

Lifestyle Modification and Management of AF

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Disclosure

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- Grants/Research Support: Biotronik, Abbott, Boston
- Speakers Bureau/Honoraria: Skylabs, Medtronic, Abbott, Boston



Lifestyle modification and Modifiable risk factors

June 23 (Fri)

■ 08:45-10:15

Atrial Fibrillation 1: AF Risk Factor

Room 1

ENG

Chair Gyo-Seung Hwang (Ajou University School of Medicine, Republic of Korea)
Seongwook Han (Keimyung University School of Medicine, Republic of Korea)

Speaker Epidemiology and Modifiable Risk Factors for AF Prashanthan Sanders (University of Adelaide, Australia)

Speaker Effect of Active Cancer on Clinical Outcomes in Elderly AF Patients Takanori Ikeda (Toho University Faculty of Medicine, Japan)

Speaker Lifestyle Modification and the Management of AF Tae-Hoon Kim (Yonsei University College of Medicine, Republic of Korea)

Speaker Sleep-Related Breathing Disorder and Atrial Fibrillation Yung-Lung Chen (Kaohsiung Chang Gung Memorial Hospital, Taiwan)

Speaker Atrial Fibrillation and Stress Peter Kistler (Heart Centre at the Alfred Hospital, Australia)

Speaker Impact of Frailty on Early Rhythm Control Outcomes in Older Adults with Atrial Fibrillation Ga-In Yu (Gyeongsang National University College of Medicine, Republic of Korea)

Agenda

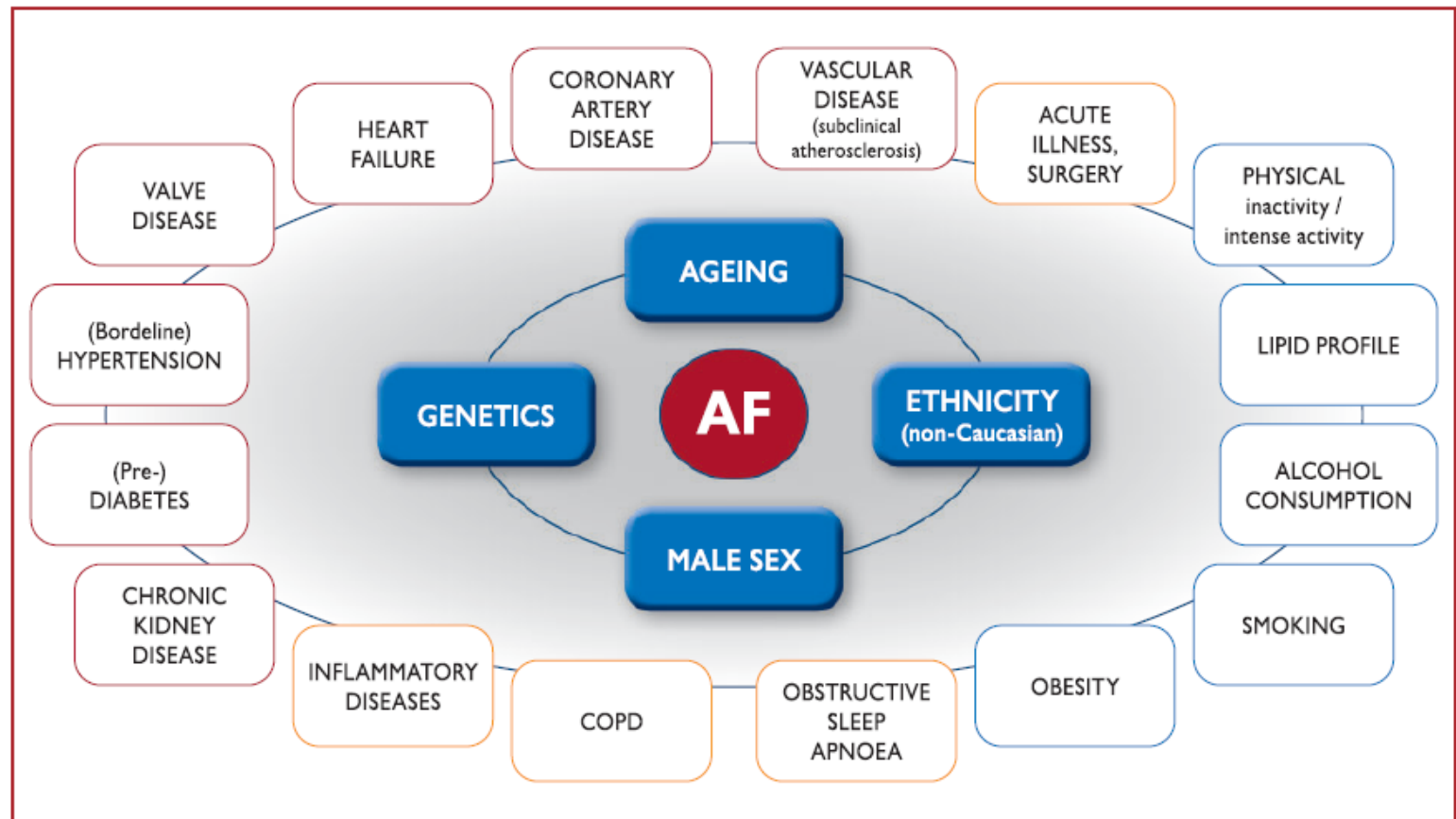
- ✓ Obesity and weight reduction
- ✓ Alcohol consumption
- ✓ Pericardial fat
- ✓ BP control
- ✓ Sleep Apnea

C: Comorbidities/ Cardiovascular risk factor management



Comorbidities and cardiovascular risk factors

Lifestyle changes (obesity reduction, regular exercise, reduction of alcohol use, etc.)

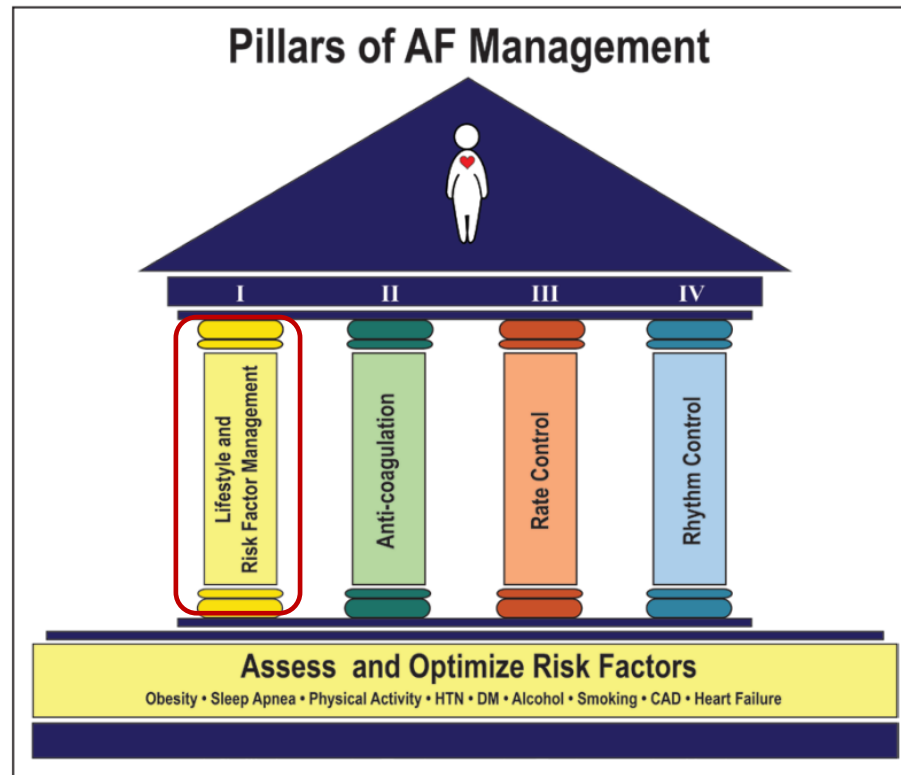


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2020 ESC AF guidelines, Eur Heart J. 2021;42:373-498



Lifestyle and risk factor management



- In addition to the traditional 3 strategies of AF management, a fourth approach addressing lifestyle and risk factors is suggested.

Chung MK et al. AHA scientific statement on Lifestyle and Risk Factor Modification for Reduction of Atrial Fibrillation. Circulation. 2020 Apr 21;141

2020 ESC guidelines for AF

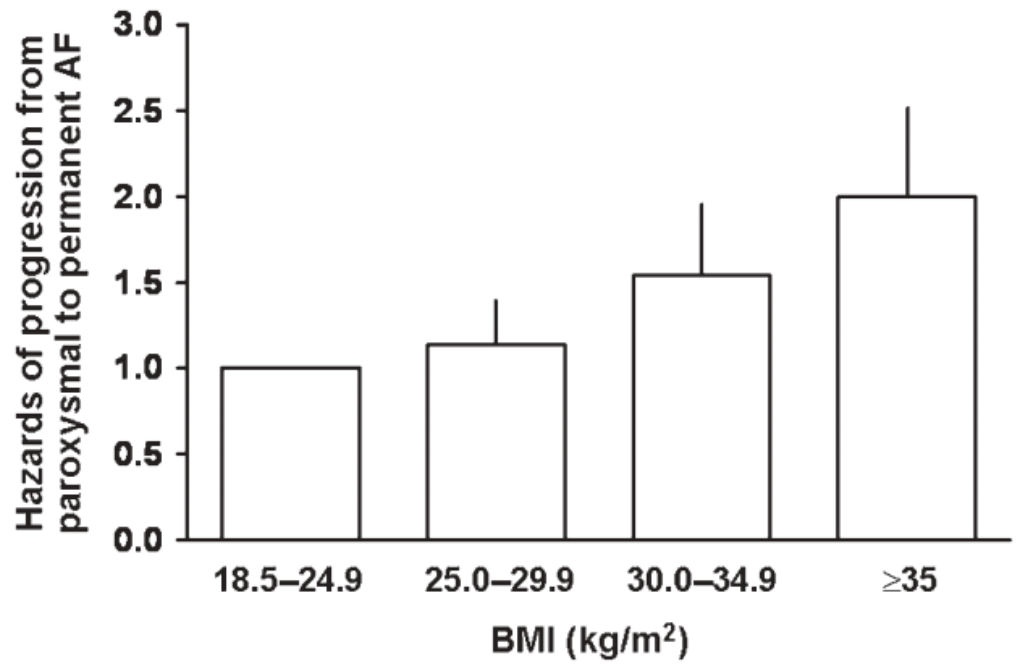
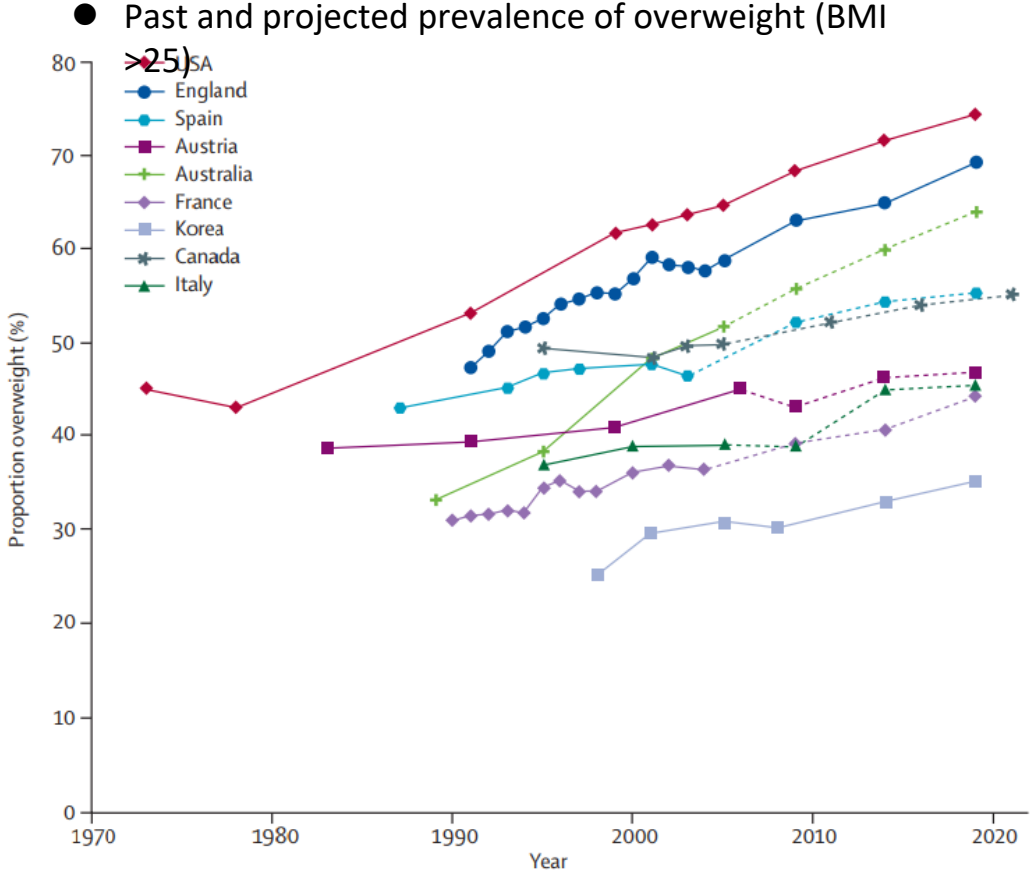
What is new in the 2020 Guidelines? New recommendations (11)



Recommendations	Class
Recommendations for lifestyle interventions and management of risk factors and concomitant diseases in AF	
Identification and management of risk factors and concomitant diseases is recommended as an integral part of treatment in AF patients.	I
Modification of unhealthy lifestyle and targeted therapy of intercurrent conditions is recommended to reduce AF burden and symptom severity.	I

2020 ESC AF guidelines, Eur Heart J. 2021;42:373-498

Obesity and AF



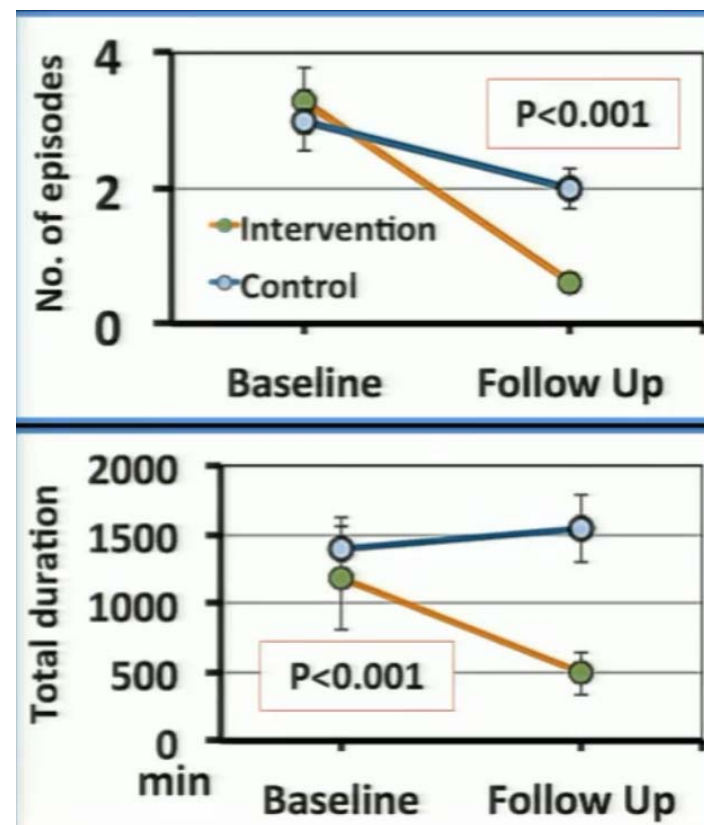
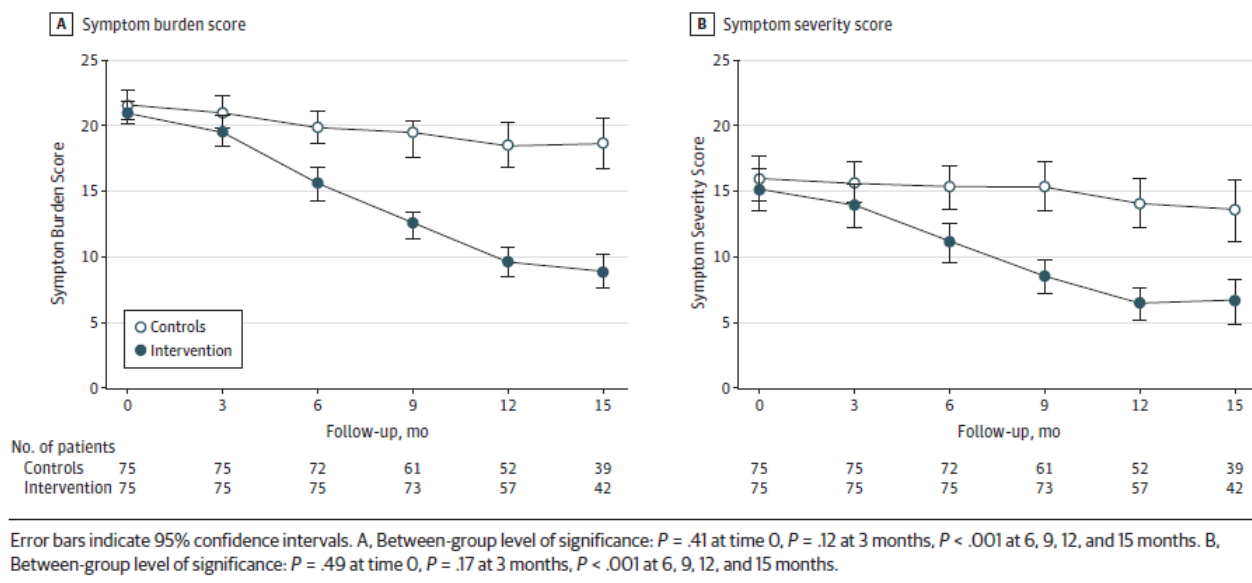
- There was a graded risk relationship between BMI and progression from paroxysmal to permanent AF.
- BMI and LA volume were independent predictors of progression to permanent AF.

Wang YC et al. *Lancet*. 2011 Aug 27;378(9793):815-25
 Tsang et al. *Eur Heart J*. 2008 Sep;29(18):2227-33



Lifestyle Modifications : Weight reduction

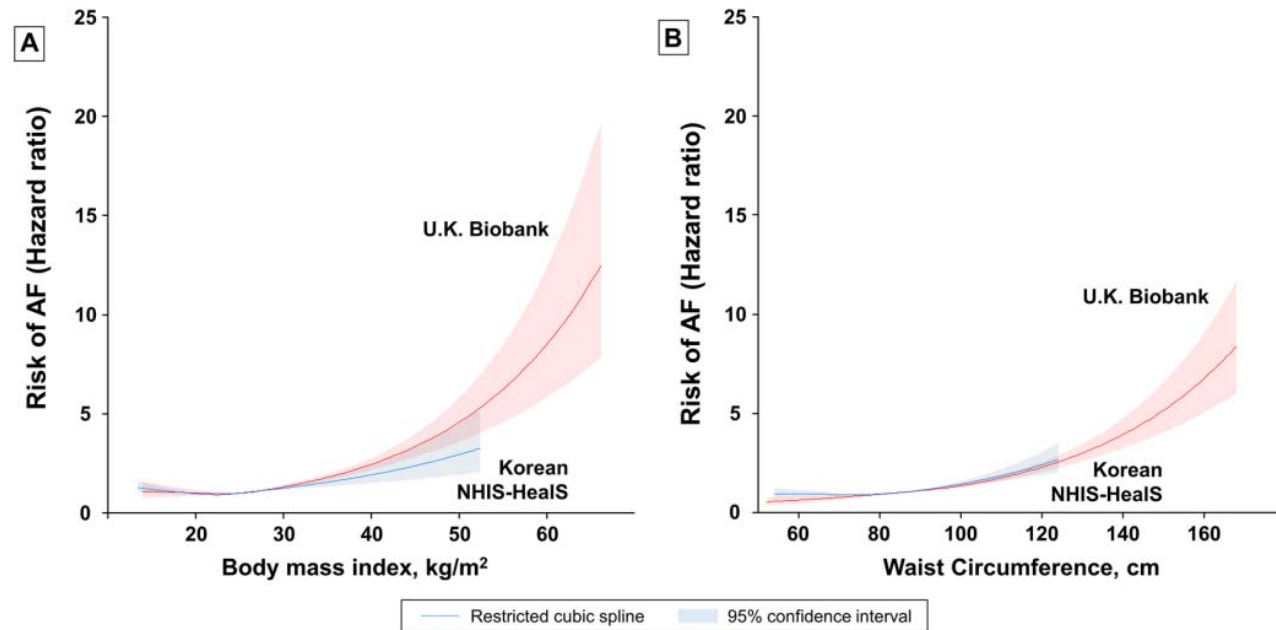
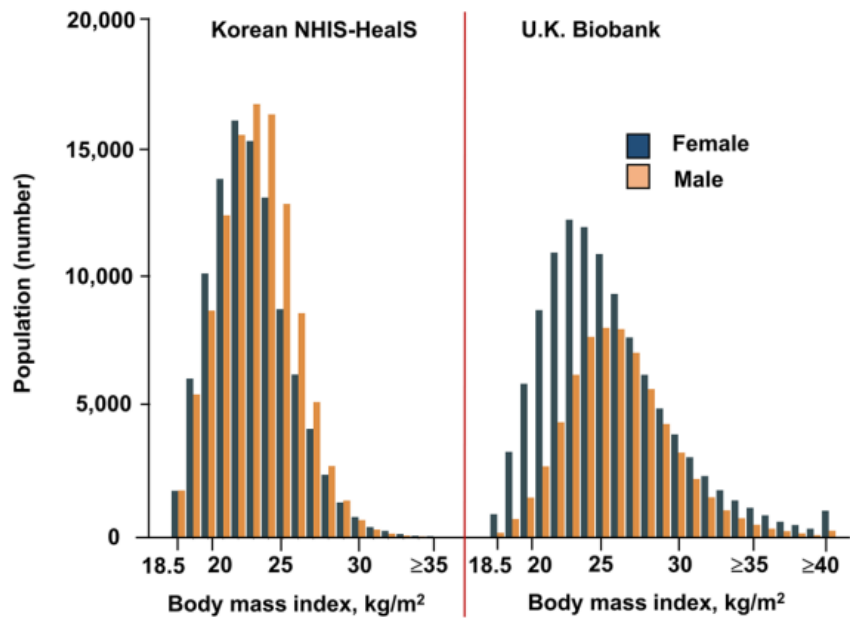
- 248 highly symptomatic AF patients with BMI >27 & WC >100 (male) or >90 (female)



BMI & waist circumference ↓ → Symptom burden, severity, number & duration of episodes ↓

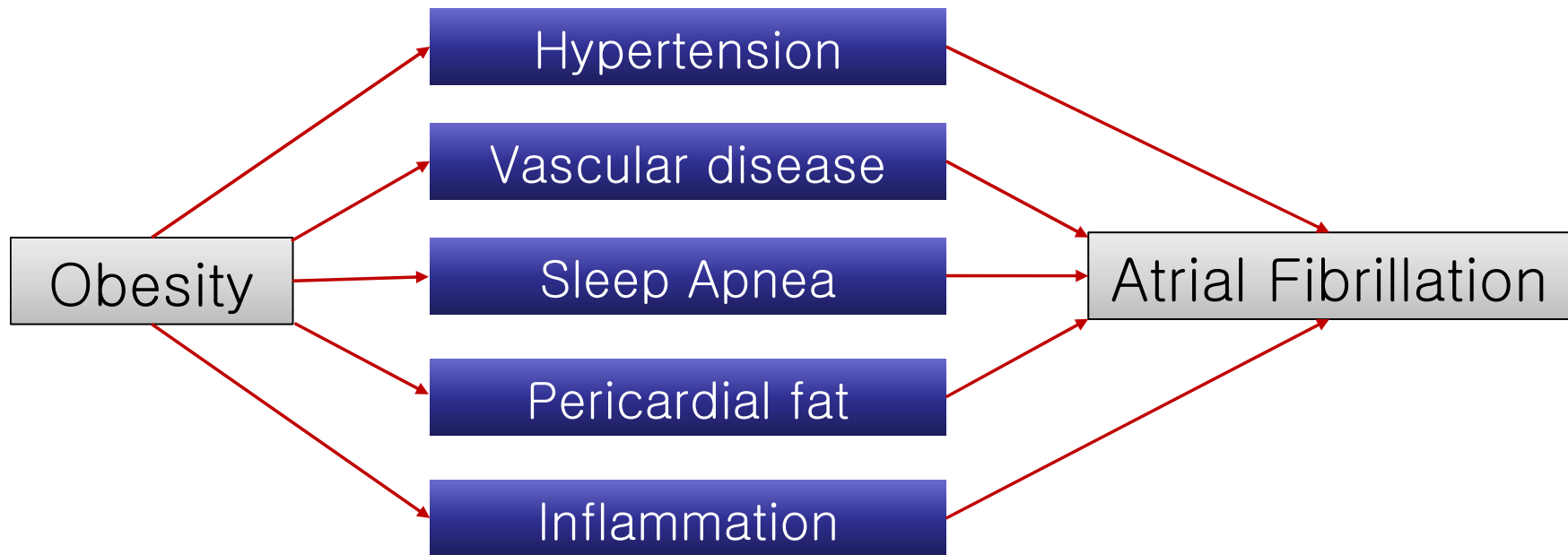
Abed HS, Sanders P et al. JAMA. 2013 Nov 20;310(19):2050-60

Obesity with incident AF in Korea and the UK



Choi SH, Joung B, Lip GYH et al. *Int J Cardiol.* 2014 Oct 20;176(3):841-6.

Obesity and AF: associated conditions



Pericardial fat and AF ablation outcome

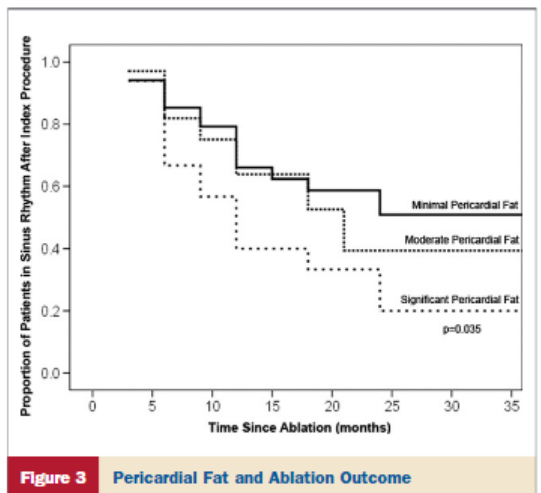
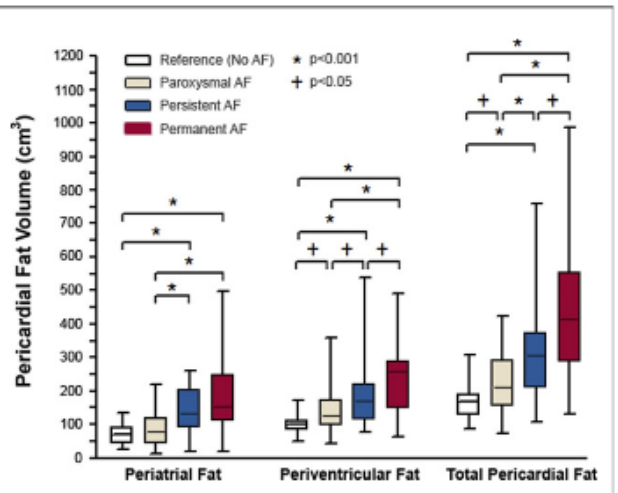
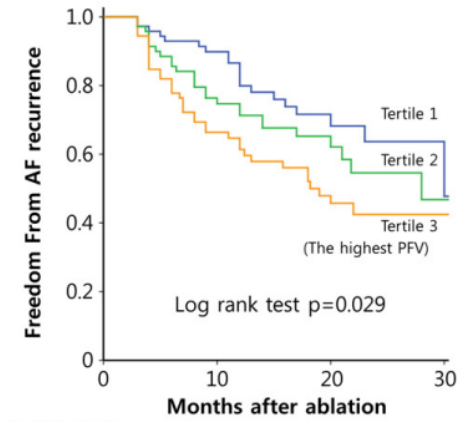


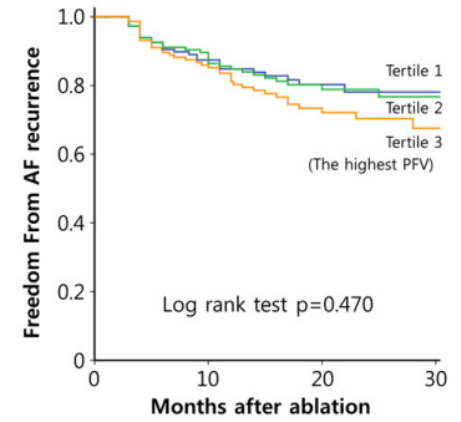
Figure 3 Pericardial Fat and Ablation Outcome

A. Persistent AF



Number at risk	0	10	20	30
Tertile 1	72	55	17	2
Tertile 2	71	44	17	4
Tertile 3	72	40	16	4

B. Paroxysmal AF



Number at risk	0	10	20	30
Tertile 1	150	100	46	7
Tertile 2	150	107	52	7
Tertile 3	150	106	49	16

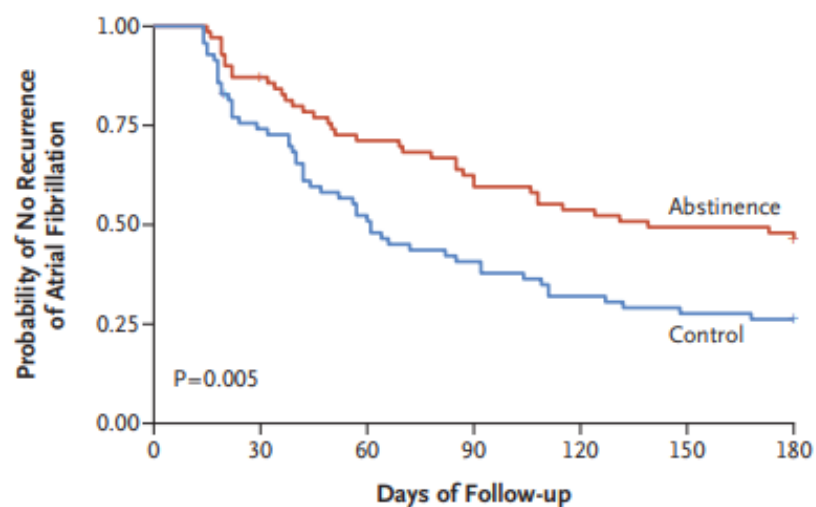
Wong CX, Sanders P et al. *J Am Coll Cardiol.* 2011 Apr 26;57(17):1745-51
Kim TH et al. *Int J Cardiol.* 2014 Oct 20;176(3):841-6



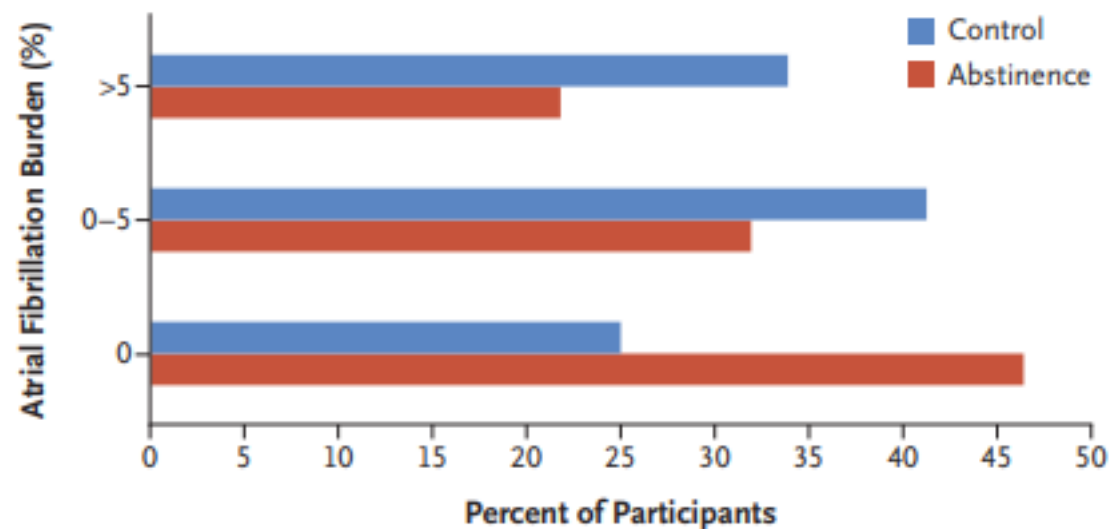
Lifestyle Modifications

: Alcohol Abstinence in Drinkers with Atrial Fibrillation

- 140 Adults who consumed 10 or more standard drinks per week and who had paroxysmal or persistent atrial fibrillation
- Randomly assigned in a 1:1 ratio to either abstain from alcohol or continue their usual alcohol consumption.



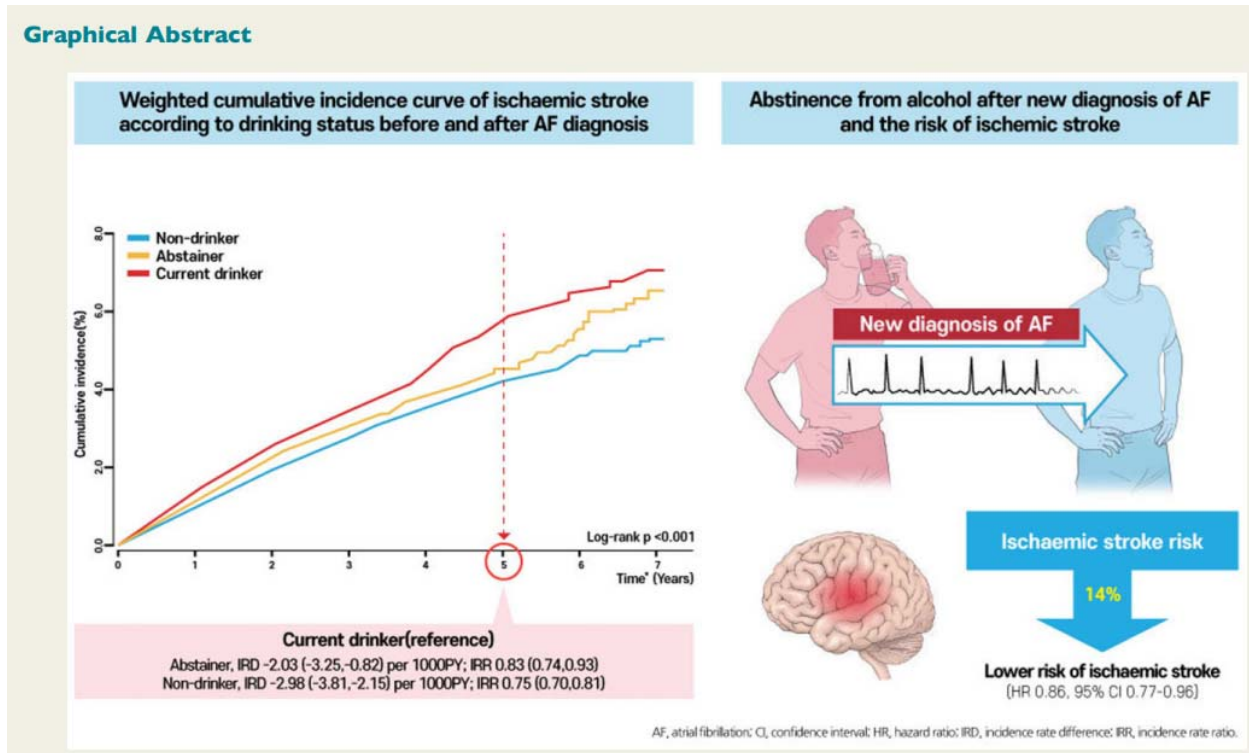
No. at Risk	0	30	60	90	120	150	180
Abstinence	70	61	49	43	37	34	33
Control	70	51	36	28	22	19	18



Voskoboinik A, Kistler M et al. *N Engl J Med.* 2020 Jan 2;382(1):20-28.

Lifestyle Modifications

: Alcohol abstinence after new diagnosis of AF and risk of stroke



- 97 869 newly diagnosed AF patients, 51% were non-drinkers, 13% were abstainers, and 36% were current drinkers
- Current alcohol consumption was associated with an increased risk of ischaemic stroke in patients with newly diagnosed AF, and alcohol abstinence after AF diagnosis could reduce the risk of ischaemic stroke.

Lee SR et al. *Eur Heart J*. 2021 Dec 7;42(46):4759-4768

Lifestyle Modifications

: Alcohol Consumption dose and adverse events in AF

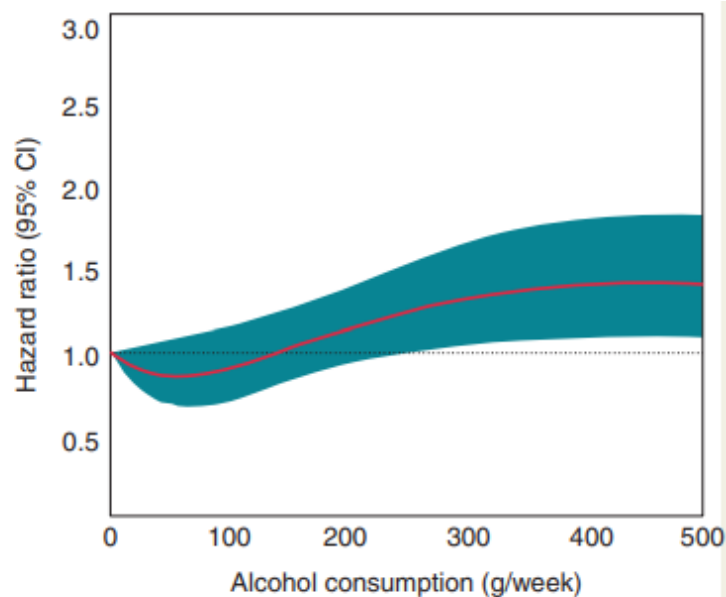


Figure 2 J-shaped association between alcohol intake and adverse events in the atrial fibrillation population. CI, confidence interval.

Table 3 Hazard ratios for primary composite outcome^a according to alcohol consumption

	Abstainers and rare	Alcohol consumption					
		Light (<100 g/week)	Moderate (100–200 g/week)		Heavy (≥200 g/week)		
			P		P		P
HR, unadjusted (95% CI)	Ref	0.89 (0.69–1.14)	0.35	0.96 (0.67–1.40)	0.84	1.43 (1.16–1.76)	<0.01
HR, age- and sex-adjusted (95% CI)	Ref	0.83 (0.64–1.07)	0.15	0.87 (0.60–1.26)	0.45	1.28 (1.03–1.59)	0.03
HR, clinical risk factor-adjusted ^b (95% CI)	Ref	0.88 (0.68–1.13)	0.31	0.91 (0.63–1.33)	0.63	1.32 (1.06–1.66)	0.02

CI, confidence interval; HR, hazard ratio; Ref, reference.

^aPrimary composite outcome including ischaemic stroke, transient ischaemic attack, systemic embolic event, and atrial fibrillation-related hospitalization.

^bAdjusted for age, sex, hypertension, diabetes, congestive heart failure, previous ischaemic stroke, transient ischaemic attack, vascular disease, dyslipidaemia, chronic kidney disease, cancer, and smoking status.

- 9,411 patients with AF in a prospective observational registry (CODE AF).
- abstainer-rare, light (<100 g/week), moderate (100-200 g/week), and heavy (≥200 g/week)
- heavy alcohol consumption increases the risk of adverse events in patients with AF, whereas light or moderate alcohol consumption does not.

Lim C, Kim TH et al. *Europace*. 2021 Apr 6;23(4):548-556

HTN and 2020 ESC guidelines

H	Hypertension or on antihypertensive therapy	1	History of hypertension may result in vascular changes that predispose to stroke, and a well-controlled BP today may not be well-controlled over time. Uncontrolled BP – the optimal BP target associated with the lowest risk of ischaemic stroke, death, and other cardiovascular outcomes is 120–129/<80 mmHg.
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Recommendations for lifestyle interventions and management of risk factors and concomitant diseases in patients with AF

2020	Class	2016	Class
Attention to good BP control is recommended in AF patients with hypertension to reduce AF recurrences and risk of stroke and bleeding.	I	Blood pressure control in anticoagulated patients with hypertension should be considered to reduce the risk of bleeding	IIa
Physical activity should be considered to help prevent AF incidence or recurrence, with the exception of excessive endurance exercise, which may promote AF.	IIa	Moderate regular physical activity is recommended to prevent AF, while athletes should be counselled that long-lasting intense sports participation can promote AF	I

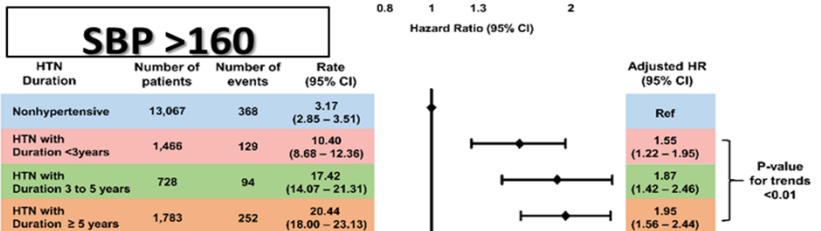
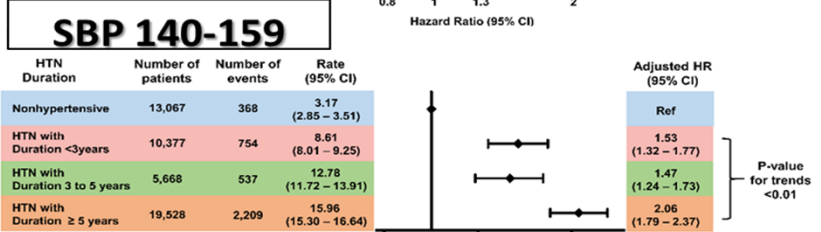
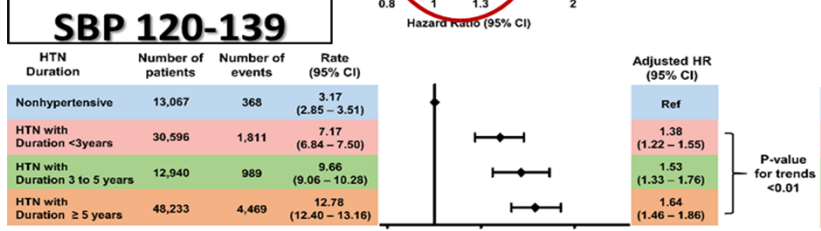
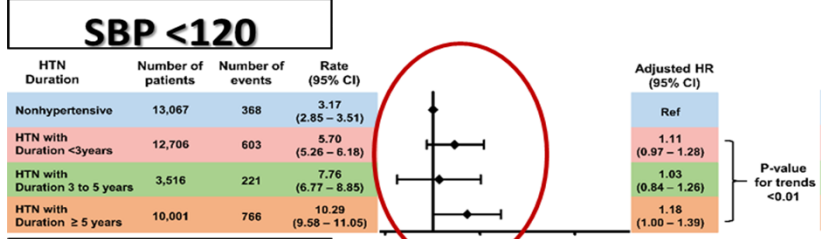
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www.escardio.org/guidelines

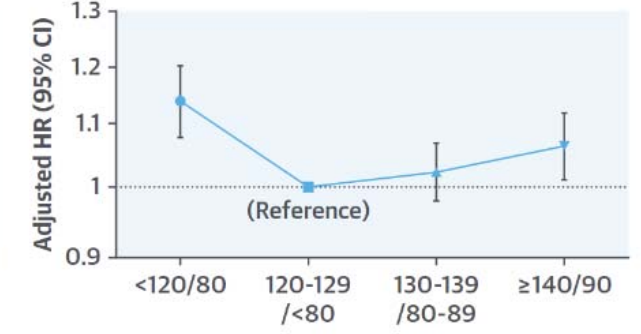
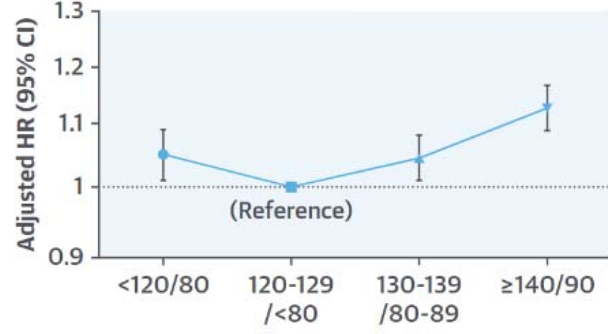
2020 ESC Guidelines for the diagnosis and management of atrial fibrillation (European Heart Journal 2020-doi/10.1093/eurheartj/ehaa612)

2020 ESC AF guidelines, Eur Heart J. 2021;42:373-498

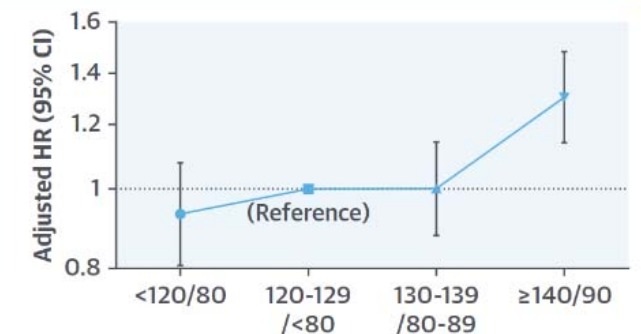
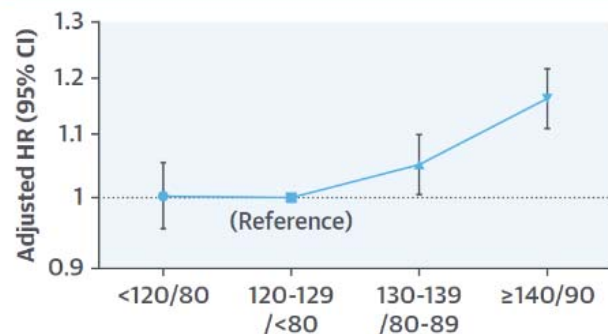
HTN and AF



Major Cardiovascular Event Death from All Causes



Ischemic Stroke Intracranial Hemorrhage

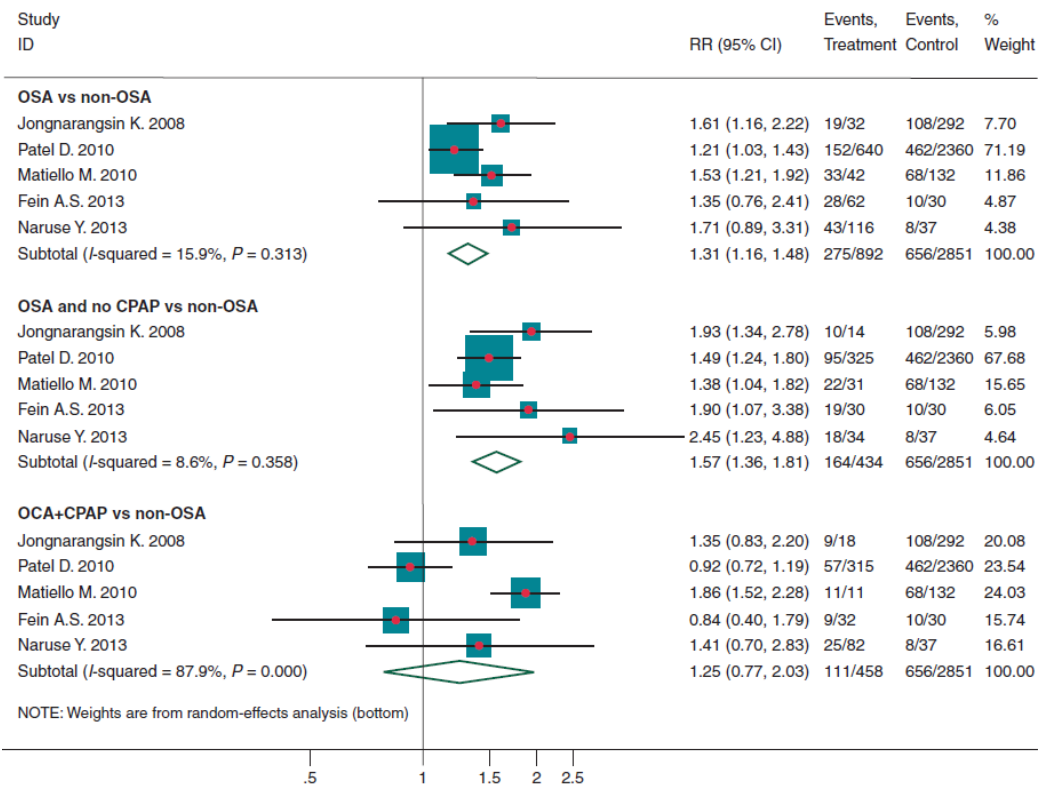


Kim D, Joung B, Lip GYH et al. *J Am Coll Cardiol.* 2018 Sep 11;72(11):1233-1245
 Kim TH, Joung B, Lip GYH et al. *Eur Heart J.* 2019 Mar 7;40(10):809-819



Comorbidities management

: Effect of CPAP therapy on AF ablation outcome



Recommendations for lifestyle interventions and management of risk factors and concomitant diseases in patients with AF

Recommendations	Class ^a	Level ^b
Optimal management of OSA may be considered, to reduce AF incidence, AF progression, AF recurrences, and symptoms. ^{650,651,1057 – 1061,1064,1065}	IIb	C

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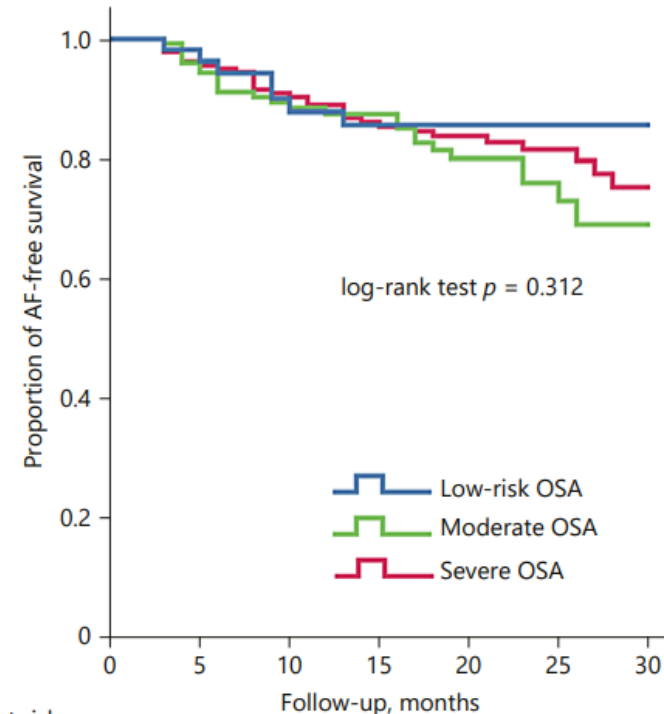
- Obstructive sleep apnoea was associated with AF recurrence after catheter ablation.
- The efficacy of catheter ablation for AF was similar between patients without OSA and patients with OSA undergoing CPAP treatment

Linz D et al. *JAMA Cardiol.* 2018 Jun 1;3(6):532-540
 Digby GC et al. *Curr Cardiol Rev.* 2012 Nov;8(4):265-72

Comorbidities management

: Effect of OSA severity on AF ablation outcome : Korean data

	Mild OSA (n = 190)	Moderate OSA (n = 131)	Severe OSA (n = 57)	p value
Age, years	55.7±11.5	61.7±8.9	63±8.8	<0.001
Male	123 (64.7)	107 (81.7)	44 (77.2)	0.006
Type of AF				0.542
Persistent	69 (36.3)	50 (38.2)	17 (29.8)	
Paroxysmal	121 (63.7)	81 (61.8)	40 (70.2)	
Hypertension	70 (36.8)	80 (61.1)	38 (66.7)	<0.001
DM	23 (12.1)	20 (15.3)	14 (24.6)	0.029
Prior stroke or TIA	24 (12.6)	24 (18.3)	11 (19.3)	0.131
CHA2DS2-VASc	1.5±1.3	2±1.5	2.3±1.7	<0.001
Coronary artery disease	15 (7.9)	26 (19.8)	16 (28.1)	<0.001
Valvular heart disease	18 (9.5)	10 (7.6)	3 (5.3)	0.292
Systolic blood pressure, mm Hg	118.5±14.8	119.0±10.7	122.1±13.1	0.581
Diastolic blood pressure, mm Hg	75.4±10.8	73.5±9.3	75.7±5.4	0.725
LA dimension, mm	41±5.8	42.7±5.6	42.9±7.2	0.016
LA volume index, mL/m ²	30.8±15	34.9±14.6	34.2±15.7	0.038
LVEF, %	63.4±7	62.5±8.2	63±9.9	0.606
E/E'	10.5±4.5	10.8±4.7	10.3±4	0.75
LV mass index, g/m ²	68.9±42.4	75.3±43	75.1±47.3	0.372
LVEDD, mm	49.4±4.4	49.8±4.3	50.1±5.6	0.596
LVESD, mm	33.4±5.7	33.6±5.6	34.1±6.7	0.772
Height, cm	166.2±9.1	164.7±16.4	168±9.2	0.219
Weight, kg	68.7±11.8	69.8±9.9	72.6±12.5	0.072
BMI	24.8±3.1	25.3±2.6	25.6±3.2	0.093
Neck diameter, cm	36.8±3.2	37.5±2.6	38.1±3.2	0.008
Waist circumference, cm	89.3±11.2	91.6±8.9	95.3±8.5	<0.001
hsCRP, mg/dL	3±8.3	1.6±2.9	2±2.5	0.138
AHI, apnea + hypopnea/h	3.8±3	17.8±5.7	44.5±13	<0.001
ESS	6.8±4.1	6.8±4.6	6.3±4	0.675
SQI	5.2±3.1	4.9±3	5.5±3.5	0.393
Test time, min	406.8±89.4	437.6±86.9	435.3±96.2	0.005
Mean duration of OSA, s	11.3±9.6	21±6.8	24.9±6.2	<0.001
Mean duration of hypopnea, s	20.1±7.2	23.6±4.9	24.7±5.5	<0.001
Minimum oxygen saturation, %	89.7±3.6	85.2±4.3	81.5±4.4	<0.001
Desaturation index, event/h	3.4±2.8	15.5±6.1	39.3±14	<0.001
Early recurrence	58 (30.5)	42 (32.1)	14 (24.6)	0.581
Antiarrhythmic drug after procedure	31 (16.3)	27 (20.6)	7 (12.3)	0.342



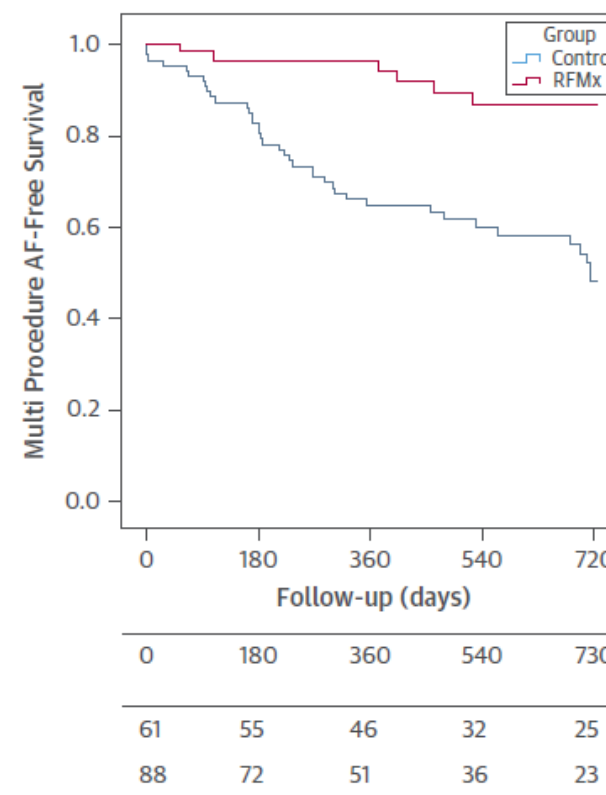
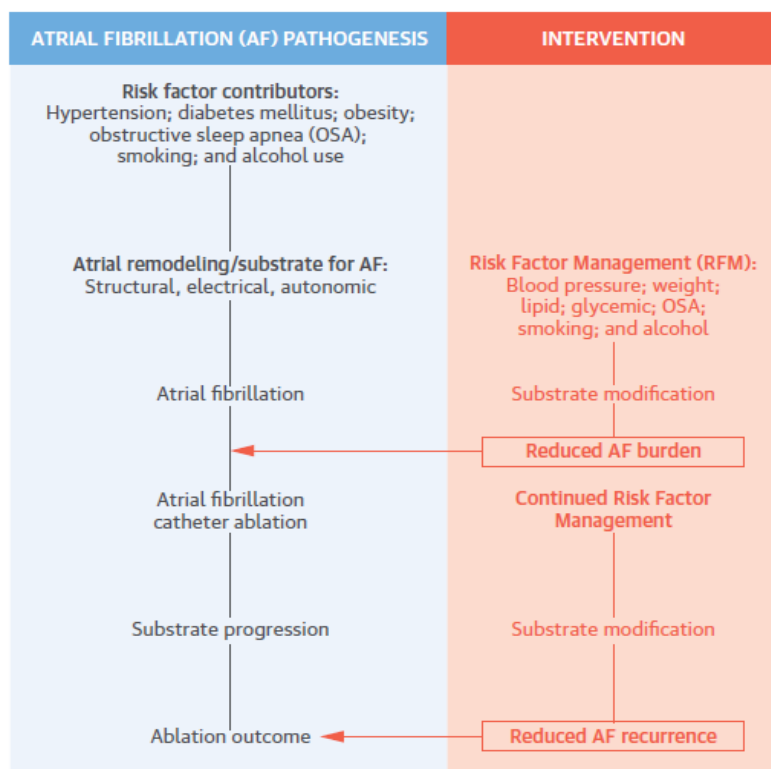
Patients at risk	0	5	10	15	20	25	30
Low-risk OSA	190	174	138	114	91	52	23
Moderate OSA	131	118	97	80	50	25	11
Severe OSA	57	52	42	34	23	10	3

- The severity of OSA is closely related with well-known cardiovascular risk factors and CAD, but it is not a predictor of the recurrence of AF after catheter ablation in Korean patients

Lee CJ and Kim TH et al. Pulse (Basel). 2018 Jul;6(1-2):103-111

Comorbidities management

: The ARREST-AF (BP, weight, lipid, glycemia, OSA, smoking, and alcohol)



Lifestyle modification and other strategies to improve outcomes of ablation

Weight loss is recommended in obese patients with AF, particularly those who are being evaluated to undergo AF ablation.

I	B
I	B

Strict control of risk factors and avoidance of triggers are recommended as part of a rhythm control strategy.

Pathak RK, Sanders P et al. J Am Coll Cardiol. 2014 Dec 2;64(21):2222-31

Conclusions

- Lifestyle modification and risk factors management
 - ✓ Weight reduction :
 - lower BMI in Korea, less risk of AF in Korea because of less BMI
 - However, lower AF risk in obese population of Korea than obese population of the UK
 - ✓ Alcohol abstinence : Consumption amount matters?
 - ✓ Hypertension : Strict BP control (2 studies with Korean populations)
 - ✓ OSA : CPAP therapy may be considered (IIb) but the result is not promising in Korea

Thank you for your attention!

