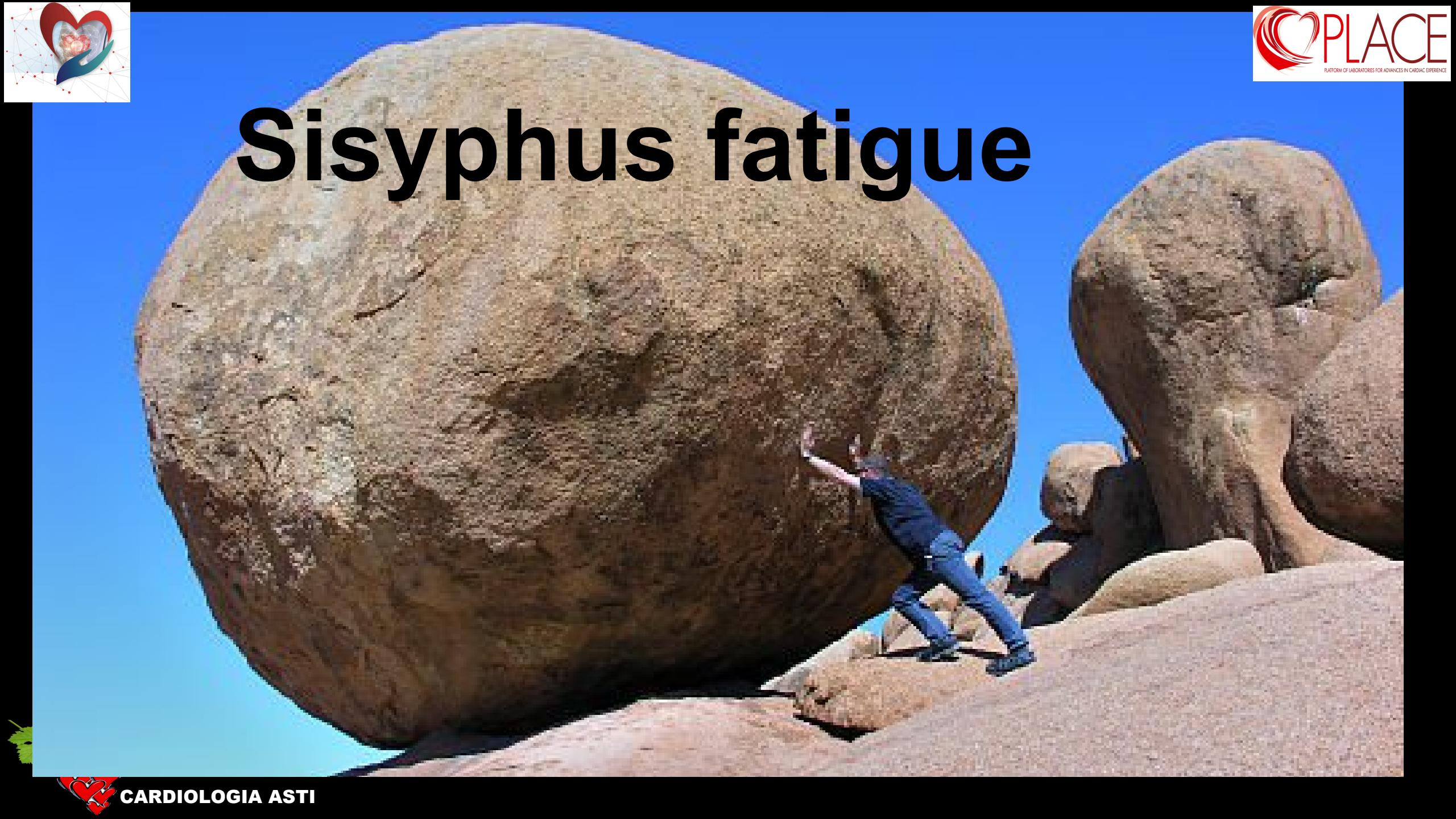
37%: lifetime risk of AF in people >55y of age

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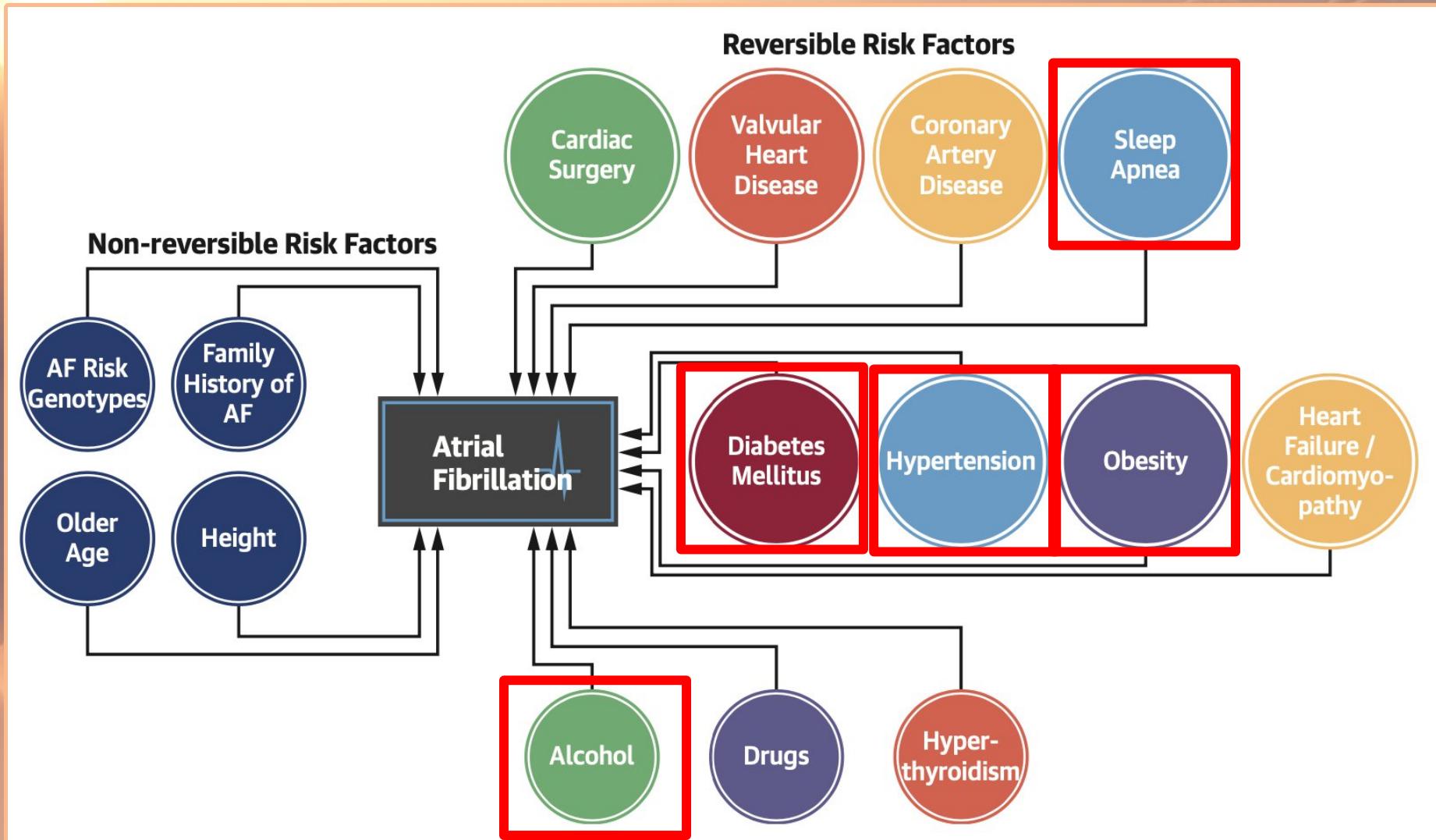


Sisyphus fatigue

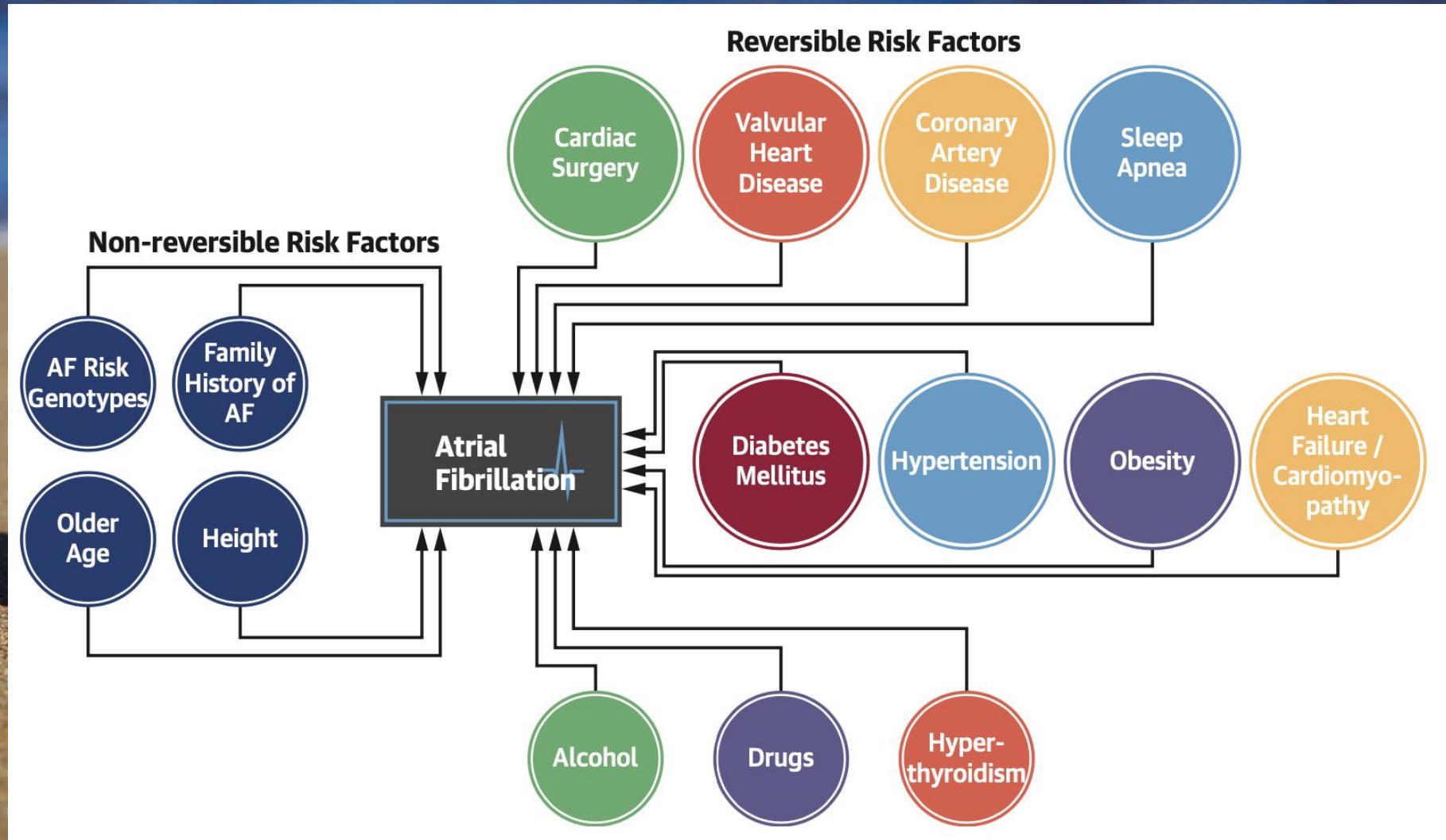




A Fib never comes alone

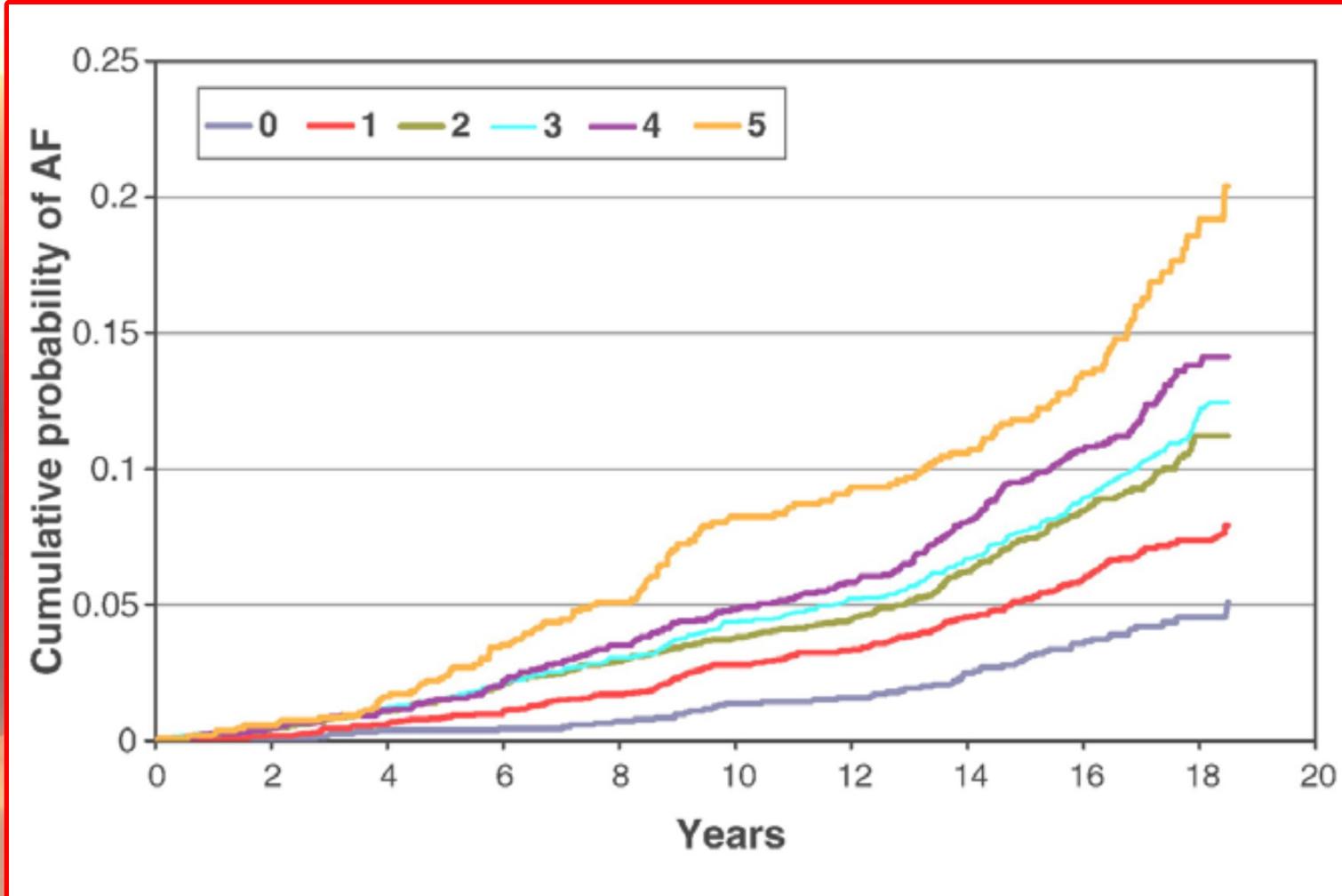


A Fib never comes alone





A Fib never comes alone



Chamberlain AM et al: Metabolic syndrome and incidence of atrial fibrillation among black and whites in the ARIC study Am Heart J 159; 850-856



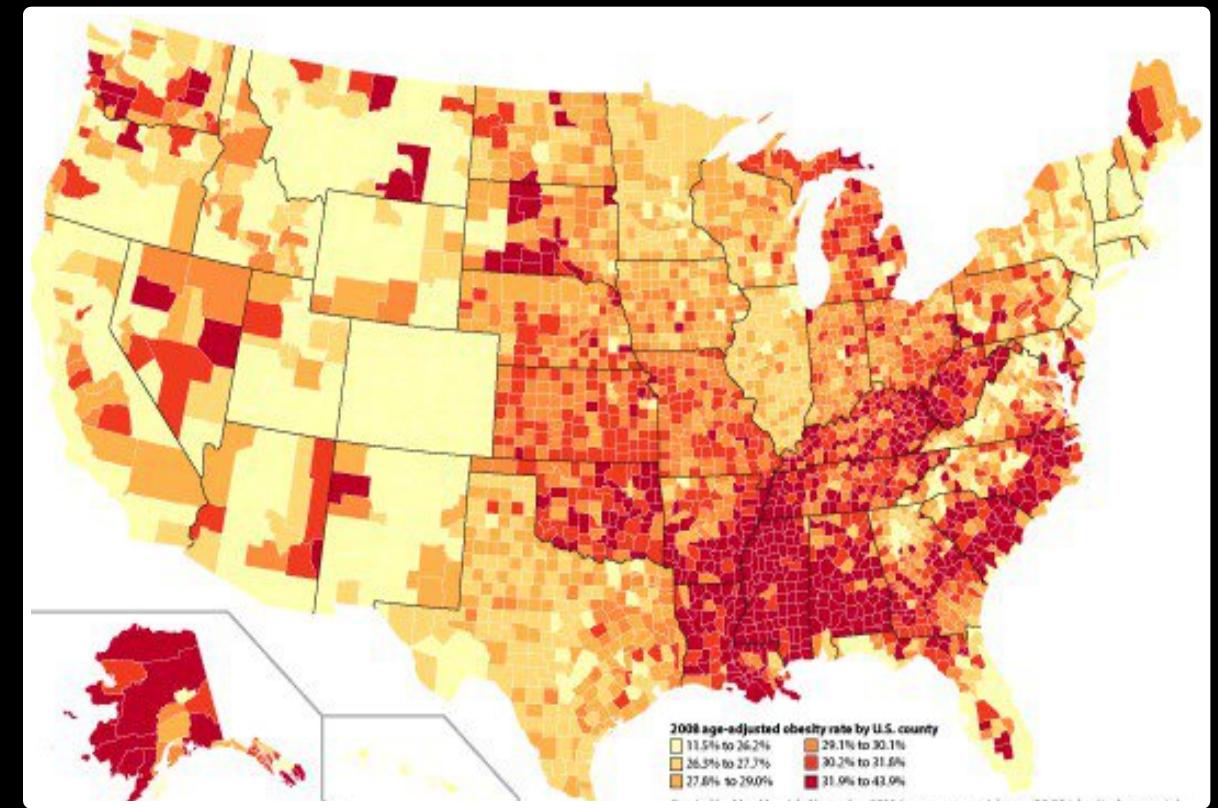
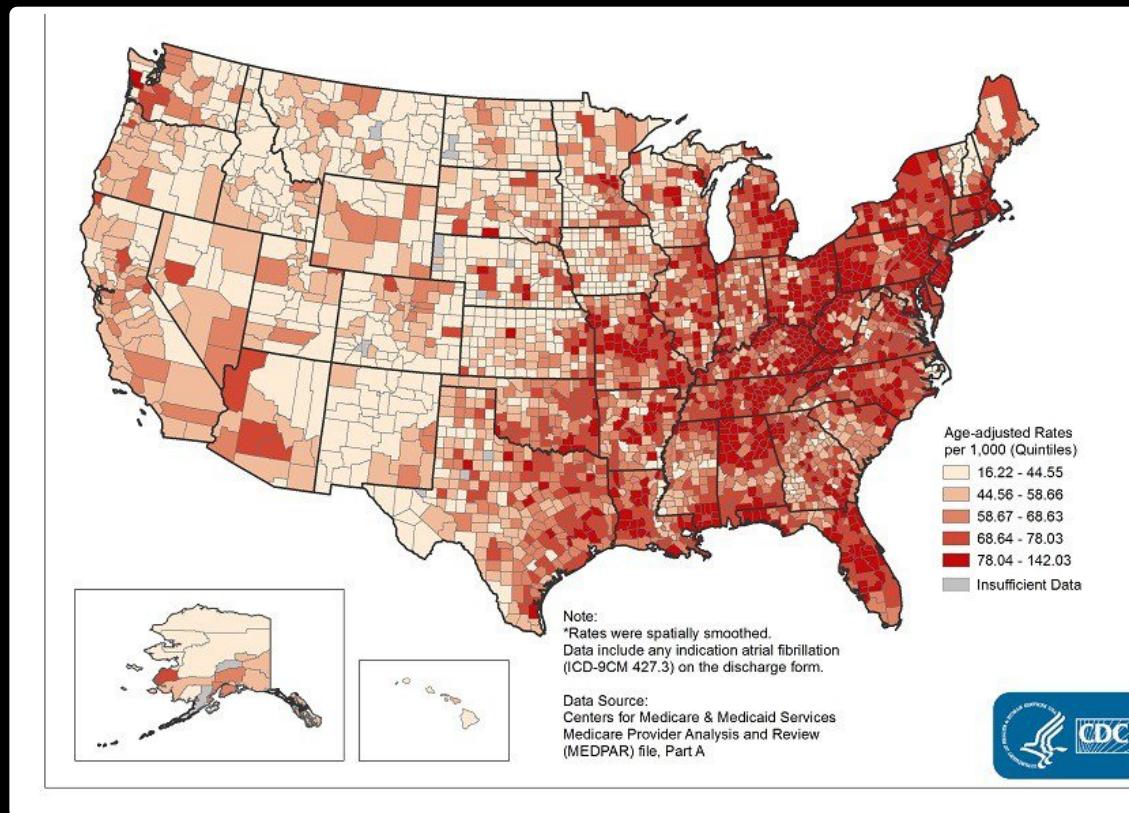


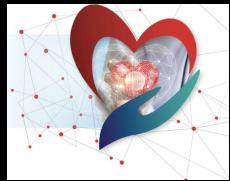
AF and obesity





Atrial fibrillation and Obesity in US

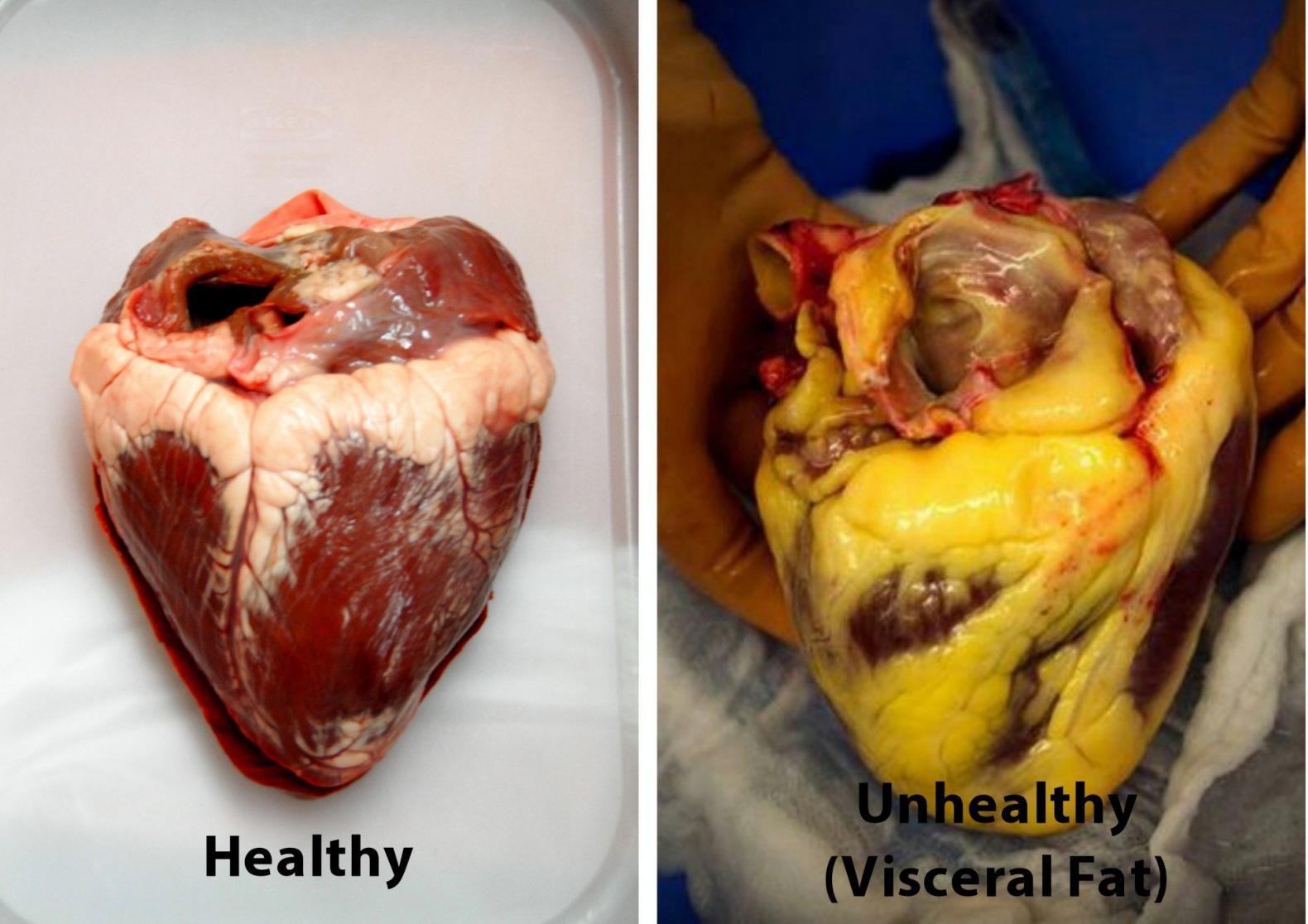
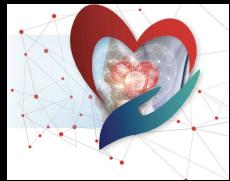




Atrial fibrillation and Obesity

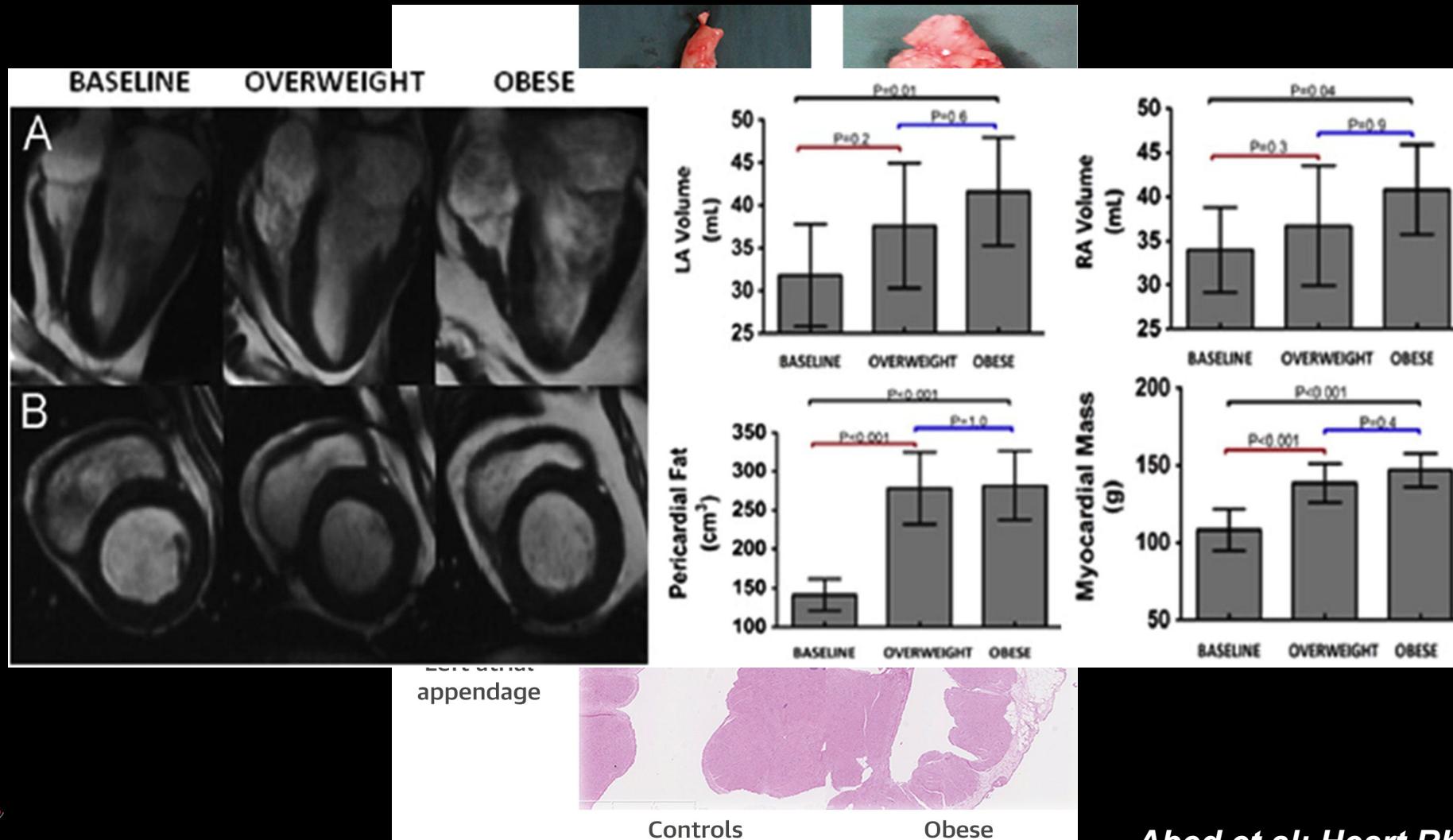
Epidemiological correlation

Wong	5282 pts (55% female) 58±13 yrs	Framingham Cohort Study- Prospective cohort study F/up 13.7 yrs	BMI independently associated with AF in men (1.52) e women (1.46)
Frost	47 589 pts (53% female) mean age 56 yrs	Danish Diet, Cancer and Health study Prospective community cohort study F/up 5.7 yrs	BMI independently associated with AF in men (1.08) e women (1.06)
Tedrow	34309 pts(100% female) 55±7yrs	Women's Health study Prospective community cohort study F/up 12.9 yrs±1.9yrs	BMI was associated with increased AF risk (1.36)
Huxley	14598 pts (55% female) 54±6yrs	ARIC study Prospective community cohort study F/up 17.1yrs	17.1% of incident AF was attributable to overweight or obesity
Karasoy	271203 pts (100% female) 31±5yrs	Young women that gave birth. Retrospective National registry F/up 4.6 yrs	Obesity independent predictor of AF (1.07)
Knulman	4267 pts (56% female) 52±15 yrs	The Busselton Health Study Prospective community cohort study F/up 15yrs	BMI was independently associated with AF (1.34 per 4.2Kg/mq)
Tsang	3248 pts (46% female) 71±15 yrs	Pts with PAF Prospective community cohort study F/up 6 yrs	BMI independently predicted the progression of PAF to permanent AF
Sandhu	34720 pts (100% female) Age >45yrs	Women's Health StudyProspective community cohort study F/up 16.4 yrs	BMI and weight strongly associated with development of AF





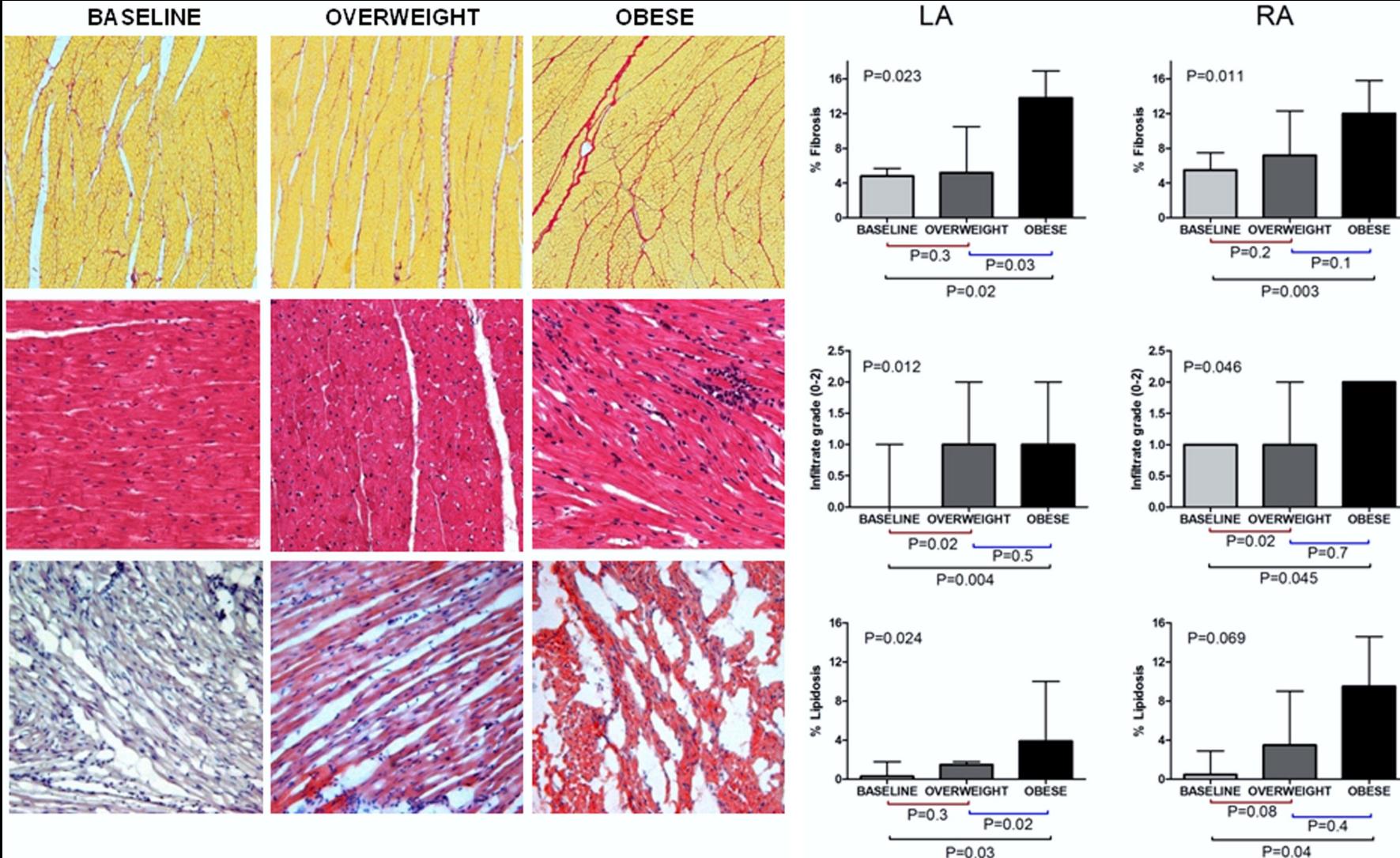
Obesity results in progressive atrial structural and electrical remodeling



Abed et al: Heart Rhythm 2013; 10: 90-100

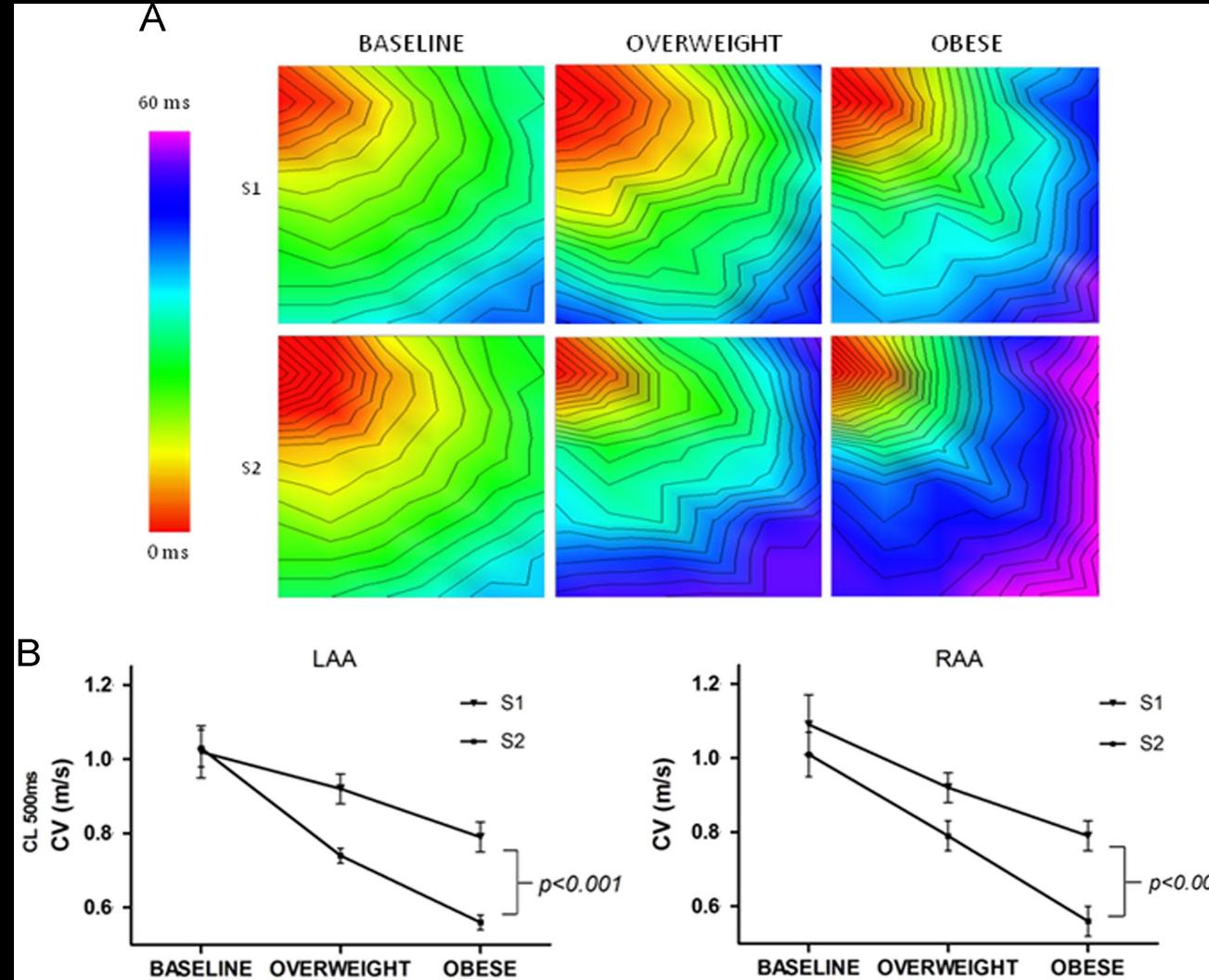


Obesity results in progressive atrial structural and electrical remodeling



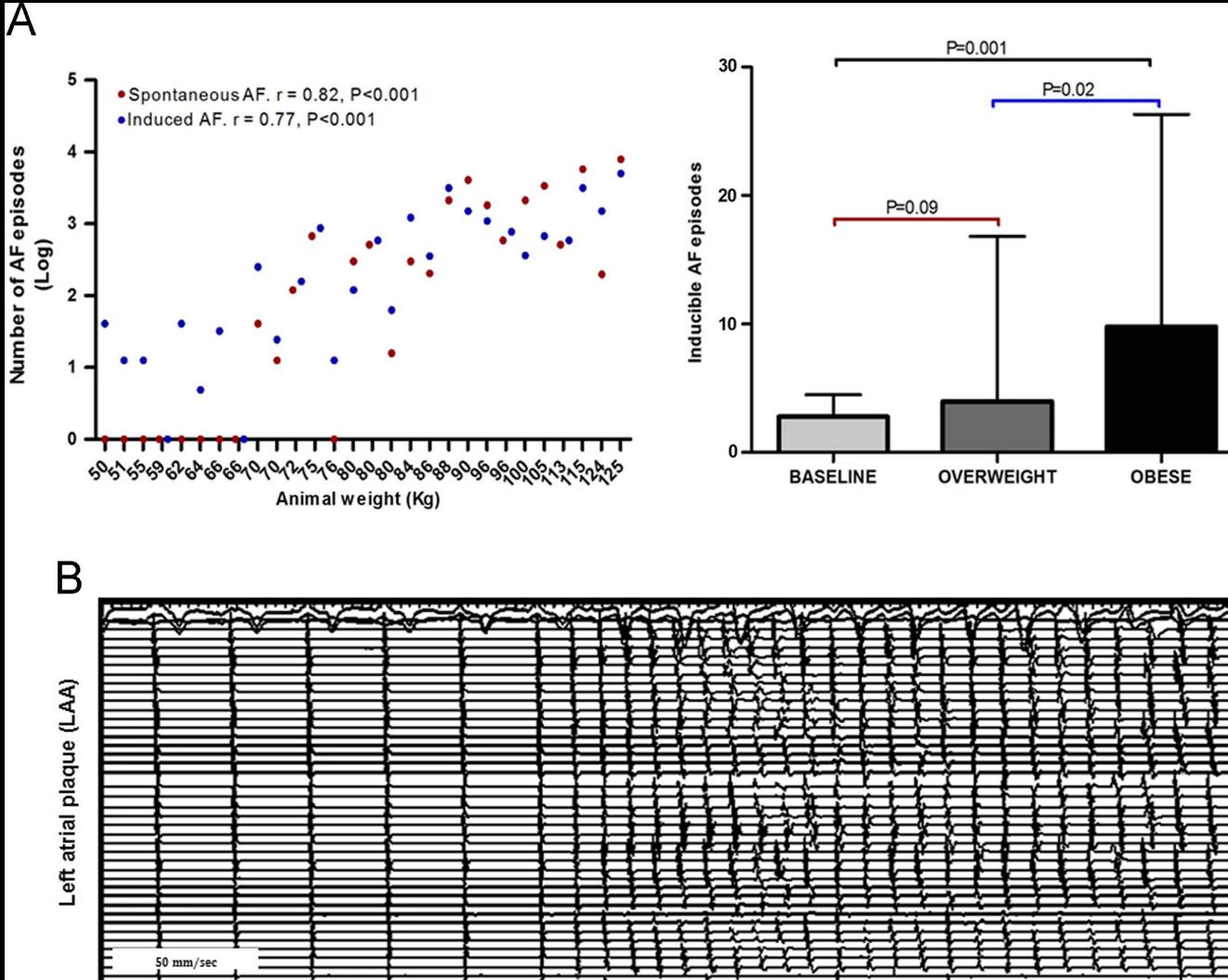


Obesity results in progressive atrial structural and electrical remodeling





Obesity results in progressive atrial structural and electrical remodeling



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Hypertension is a major contributor to AF risk





Hypertension is a major contributor to AF risk

Explains 20-25%
of AF cases





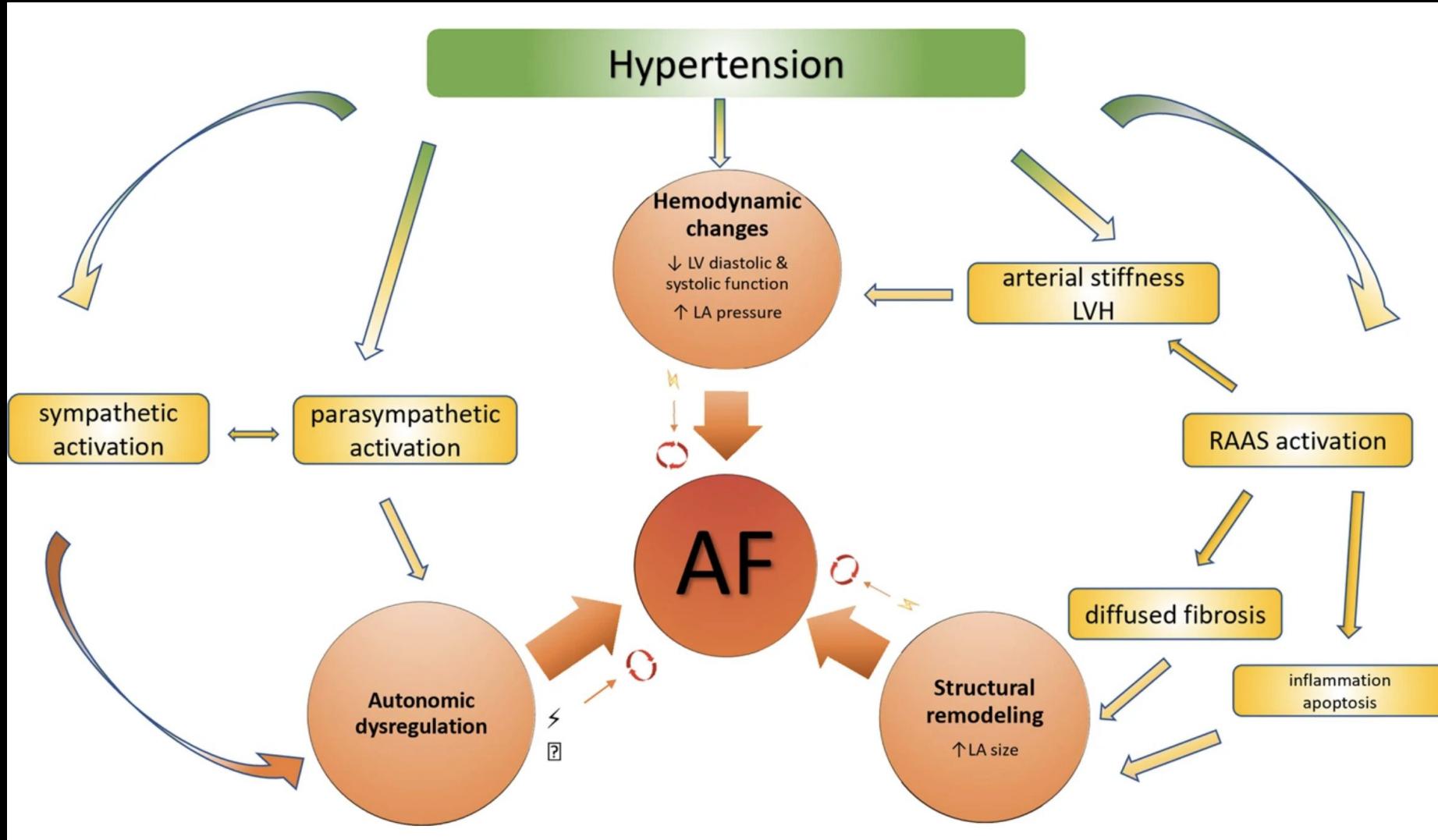
Hypertension and A Fib epidemiological evidence

Reference	Study type	F/up	Population	AF cases	End-point	Adjusted HR
Multi-ethnic Study of atherosclerosis	Prospective cohort study	5.3 yrs	5311	182	BP <120/80mmHg	1.8 for BP 120-139/80-89 and BP>140/90mmHg or antihypertensive use
WHS	Prospective cohort study	12.4 yrs	34,221	644	BP <120/80mmHg	1.28 for SBP 130-139mmHg 1.53 for DBP 85-89 mmHG
Cohort of healthy Norwegian men	Prospective cohort study	35 yrs	2,014	270	BP <120/80mmHg	1.98 for SBP 128-138 mmHg 1.67 for DBP 80-86 mmHg
Cardiovascular Health study	Prospective cohort study	3.28 yrs	4884	304	SBP per 10mmHg increment	1.11
Cardio-Sis	Open-label randomized trial, non diabetic pts with SBP>150mmHg	2.0	1,111	137	Usual control BP SBP<140mmHg	0.50 for tight BP control
FHS	Prospective cohort study	12	5331	698	Pulse pressure per 20mmHg increment	1.26
LIFE study	Randomized trial	4.9	8,810	353	Pulse pressure per 15.5mmHg increment	1.39
Multi-ethnic Study of atherosclerosis	Prospective cohort study	4.9	3,441	307	Pulse pressure per 17.2mmHg increment	1.29



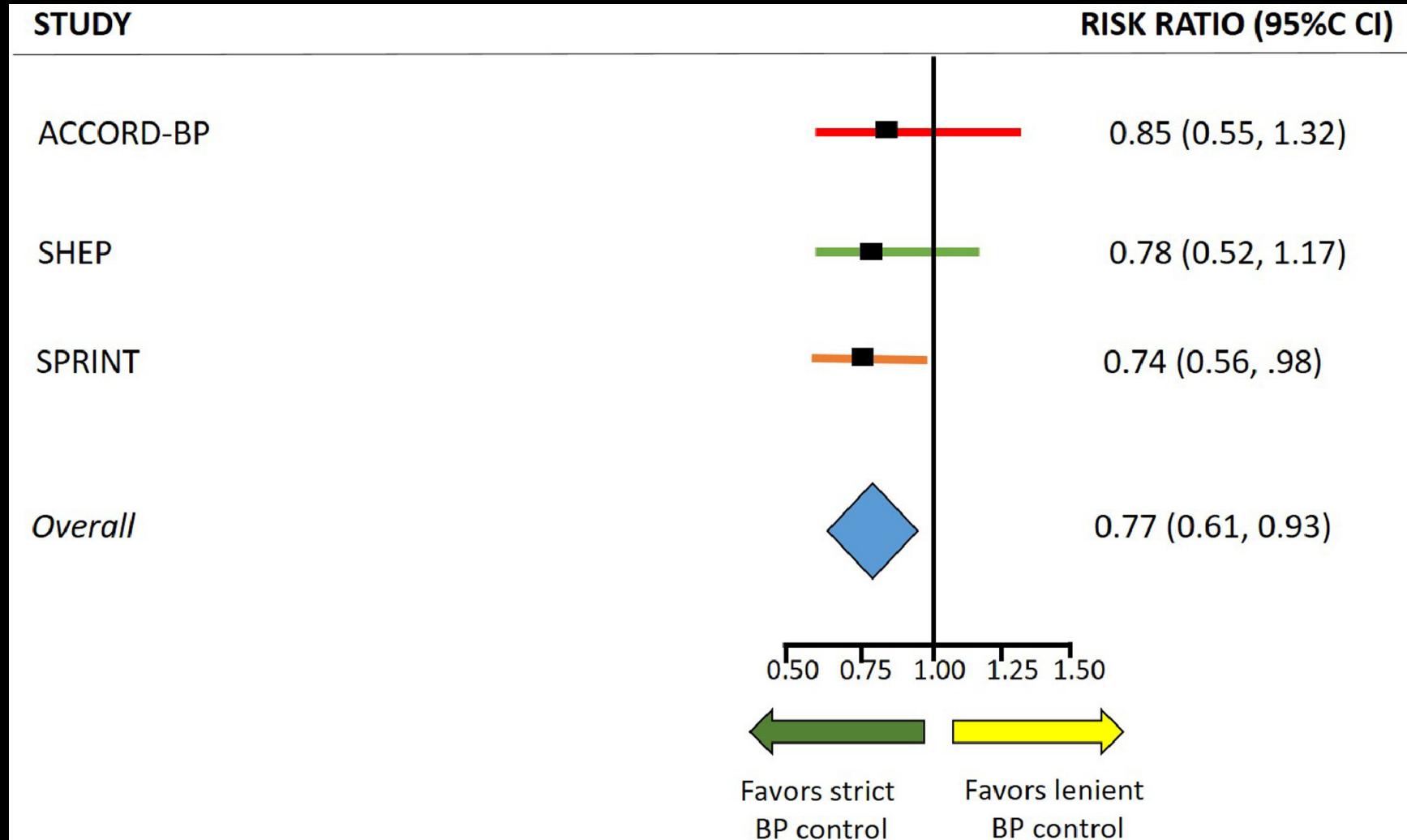


Hypertension and AFib





Intensive antihypertensive treatment and atrial fibrillation



Soliman Ezet al: Effect of intensive blood pressure lowering on the risk of atrial fibrillation. Hypertension 2020; 75: 1491-1496

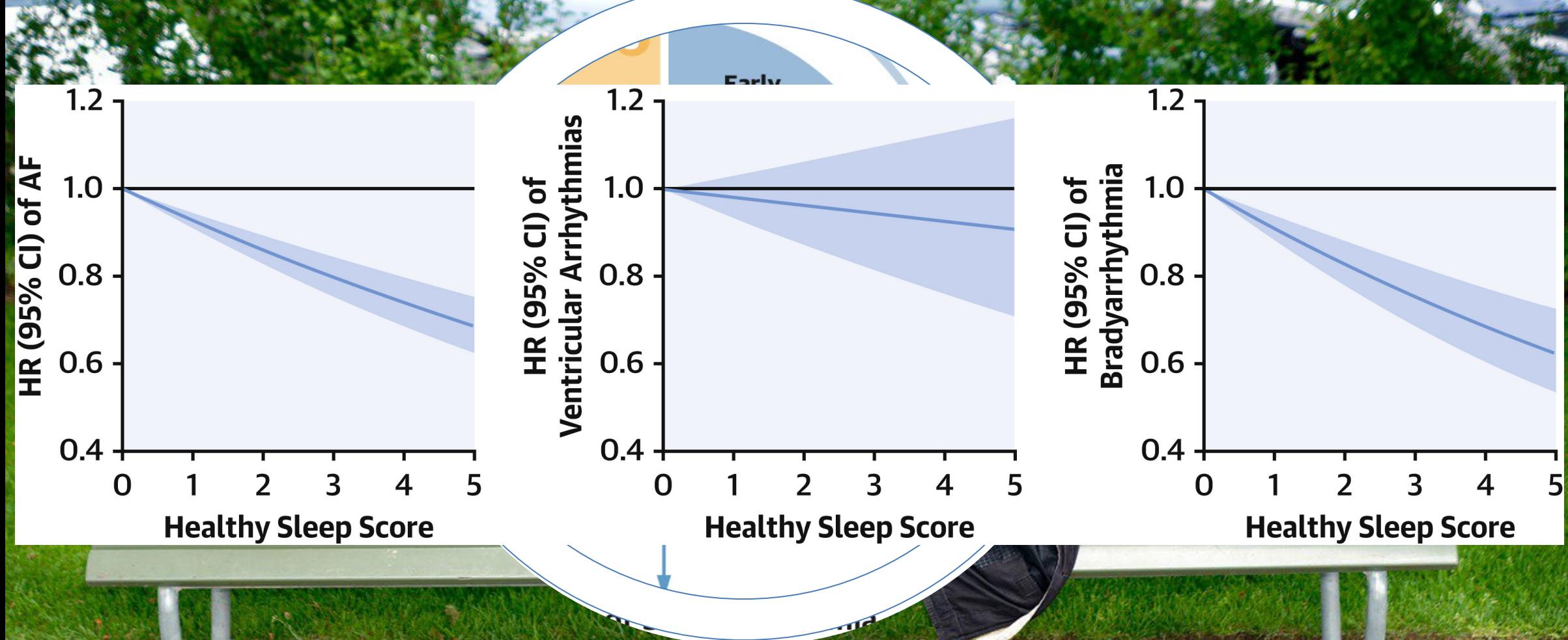


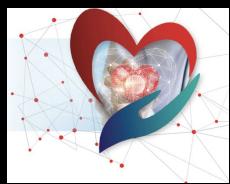
A Fib and sleep disturbances





Sleep patterns and arrhythmias



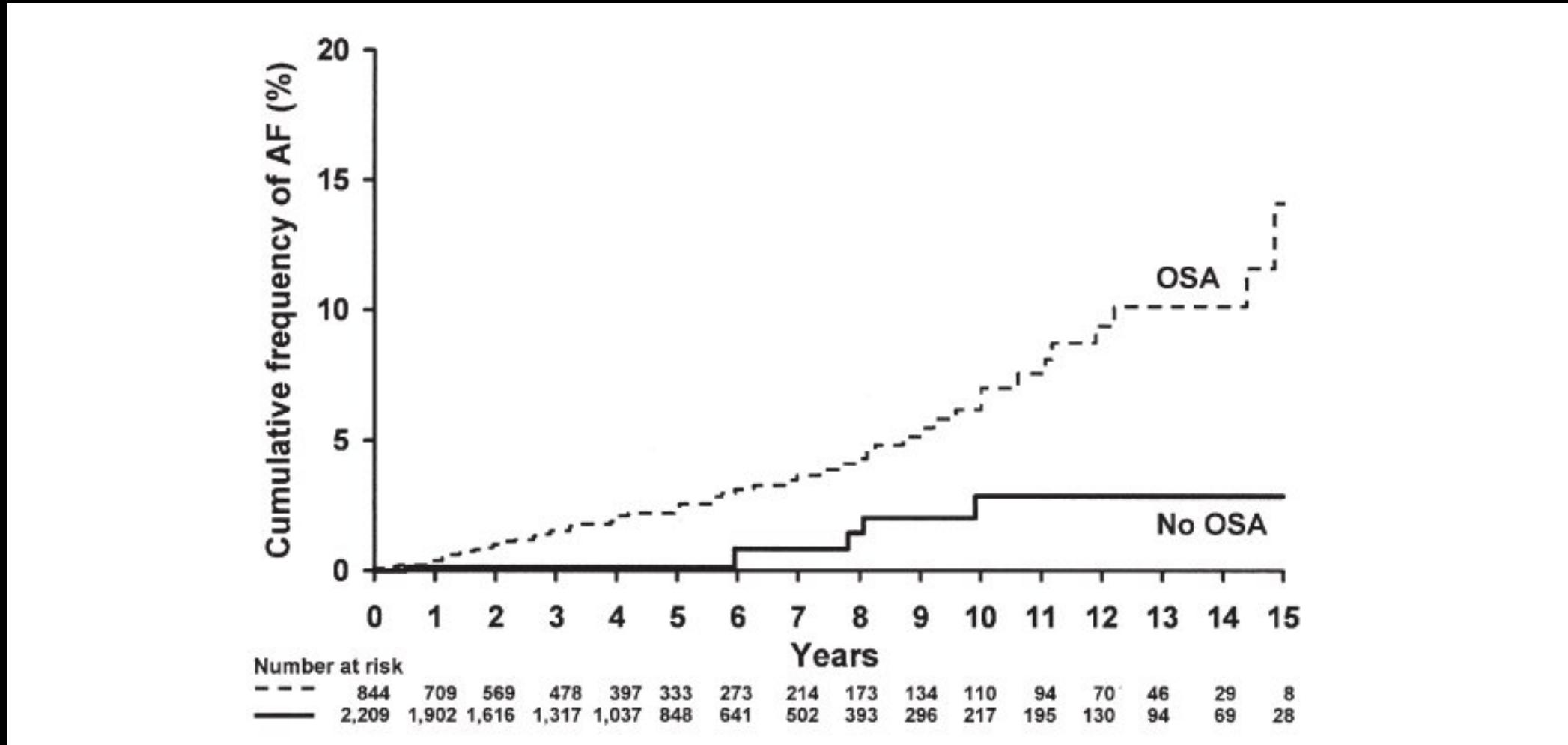


OSAS is commonly associated with obesity and has a prevalence 40-50% AF population

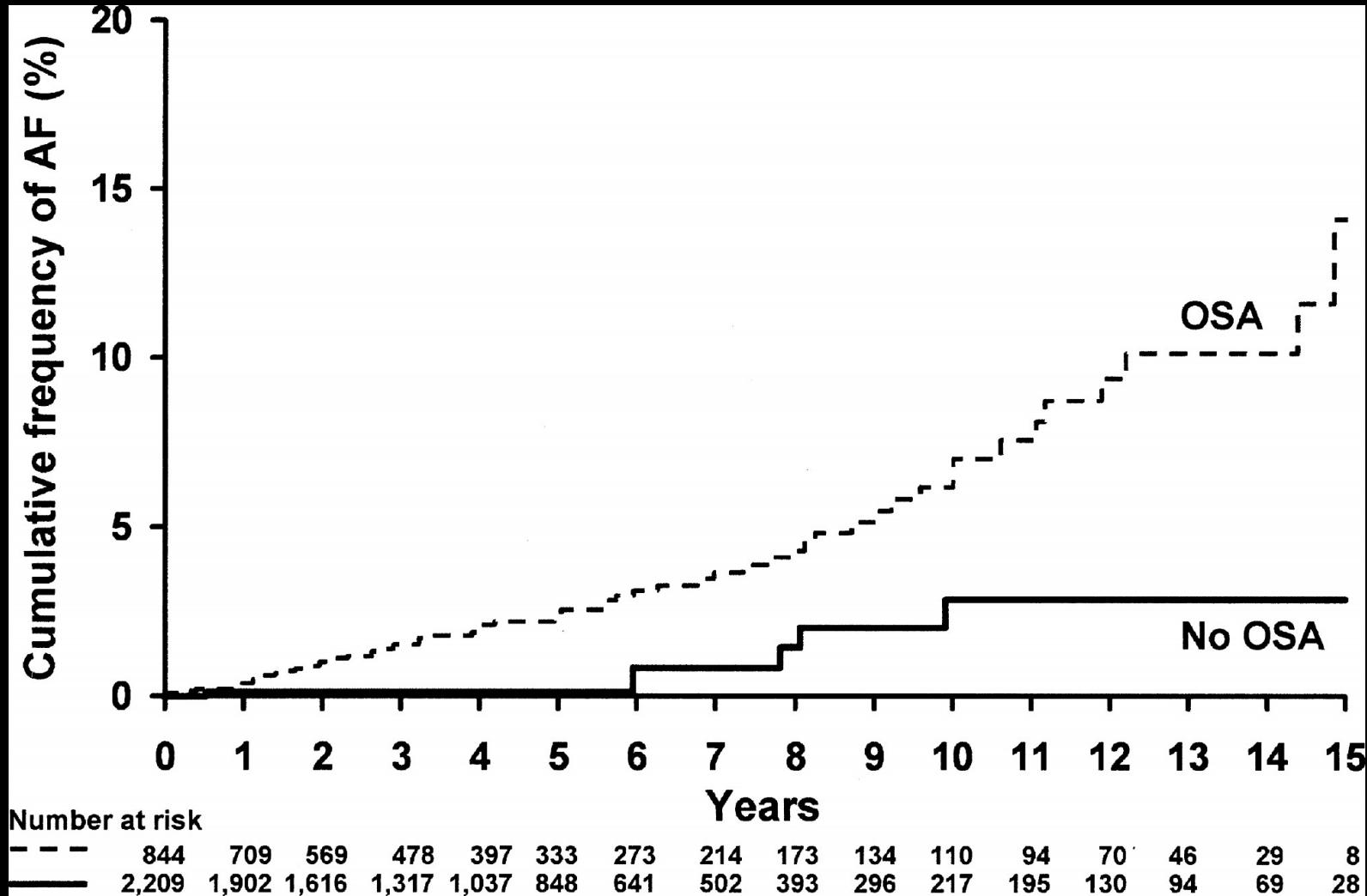




A Fib and sleep disturbance



A Fib and sleep disturbance

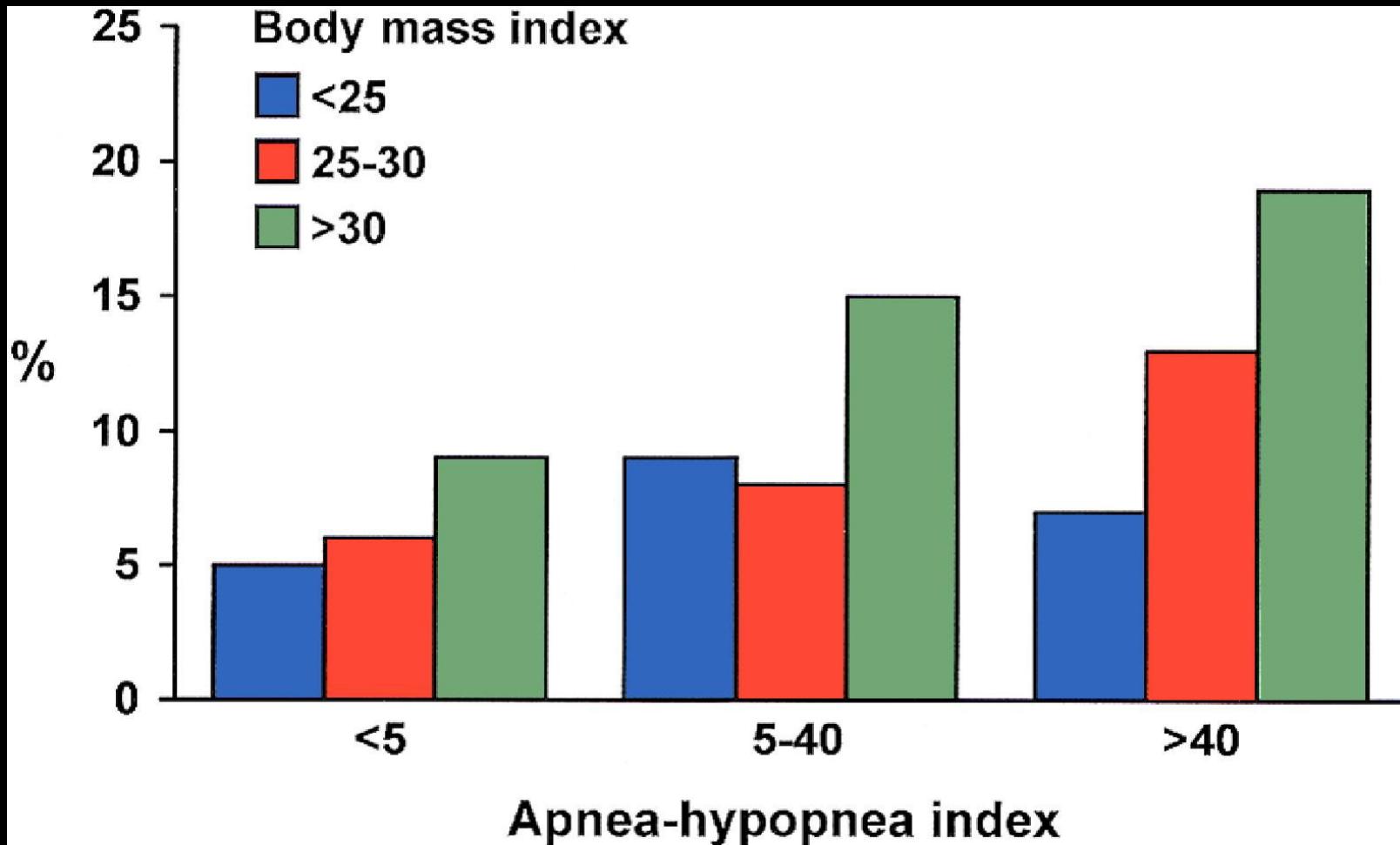


Obstructive Sleep Apnea, Obesity, and the Risk of Incident Atrial Fibrillation
JACC 2007; 49 (5):565-571



A Fib and sleep disturbance

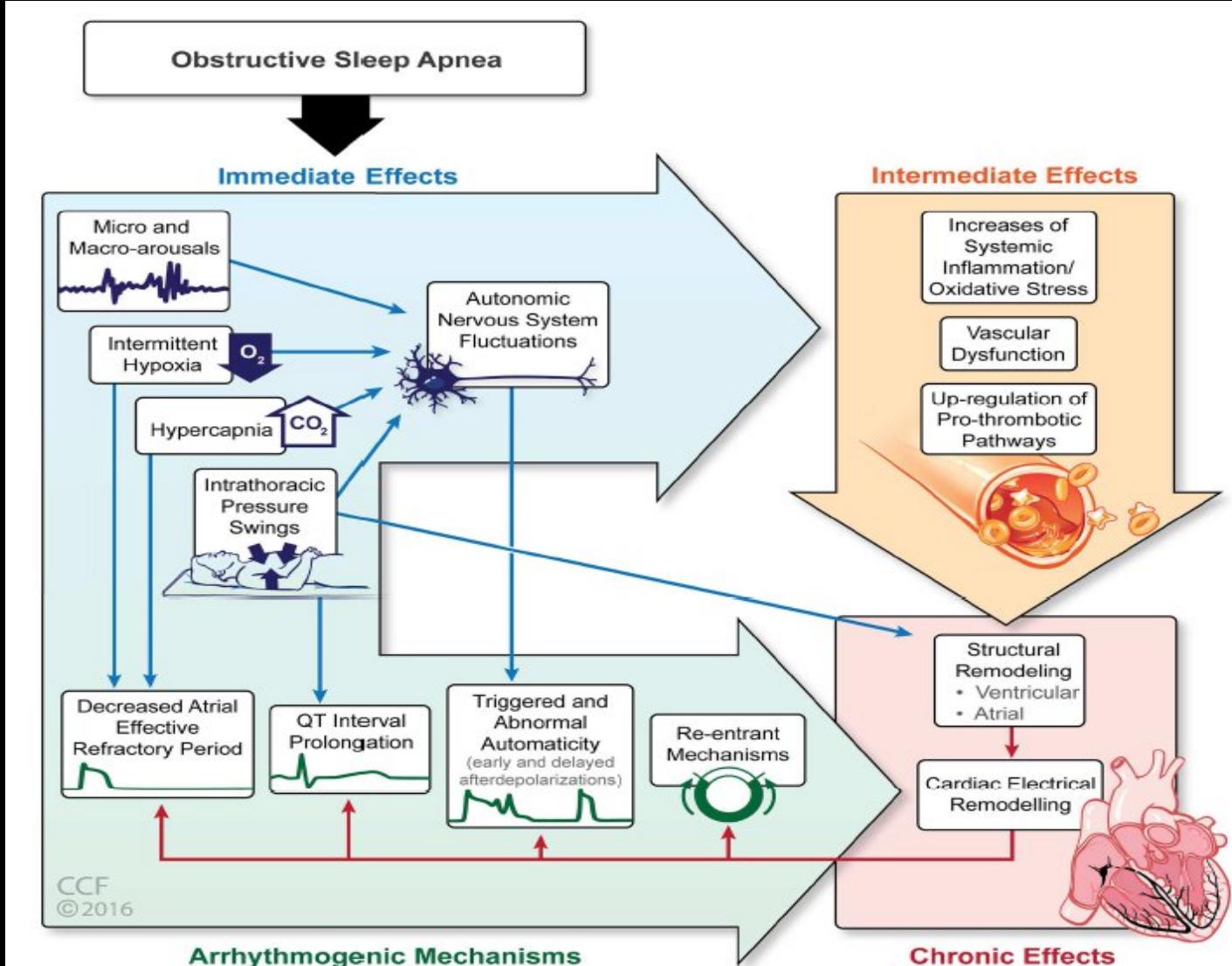
Incidence of Afib based on the severity of OSA and obesity



Gami et al: Obstructive Sleep Apnea, Obesity, and the Risk of Incident Atrial Fibrillation JACC 2007; 49 (5):565-571

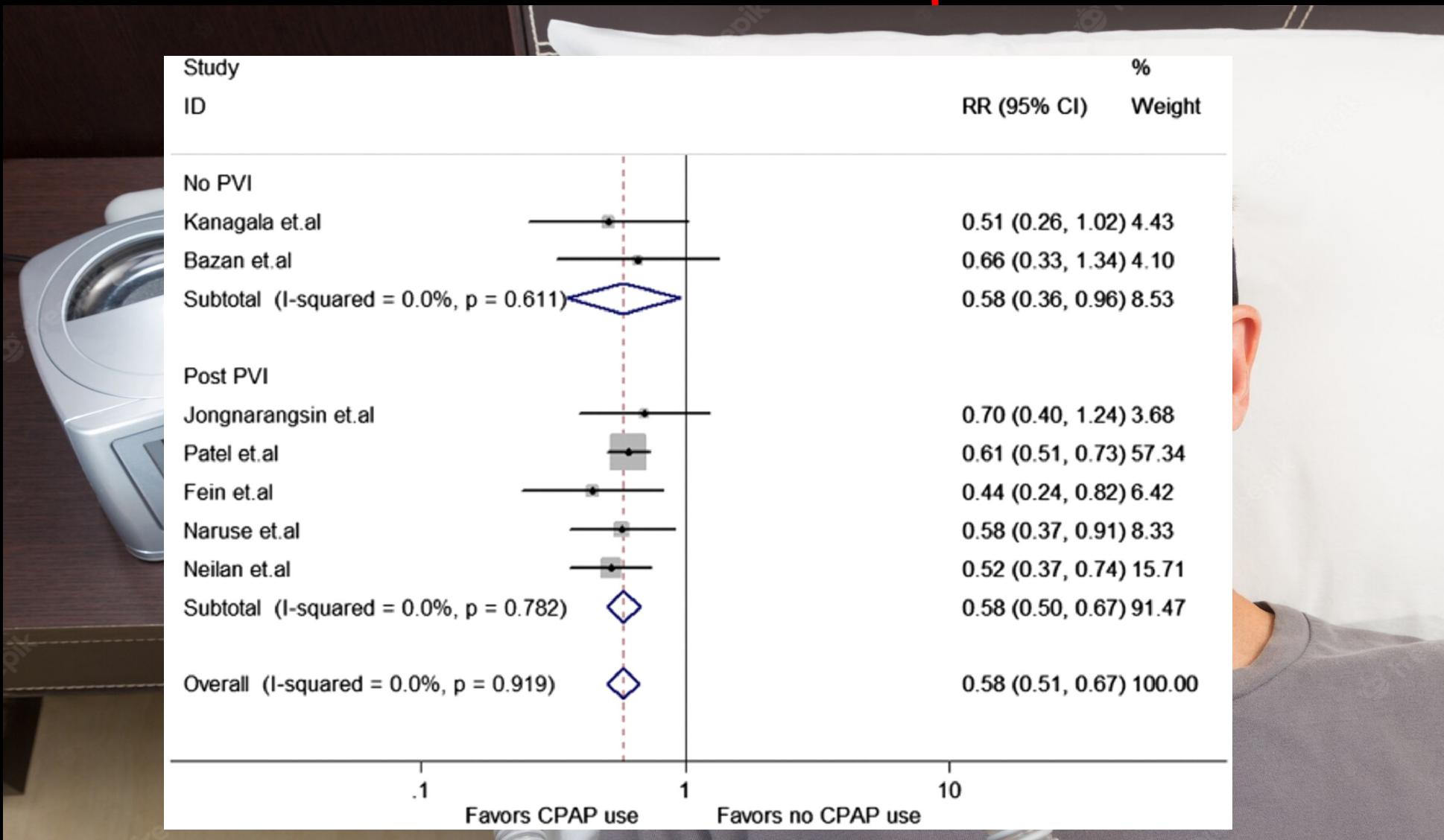


OSA and arrhythmogenesis





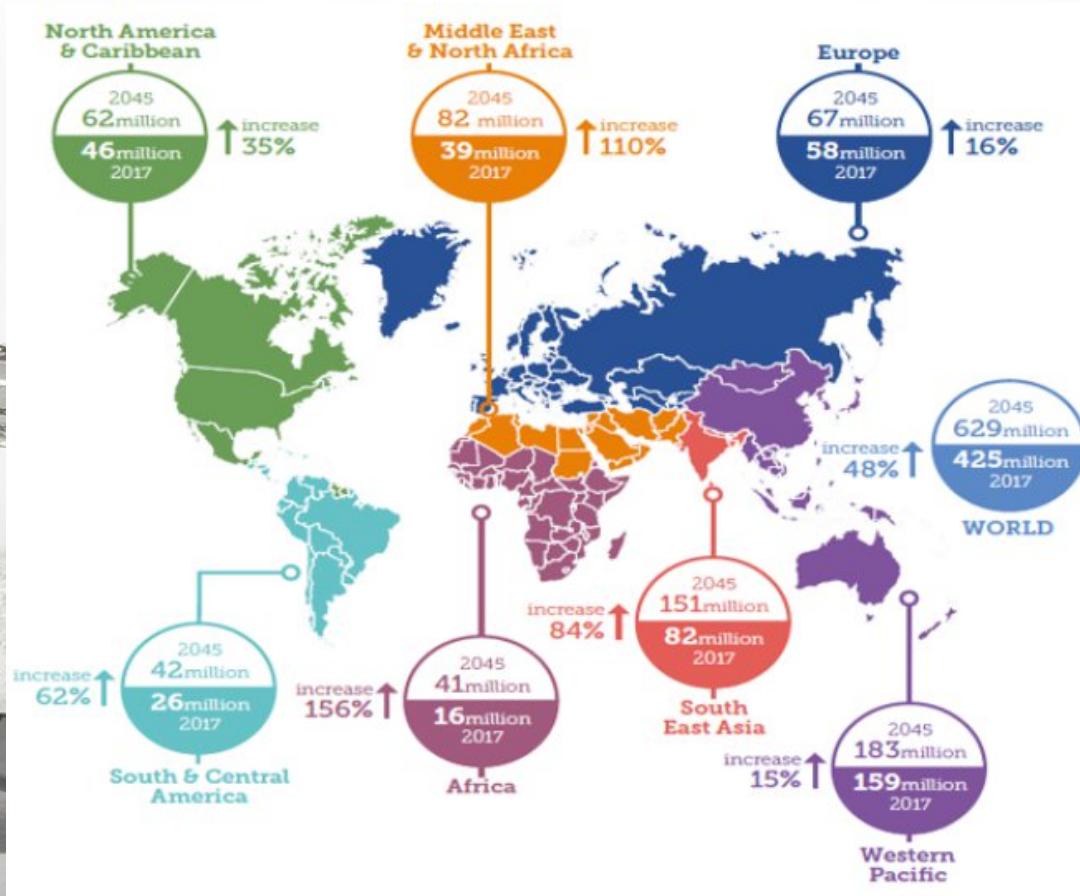
Meta-analysis of prospective cohort studies on CPAP use and Afib in 1087 OSA pts



Shukla A et al: Effect of obstructive sleep apnea treatment on atrial fibrillation recurrence: a metanalysis JACC Clin Electrophysiol 2015; 1:41-51



Diabetes Mellitus and AFib





Diabetes Mellitus and AFib

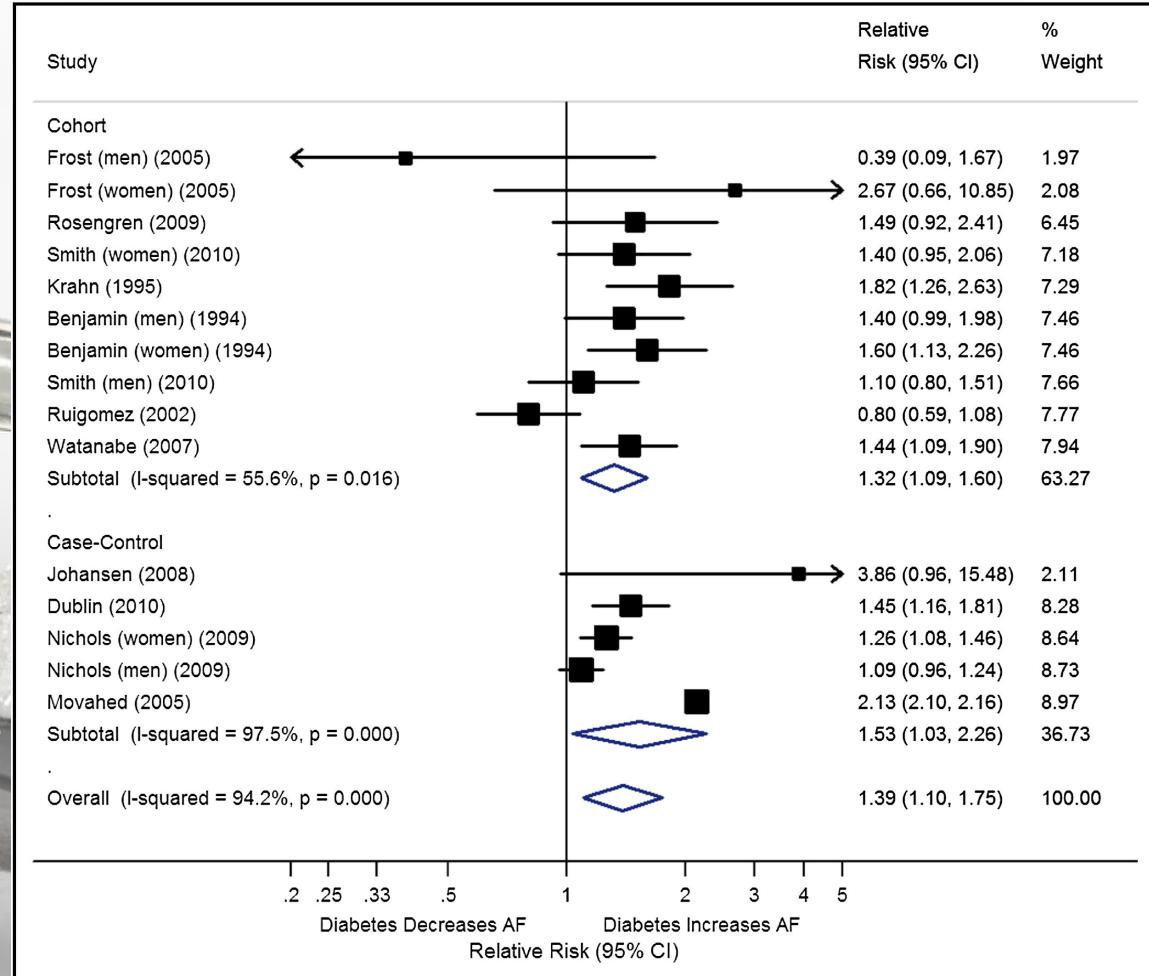
Each year of DM 3% increased risk of incident AF

Each unit increment of Hgb A1c 14% increased risk of incident AF





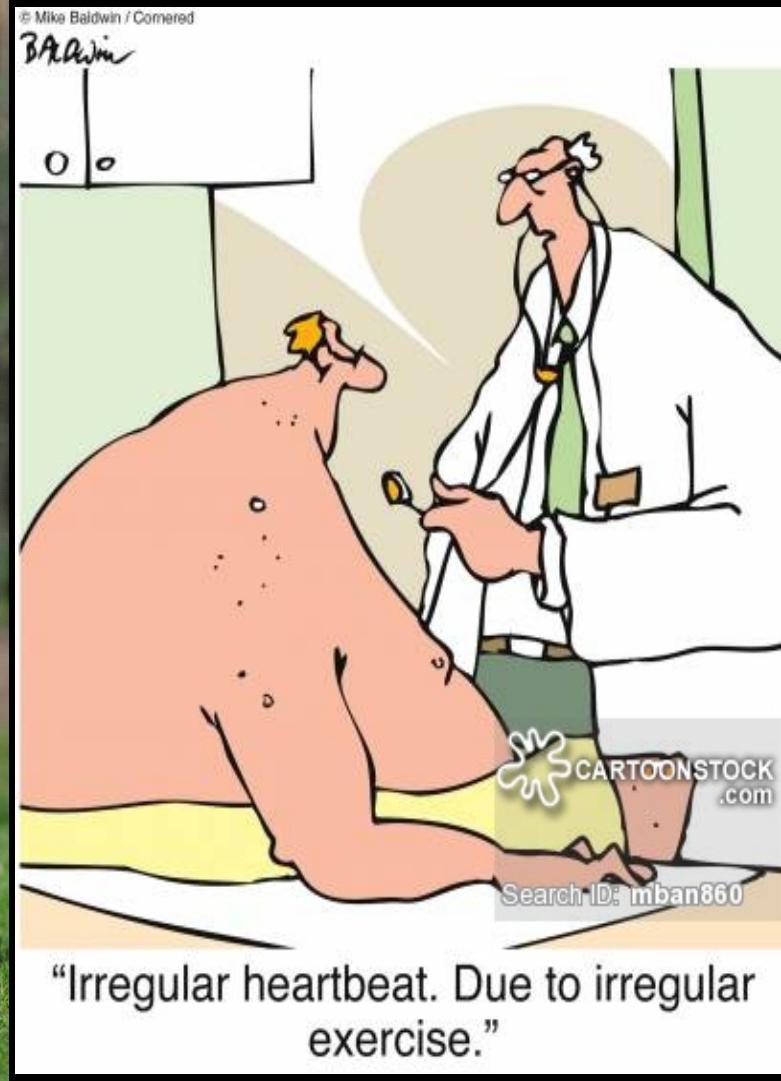
Relationship of DM type 2 and the incidence od AFib



Rachel R.Huxley et al: Meta-Analysis of Cohort and Case–Control Studies of Type 2Diabetes Mellitus and Risk of Atrial Fibrillation. Am J Card 2011

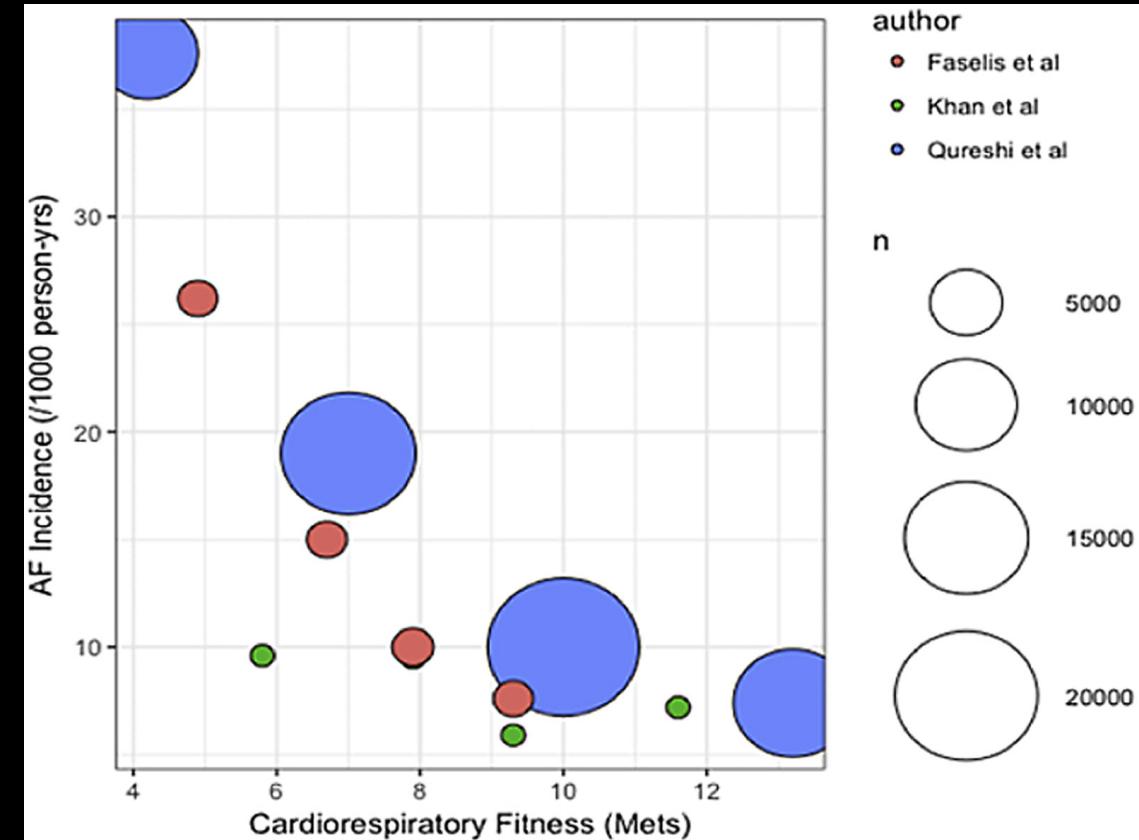
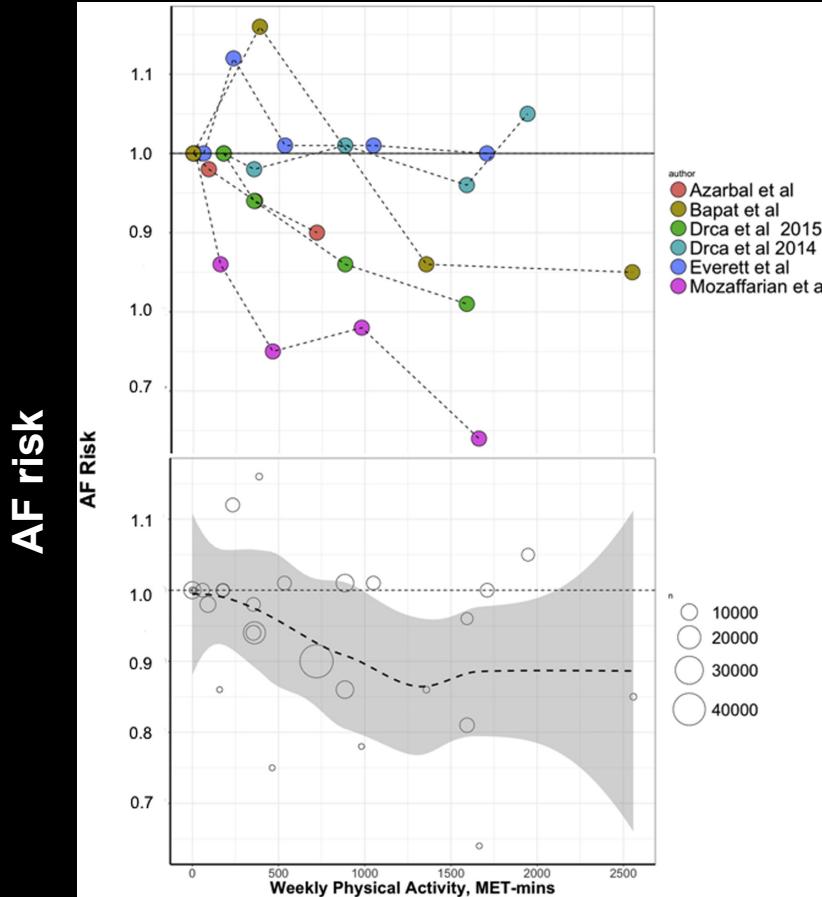


A Fib and physical activity



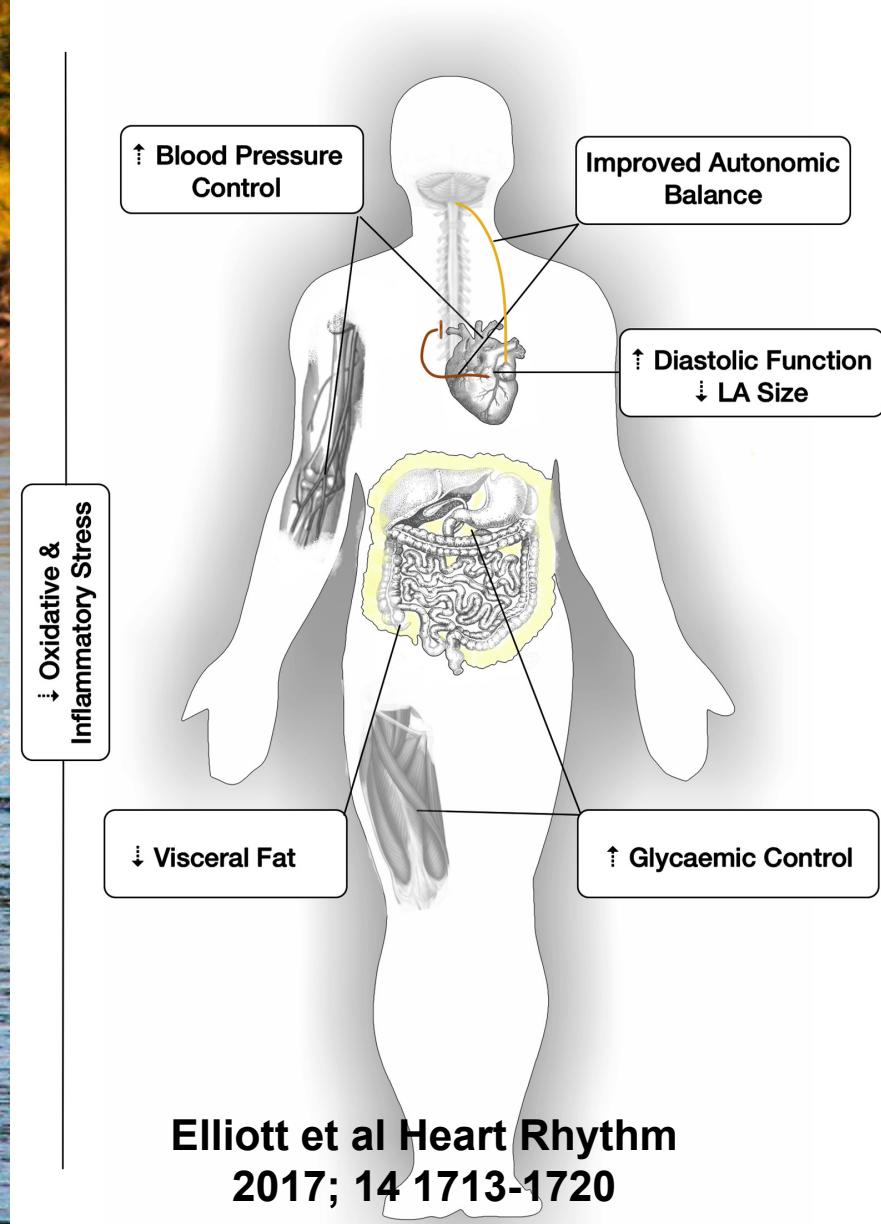


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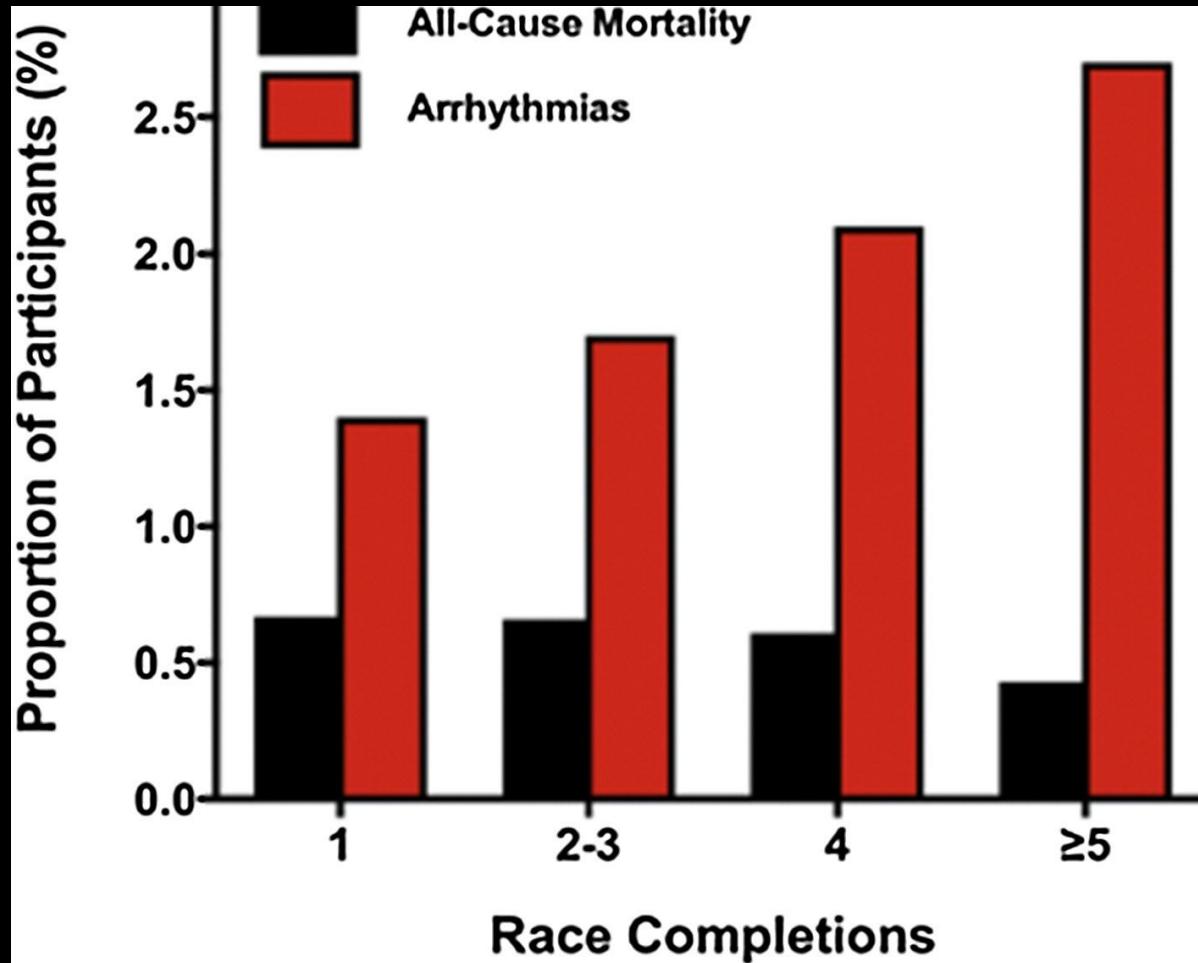


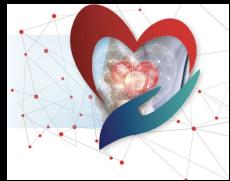
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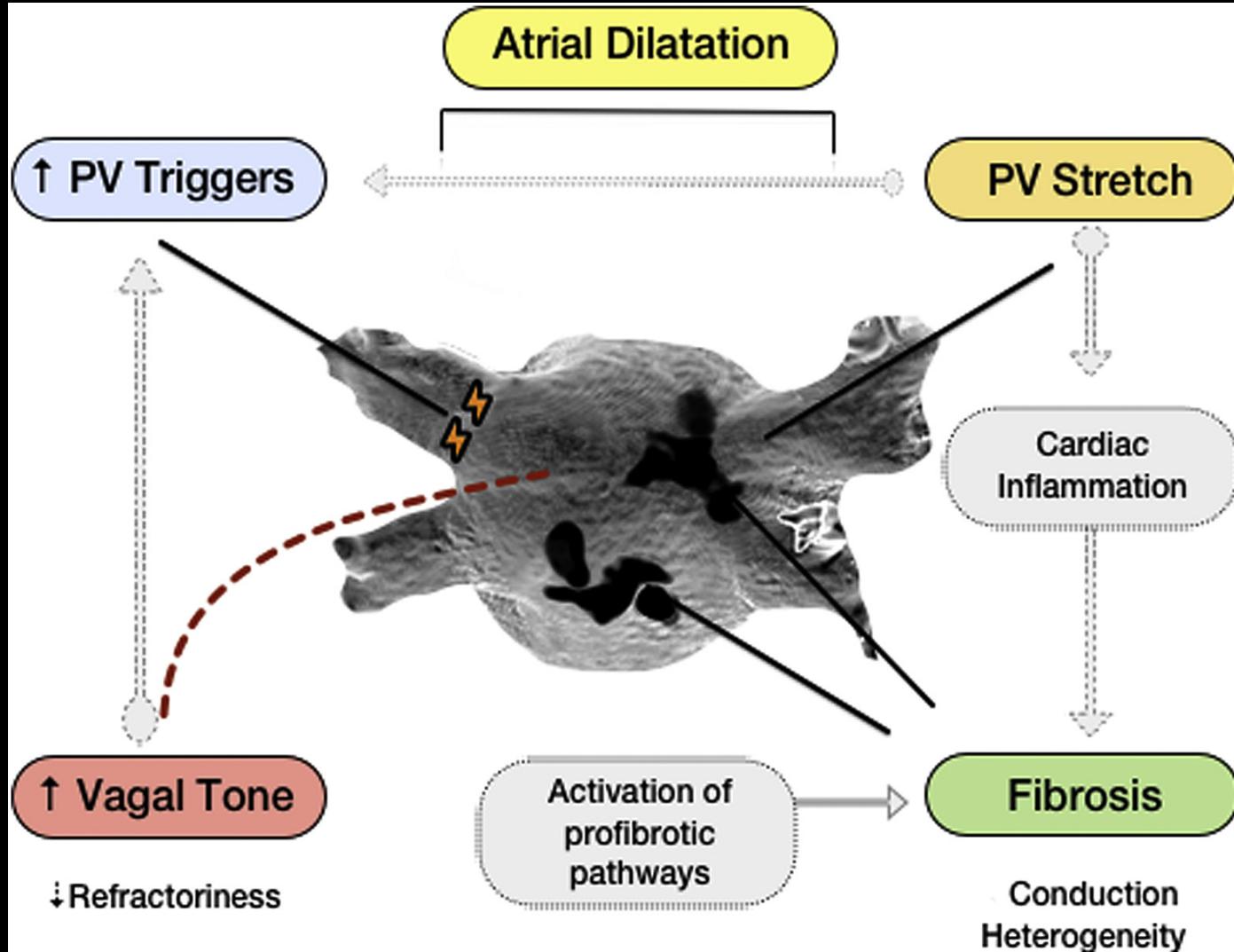


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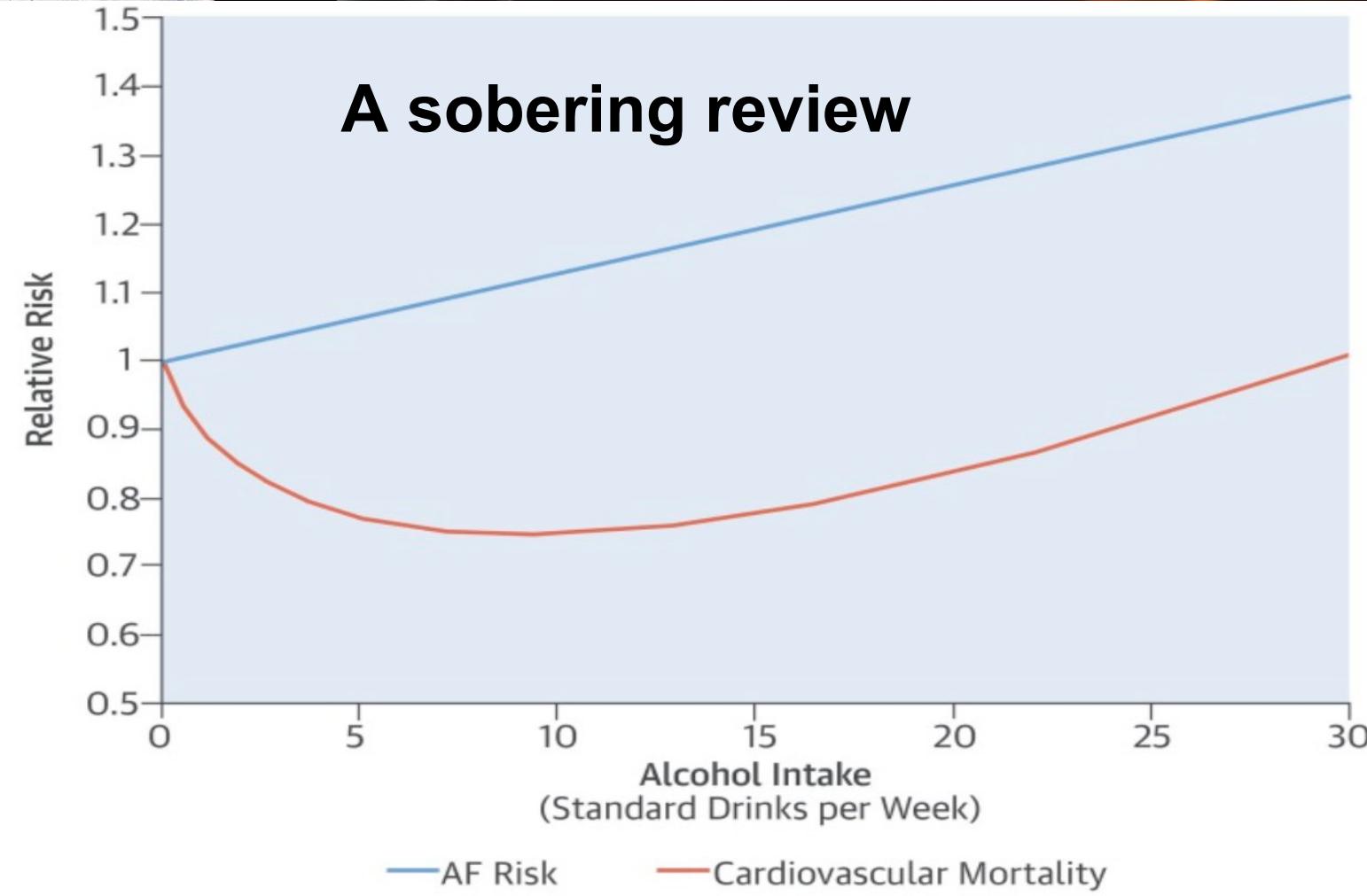
A Fib and physical activity arrhythmogenesis





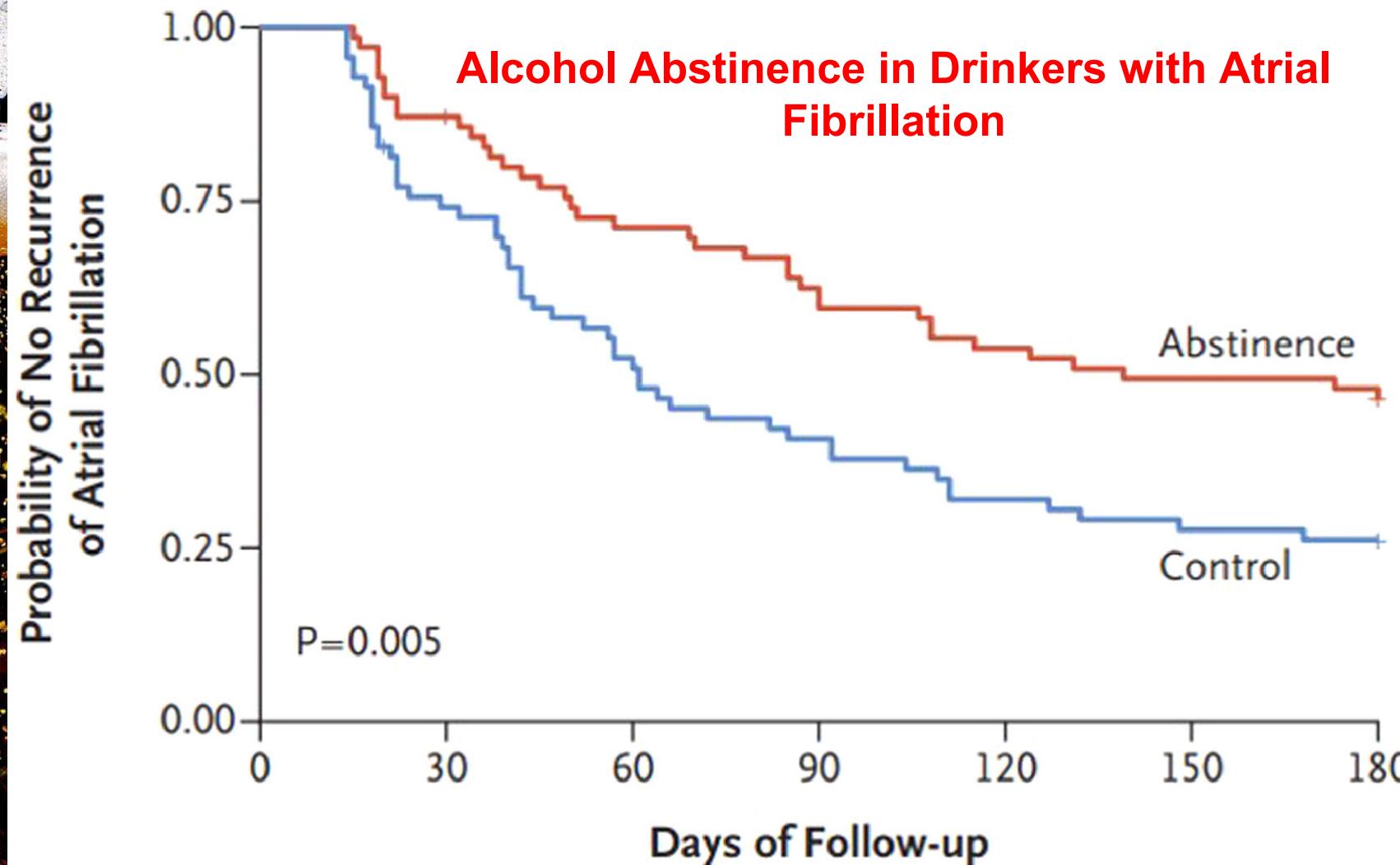
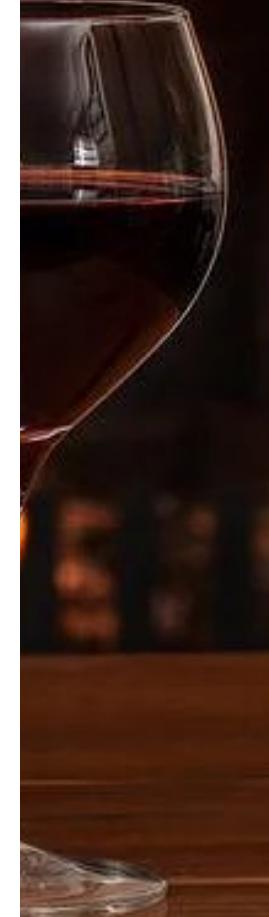
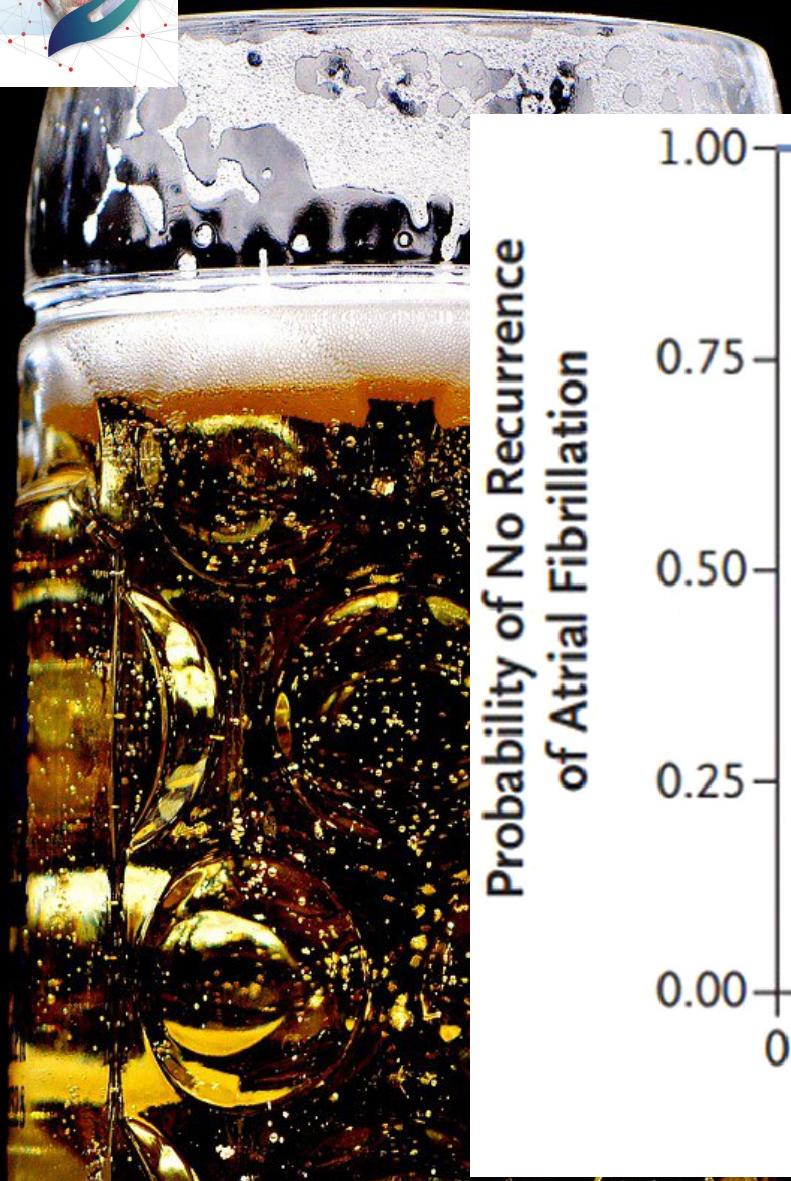
Alcohol and AF

A sobering review



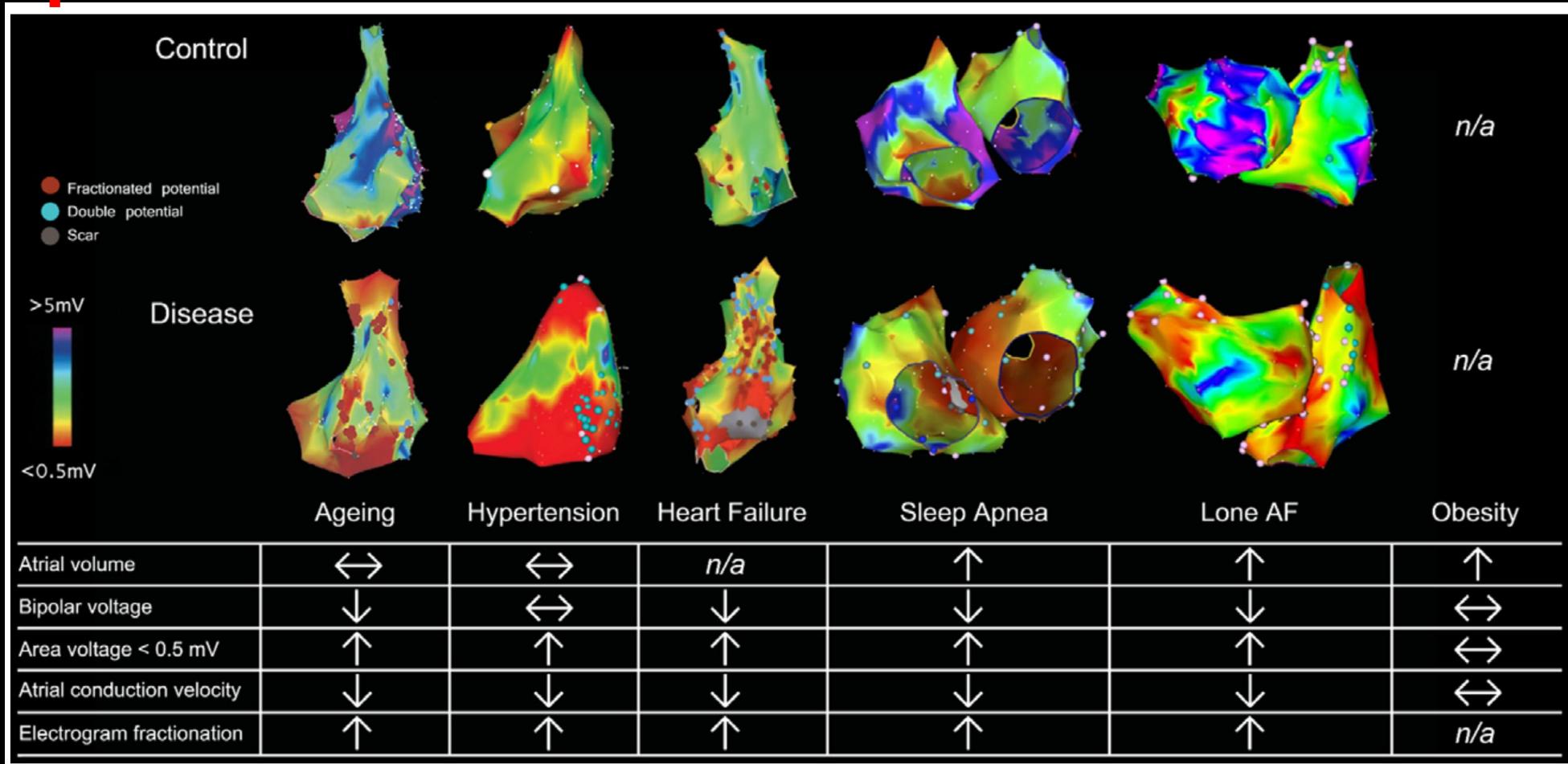


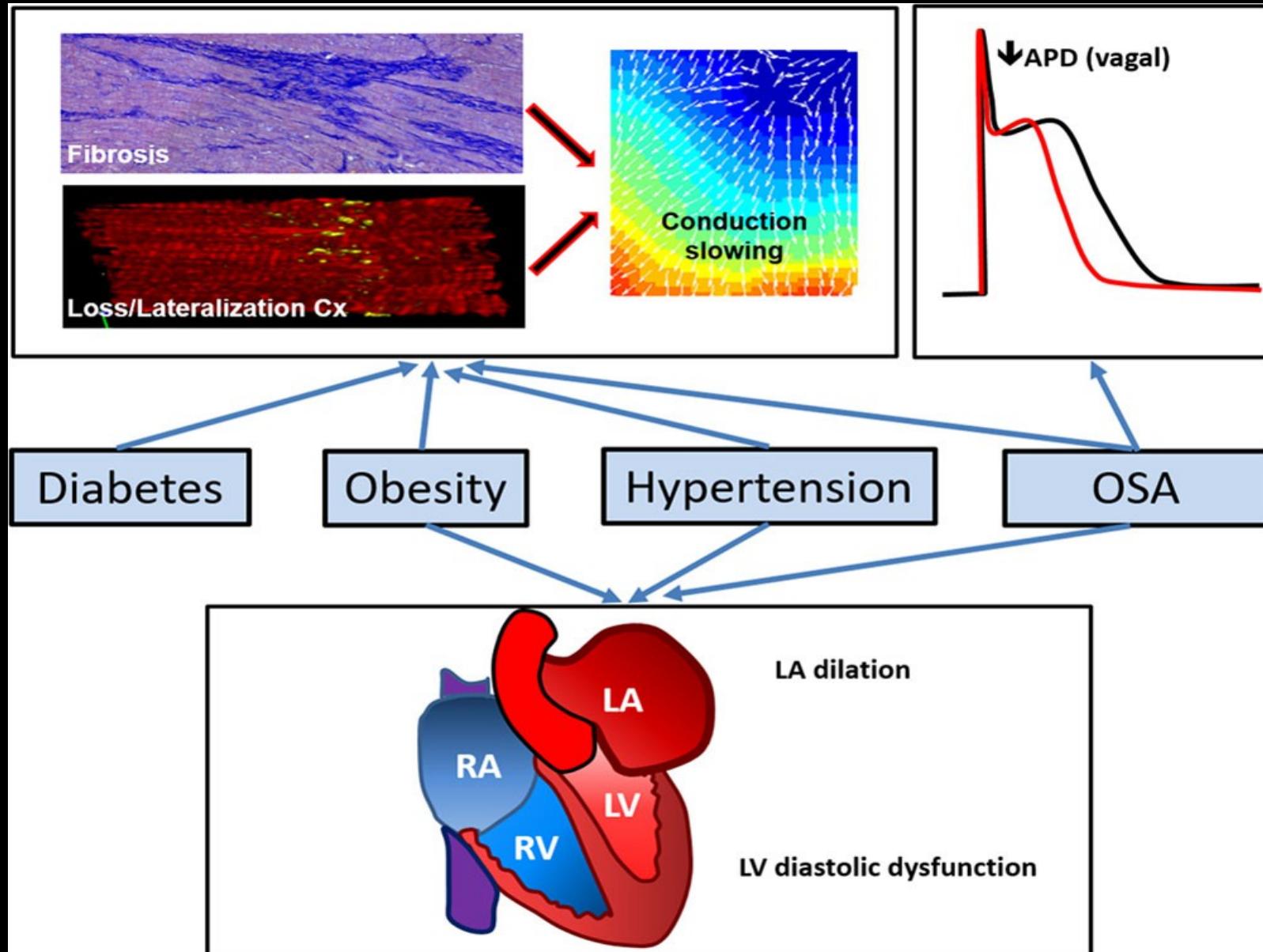
Alcohol and AF





Electroanatomical maps and electrophysiological parameters in different AF substrates







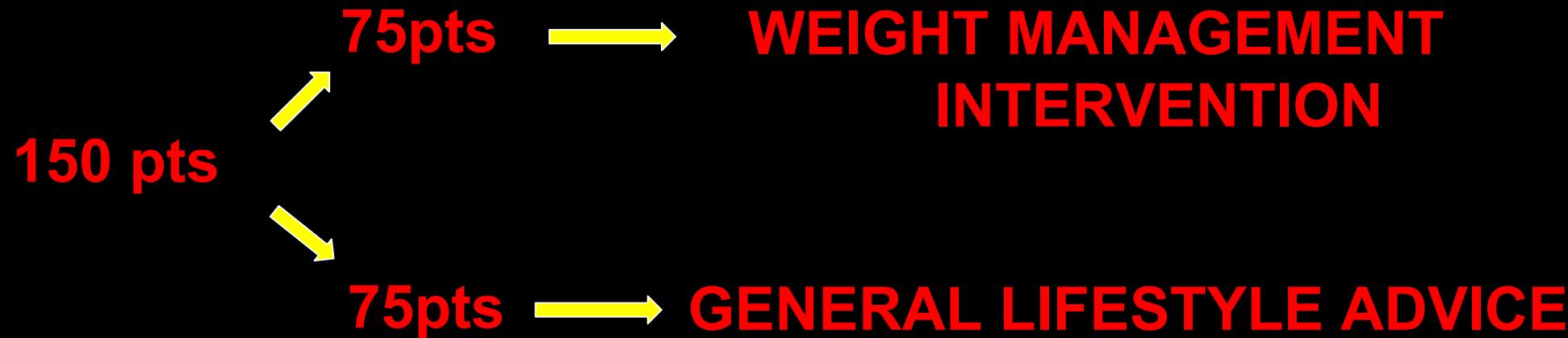
Original Investigation



Effect of Weight Reduction and Cardiometabolic Risk Factor Management on Symptom Burden and Severity in Patients With Atrial Fibrillation

A Randomized Clinical Trial

Hany S. Abed, BPharm, MBBS; Gary A. Wittert, MBBCh, MD; Darryl P. Leong, MBBS, MPH, PhD;
Masoumeh G. Shirazi, MD; Bobak Bahrami, MBBS; Melissa E. Middeldorp; Michelle F. Lorimer, BSc;
Dennis H. Lau, MBBS, PhD; Nicholas A. Antic, MBBS, PhD; Anthony G. Brooks, PhD;
Walter P. Abhayaratna, MBBS, PhD; Jonathan M. Kalman, MBBS, PhD; Prashanthan Sanders, MBBS, PhD

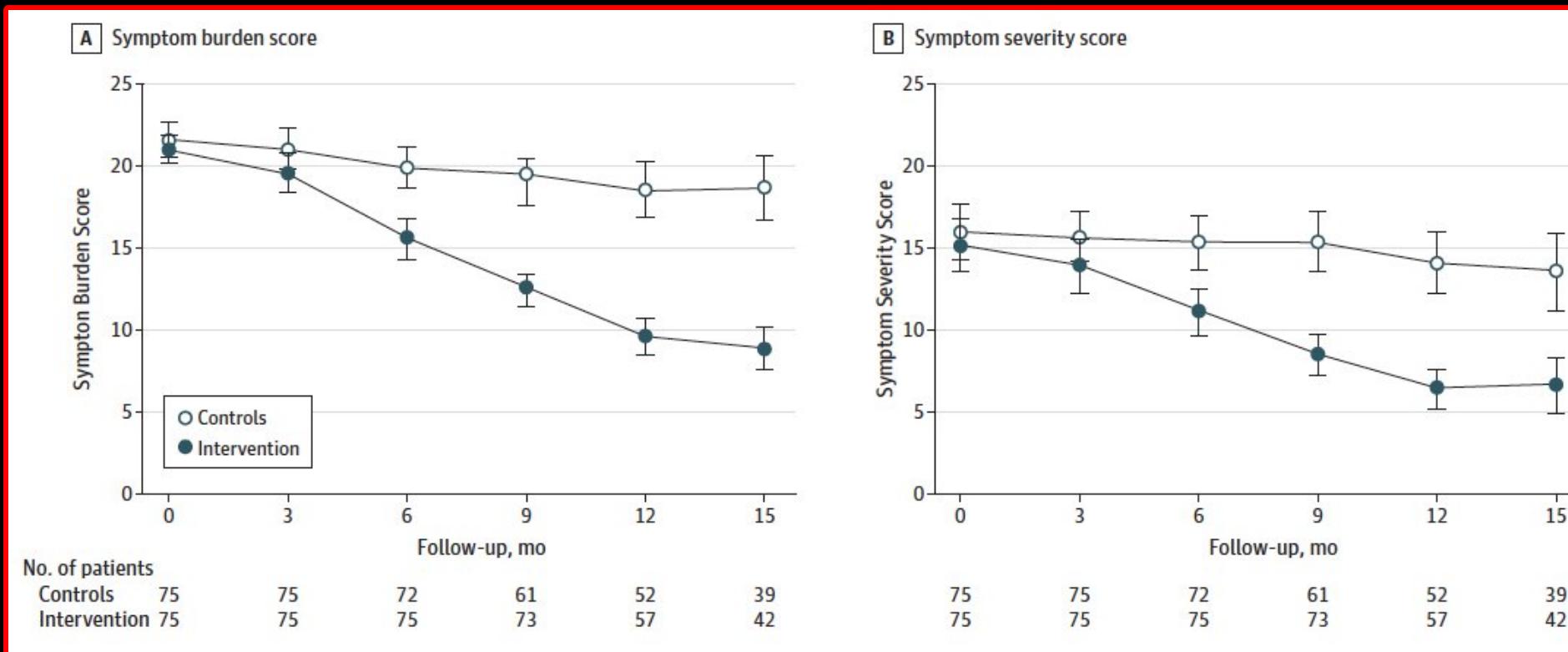


CARDIOLOGIA ASTI

JAMA 2013; 310(19) 2050-2060



Effect of Weight Reduction and Cardiometabolic Risk Factor Management on Symptom Burden and Severity in Patients With Atrial Fibrillation





Long-Term Blood Pressure Management: A Long-Term Follow-up

Rajeev K. Pathak, MBBS,* Melinda M. Johnson, PhD,†
 Rajiv Mahajan, MD, PhD,* Christopher J. O’Donnell, MD, PhD,‡
 Jonathan M. Kalman, MBBS, PhD,§
 Prashanthan Sanders, MBBS, PhD,§

355 obese African Americans
 program compared to a structured

	≥10% WL Group 1 (N = 135)	3%-9% WL Group 2 (N = 108)	<3% WL Group 3 (N = 117)	p Value
Age, yrs	65 ± 11	63 ± 11	61 ± 11	0.06
Male	86 (64)	65 (63)	83 (71)	0.37
WL clinic attendance	70 (52)	59 (57)	55 (49)	<0.001
Anthropometric measures and blood pressure				
Weight, kg	101.3 ± 17.0	98.7 ± 16.4	100.2 ± 16.8	0.52
BMI, kg/m ²	33.6 ± 4.7	32.7 ± 4.4	32.9 ± 4.8	0.24
SBP, mm Hg	147 ± 17	144 ± 17	146 ± 17	0.33
Atrial fibrillation				
Paroxysmal	71 (53)	57 (55)	60 (52)	0.86
Nonparoxysmal	64 (47)	46 (45)	45 (56)	
Metabolic risk factors				
Hypertension	109 (81)	75 (73)	90 (78)	0.30
DM	41 (30)	28 (27)	34 (29)	0.35
IGT	18 (13)	8 (8)	8 (7)	
Hyperlipidemia	66 (49)	45 (44)	56 (48)	0.70
Coronary artery disease	21 (16)	12 (12)	11 (9)	0.31
Valvulopathy	8 (6)	3 (3)	8 (7)	0.41
AHI >30	69 (51)	52 (50)	61 (52)	0.97
Alcohol excess (>30 g/week)	42 (31)	35 (34)	34 (29)	0.73
Smoker	50 (37)	41 (40)	47 (40)	0.86
Medication use				
Antiarrhythmic	1.1 ± 0.7	1.0 ± 0.7	0.9 ± 0.8	0.10
Antihypertensive	1.0 ± 0.9	1.0 ± 0.8	1.1 ± 1.0	0.08
Serology and lipid profile				
hsCRP, mg/l	5.1 ± 9.2	4.4 ± 5.8	4.1 ± 2.9	0.70
Fasting insulin level, mU/l	18.1 ± 6.7	16.6 ± 6.3	18.1 ± 7.0	0.10
LDL level, mg/l	112 ± 38	116 ± 35	104 ± 35	0.20
HDL level, mg/l	46 ± 15	46 ± 15	42 ± 12	0.11
TG level, mg/l	141 ± 62	141 ± 53	141 ± 62	0.78
Total cholesterol, mg/l	189 ± 37	185 ± 42	181 ± 42	0.50
Echocardiographic measures				
LA volume indexed, mls/m ²	37.6 ± 5.4	38.5 ± 6.2	39.0 ± 3.8	0.20
LV IVS, mm	11.7 ± 2.0	11.5 ± 2.0	11.5 ± 2.0	0.24
LVEDD, cm	5.0 ± 0.6	5.0 ± 0.6	5.0 ± 0.6	0.92
E/E' ratio	12.7 ± 4.2	12.0 ± 4.6	11.3 ± 3.7	0.06
Atrial Fibrillation Severity Scale				
Frequency (1-10)	7.0 ± 1.6	7.0 ± 1.3	7.0 ± 1.7	0.97
Duration (1-10)	7.1 ± 1.8	6.7 ± 1.8	6.9 ± 1.7	0.21
Severity (1-10)	7.0 ± 1.9	7.1 ± 1.5	6.8 ± 1.5	0.50
Symptom (0-35)	19.0 ± 5.9	18.1 ± 4.9	17.7 ± 5.6	0.19
Physical activity (0-12)	2.7 ± 2.2	2.6 ± 2.2	2.7 ± 2.2	0.91

Weight Cohort
 CrossMark

ACTSt,†
 drian D. Elliott, PhD,*§
 BBS, PhD,*

JACC COLLEGE CARDIOL 2015; 65:2159-69

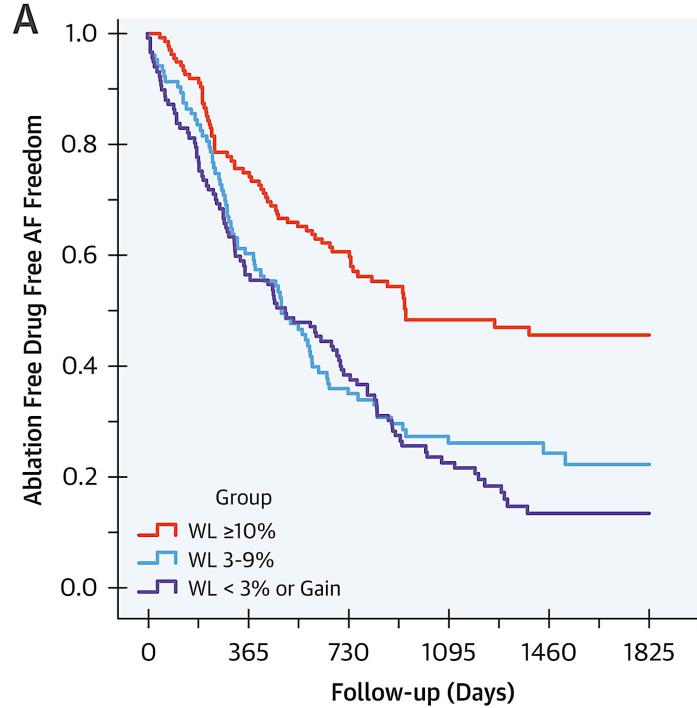


Long-Term Effect of Goal-Directed Weight Management in an Atrial Fibrillation Cohort

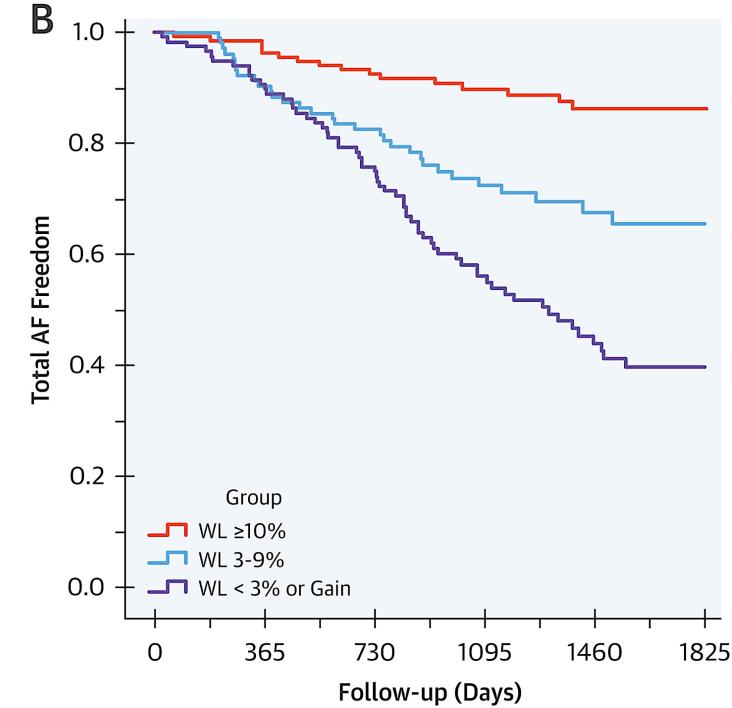
A Long-Term Follow-Up Study (LEGACY)



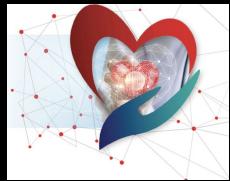
AF FREEDOM



Time (Days)	0	365	730	1095	1460	1825
≥10 WL	135	101	72	42	31	18
3-9% WL	103	62	36	22	13	7
<3% WL or gain	117	66	44	22	11	9



Time (Days)	0	365	730	1095	1460	1825
≥10 WL	135	130	114	86	67	36
3-9% WL	103	93	83	57	35	22
<3% WL or gain	117	105	85	53	32	22

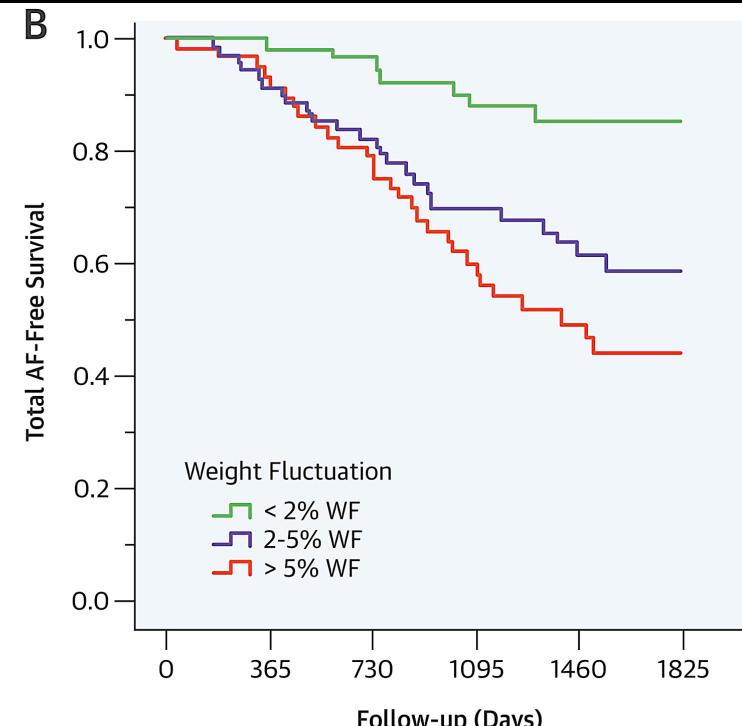
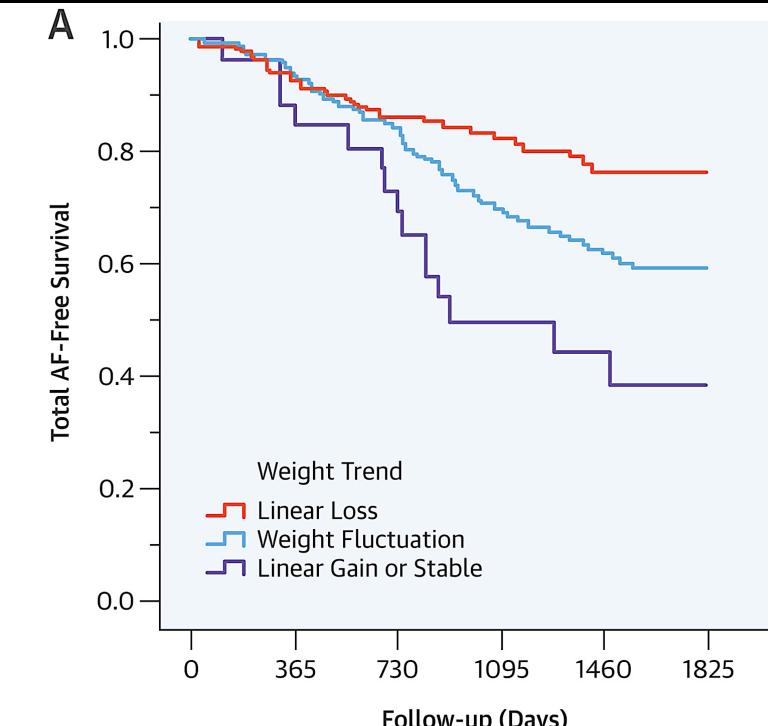


Long-Term Effect of Goal-Directed Weight Management in an Atrial Fibrillation Cohort

A Long-Term Follow-Up Study (LEGACY)



AF FREEDOM



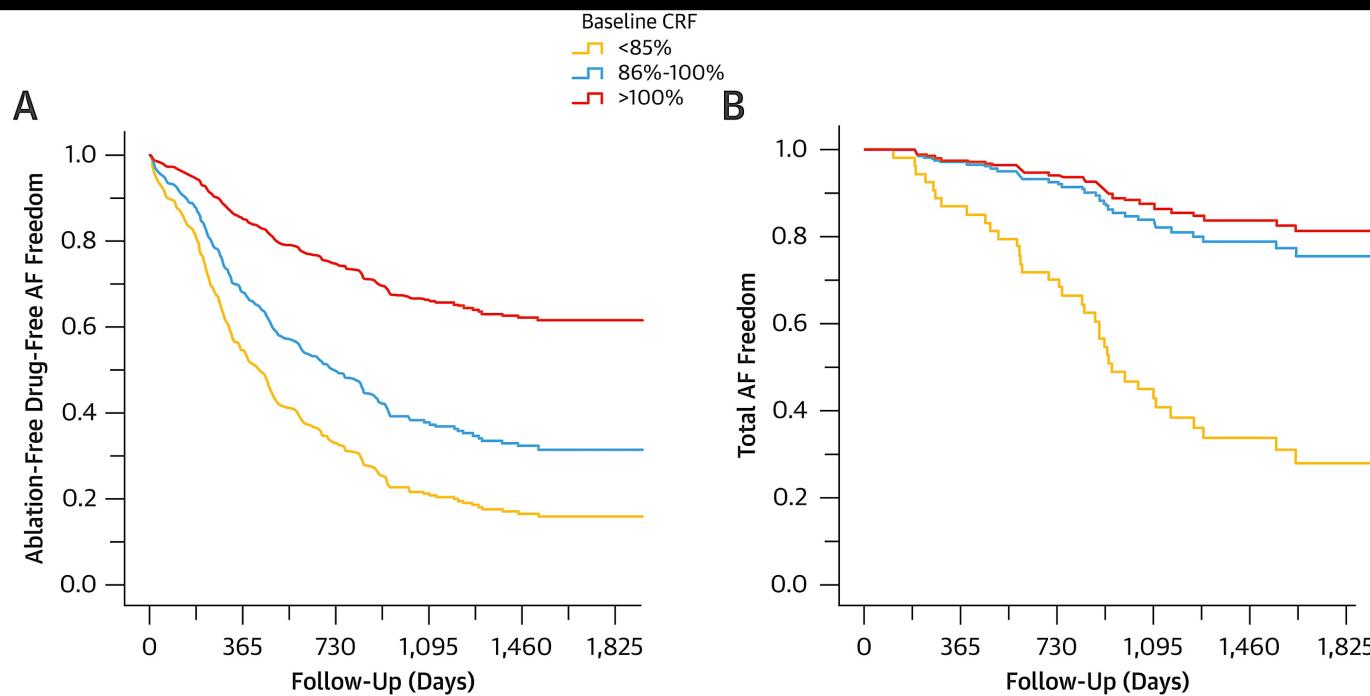


Impact of CARDIOrespiratory FITness on Arrhythmia Recurrence in Obese Individuals With Atrial Fibrillation

The CARDIO-FIT Study



AF FREEDOM



Time (Days)	0	365	730	1,095	1,460	1,825
<85% Predicted	95	54	36	16	12	6
86%-100% Predicted	134	93	56	34	19	11
>100% Predicted	79	63	50	36	26	18

Time (Days)	0	365	730	1,095	1,460	1,825
<85% Predicted	95	78	58	33	20	11
86%-100% Predicted	134	133	119	86	56	33
>100% Predicted	79	78	63	51	36	21



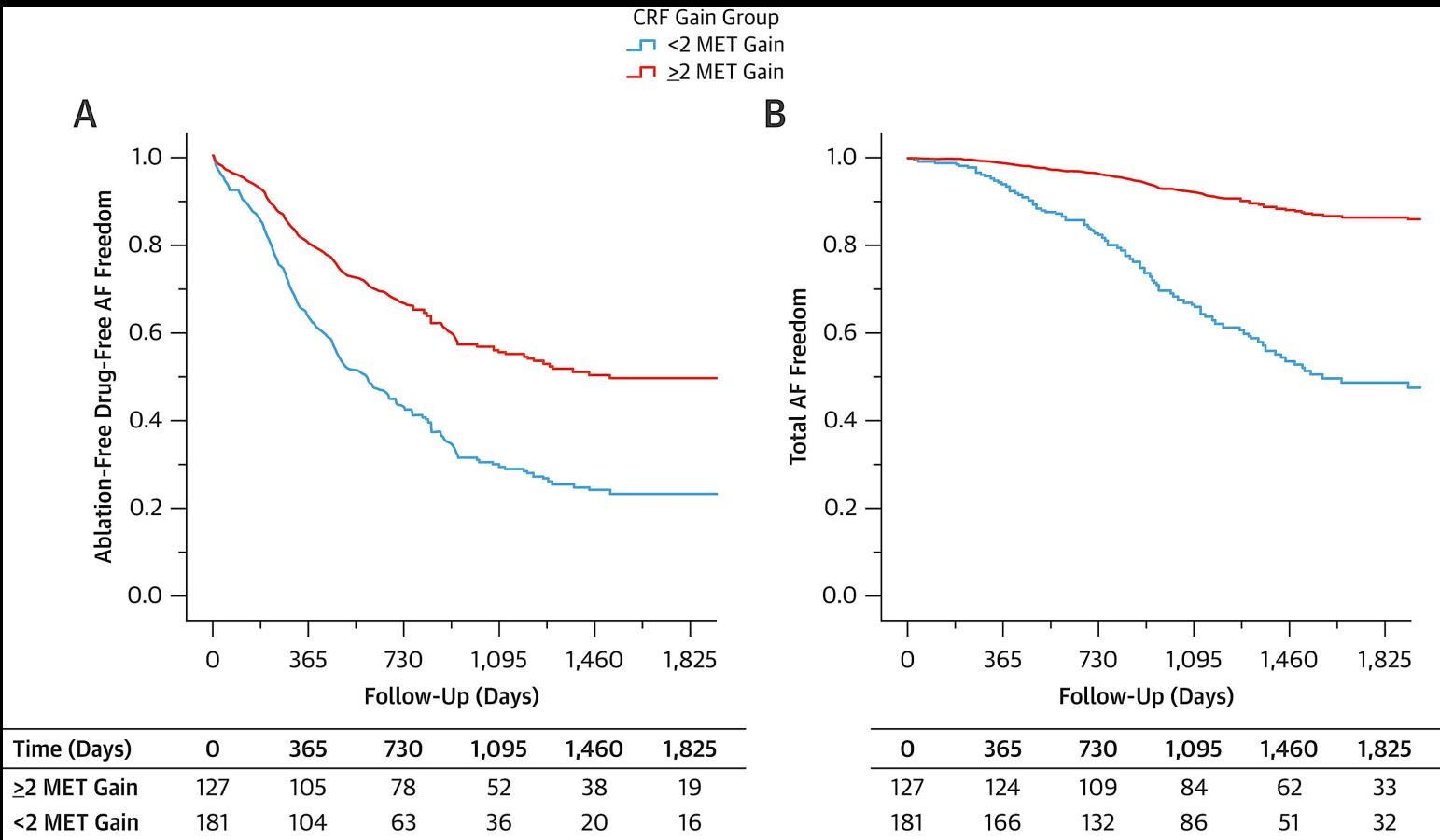


Impact of CARDIOrespiratory FITness on Arrhythmia Recurrence in Obese Individuals With Atrial Fibrillation

The CARDIO-FIT Study



AF FREEDOM





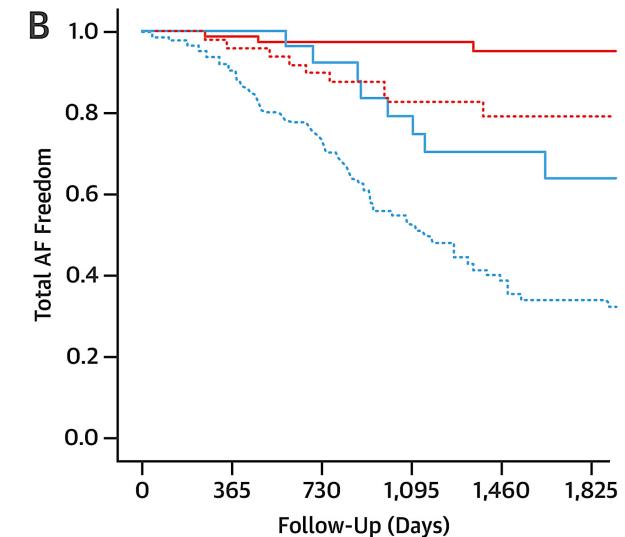
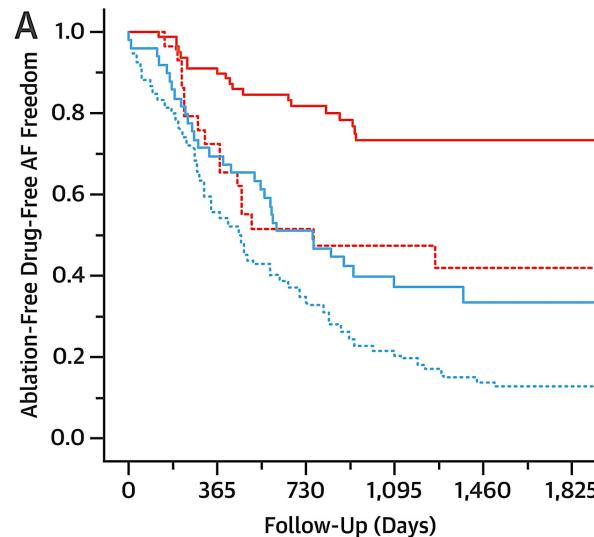
Impact of CARDIOrespiratory FITness on Arrhythmia Recurrence in Obese Individuals With Atrial Fibrillation

The CARDIO-FIT Study



AF FREEDOM

CRF Gain and Weight Loss
— WL $\geq 10\%$ & MET Gain ≥ 2
- - - WL $\geq 10\%$ & MET Gain < 2
— WL $< 10\%$ & MET Gain ≥ 2
- - - WL $< 10\%$ & MET Gain < 2



Time (Days)	0	365	730	1,095	1,460	1,825
$\geq 10\%$ WL + MET Gain ≥ 2	77	71	53	37	28	13
$\geq 10\%$ WL + MET Gain < 2	28	20	11	9	7	6
$< 10\%$ WL + MET Gain ≥ 2	48	33	24	14	8	4
$< 10\%$ WL + MET Gain < 2	151	84	50	26	12	10

Time (Days)	0	365	730	1,095	1,460	1,825
$\geq 10\%$ WL + MET Gain ≥ 2	77	76	66	51	40	20
$\geq 10\%$ WL + MET Gain < 2	28	28	22	16	15	8
$< 10\%$ WL + MET Gain ≥ 2	48	47	42	31	22	11
$< 10\%$ WL + MET Gain < 2	151	136	109	74	36	23





Aggressive Risk Factor Reduction Study for Atrial Fibrillation and Implications for the Outcome of Ablation

The ARREST-AF Cohort Study



Rajeev K. Pathak, MBBS,* Melissa E. Middeldorp,* Dennis H. Lau, MBBS, PhD,* Abhinav B. Mehta, MActSt,†
Rajiv Mahajan, MD,* Darragh Twomey, MBBS,* Muayad Alasady, MBBS,*‡ Lorraine Hanley, BSc,*
Nicholas A. Antic, MBBS, PhD,‡ R. Doug McEvoy, MBBS, MD,‡ Jonathan M. Kalman, MBBS, PhD,§
Walter P. Abhayaratna, MBBS, PhD,|| Prashanthan Sanders, MBBS, PhD*

149 obese AF patients having ablation with >1 risk factor were offered a structured program of RFM and followed prospectively





Aggressive Risk Study for Atrial Fibrillation Implications for The ARREST-AF Cohort

Rajeev K. Pathak, MBBS,* Melissa E. Rajiv Mahajan, MD,* Darragh Twomey, Nicholas A. Antic, MBBS, PhD,† R. Do Walter P. Abhayaratna, MBBS, PhD,||

B. Mehta, MActSt,‡
nley, BSc,*
BBS, PhD,§

	Control Group (n = 88)	RFM Group (n = 61)	p Value
Age, yrs	57.2 ± 9.9	58.4 ± 10.8	0.5
Male	61 (69.3)	34 (56)	0.1
Anthropometric measures			
Weight, kg	96.6 ± 16.8	100.7 ± 17.6	0.2
BMI, kg/m ²	32.1 ± 4.7	33.5 ± 4.6	0.1
AF type			
Paroxysmal	49 (56)	40 (65)	0.2
Nonparoxysmal	39 (44)	21 (35)	
Metabolic risk factors			
Hypertension	73 (83)	53 (87)	0.5
Diabetes mellitus	17 (19)	9 (15)	0.5
Hyperlipidemia	47 (53)	39 (64)	0.2
Coronary artery disease	10 (11)	10 (16)	0.4
AHI >30	55 (62)	32 (53)	0.2
Alcohol excess (>30 g/week)	24 (27)	11 (18)	0.2
Smoker	31 (35)	20 (33)	0.8
Medication use			
No. of antiarrhythmic agents	1.0 ± 0.2	1.1 ± 0.3	0.1
No. of antihypertensive agents	1.6 ± 1.2	1.5 ± 1.1	0.4
Echocardiographic measures			
LA volume index, ml/m ²	42.4 ± 10.4	42.5 ± 12	0.9
LV septum, mm	11.0 ± 2	12.0 ± 2	0.1
LVIDd, cm	5.1 ± 0.7	5.3 ± 0.5	0.2
LVEF, %	60 ± 10.1	61.1 ± 8	0.5
Atrial Fibrillation Severity Scale			
Frequency (1-10)	6.6 ± 1.1	6.8 ± 1.2	0.5
Duration (1-10)	6.7 ± 1.3	6.4 ± 1.6	0.3
Severity (1-10)	6.9 ± 1.3	6.6 ± 1.5	0.2
Symptom (0-35)	23.1 ± 3.7	22 ± 5.2	0.1
Global well-being (1-10)	2.5 ± 0.9	2.4 ± 0.9	0.4



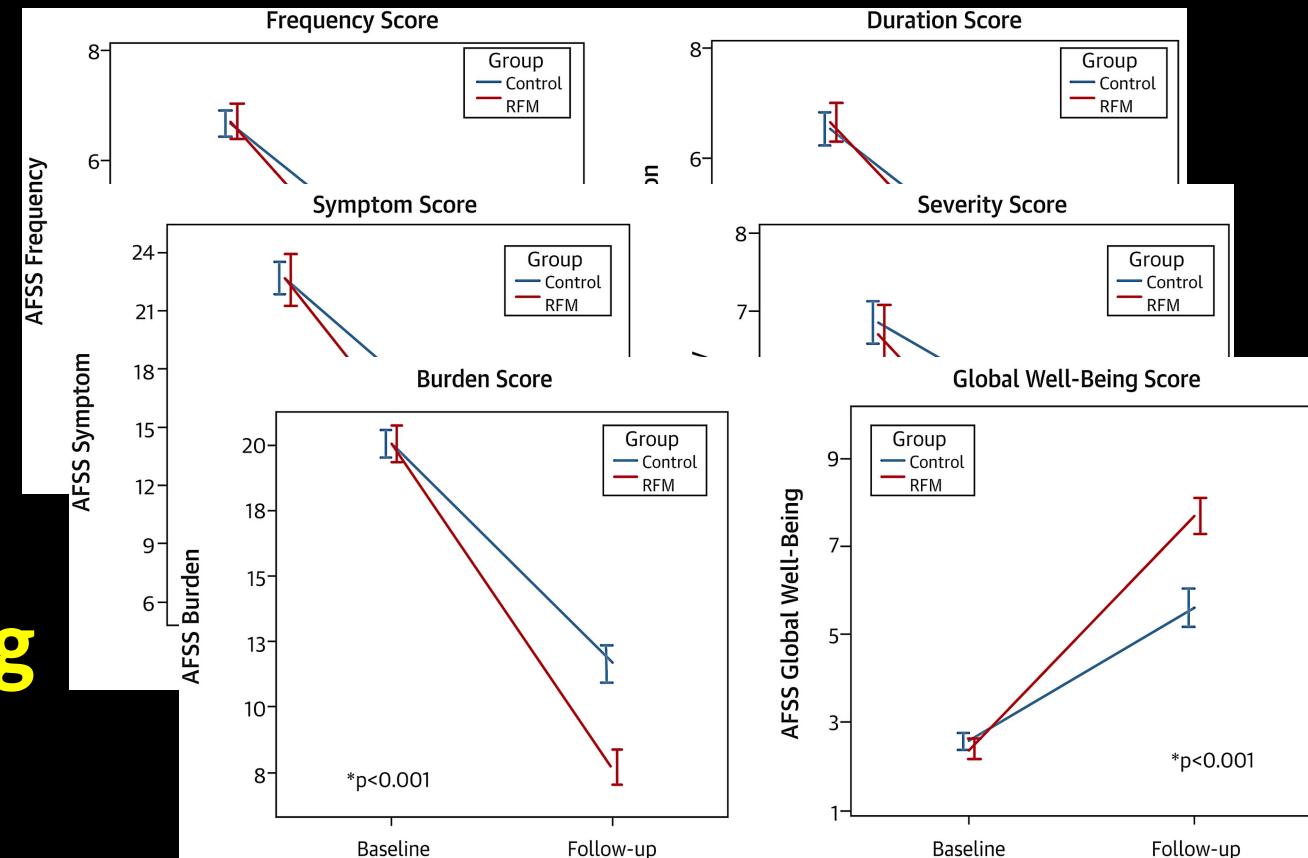


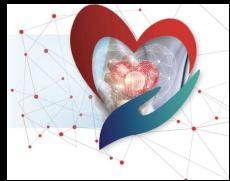
Aggressive Risk Factor Reduction Study for Atrial Fibrillation and Implications for the Outcome of Ablation

The ARREST-AF Cohort Study



- ✓ AF frequency
- ✓ AF duration
- ✓ AF symptoms
- ✓ AF severity
- ✓ AF burden
- ✓ Global well-being



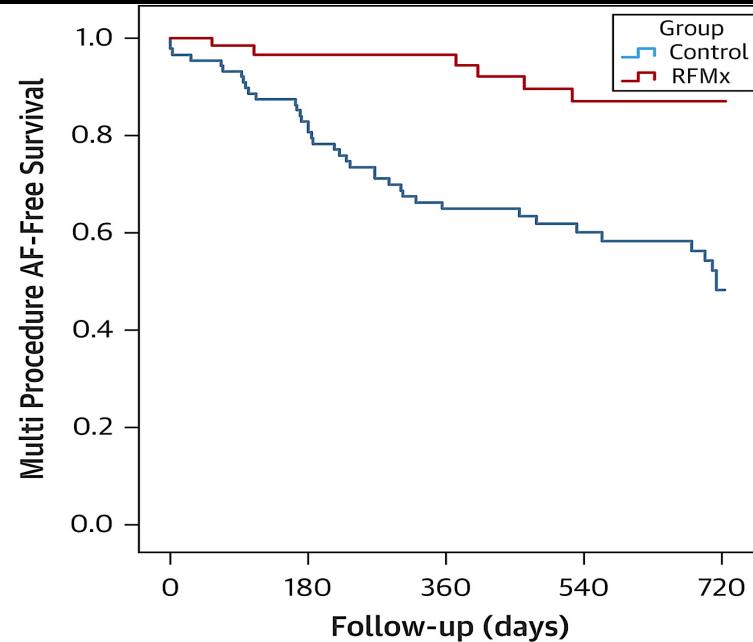
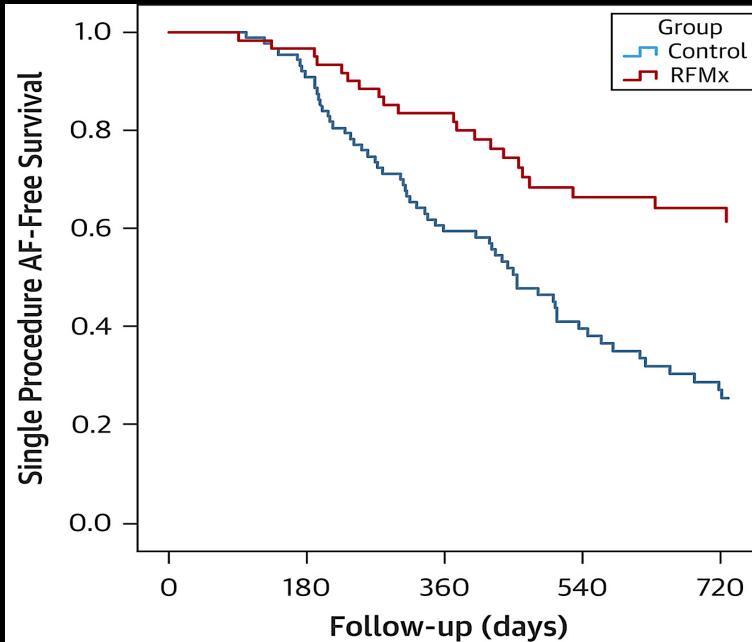


Aggressive Risk Factor Reduction Study for Atrial Fibrillation and Implications for the Outcome of Ablation

The ARREST-AF Cohort Study

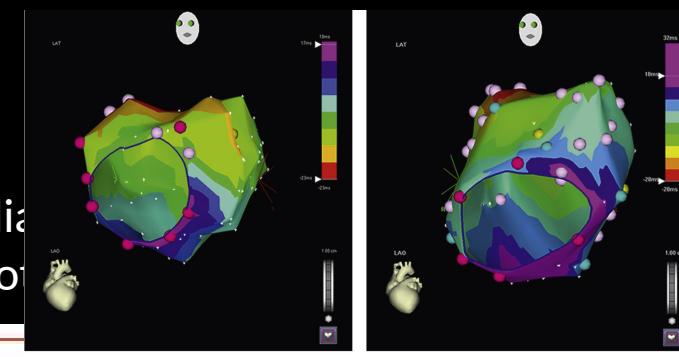


AF ABLATION OUTCOME



ARREST AF substrate

50 consecutive AF pts with BMI $\geq 27 \text{ kg/m}^2$ and ≥ 1 cardiovascular risk factor, assigned either RF management (RFM) or usual care (Control). Both groups received antiarrhythmic drugs.



- electrocardiogram
- Echocardiography
- Cardiac MRI
- serum biomarkers
- functional capacity

Results:

- great reduction in systolic blood pressure
- better lipid profile
- reduced waist circumference
- total cholesterol

	Control group		RFM group		Overall	p value*
	Baseline	Follow-up	Baseline	Follow-up		
Electrophysiology study						
ERP (ms)	257 \pm 44	250 \pm 47	247 \pm 43	248 \pm 25*	247 \pm 43	0.01
Mean Voltage (mV)	15 \pm 0.7	0.8 \pm 0.3	13 \pm 0.6	3.1 \pm 1.0*	13 \pm 0.7*	0.02
Mean conduction velocity (CV) m/s	1.0 \pm 0.3	1.0 \pm 0.4	0.7 \pm 0.2	1.3 \pm 0.2*	1.3 \pm 0.2*	<0.001
AF Inducibility (%)	3 \pm 3.8	3.7 \pm 2.8	4 \pm 3	1.9 \pm 2	3 \pm 3.8	0.02
Sustained AF episodes (>5Min), (n)	2.3 \pm 2.6	2.5 \pm 2.0	2.5 \pm 2	1 \pm 1.8*	2.3 \pm 2.6	0.006
Structural Changes						
Echo	LA Volume (ml)	39.4 \pm 3.6	41.3 \pm 5.8	37.4 \pm 5.7	29.4 \pm 5.0*	0.003
MRI	Atrial PFV (ml)	18.4 \pm 8.2	22.4 \pm 8.5	17.9 \pm 7.0	11.2 \pm 3.8*	0.001
	Ventricular PFV (ml)	110 \pm 35.2	142 \pm 56.8	107 \pm 42.0	77 \pm 22.8*	0.003
Biomarkers						
Platelets Function	ADP	82 \pm 27.2	99.2 \pm 20.1	82.2 \pm 24.7	60.7 \pm 26.2*	0.01
	Thrombin	89 \pm 33.5	116.9 \pm 14	98.3 \pm 26.8	88.4 \pm 28.6*	0.006
Endothelial Function	P-selectin	2.8 \pm 4.1	6.67 \pm 5.45	5.4 \pm 3.7	1.42 \pm 1.38*	<0.001
	ET-1	1.9 \pm 0.8	2.4 \pm 1.0	2.0 \pm 1.0	1.6 \pm 0.8*	0.03
Fibrosis	ADMA	0.6 \pm 0.2	0.7 \pm 0.4	0.7 \pm 0.2	0.5 \pm 0.2	0.1
	MMP-9	49 \pm 22.4	42.5 \pm 15	48 \pm 21.6	32.7 \pm 8.4*	0.03
Inflammation	TGF-Beta	341 \pm 57	363 \pm 58	348 \pm 76	323 \pm 42	0.03
	IL-6	3.2 \pm 1.2	3.5 \pm 1.6	3.7 \pm 1.5	2.3 \pm 0.6*	0.007
	MPO	24 \pm 10.7	22.5 \pm 11	22 \pm 12	16 \pm 6*	0.045

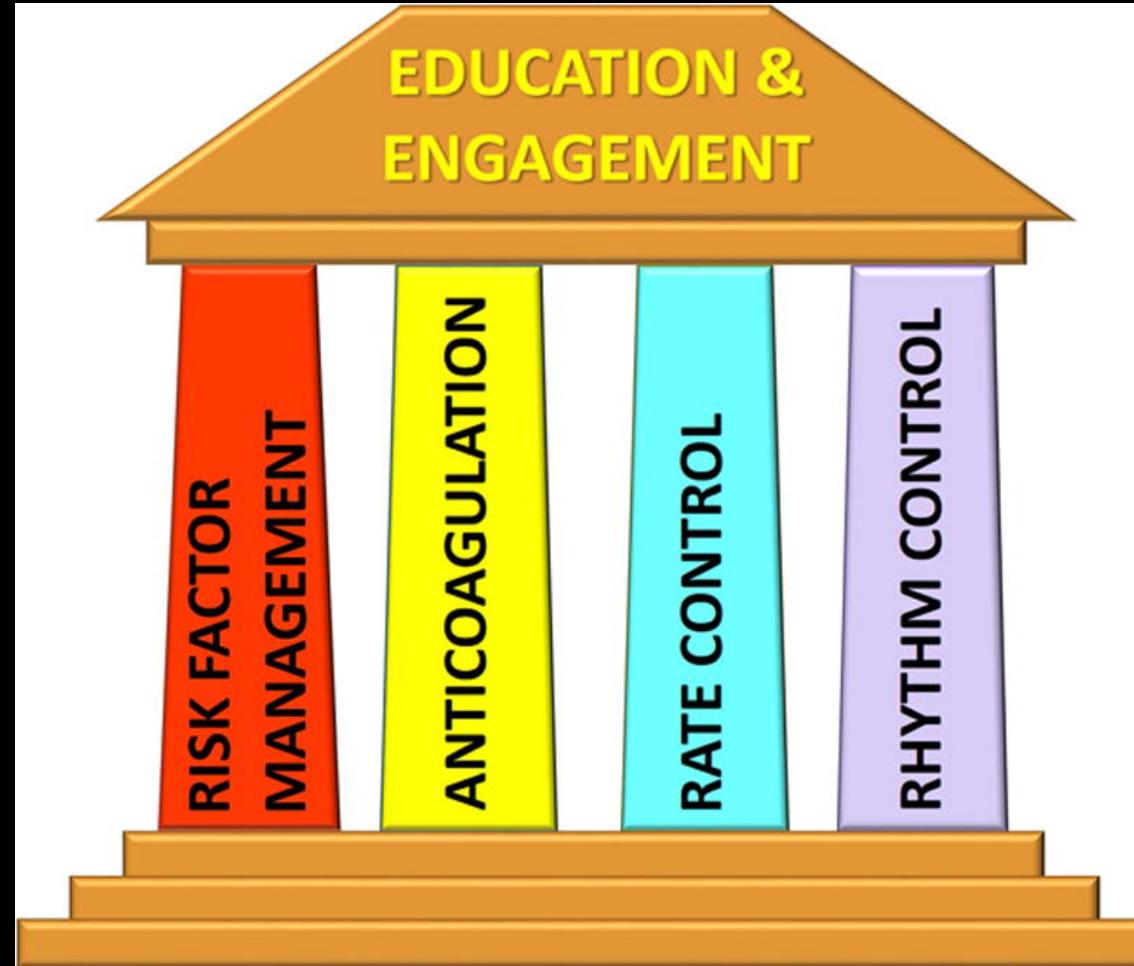
* Represents significant change within each group ($p < 0.05$)

* Overall F value represents overall group effect in a model that included RFM and control group, different study variable and their interaction.



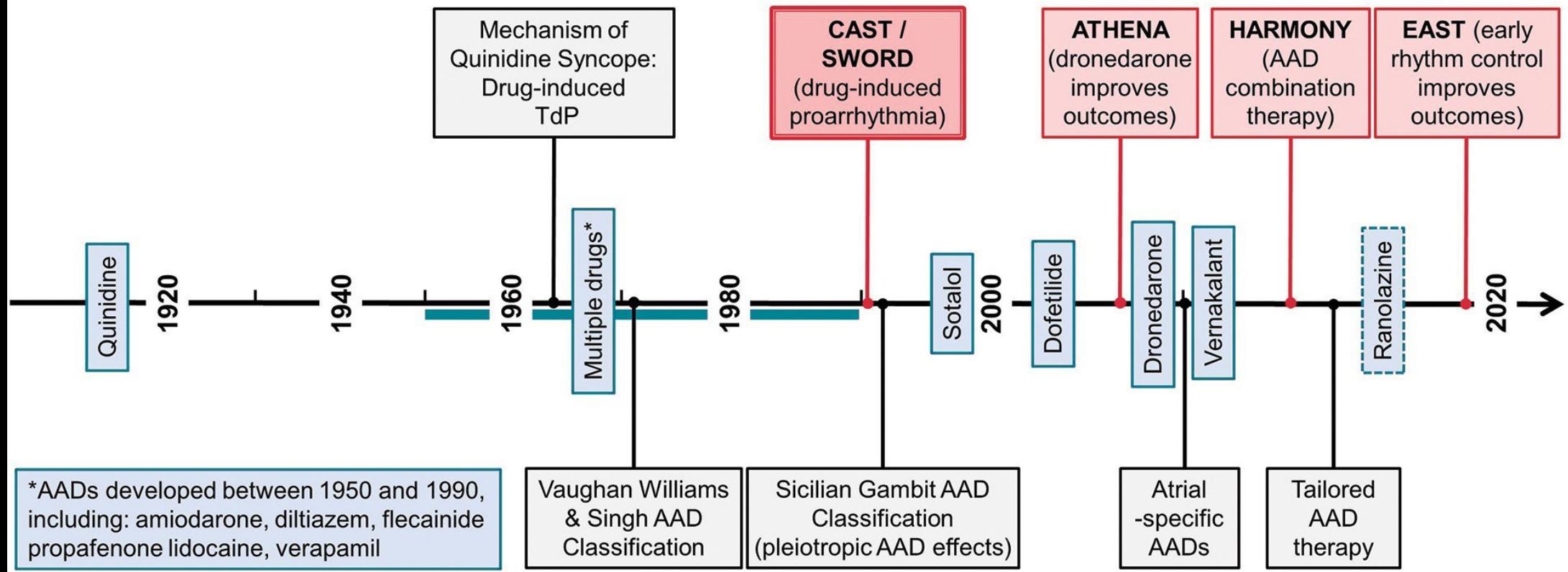


Modern management of Atrial Fibrillation



Pharmacotherapy of atrial fibrillation

Antiarrhythmic Drugs, Trials and Topics



Heijman J et al AADs for atrial fibrillation Europace (2021) 23 14-22

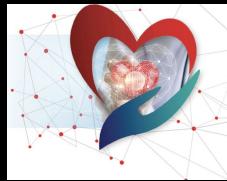


SUCCESS RATE OF AADs

	Mean relapse rate (range)	Studies (#)
No drug	69% (44-85)	10
Quinidine	59% (46-89)	11
Disopyramide	51(%) (46-56)	3
Propafenone	61(%) (54-70)	3
Flecainide	38%(19-51)	3
Sotalol	58%(51-63)	3
Amiodarone	47% (17-64)	4

Minimum 6 mos f/up



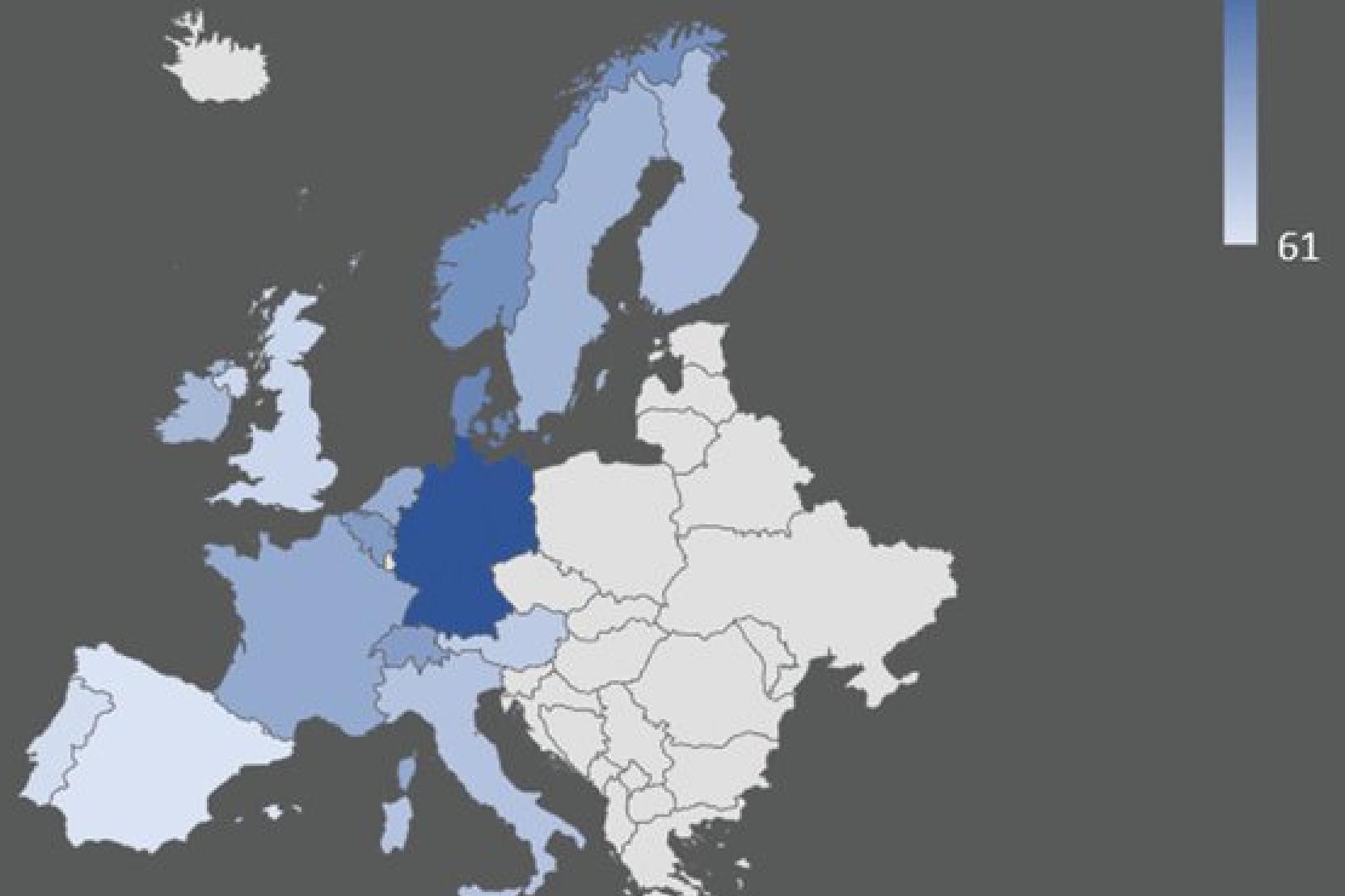


SUCCESS RATE OF AADs

	# pts/f/up	% success
CTAF	403 16 mo	Amio 65 Sotalol 37 Propafenone 37
SAFET	665 33 mo	Amio 65 Sotalol 25 Placebo 10
PAFAC	848 9 mo	Sotalol 33 Quin+Verap 35 Placebo 17
DIONYSOS	504 7 mo	Amio 58 Droned 36



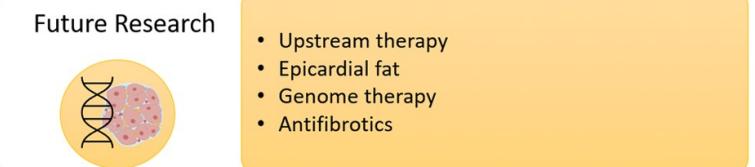
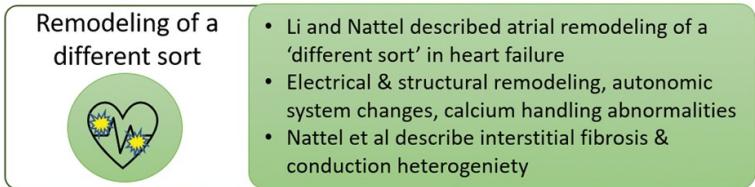
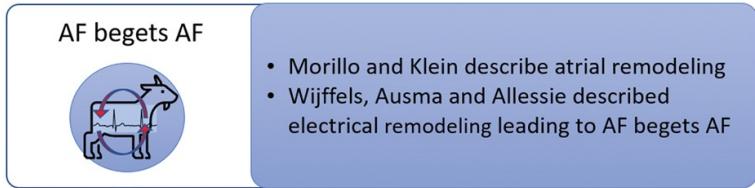
A Fib ablation in 15 European countries



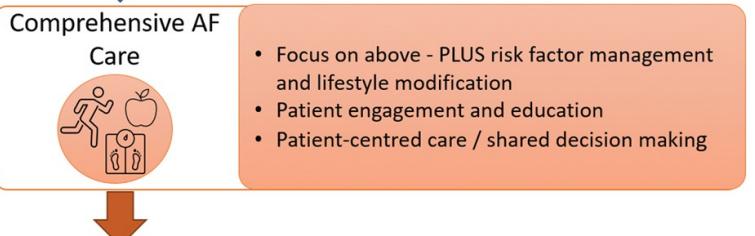
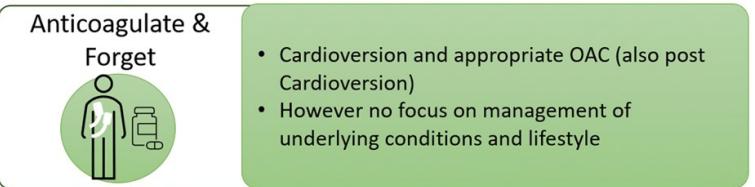


PARADIGM SHIFTS IN AF

Mechanistic



Clinical



TM



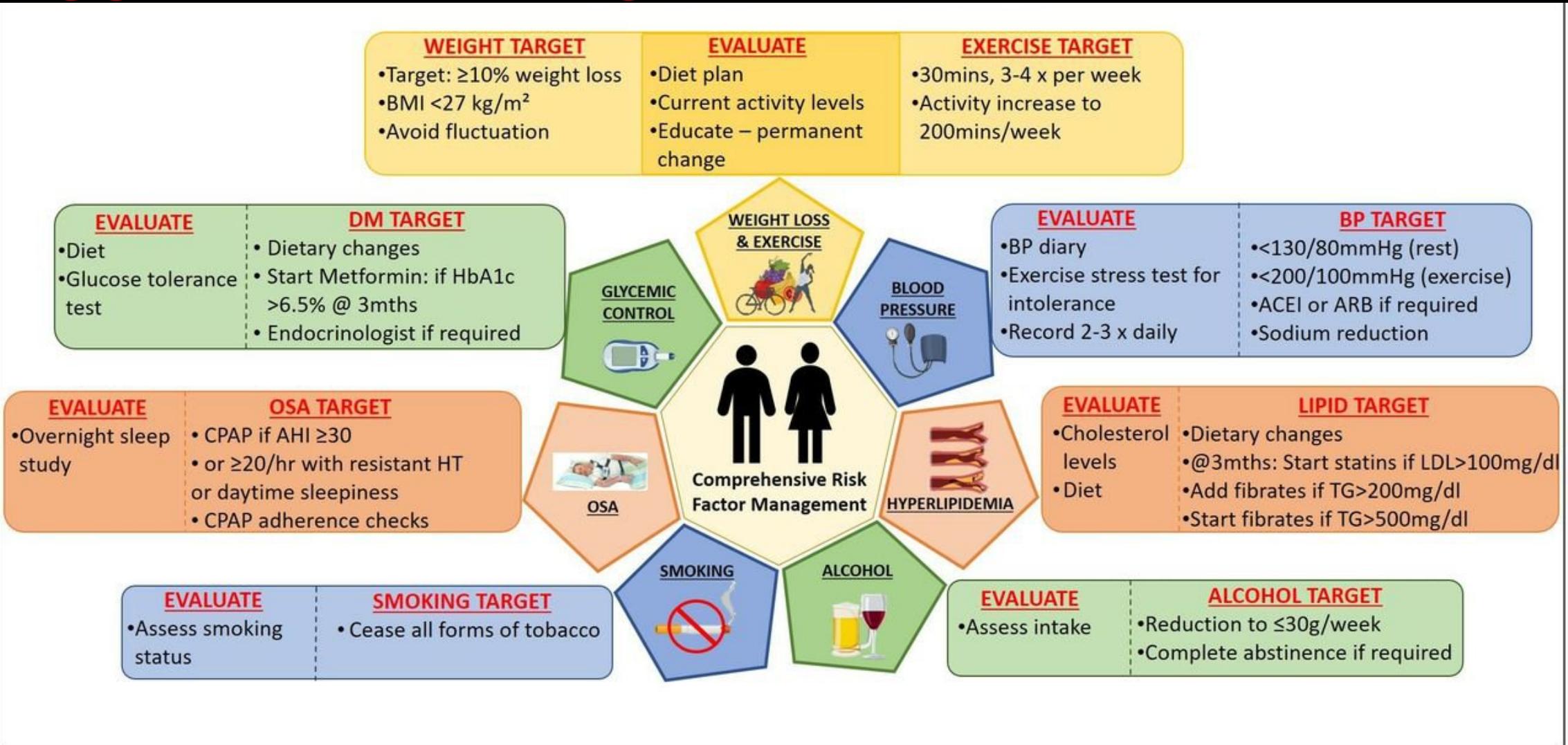


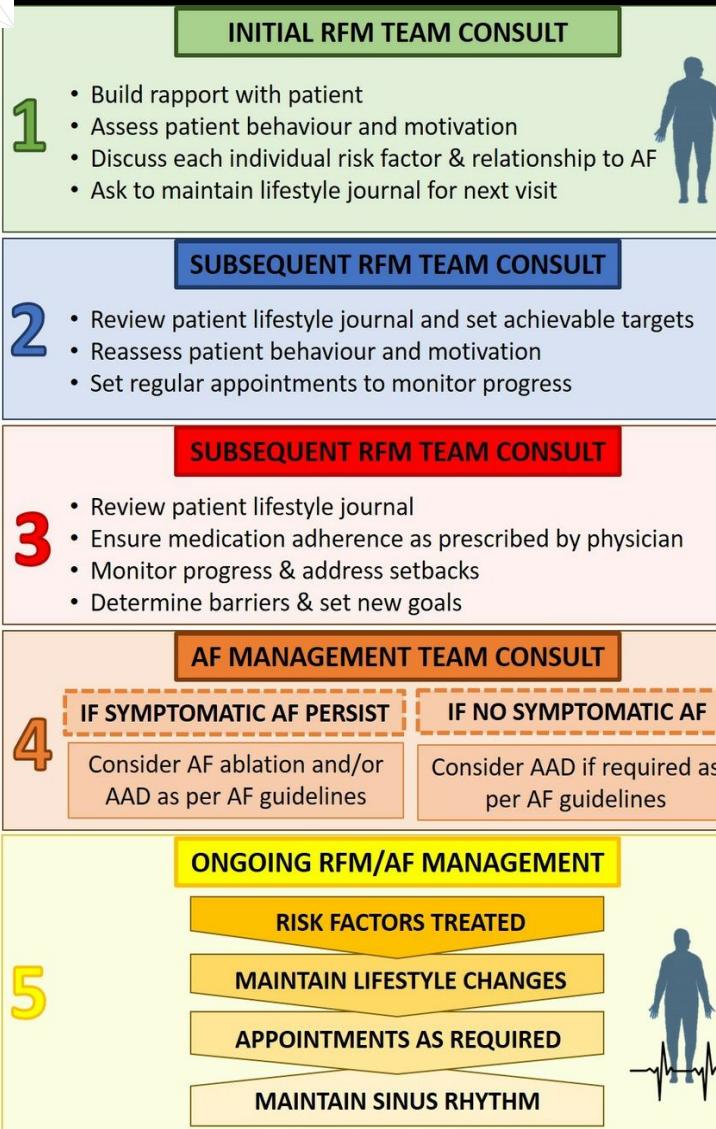
Integrated care model for AF management



Chung et al *Lifestyle and Risk Factor Modification for Reduction of AF*
Circulation 2020 141:e750-e772

Aggressive management of RFM in AF pts







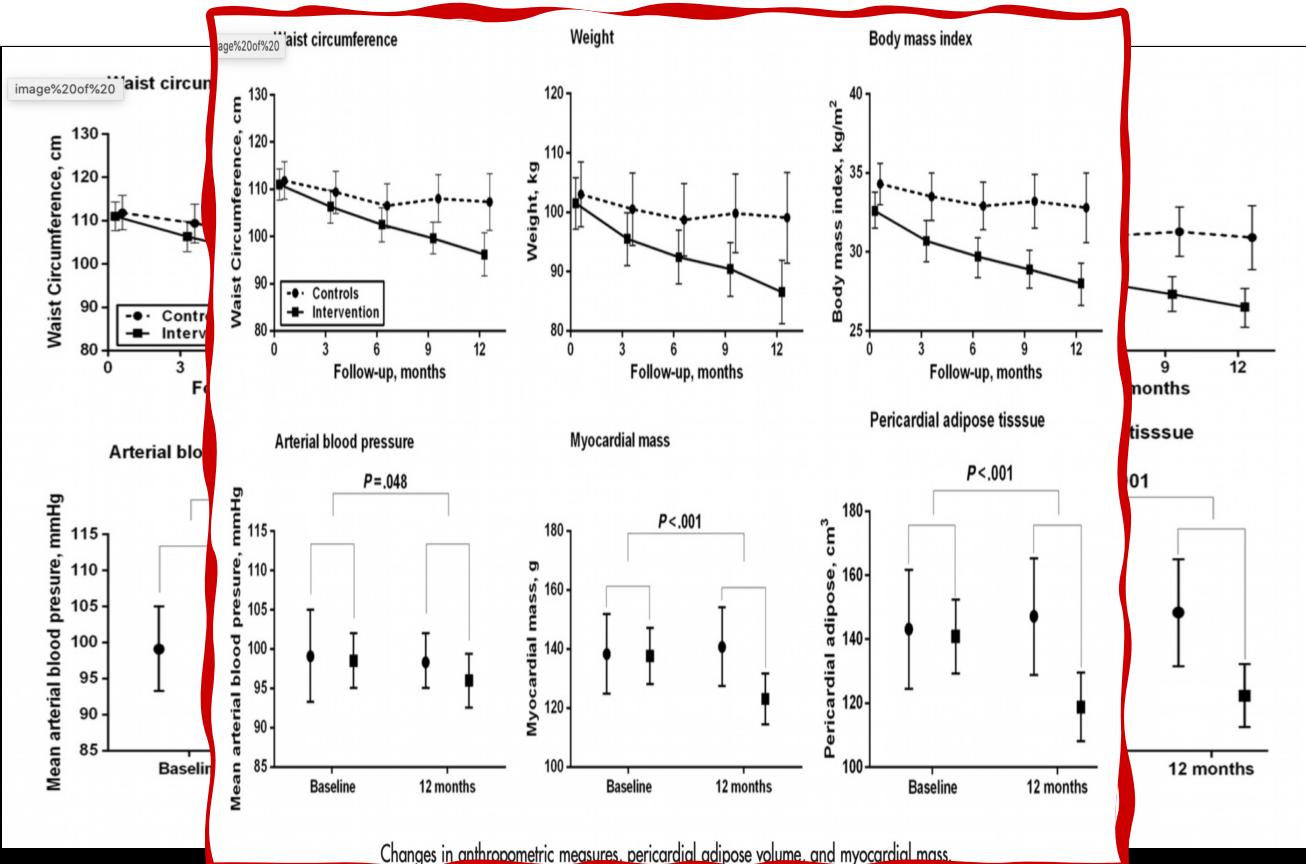
The doctor of the future will give no medicines,
but will interest his patients in the care of the
human frame, in diet, and in the causes and
prevention of disease.

(Thomas Edison)



Impact of weight reduction on pericardial adipose tissue and cardiac structure in patients with atrial fibrillation

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Abed H et al, Am Heart Journal 2015