Cardiology conditions in the elderly population

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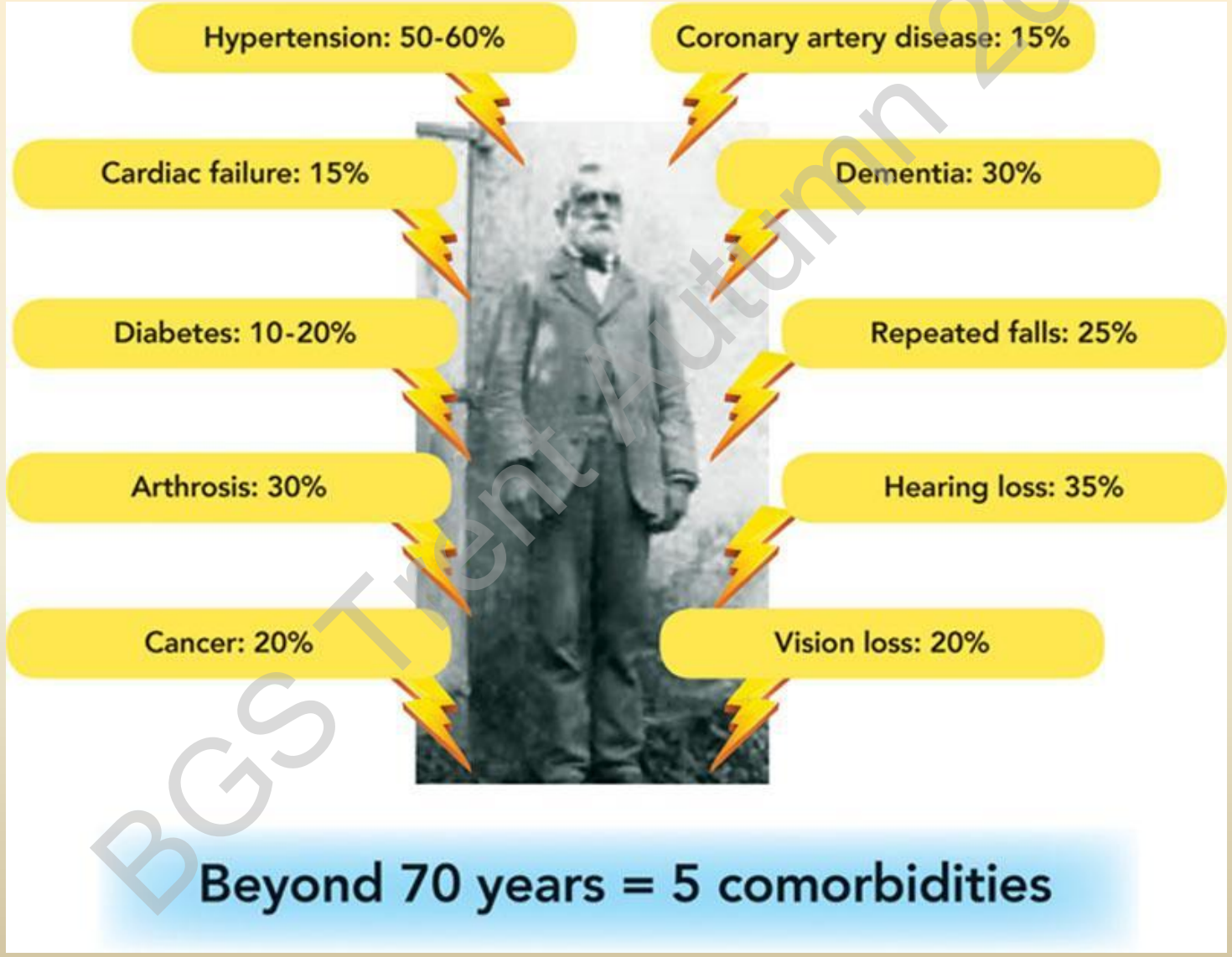
Disclosures

- none

What is a cardiologist doing here?

Leicester: A story of 3 hospitals

Why is this talk the most relevant?

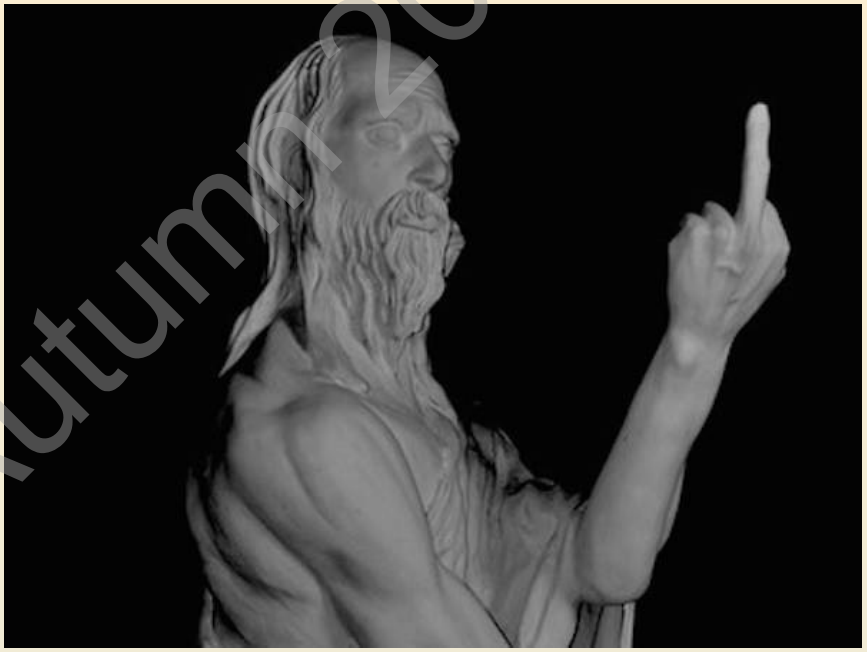


What are we trying to achieve for our patients?

- Live better
- Live longer
- Save money
- To make me feel better…..

2 common conditions

- Heart failure
- Atrial fibrillation

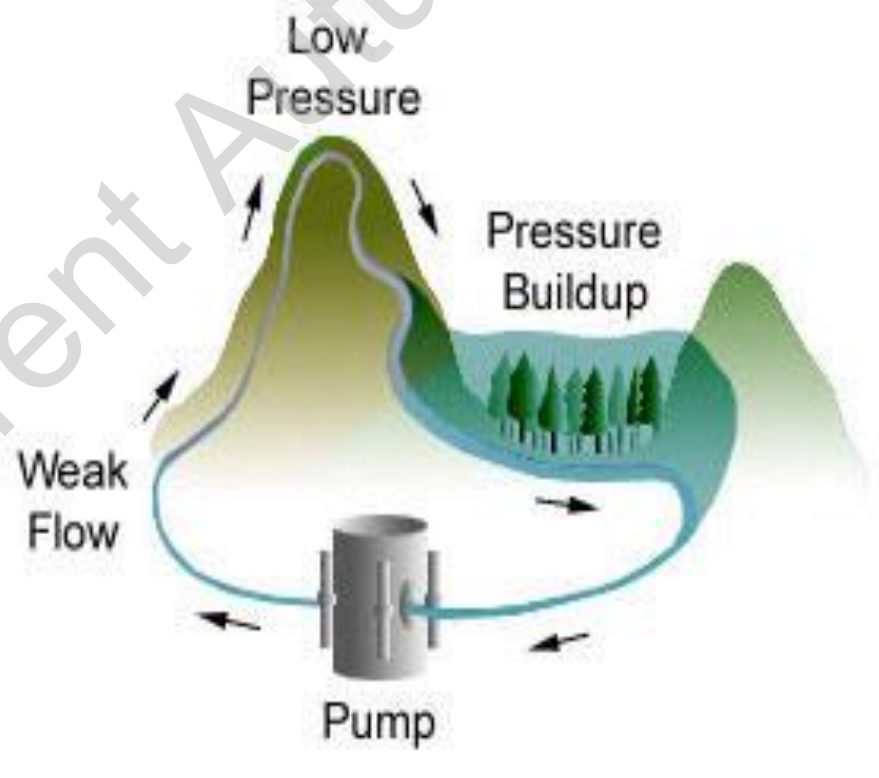


Aim: a cynic's review of evidence based treatment

CAUTION: NO PATHWAYS/FLOW CHARTS

Heart failure is a complex clinical syndrome of symptoms and signs that suggest the efficiency of the heart as a pump is impaired

NICE Clinical Guidelines 2003



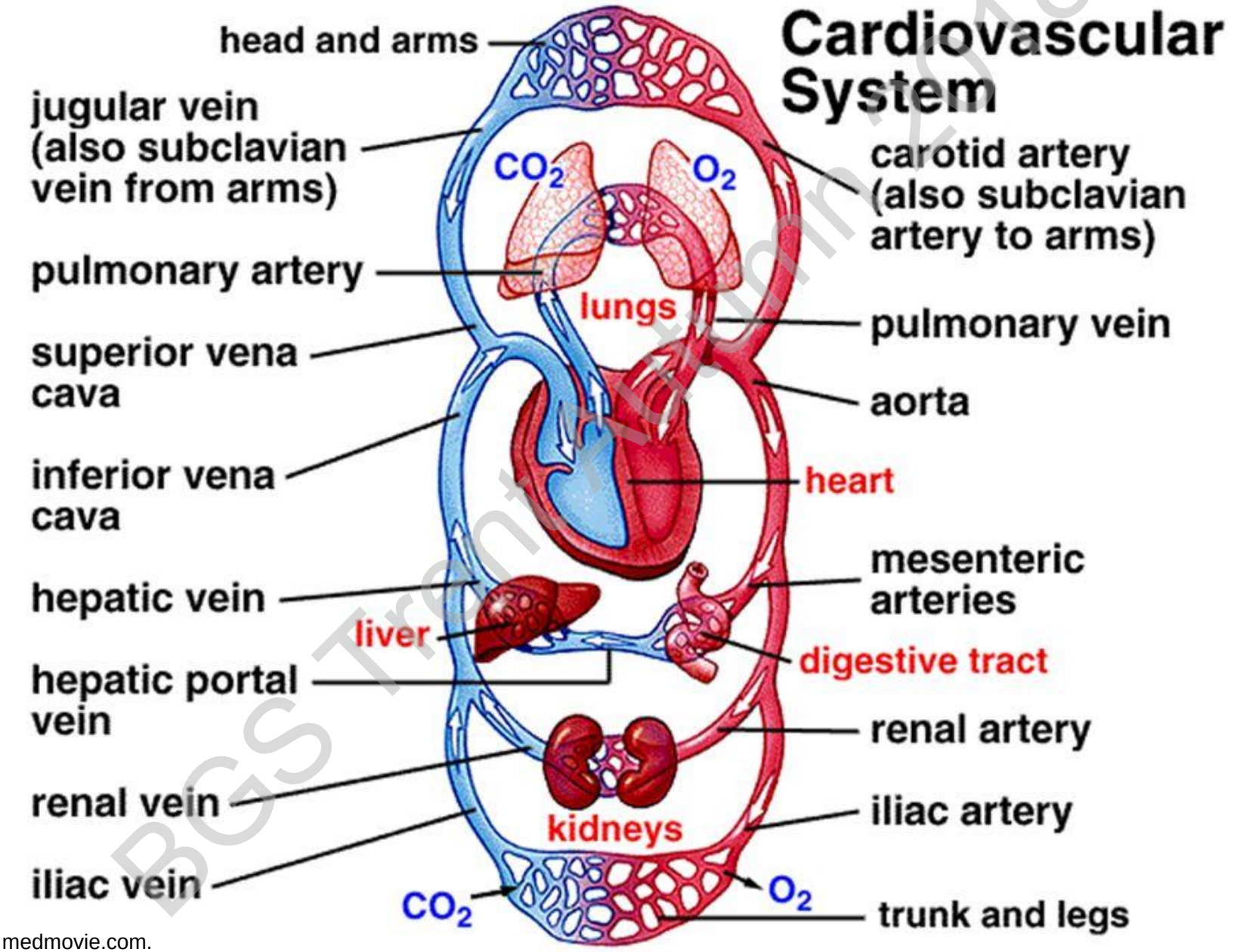
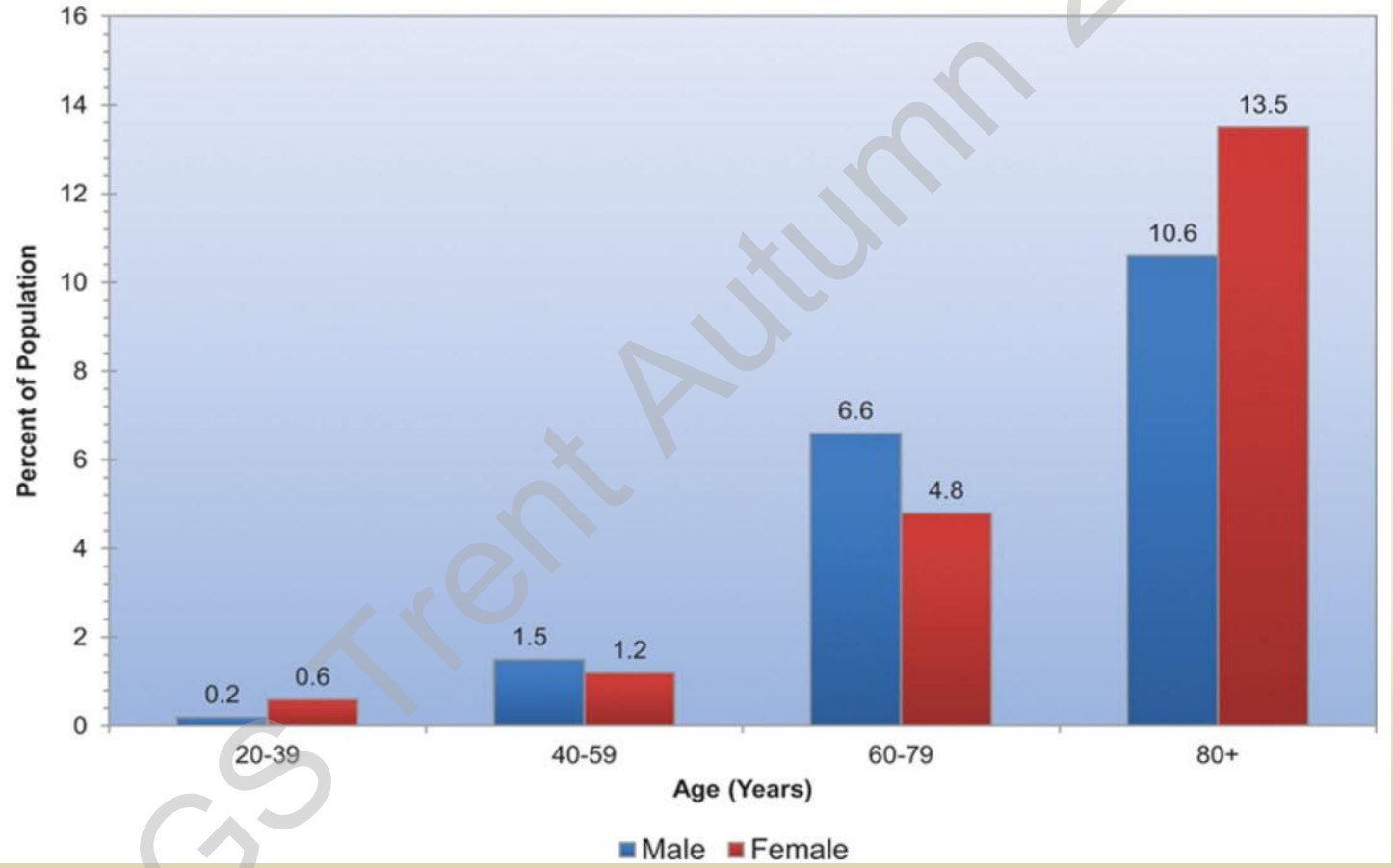


Image from medmovie.com.

A classic "geriatric" condition?

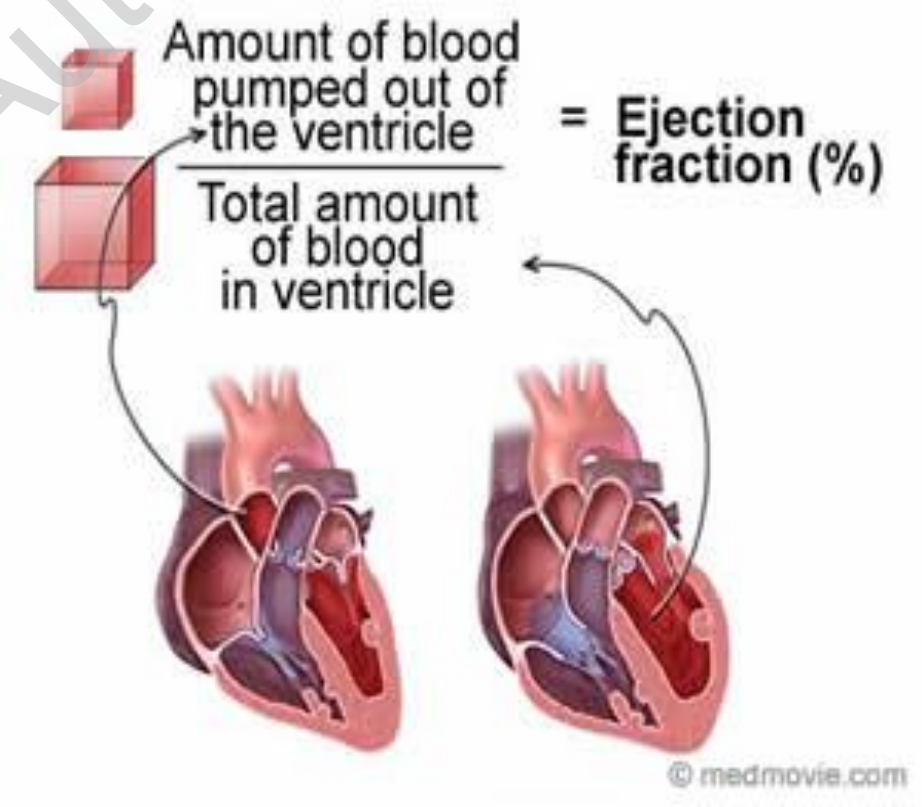


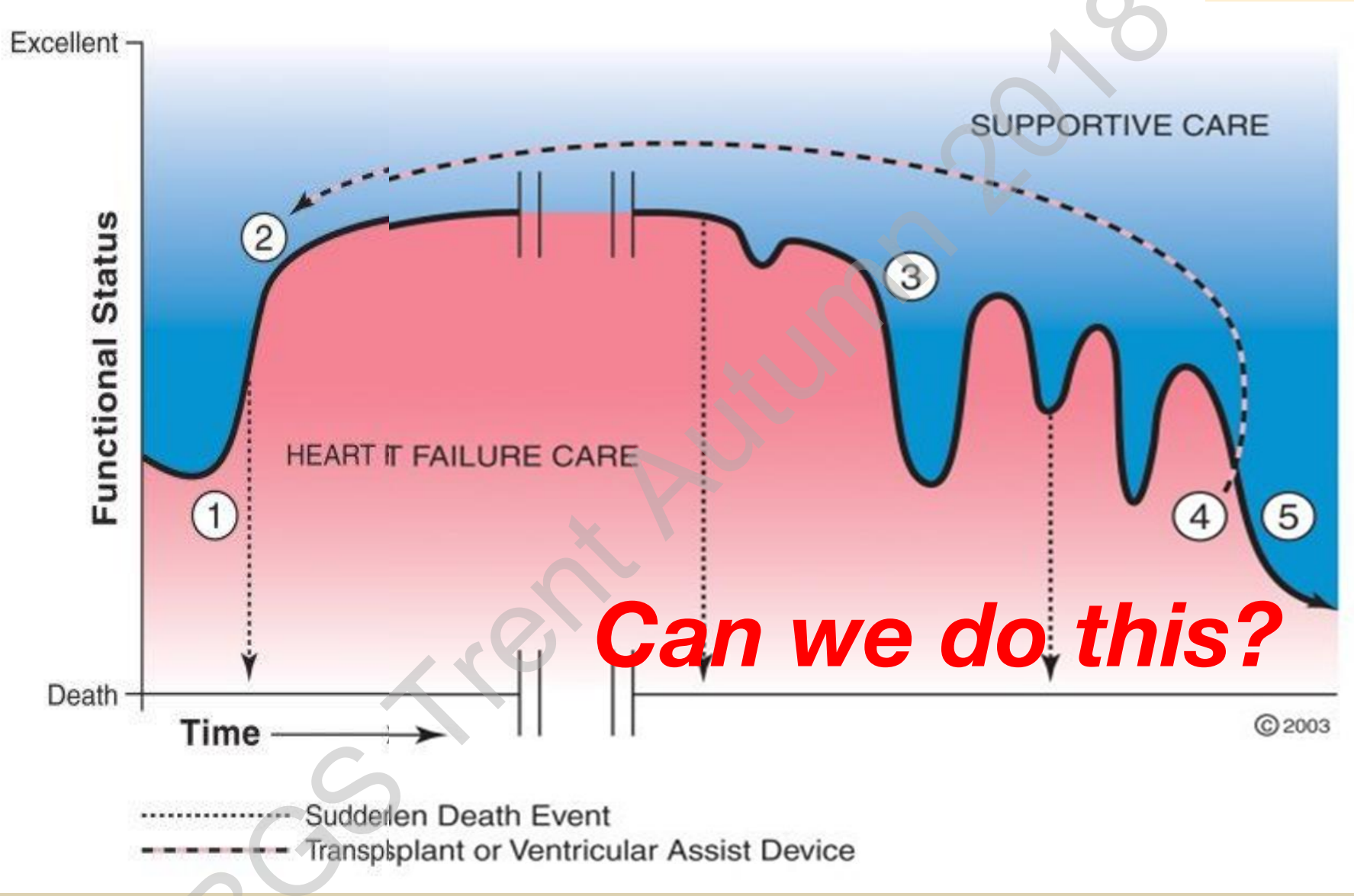
Prevalence of heart failure by sex and age (Source: National Center for Health Statistics and National Heart, Lung, and Blood Institute)

HFREF (HF with reduced ejection fraction)
vs
HFPEF (HF with preserved ejection fraction)

What is the "EF" mean?

So what?

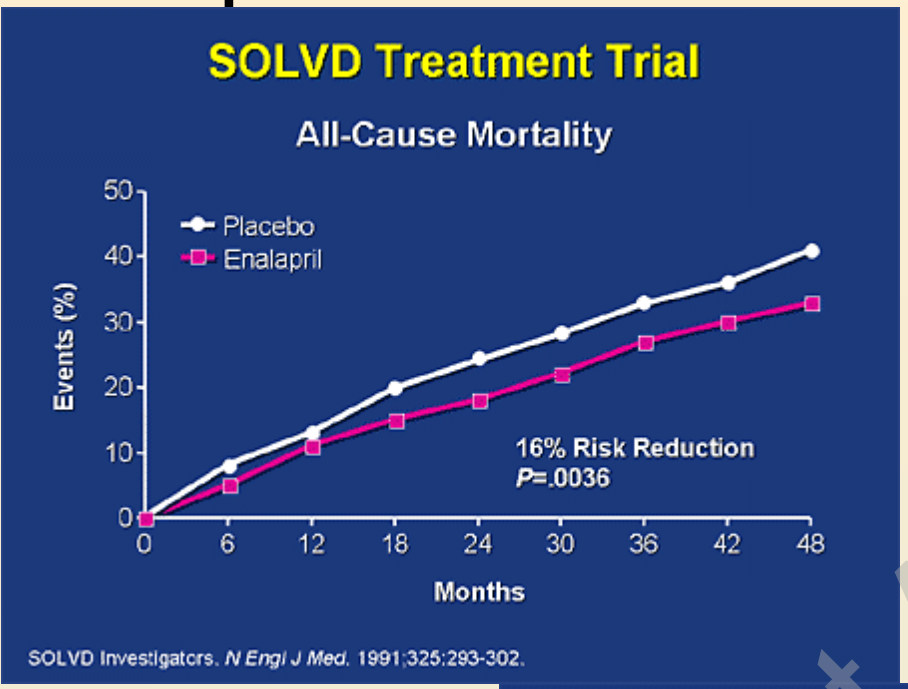


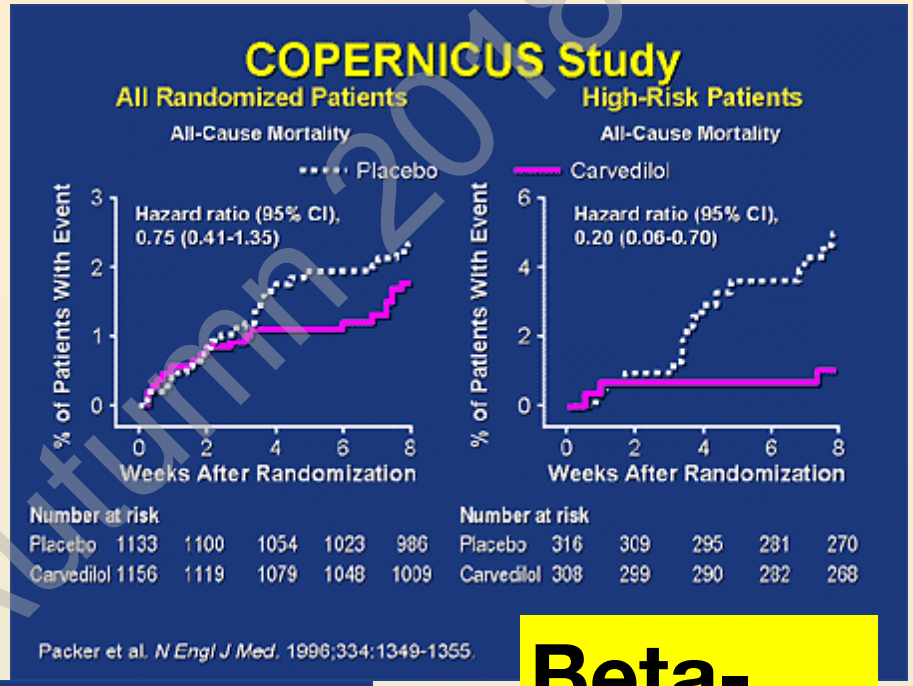


Can we do this?

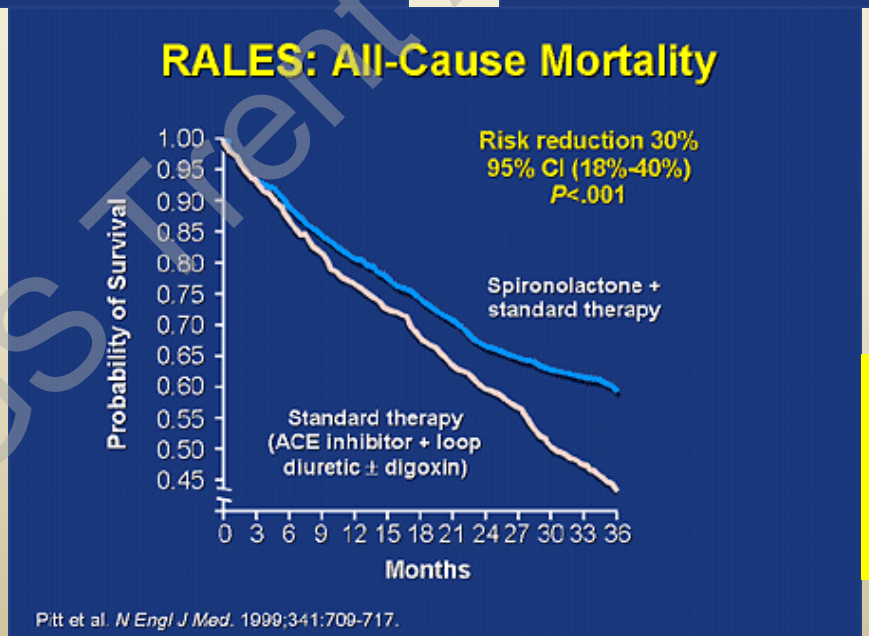
Goodlin J Am Coll of Cardiology 2009

3 pillars of HF treatment for HFREF





ACE inhibitor

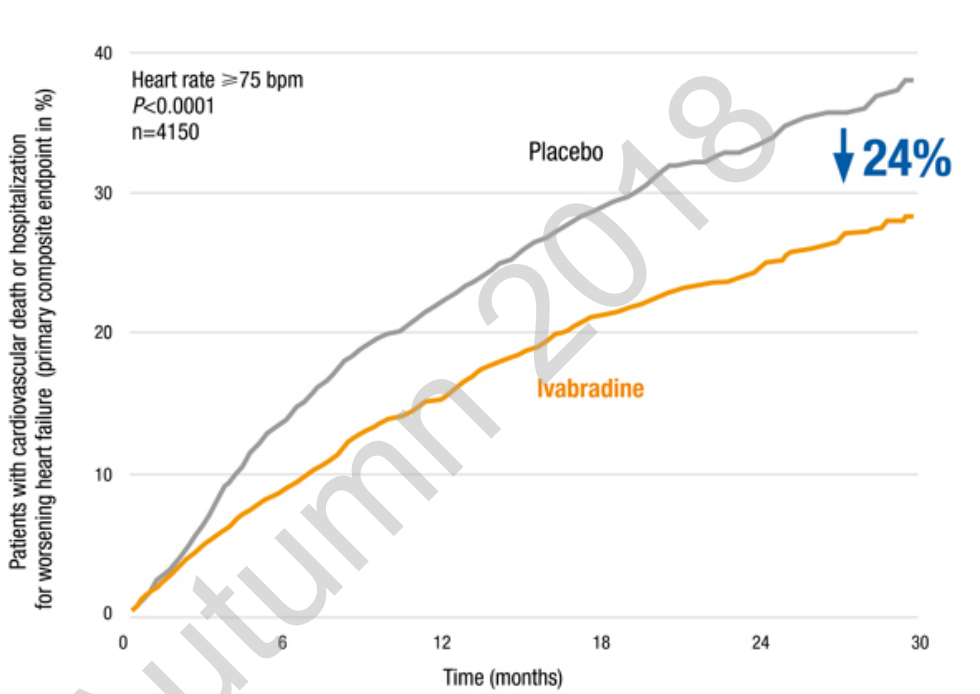


Beta-blocker

Aldosterone antagonist

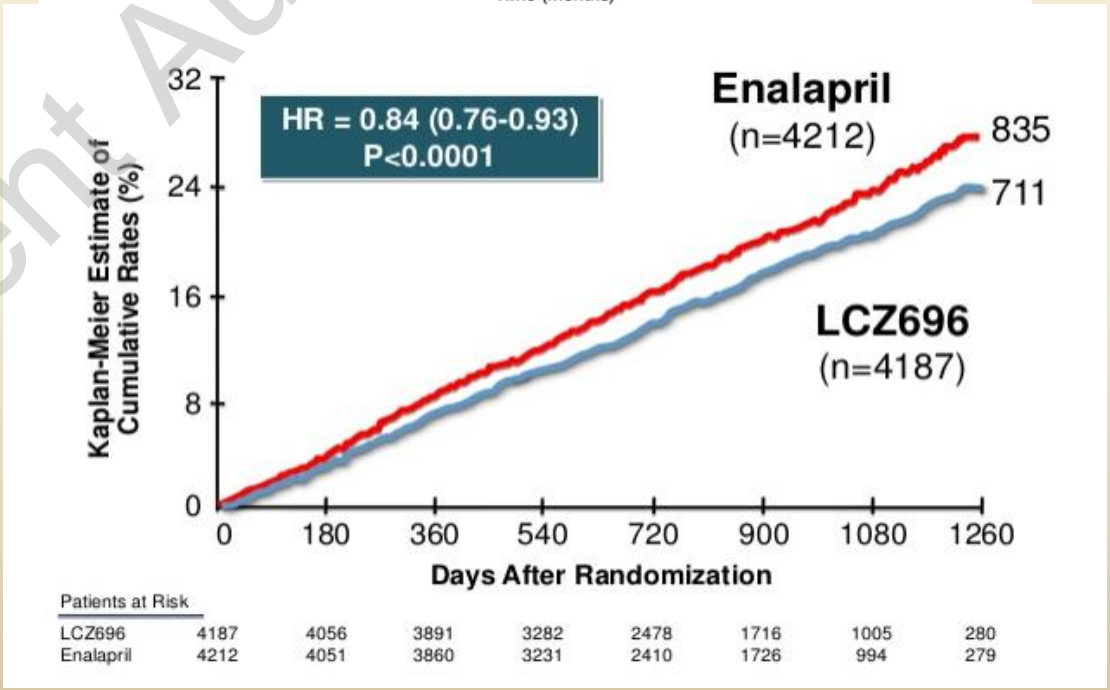
More recent drugs

- Ivabradine (Procolaran) (sinus node inhibitor)



Swedberg K et al. "Ivabradine and outcomes in chronic heart failure (SHIFT): a randomised placebo-controlled study". *Lancet*. 2010. 376(10):875-885.

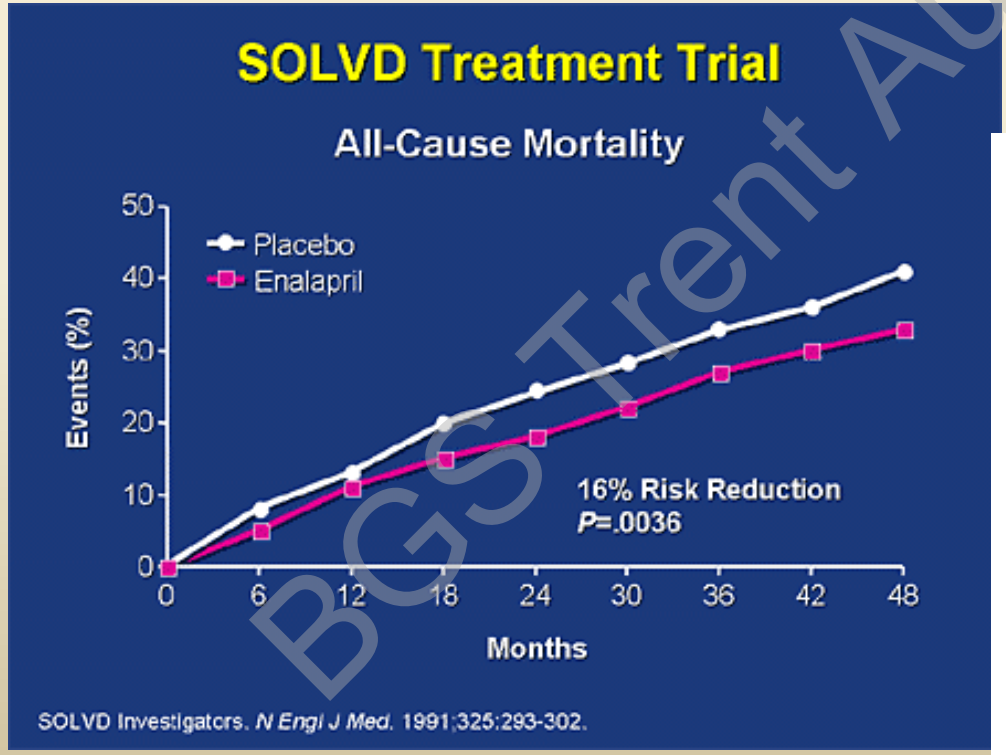
- Sacubitril/ Valsartan (Entresto)



McMurray JJV, et al. "Angiotensin-neprilysin inhibition versus enalapril in heart failure". *The New England Journal of Medicine*. 2014. 371(11):993-1004.

Know your evidence!

- Are ACE inhibitors for all heart failure patients?
- What ACE inhibitors do for patients?



39.7% c.f. 35.5 in treatment
Absolute reduction of 4.2%

Table 4. NYHA Classifications at End of Study.*

NYHA Class	Treatment Group	
	Placebo (N = 126)	Enalapril (N = 127)
	no. of patients	
I	0	3
II	2	13
III	25	38
IV	30	21
(Patient died)	68	50
Unknown	1	2

*For the difference between the groups, P<0.001. NYHA denotes New York Heart Association.

Table 1. Base-Line Clinical Characteristics and Drug Therapy of the Patients in the Two Study Groups.

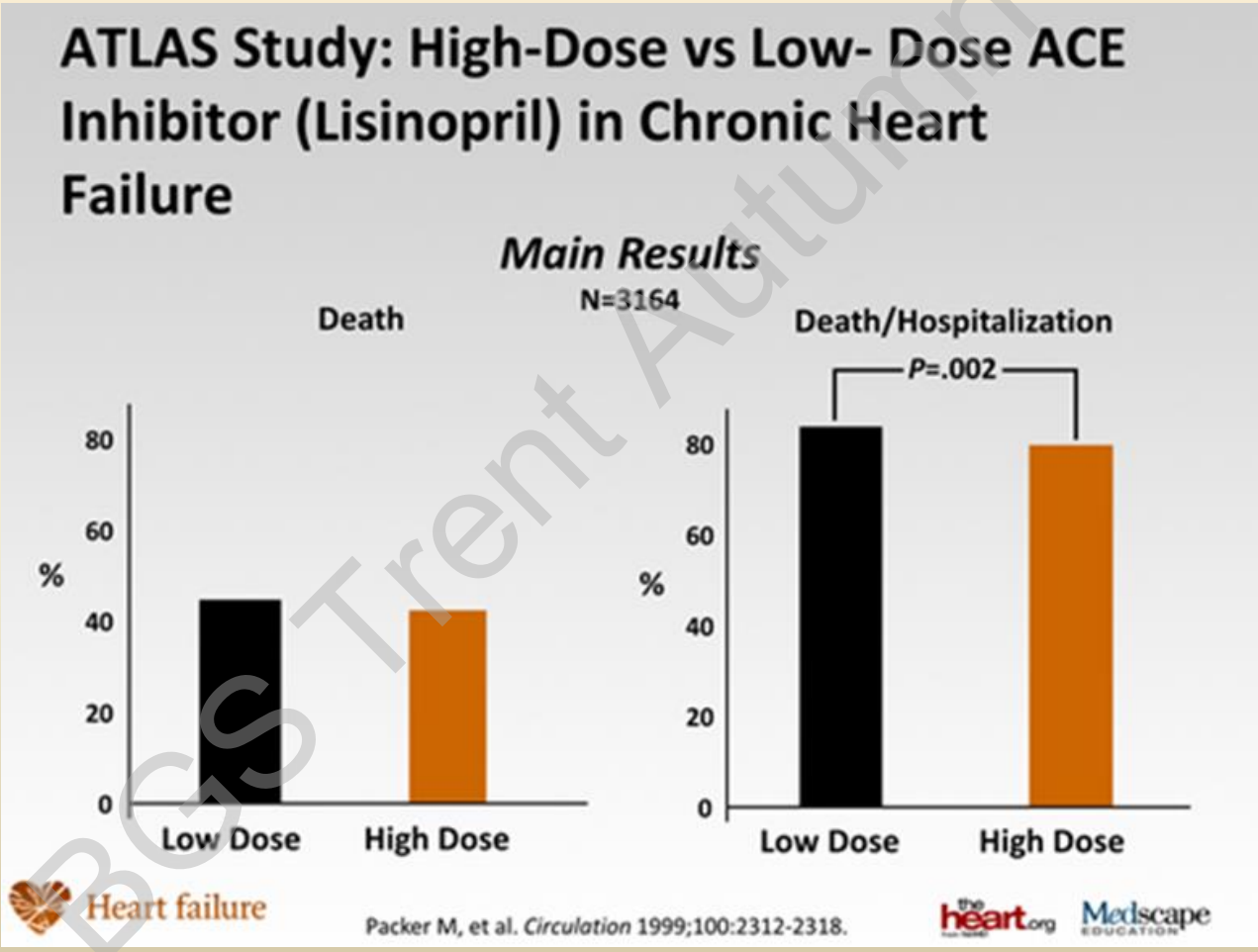
Characteristic	Placebo (N = 1284)	Enalapril (N = 1285)
	mean	
Age (yr)	61.0	60.7
Weight (kg)	79.6	79.9
Ejection fraction (%)	24.9	24.8
Blood pressure (mm Hg)		
Systolic	124.5	125.3
Diastolic	76.4	77.3
Heart rate (beats/min)	79.9	80.0
Serum sodium (mmol/liter)	139.7	139.7
Serum potassium (mmol/liter)	4.3	4.3
Serum creatinine (mg/dl)*	1.2	1.2
	percent of group	
Male sex	79.8	80.9
Race		
White	81.1	79.2
Black	14.5	16.2
Other	4.2	4.4
NYHA functional class†		
I	10.5	11.4
II	56.6	56.8
III	30.7	30.1
IV	1.9	1.5
Disease history		
Ischemic heart disease	72.1	70.2
Myocardial infarction	65.0	66.3
Hypertension	41.5	42.8
Diabetes mellitus	26.7	24.9

Does the trial study mirror our patients?

Patients were ineligible if they were over 80 years of age or had any of the following: hemodynamically serious valvular disease requiring surgery, unstable angina pectoris, angina thought to be severe enough to require revascularization procedures, myocardial infarction during the previous month, severe pulmonary disease, serum creatinine level higher than 177 µmol per liter (2 mg per deciliter), **or any other disease that might substantially shorten survival or impede participation in a long-term trial.**

What dose?

Is high dose better than low dose?



Same "guidelines" but different patients

48 yr old man

First presentation of HF, severe LVSD, NYHA 2

Priorities?

Treatment?

88yr old woman

10yr HF,MI 1994

Severe LVSD, NYHA 3, admissions x4

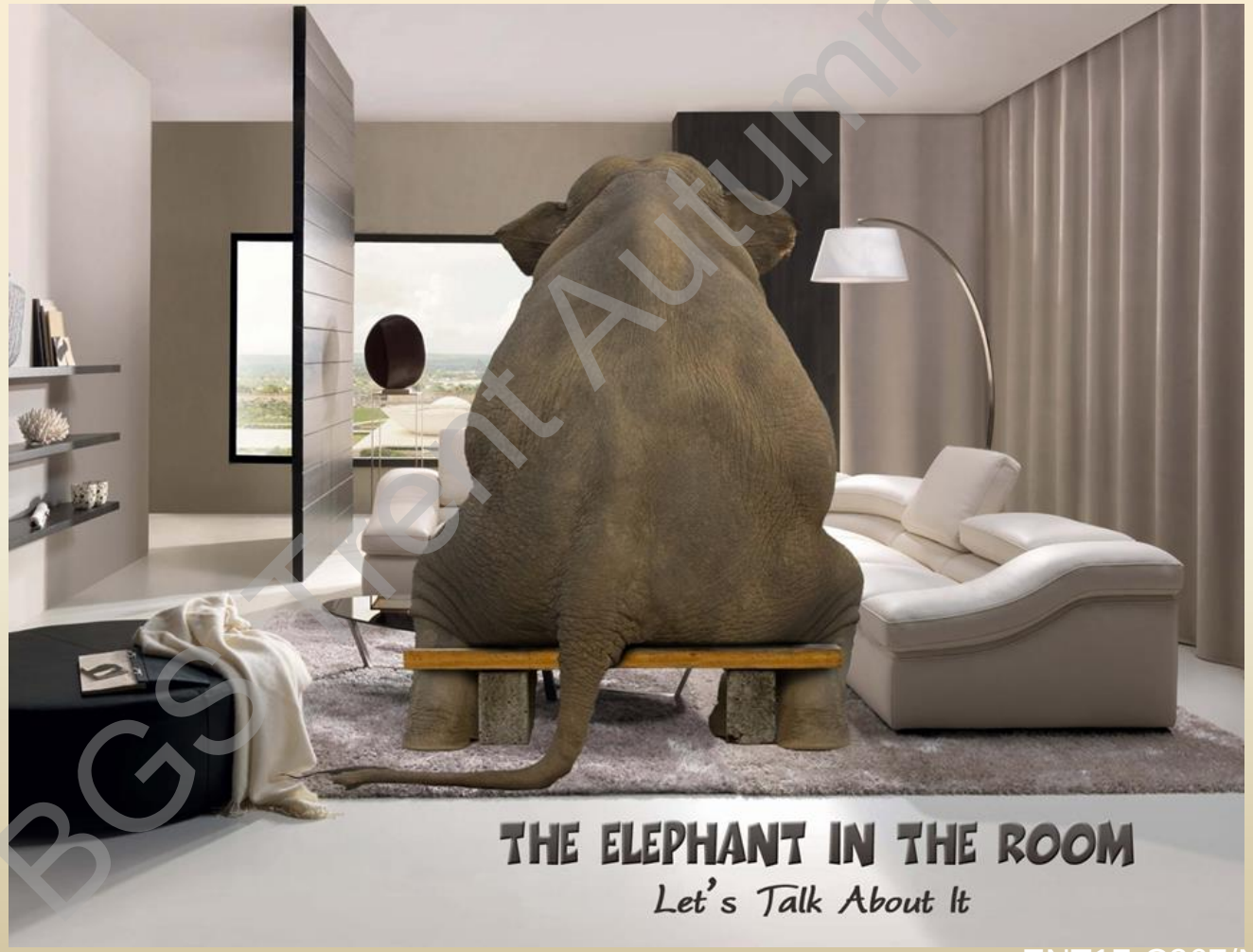
Priorities?

Treatment?

3 purposes for treatment

Prognosis	Symptoms	Cure
BB	Diuretics	ACE
ACE	Entresto	BB
MRA	ACE	Entresto
Entresto	MRA	ICD
ICD	BB (Carvedilol?)	MRA
digoxin	Digoxin	
Diuretics	ICD	

Heart Failure with Preserved Ejection Fraction (HFPEF)



HFPEF is often a result of several co-morbidities – lots of theories!!

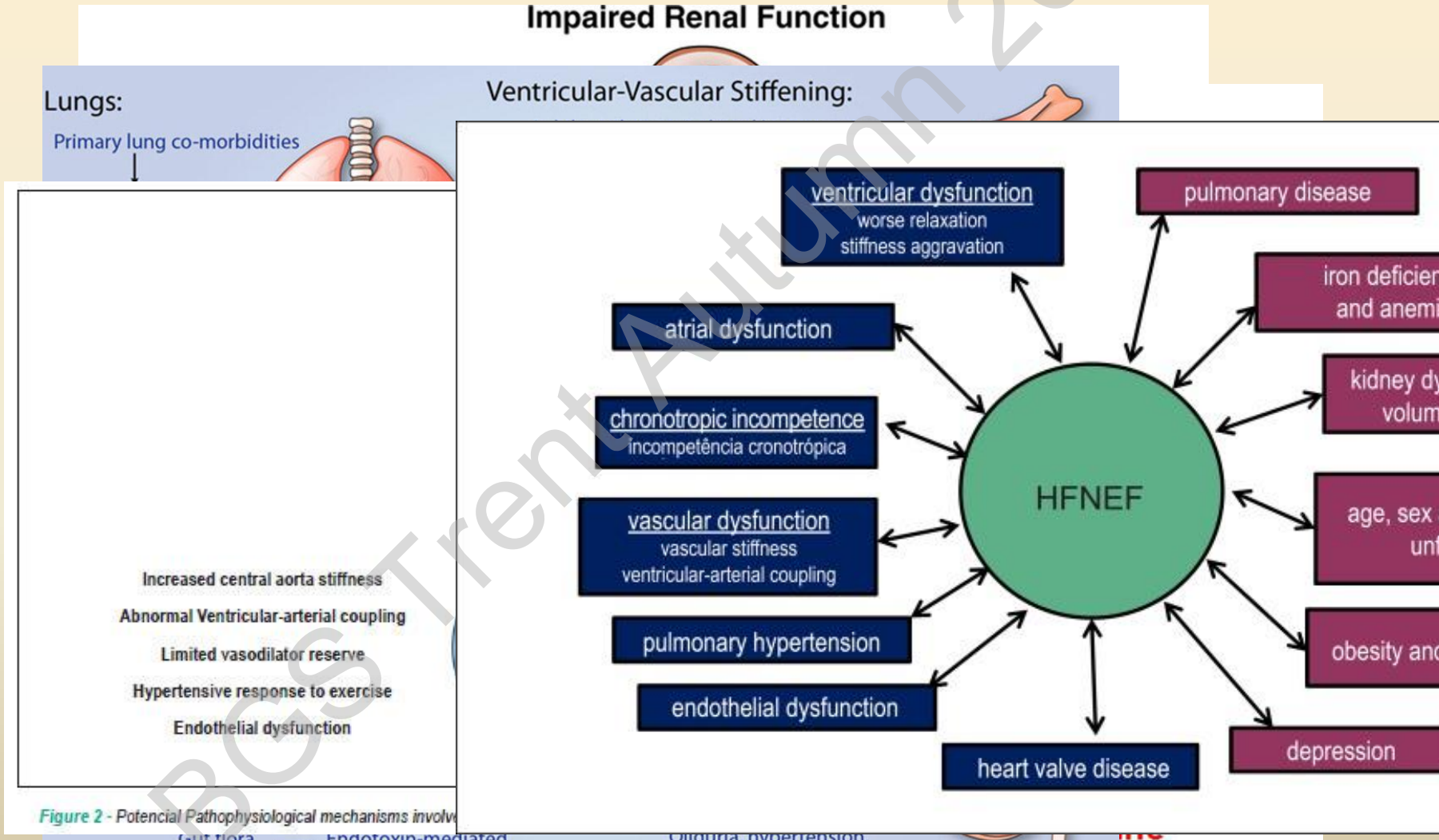


Table 3. In-Hospital Care, Complications, and Outcomes.

Variable	Reduced Ejection Fraction (<40%) (N=1570)	Preserved Ejection Fraction (>50%) (N=880)	P Value
	no. (%)		
In-hospital care			
Cardiologist as primary physician	527 (33.6)	217 (24.7)	<0.001
Outcomes			
30-Day mortality	112 (7.1)	47 (5.3)	0.08
1-Yr mortality	400 (25.5)	195 (22.2)	0.07
30-Day readmission for heart failure*	73 (4.9)	38 (4.5)	0.66
1-Yr readmission for heart failure*	240 (16.1)	114 (13.5)	0.09
30-Day mortality or readmission for heart failure	182 (11.6)	83 (9.4)	0.10
1-Yr mortality or readmission for heart failure	566 (36.0)	274 (31.1)	0.01

* Readmission rates were calculated for the 2339 patients who survived the index admission: 1493 with reduced ejection fraction and 846 with preserved ejection fraction.

failure
1-Yr mortality or readmission for heart failure 566 (36.0) 274 (31.1) 0.01
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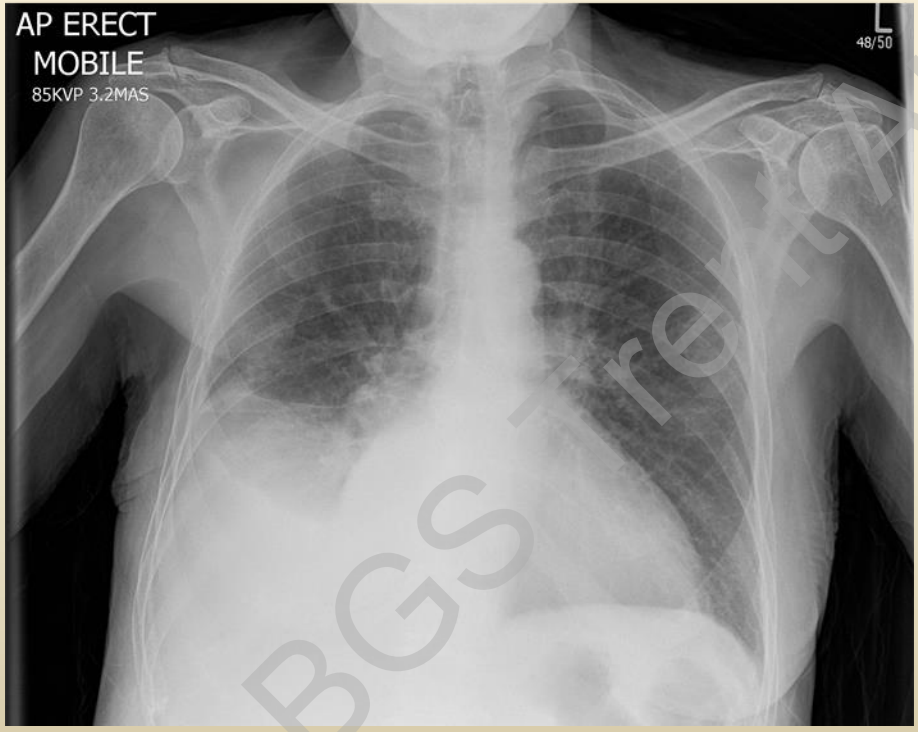
Loke's Triad (for the diagnosis of HF-PEF)

- Symptoms – oedema responding to diuretics



Loke's Triad (for the diagnosis of HF-PEF)

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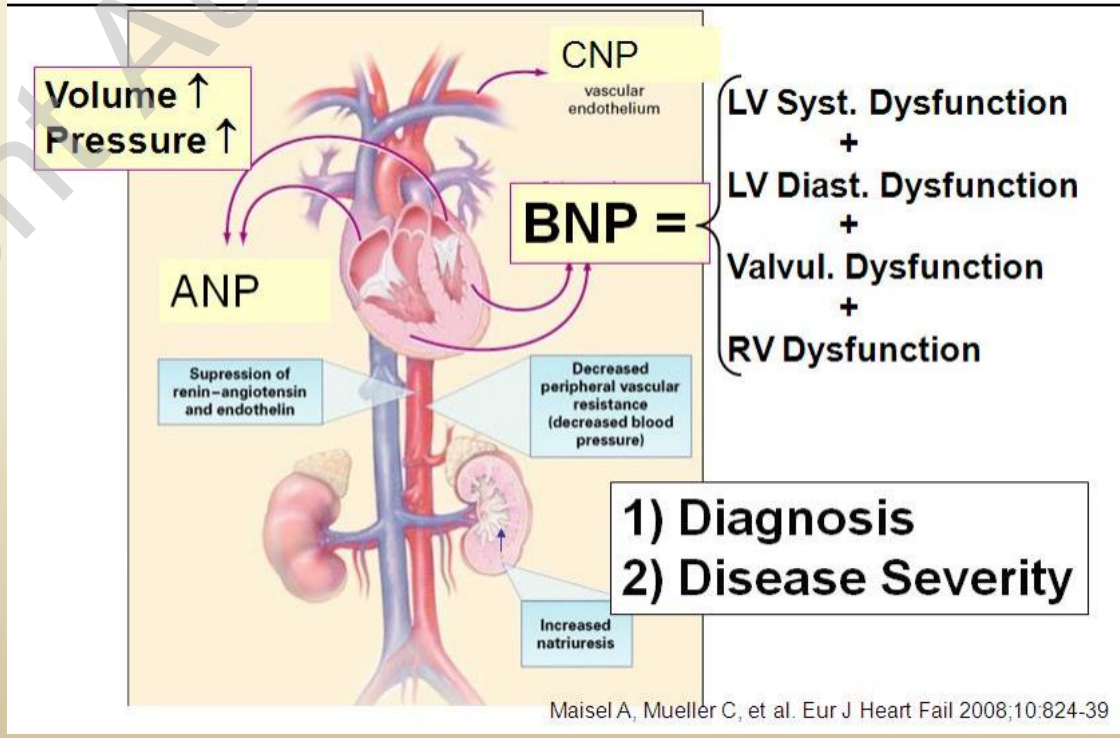
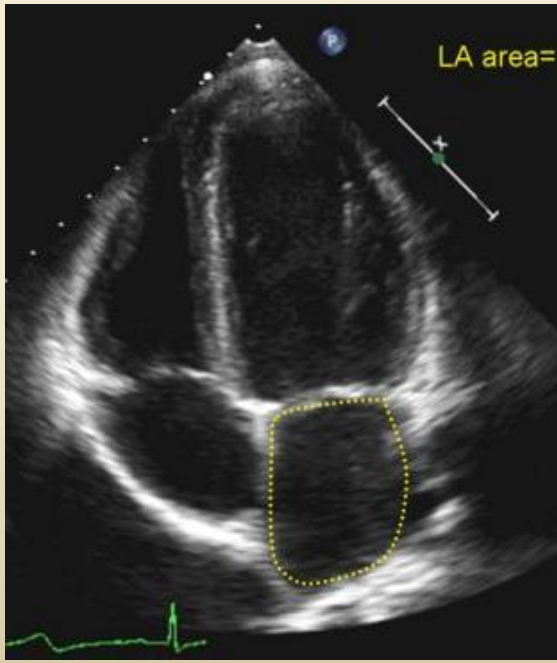
- Abnormal BNP when patient overloaded (usually 100-300)

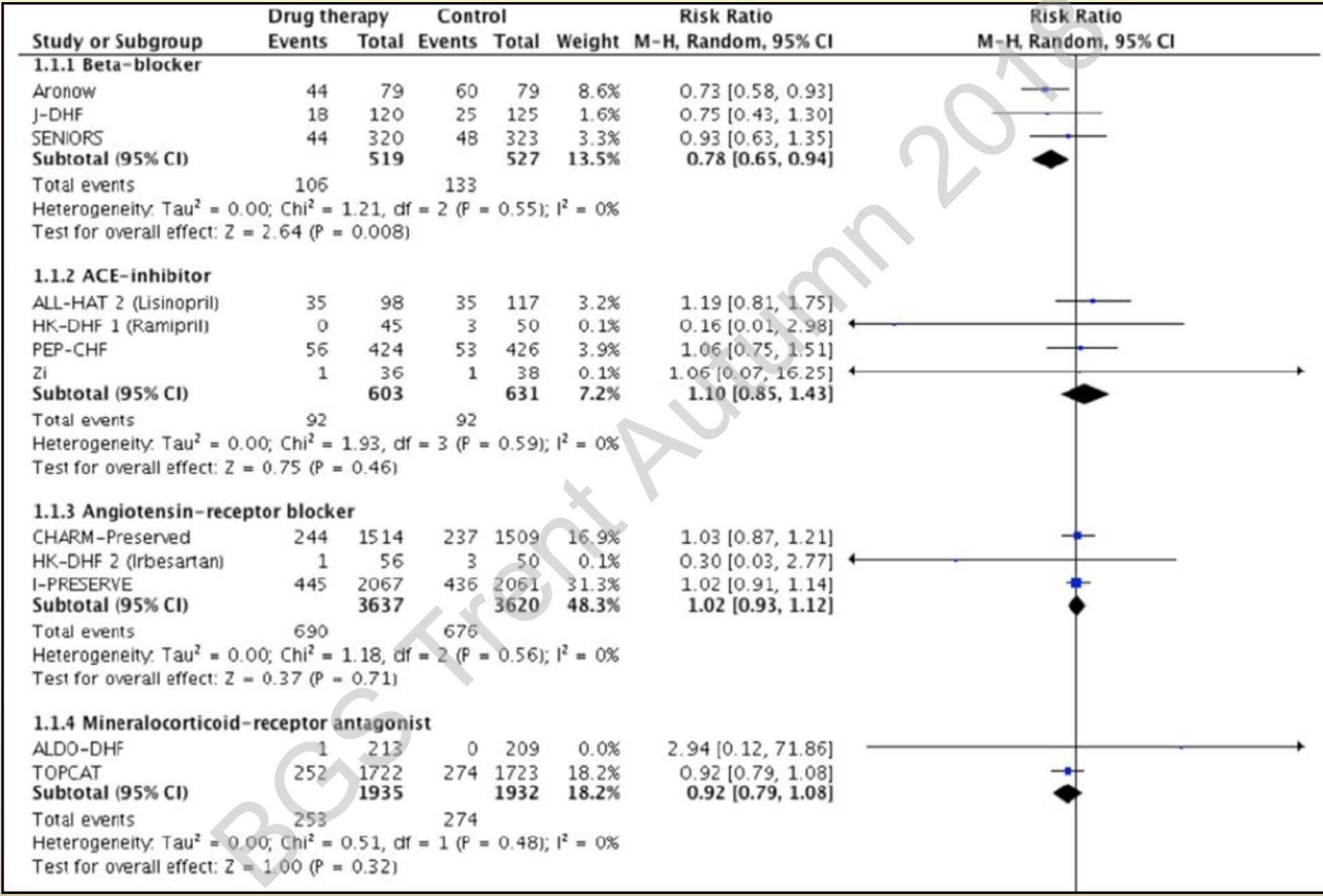


Maisel A, Mueller C, et al. Eur J Heart Fail 2008;10:824-39

Loke's Triad (for the diagnosis of HF-PEF)

- Symptoms – oedema responding to diuretics
- Abnormal BNP when patient overloaded (usually 100-300)
- Echo showing good systolic function but other abnormalities, e.g. LVH, LA dilation, pulmonary hypertension

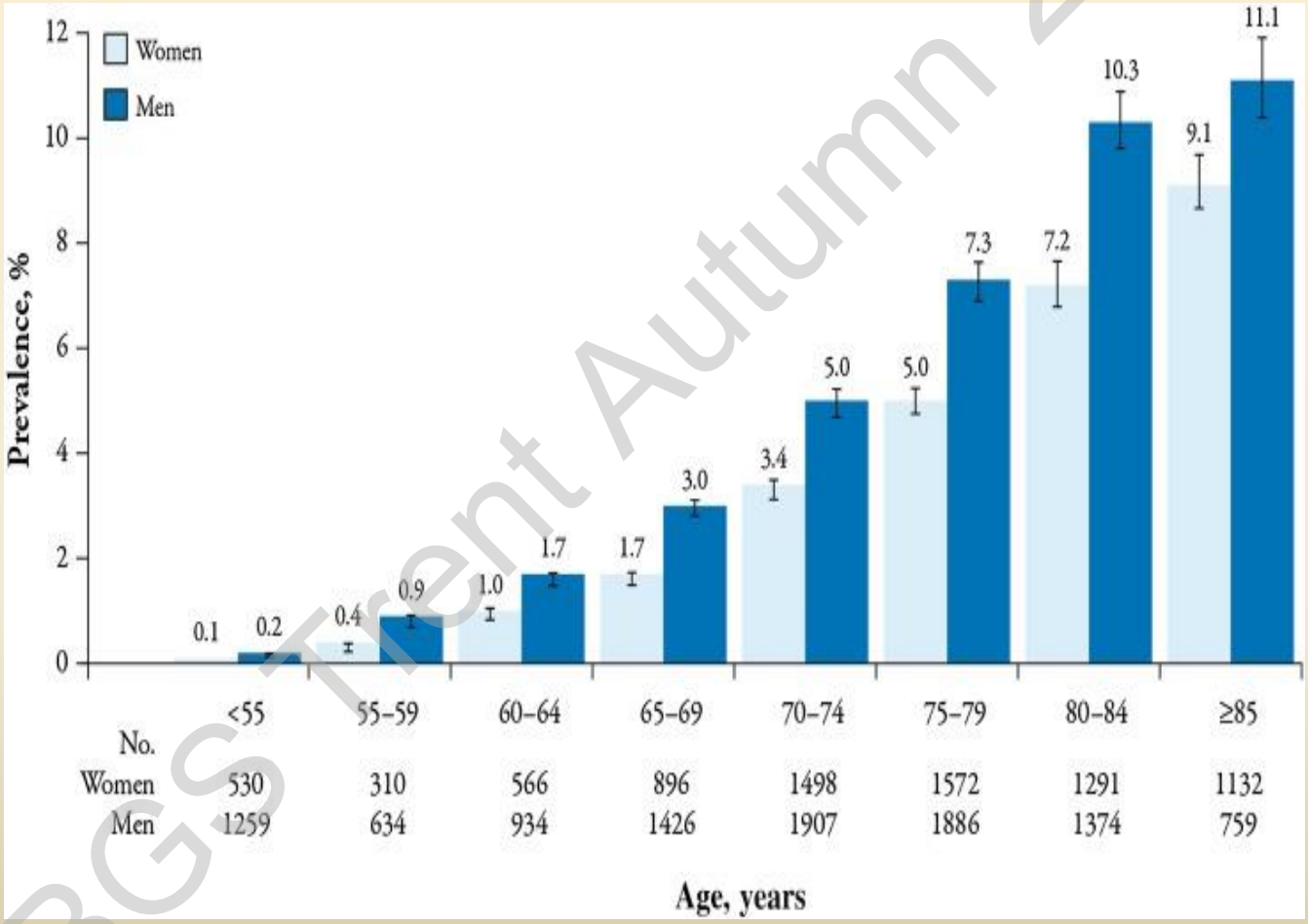


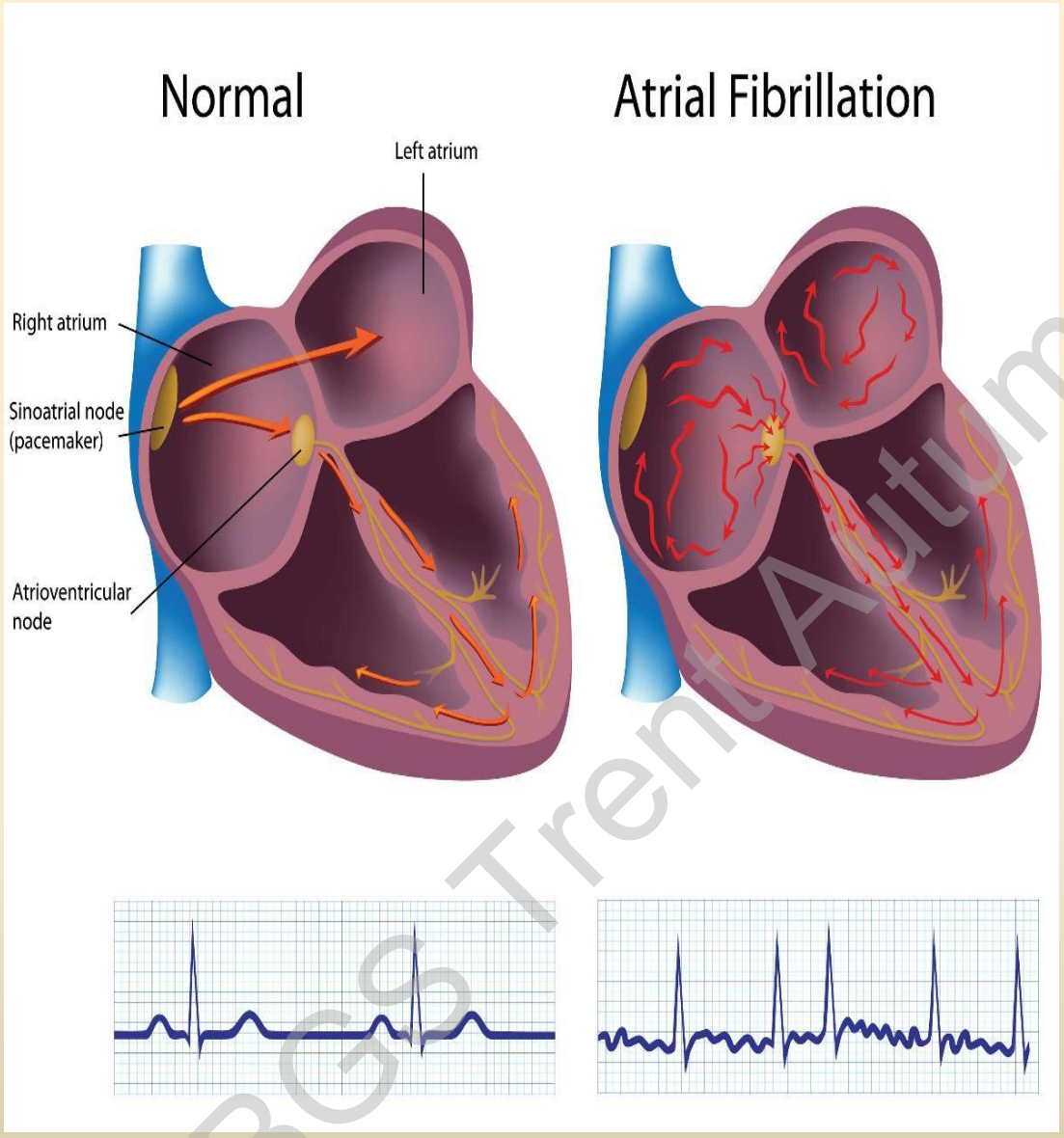


Take home messages

- Remember HFREF vs HFPEF
- HFREF – ACE/BB/MRA
- Remember what we are trying to achieve for the different patients

Atrial Fibrillation



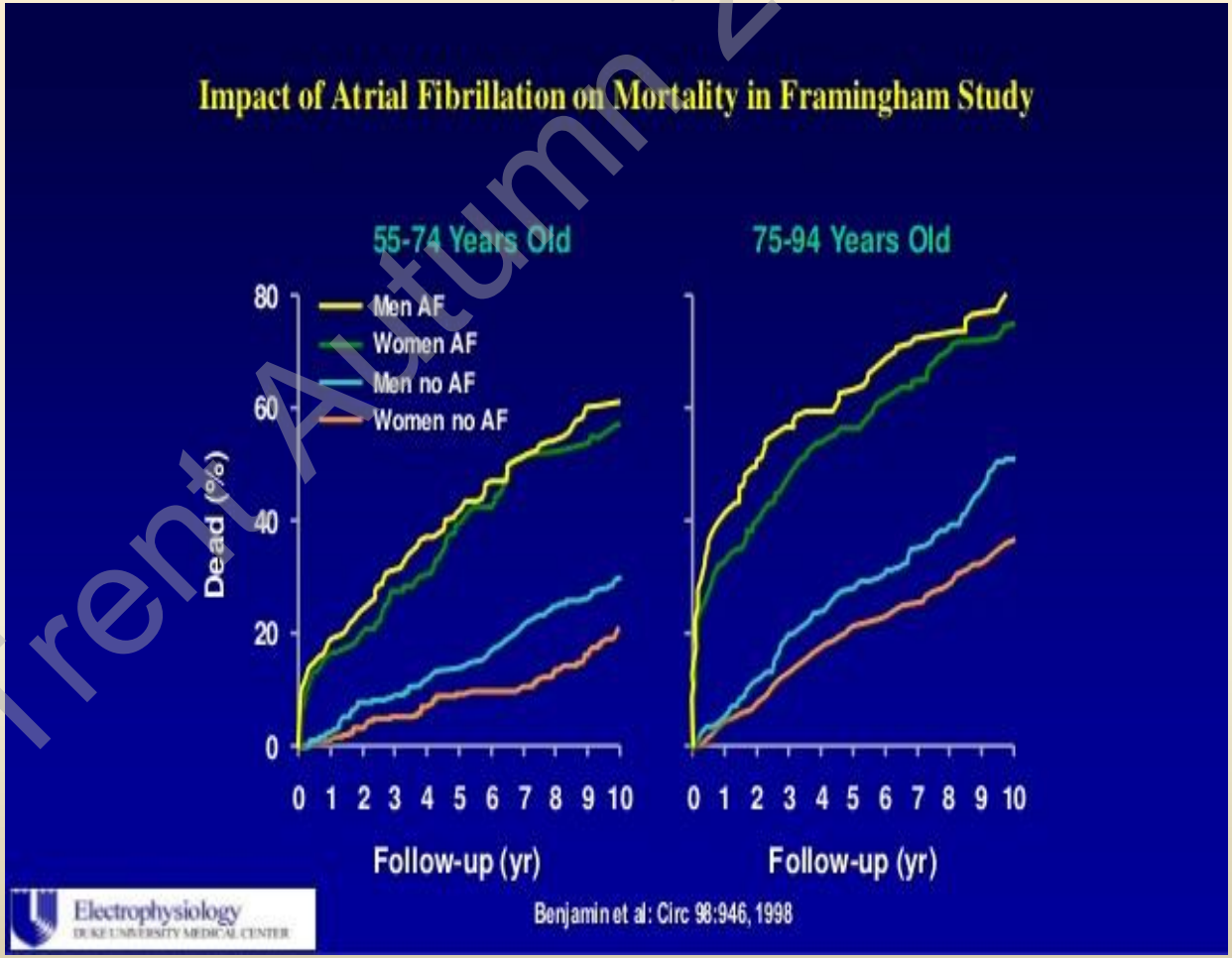


3 types

1. **Paroxysmal - terminates in 7 days**
2. **Persistent – terminates with intervention after 7 days**
3. **Permanent – does not cardiovert**

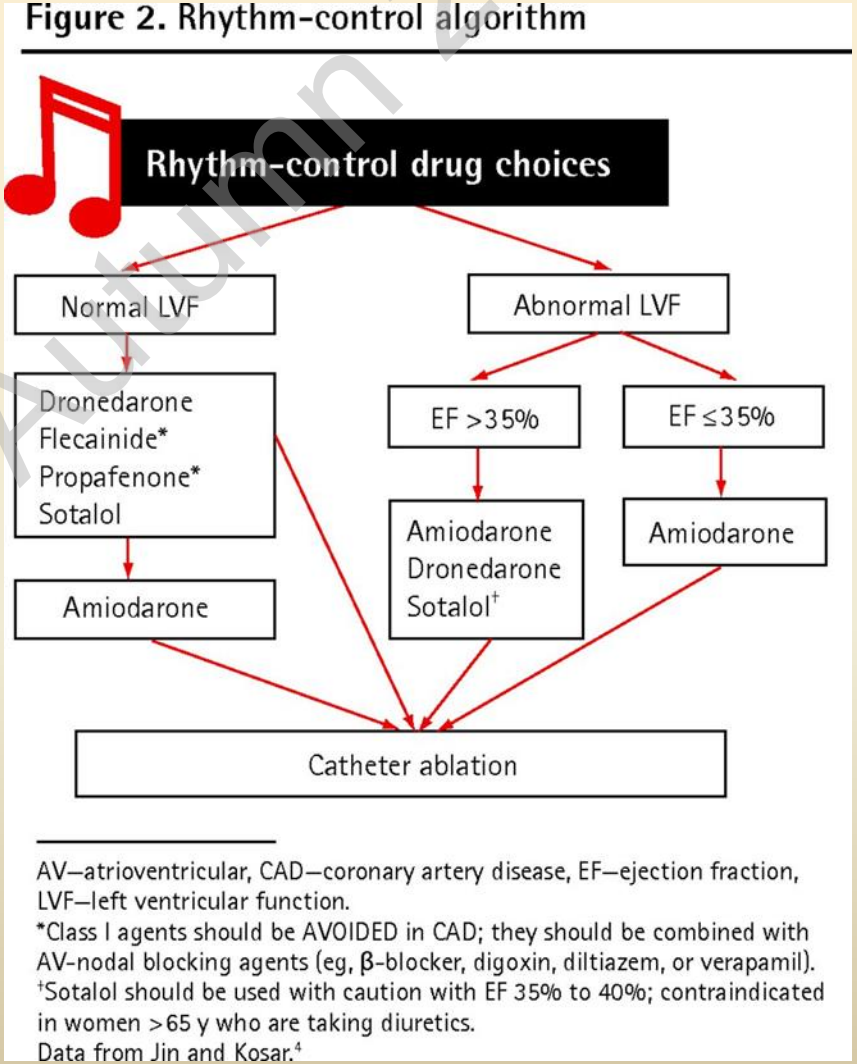
The Problem with AF

- Tachycardia
- Bradycardia
- Stroke
- Sudden death



Strategies for managing AF

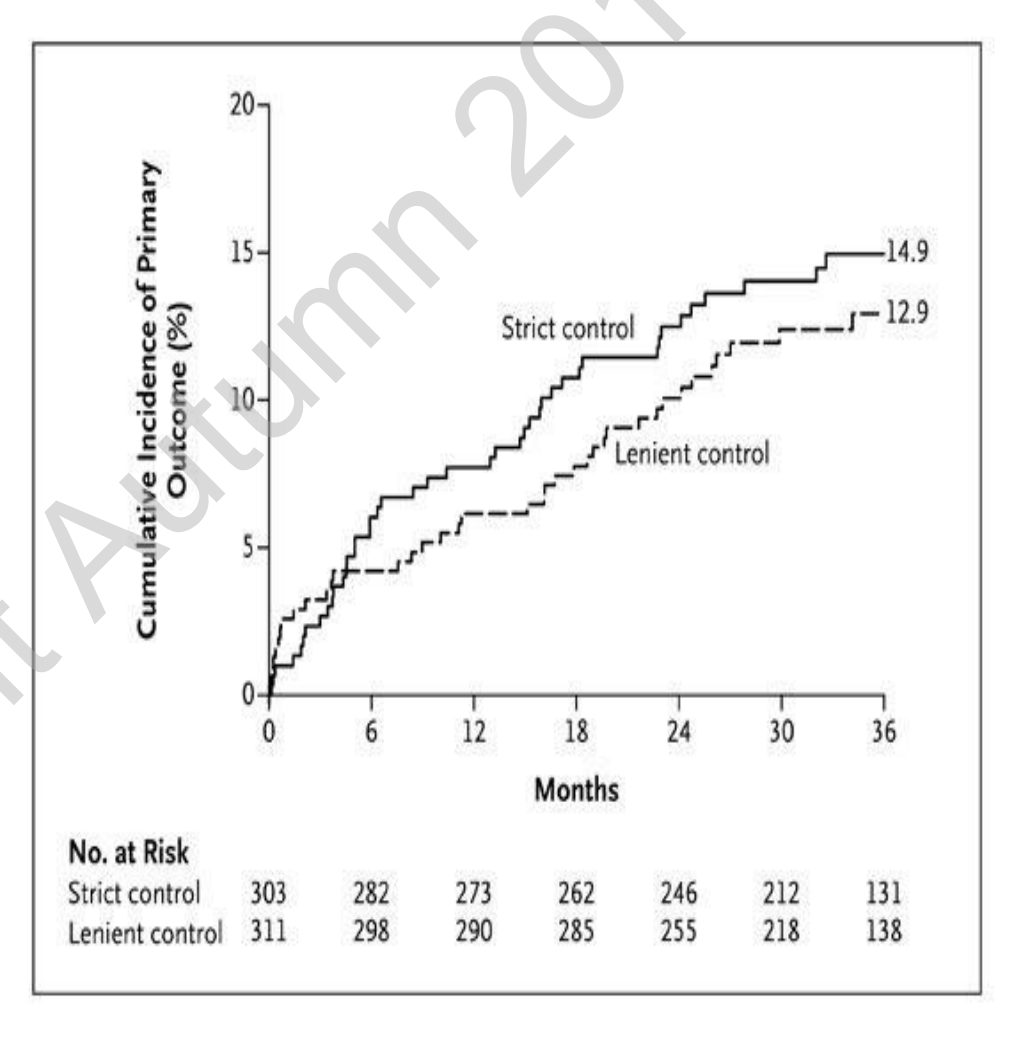
- Rhythm control
- Rate control
- Anticoagulation



What is the target heart rate?

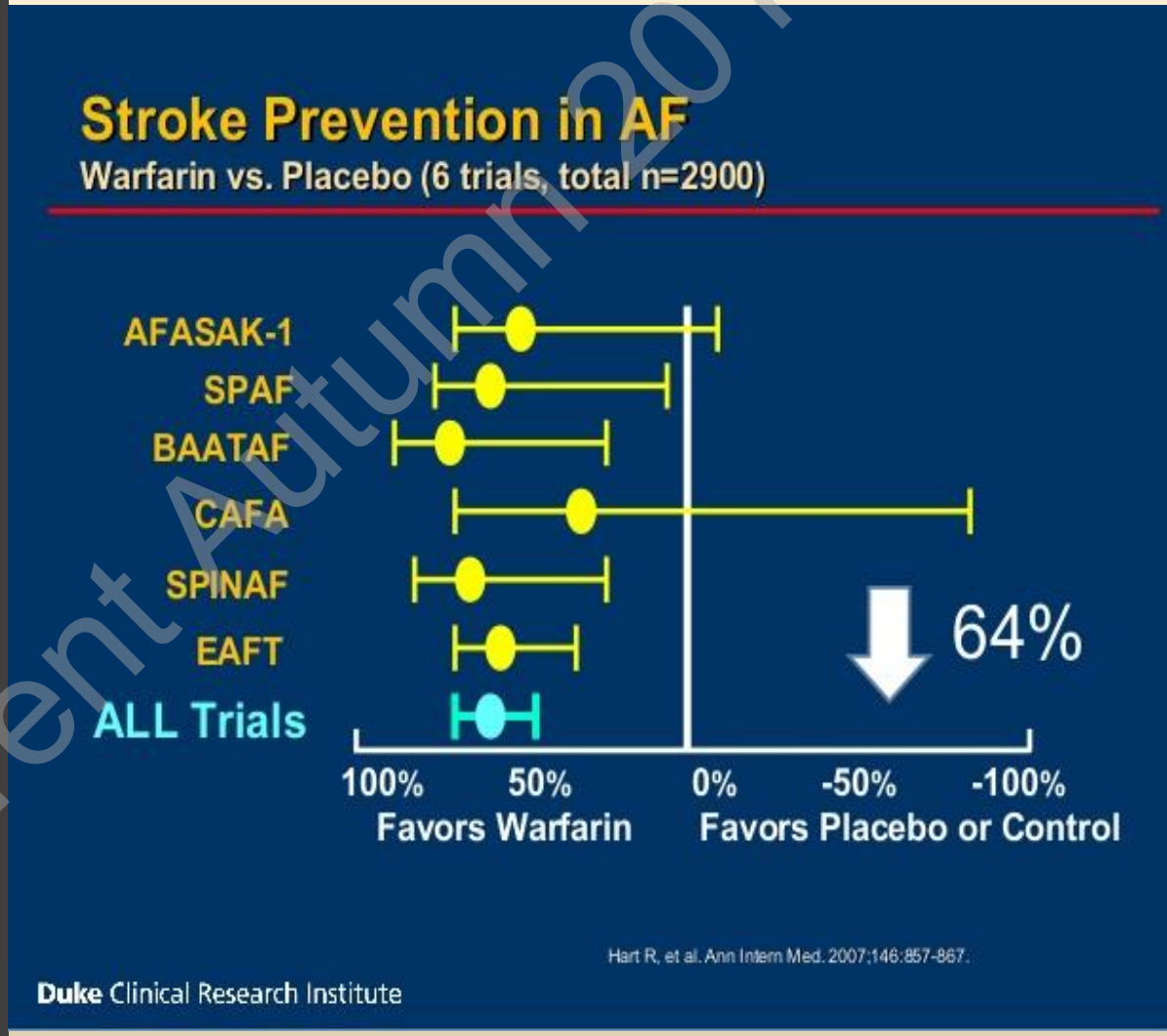
2614 patients with 12 months of AF assigned To lenient(<110) or strict HR control (<75)
No real difference with different drugs

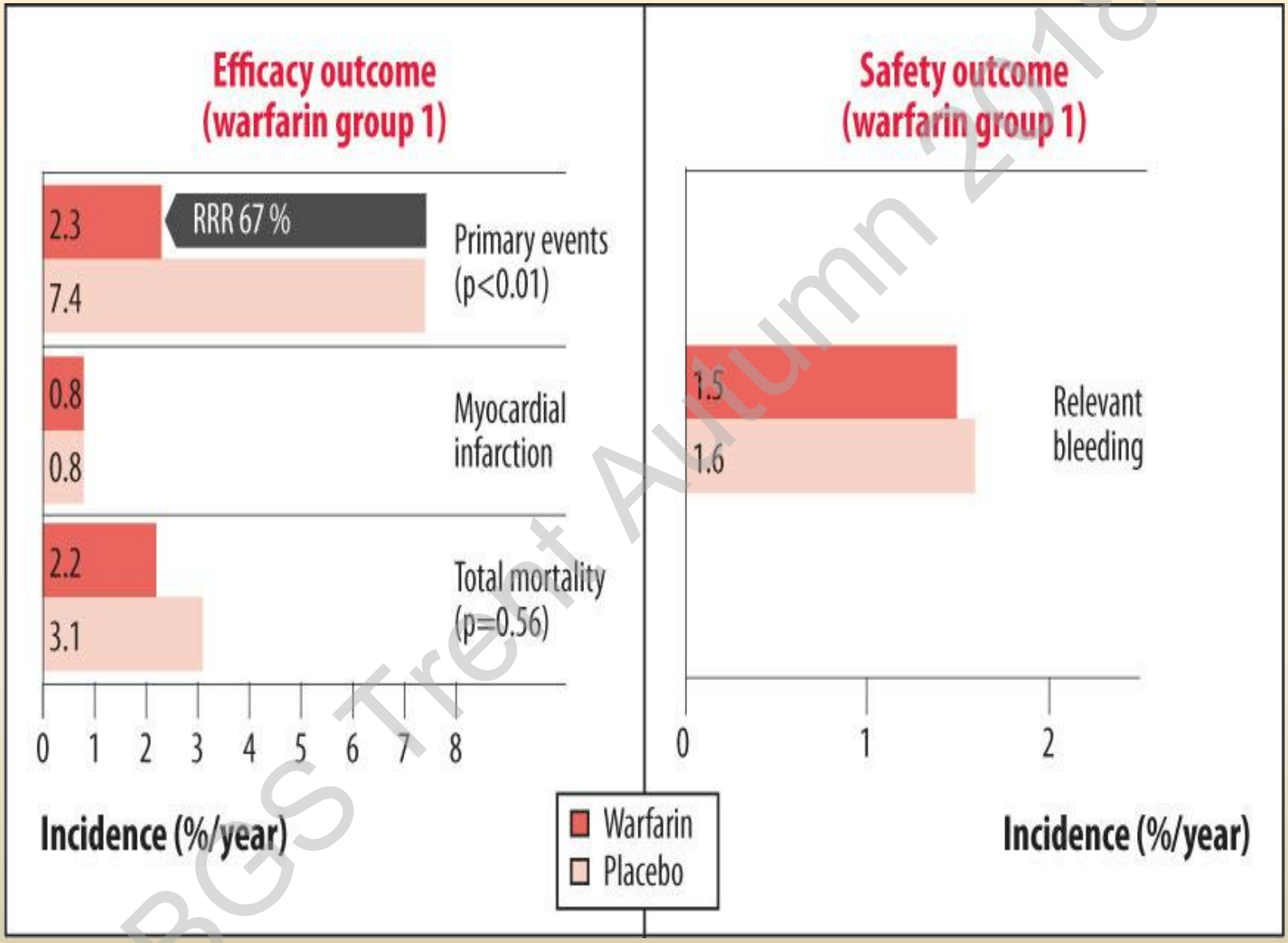
Primary outcomes: death, HF, hospitalization



Lenient versus Strict Rate Control in Patients with Atrial Fibrillation. Van Gelder et al. N Engl J Med 2010; 362:1363-1373

- Evidence for warfarin is overwhelming
- RR reduction in stroke, death





Stroke Prevention in Atrial Fibrillation Study. Final results". *Circulation*. 1991. 84(2):527-39.

Decision making about anti-coagulation

CHADS VASC2 > HAS-BLED = NOAC/warfarin

CHA_2DS_2-VASc	Score	HAS-BLED	Score
Congestive heart failure/LV dysfunction	1	Hypertension i.e. uncontrolled BP	1
Hypertension	1	Abnormal renal/liver function	1 or 2
Aged ≥75 years	2	Stroke	1
Diabetes mellitus	1	Bleeding tendency or predisposition	1
Stroke/TIA/TE	2	Labile INR	1
Vascular disease [prior MI, PAD, or aortic plaque]	1	Age (e.g. >65)	1
Aged 65-74 years	1	Drugs (e.g. concomitant aspirin or NSAIDSs) or alcohol	1
Sex category [i.e. female gender]	1		
Maximum score	9		9

How good is CHADS VASC at predicting stroke?

CHA2DS2-VASc Score	Stroke rate (%)
0	0
1	1.3
2	2.2
3	3.2
4	4.0
5	6.7
6	9.8
7	9.6
8	6.7
9	15.2

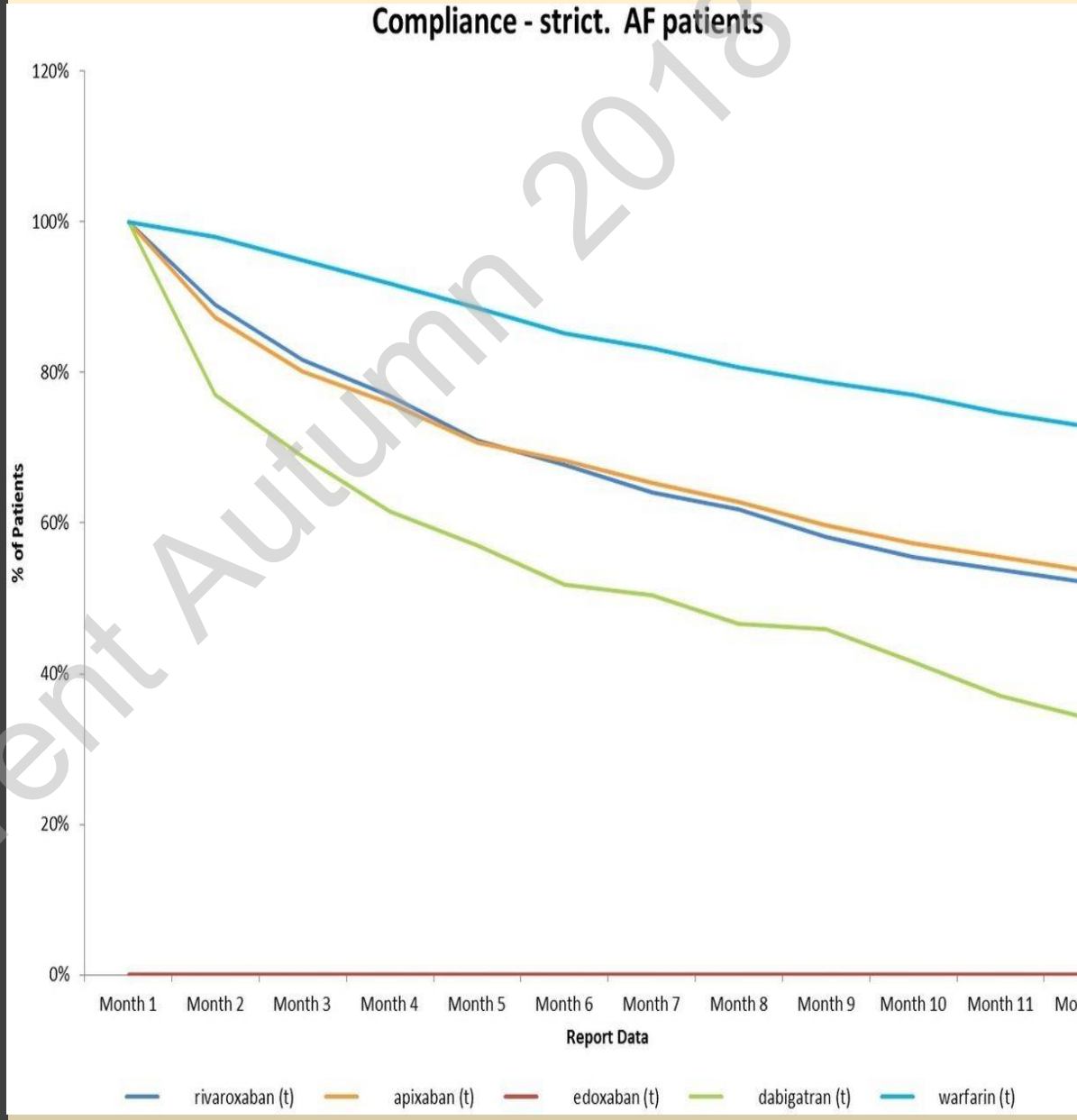
- Lower levels needed
- More interactions
- Higher risk of falls
- Higher risk ICH

Is anti-coagulation safe in the elderly?

SPAF, BAFTA , ALL REASSURRING BUT…….

How about DOACs?

- Generally safer according to trials
- Some concerns in older patients – adherence, renal function
- ?advantages of warfarin
- Mean age in DOAC trials was 70



Take home messages

- Exclusion criteria's – too sick for anti-coagulation?
- Look at actual risk (NNT)
- Review and stop if indicated
- DOAC not necessarily better and safer
- Inform appropriately

Questions? Disagreements?