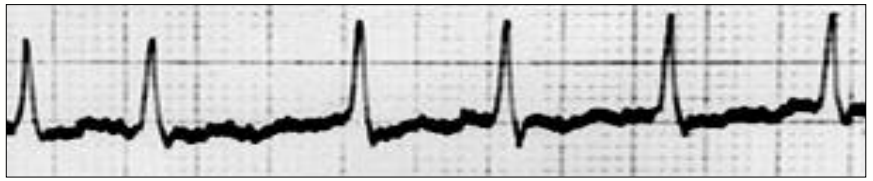
8th Annual Emirates Cardiac Society Conference

ACC Middle East Conference 2017

# DUBAI

## OCTOBER 19 – 21, 2017

**UNIQUE** EDUCATIONAL EXPERIENCE IN YOUR REGION



# Modifiable "Up-Stream" Risk Factors:

## Recent Studies in AF Prevention

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ACC Middle East Conference 2017

Jefferson

# Disclosures

- Speaker for St. Jude Medical, Zoll
- Fellowship support from Medtronic and Boston Scientific

# Talk Outline

- Alcohol (3 slides)
- OSA (2 slides)
- HTN (2 slides)
- Obesity/Weight loss (4 slides)
- Cardiorespiratory Fitness (2 slides)
- Caffeine (1 slide)
- Take-Home Messages (2 slides)

# Alcohol consumption and risk of AF in Men and Women – Copenhagen Study

METHODS:

- 88,782 M & F (Copenhagen City Heart Study 1991–1994 and 2001–2003; Copenhagen General Population Study 2003–2010)
- Incident AF cases: (from validated nationwide registry)
- Alcohol exposure: Self-reported consumption
- Recorded genetic variations in alcohol metabolizing genes (ADH1B/ADH1C)

ENDPOINT:

- Hospital admission for AF (from validated hospital registry)

Tolstrup JS et al. Eur J Prev Cardiol. 2016 Apr 12
pii: 2047487316641804

# Alcohol consumption and risk of AF in Men and Women – Copenhagen Study

RESULTS:

- 3,493 cases of new AF during F/U
- ↑ alcohol consumption was associated with ↑↑ risk of AF in M, but ***not in W***
- M who drank 4-5 and >5 drinks/day: HR=1.40 and 1.62 (vs. men who drank <1 drink/day)
- ADH genotypes: *not* associated with ↑ risk

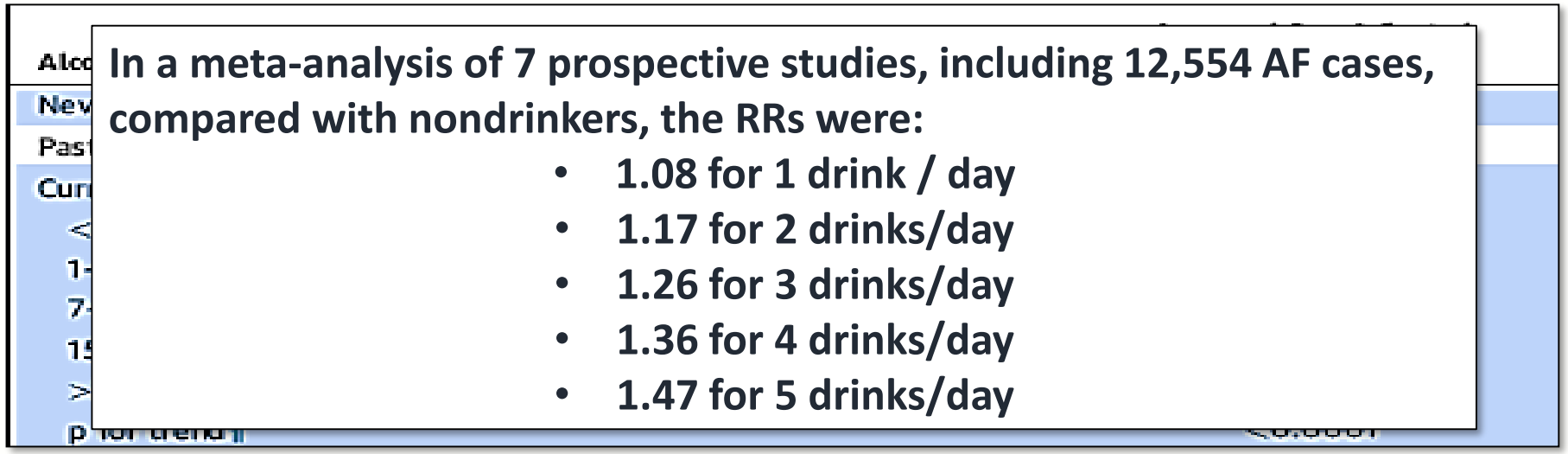
CONCLUSIONS:

- **↑ Alcohol was associated with a ↑↑ AF in *men***
- **In women, only high alcohol intake (>4 drinks/day) was associated with ↑ risk**
- **No relationship between alcohol intake, AF and ADH genotype**

Tolstrup JS et al. Eur J Prev Cardiol. 2016 Apr 12
pii: 2047487316641804

# Alcohol and AF Risk: Quantified

- 79,019 M and F who, at baseline, were free from AF
- Completed questionnaire about alcohol consumption and other RFs
- New AF cases from Swedish Inpatient Register; also performed a meta-analysis

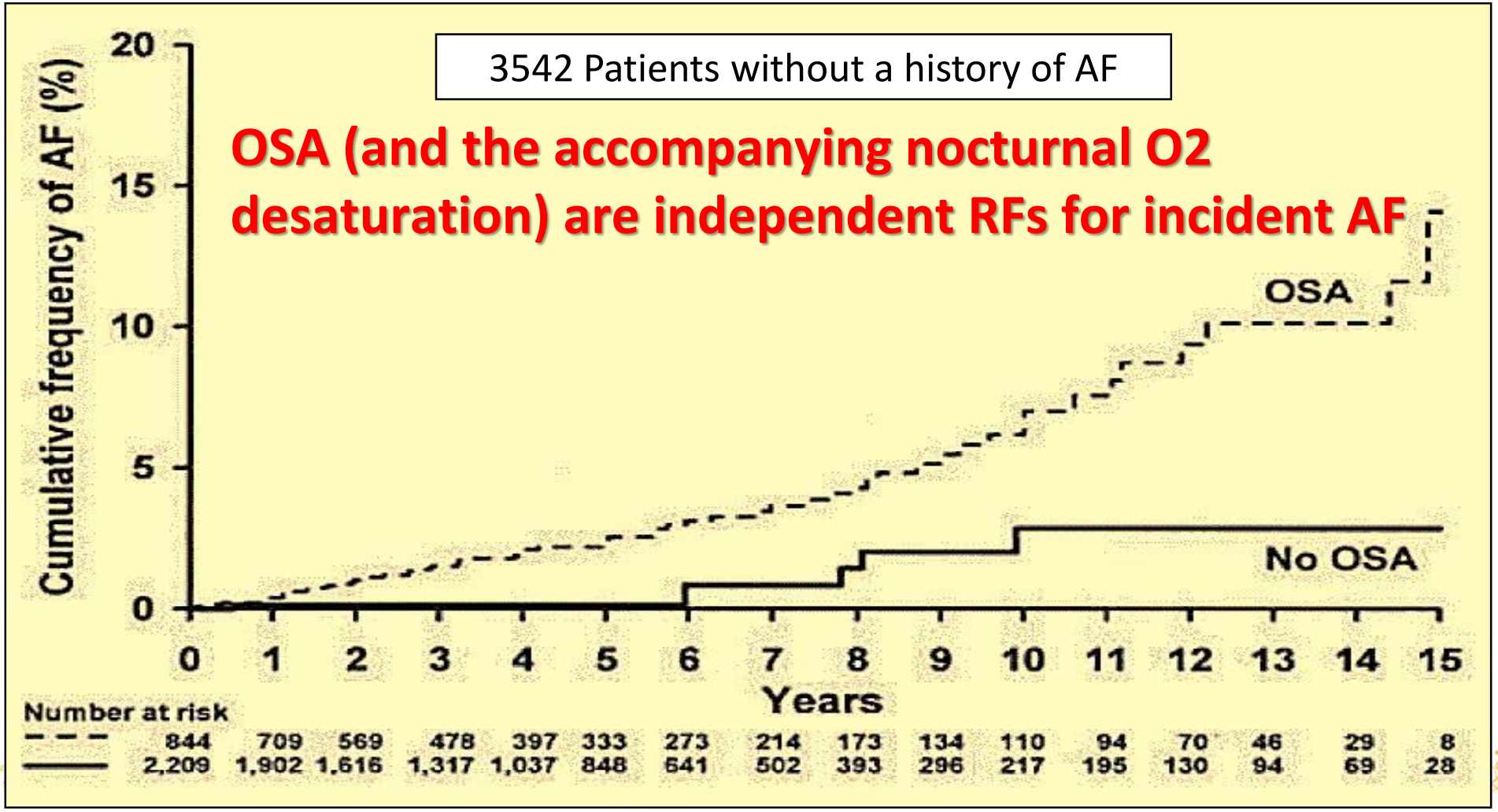



- **Conclusion**: Alcohol consumption, ***even at moderate intakes***, is a risk factor for AF:

**Alcohol imparts an 8 – 10% ↑ AF risk for each drink/day**

J Am Coll Cardiol 2014;64:281–9

# Sleep Apnea and AF




J Am Coll Cardiol 2007;49:565–571

# Sleep Apnea and AF

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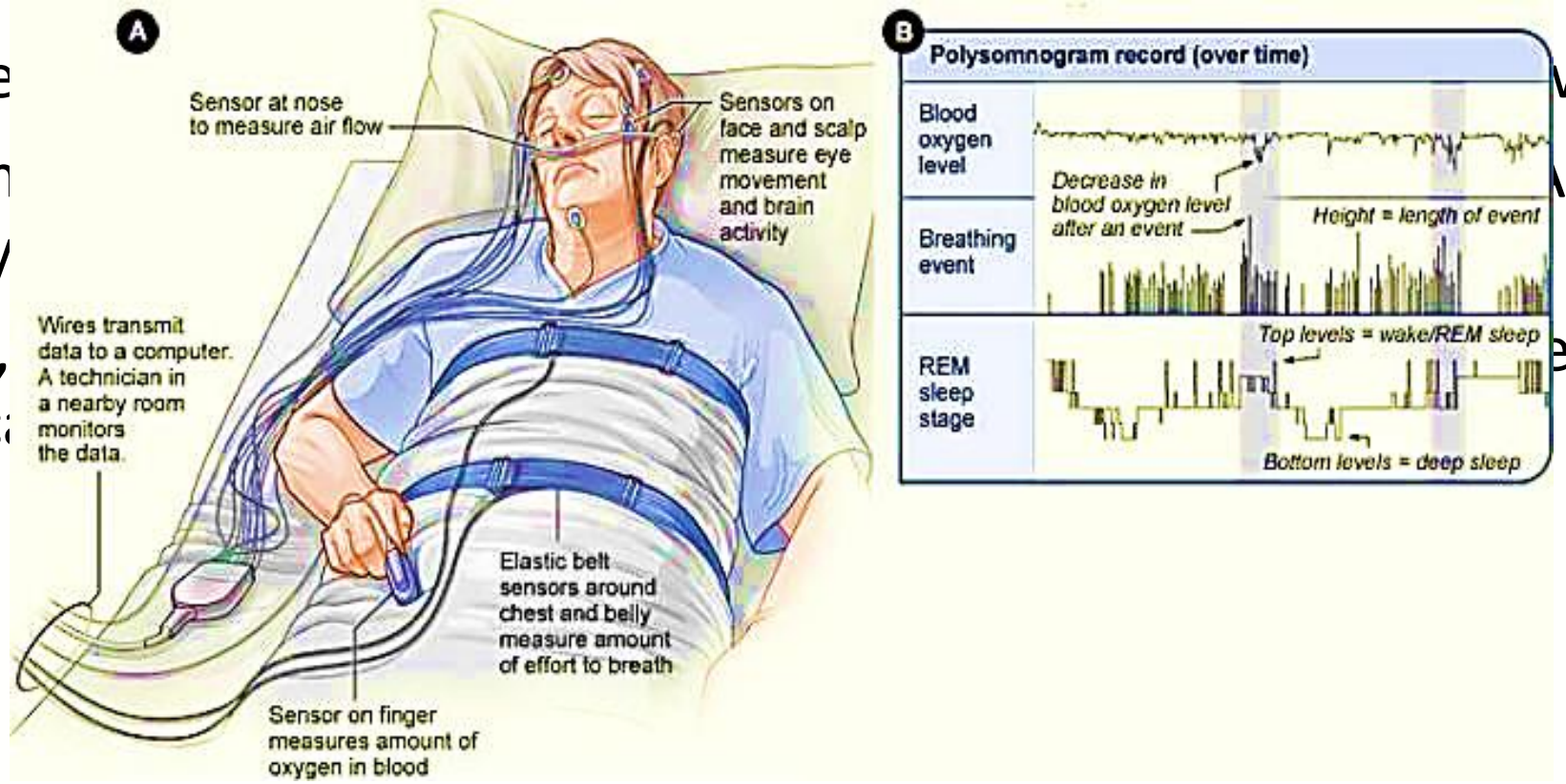



- Conclusion: **Existing evidence advocates for *screening and treatment of OSA* in cases of newly diagnosed AF**

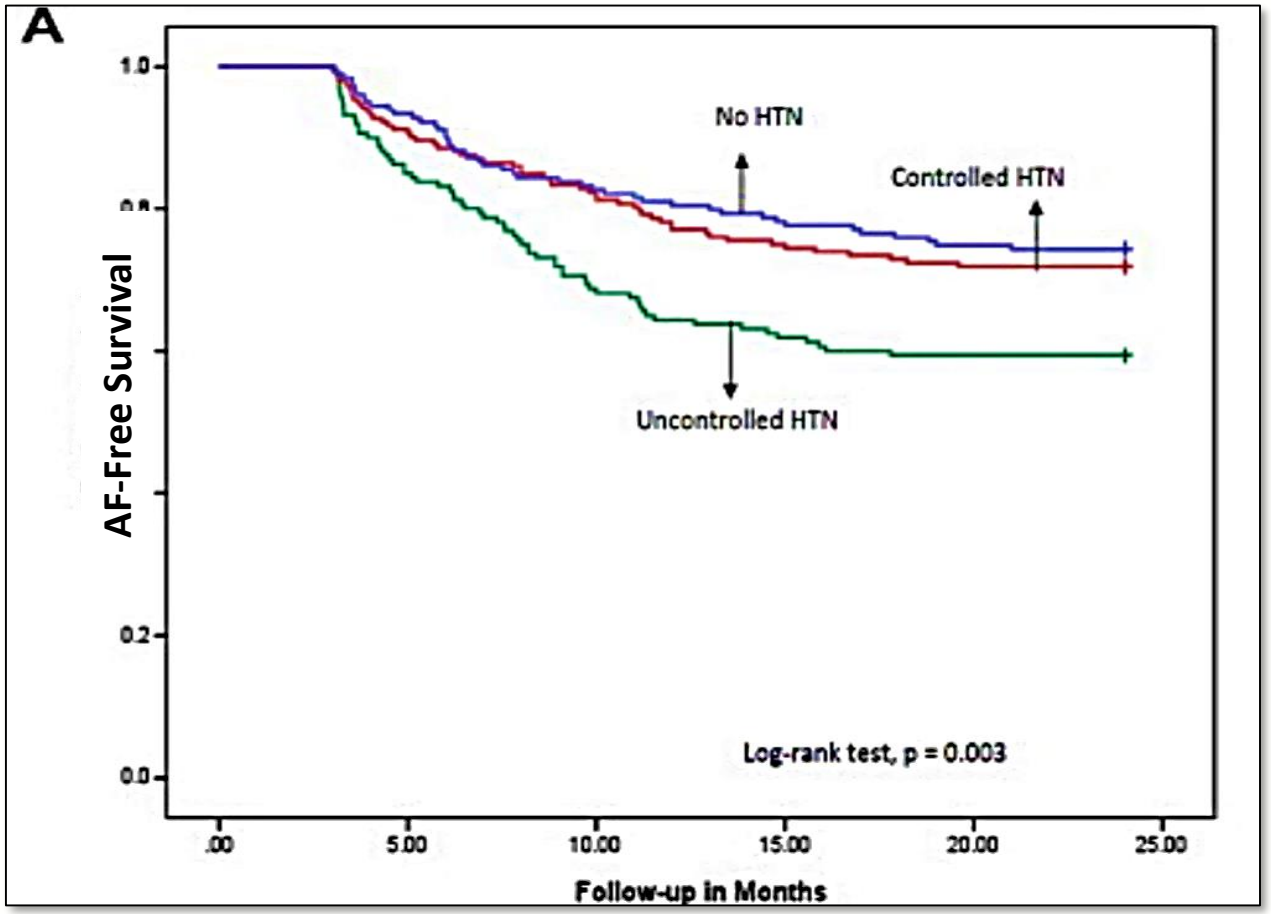
# Hypertension and AF

- AF and HTN frequently **coexist**; both are associated with ↑↑ stroke rates
- **Anticoagulation:** ↓ risk of ischemic stroke, but ↑ risk of hemorrhagic stroke
- **Uncontrolled HTN:** ↑↑ both ischemic *and* hemorrhagic stroke in AF pts
  - Better BP control → fewer embolic *and* hemorrhagic strokes
  - Better BP control → fewer intracranial bleeds
- [HTN details were under-reported in recent AF trials with the DOACs, and also in older trials with warfarin]
- CONCLUSION: **BP control protects from both ischemic & hemorrhagic stroke**

Manolis A et al. The unappreciated importance of blood pressure in recent and older atrial fibrillation trials. J Hypertens. 2013 Nov;31(11):2109-17

# Hypertension Impacts AF Burden Even After AF Ablation

- A total of 531 consecutive pts undergoing AF ablation
- 3 groups:
  - ➢ Uncontrolled HTN despite medical Rx (n = 160)
  - ➢ Controlled HTN (n =192)
  - ➢ No HTN (n =179)
- **Conclusion: After PVI, make sure BP is well controlled, or else AF will recur!**

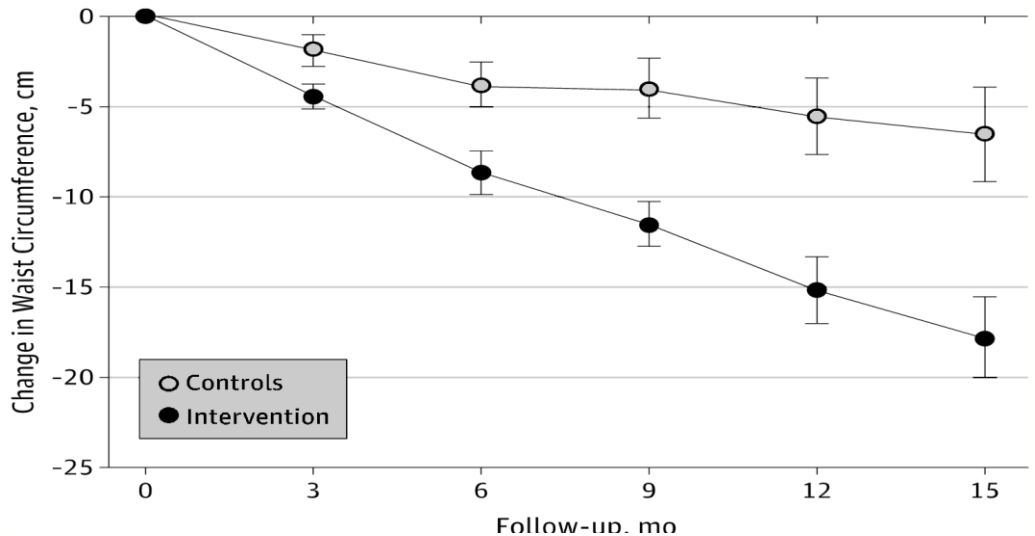



J Am Coll Cardiol EP 2015;1:164–73

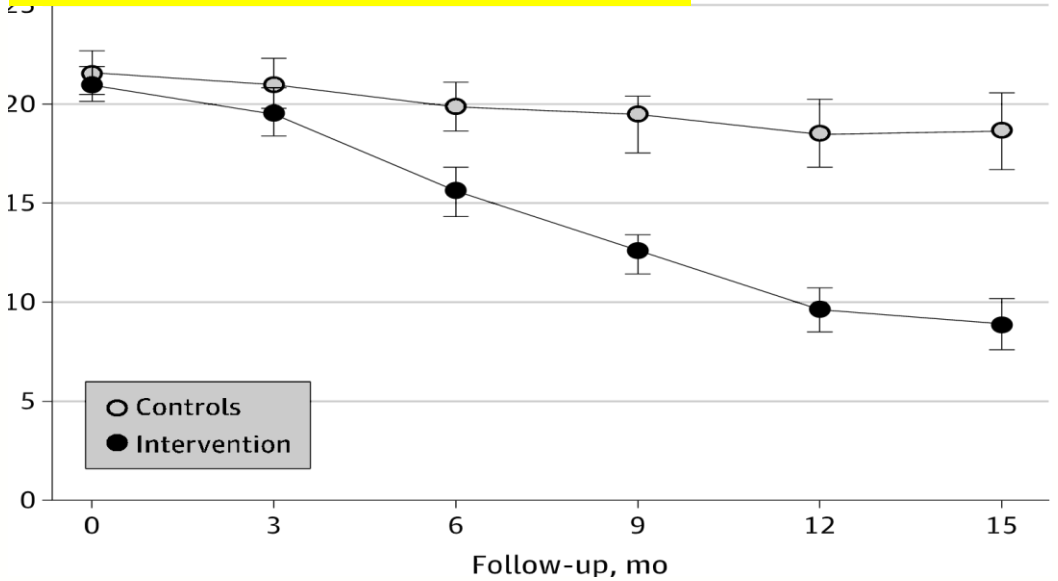
# Obesity and AF

- Single-center, RCT in Adelaide, Australia, in obese pts with symptomatic AF
  - N = 150, mean waist 43 in, weight 100 kg
- Randomized to: monitored weight management vs. usual lifestyle advice (control)

**Waist Circumference over 15 mo**




**Symptomatic AF Burden over 15 mo**



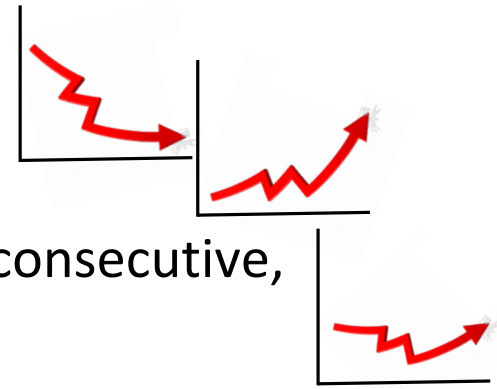

- Conclusions: **Weight reduction reduces AF burden and severity**

(JAMA. 2013;310(19):2050-2060)

# Obesity and AF

## Long-Term Effect of Goal-Directed Weight Management in an Atrial Fibrillation Cohort – The LEGACY Study

- 1415 pts with BMI ≥27 enrolled in structured motivational and goal-directed program
- Maintained daily diet and physical activity log
- If, at 3 mo, weight loss was <3% → given meal packets!
- Definitions: 3 groups
  - Grp 1: Linear weight loss – continuous loss with no interim gain >1%
  - Grp 2: Linear gain – continuous gain at each F/U with no loss >1%
  - Grp 3: Fluctuation – defined by a gain/loss, or loss/gain, between 2 consecutive, annual F/U visits



J Am Coll Cardiol. 2015;65(20):2159-2169

# LEGACY Trial – Results

- No difference in baseline characteristics
- AF burden and symptom severity ↓ more with wt. loss vs. other 2 grps (all p<0.001)
- AF-free survival was best with wt. loss, compared with other 2 grps (all p<0.001)
- In multivariate analyses, **weight loss and weight fluctuation were independent predictors of outcomes** (both p<0.001)
  - **Weight loss ≥10% → 6-fold greater AF–free survival** vs. grps 2 or 3 (p < 0.001)
  - **Weight fluctuation of >5% →** partially ↓ benefit, with a 2-fold ↑ risk of AF recurrence (p=0.02)
- **TRANSLATION: If an obese AF pt can lose 10% of body weight → 6-fold reduction in AF burden!**

J Am Coll Cardiol. 2015;65(20):2159-2169

# AF Risk Factors, Epidemiology, and Mortality

# The BiomarCaRE Study

Circulation October 16, 2017

- 79,793 individuals from 4 Swedish registries
- F/U: 12.6 yrs
- 1,796 F (4.4%) and 2,465 M (6.4%) developed AF
- Multivariable models identified ↑ BMI as the **main** contributor to AF risk
  - 20% over all
  - 18% in F
  - 31% in M
- CONCLUSION: **↑ BMI is strongly associated with AF risk, and is the most powerful RF for AF**

# Impact of Cardiorespiratory Fitness (CRF) on AF Recurrence in Obese Individuals With AF

# The CARDIO-FIT Study

- Objectives: To evaluate role of CRF and incremental benefit of CRF gain on rhythm control in obese AF pts
- Methods:
  - 308 pts with symptomatic AF and BMI ≥27 kg/m2
  - Offered risk factor management & participation in tailored exercise program
  - **Exercise stress testing** done at baseline and during f/u to determine peak METs.
  - **Baseline** CRF was categorized as: **low** (<85%), **adequate** (86% to 100%), and **high** (>100%)
  - Impact of CRF ***gain*** was determined as gain in METS at final F/U (≥2 METs vs. <2 METs)
  - AF burden determined by 7-day Holter & AF severity scale

J Am Coll Cardiol. 2015;66(9):985-996

# Impact of Cardiorespiratory Fitness (CRF) on AF Recurrence in Obese Individuals With AF

# The CARDIO-FIT Study

Results:

- No differences in baseline characteristics or F/U duration
- AF-free survival: best in pts with **high baseline CRF** compared to adequate/low CRF (p<0.001)
- AF burden/severity: ↓ significantly in group with **CRF gain ≥2 METs** vs. < 2 METs (p<0.001)
- AF-free survival: best in pts with **CRF gain ≥2 METS** vs. pts with gain <2 METS (p<0.001)

Conclusions:

- **Cardiorespiratory Fitness predicts AF recurrence in obese, symptomatic AF pts**
- **CRF gain augments beneficial effects of weight loss**

J Am Coll Cardiol. 2015;66(9):985-996

# Caffeine and AF

- 33,638 healthy women in Women's Health Study who were >45 y of age, and free of CV disease and AF at baseline
- Prospectively followed for incident AF from 1993 to 2009
- All women provided information on caffeine intake via food-frequency questionnaires at baseline and in 2004

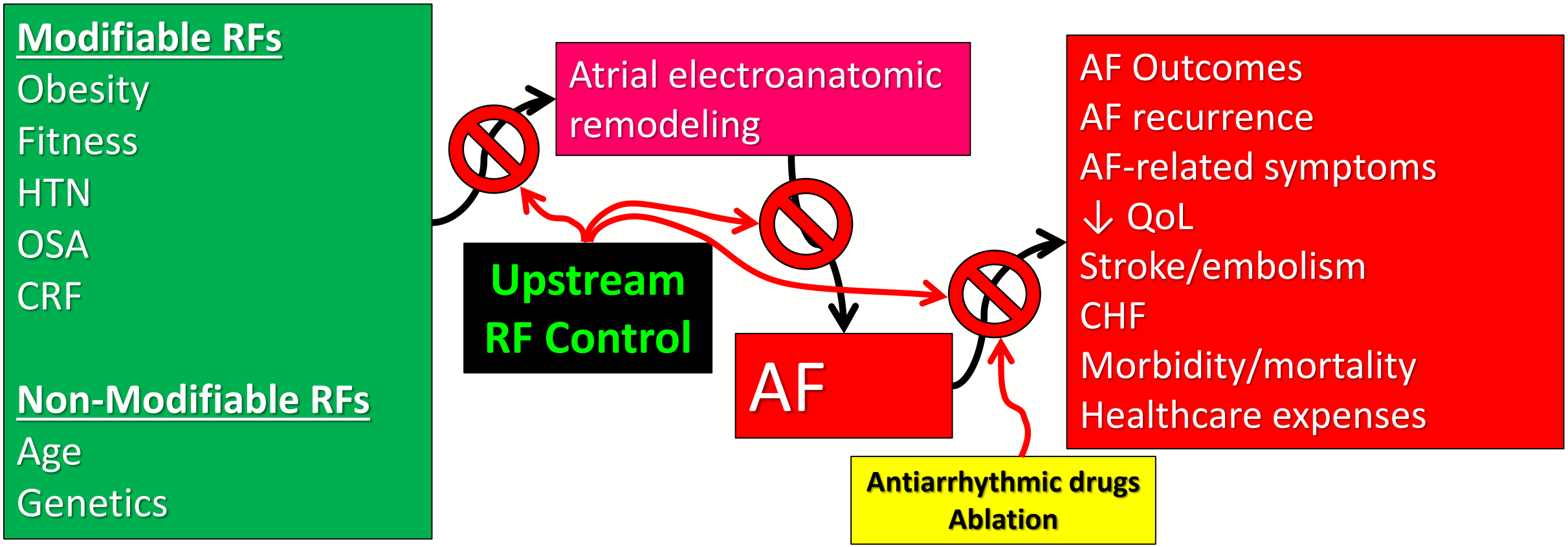
Risk of incident atrial fibrillation acc

| | 1 (*n* = | | 5) | 5 (*n* = 6638) | *P* for linear trend |
|---|---|---|---|---|---|
| Caffeine intake (mg/d) | 22 (9 | | 35) | 656 (561–778) | — |
| No. of events | 2( | | | 178 | — |
| Age-adjusted incidence rate[3] | 2. | | | 2.04 | — |
| Age-adjusted RR | Refe | | .18) | 0.90 (0.73, 1.10) | 0.44 |
| Multivariable-adjusted RR[5] | Refe | | .16) | 0.89 (0.73, 1.09) | 0.45 |

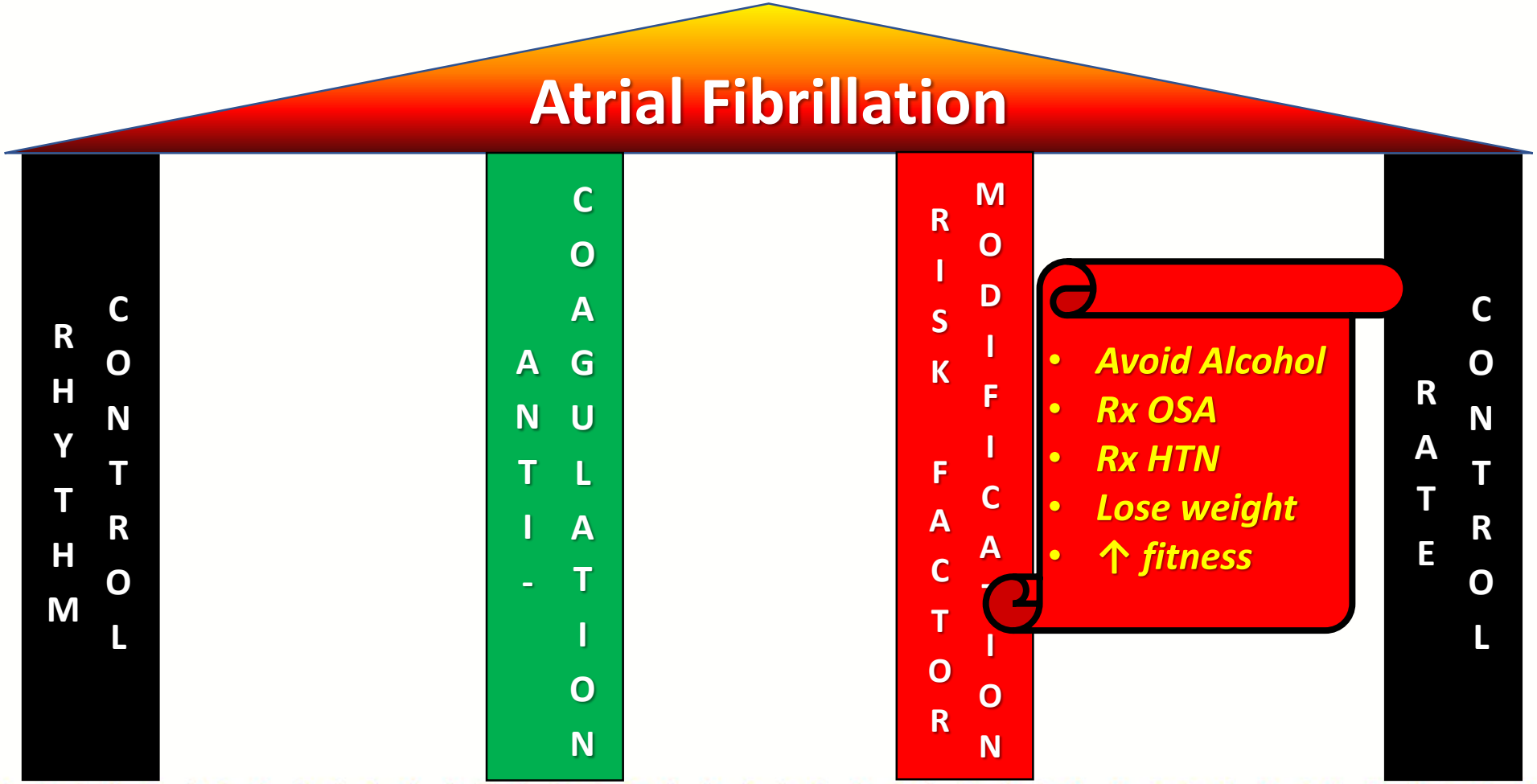
- Conclusions: In initially healthy women, **elevated caffeine consumption was *not* associated with an increased risk of incident AF**

# AF Timeline – Current Understanding

*More than Just Rhythm Control vs. Rate control…*



# The 4th Pillar in AF Management – RF Modification



Thank you