

Heart Failure Update

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Professor, Överläkare

Update in Diagnosis

Update in Pharmacological Treatment

Update in Device Therapy

Heart Failure in the Elderly

Put Guidelines into Clinical Practice

Update in Diagnosis

*The very essence of
cardiovascular medicine is the
recognition of early heart
failure*

Sir Thomas Lewis 1933

Definition of heart failure

Symptom typical of HF



Signs typical of HF



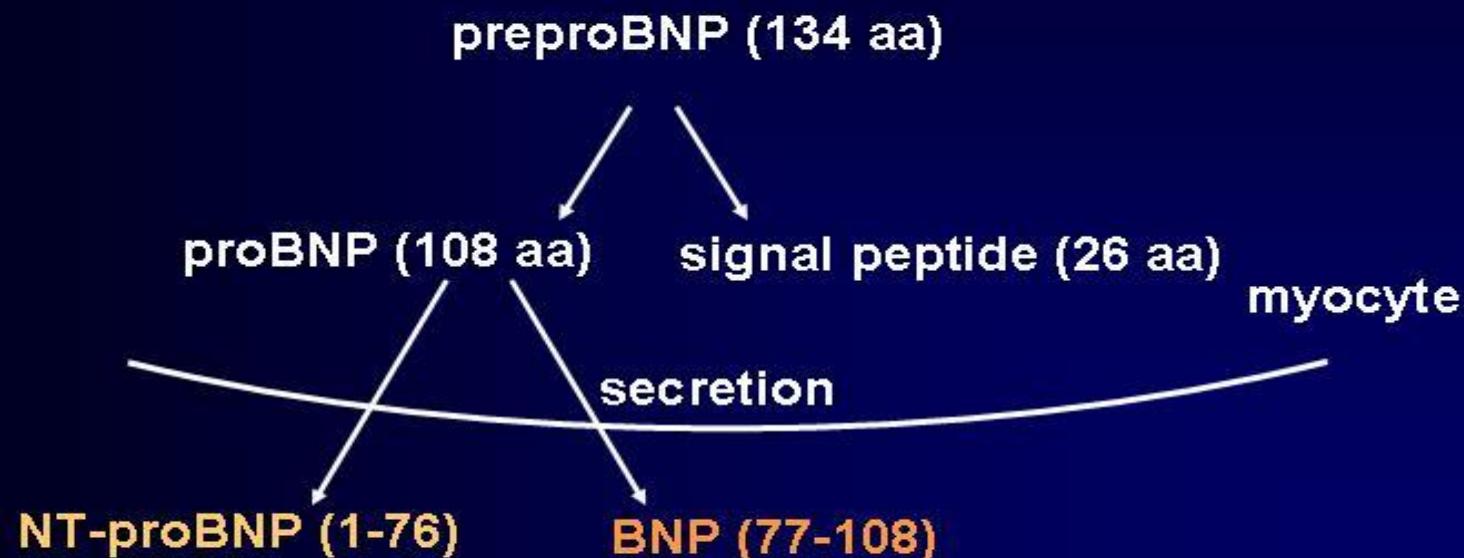
**Objective evidence of a structural or functional abnormality of the heart at rest
(cardiomegaly, 3rd heart sound, murmurs, abnormality on echo, raised natriuretic peptide)**

BNP

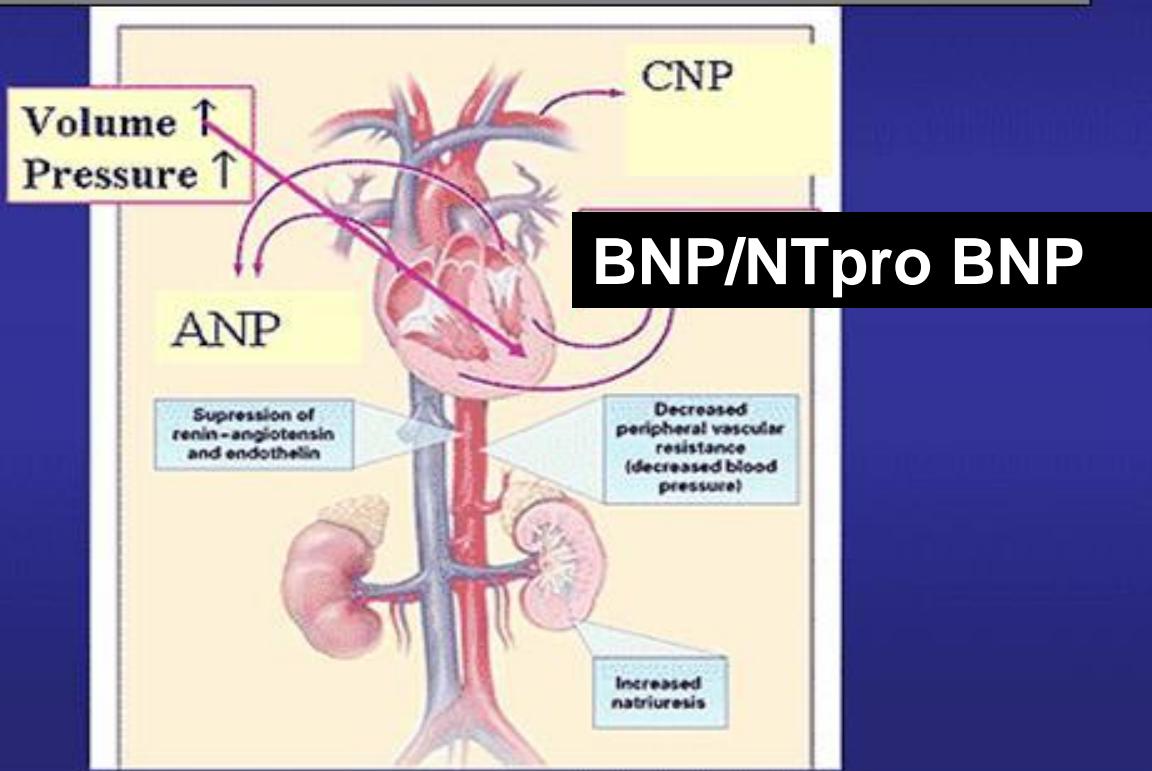
Brain Natriuretic Peptide

B type Natriuretic Peptide

Release of BNP from Cardiac Myocytes



biokemisk markör för hjärtsvikt



Ett fönster för hjärtas hemodynamik

Skillnad mellan BNP och NTpro BNP

	BNP	NT-proBNP
Aminosyror	32	76
MV	3500	8500
Biologiskt aktiv	ja	nej
Halveringstid (min)	20	60-120
Analysmetod		
Bedside	Ja	Ja
Central-Lab	Nej	Ja
Känslighet		Ngt mer vid lindrig hjärtsvikt
Eliminering	Neutral peptidase	Njur

**Så länge BNP resp NTpro BNP
analyseras korrekt !**

BNP

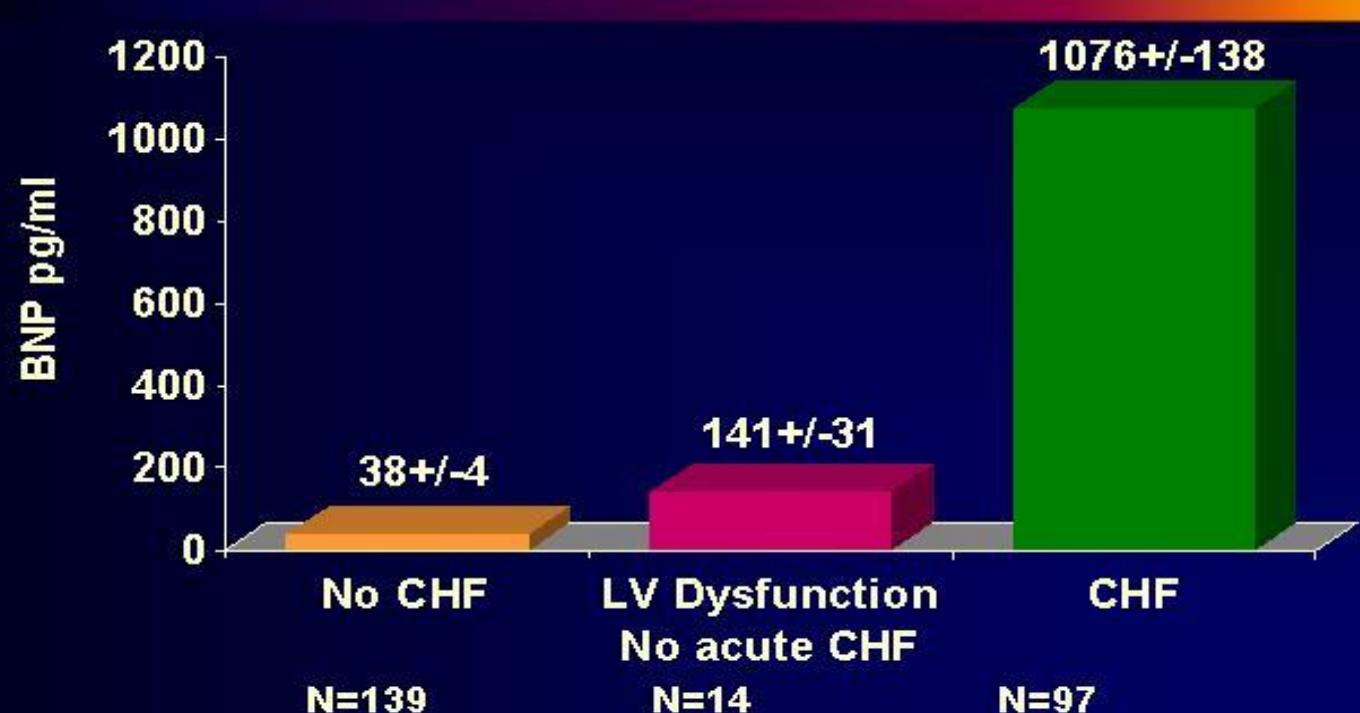
Likvärdig

NTpro-BNP

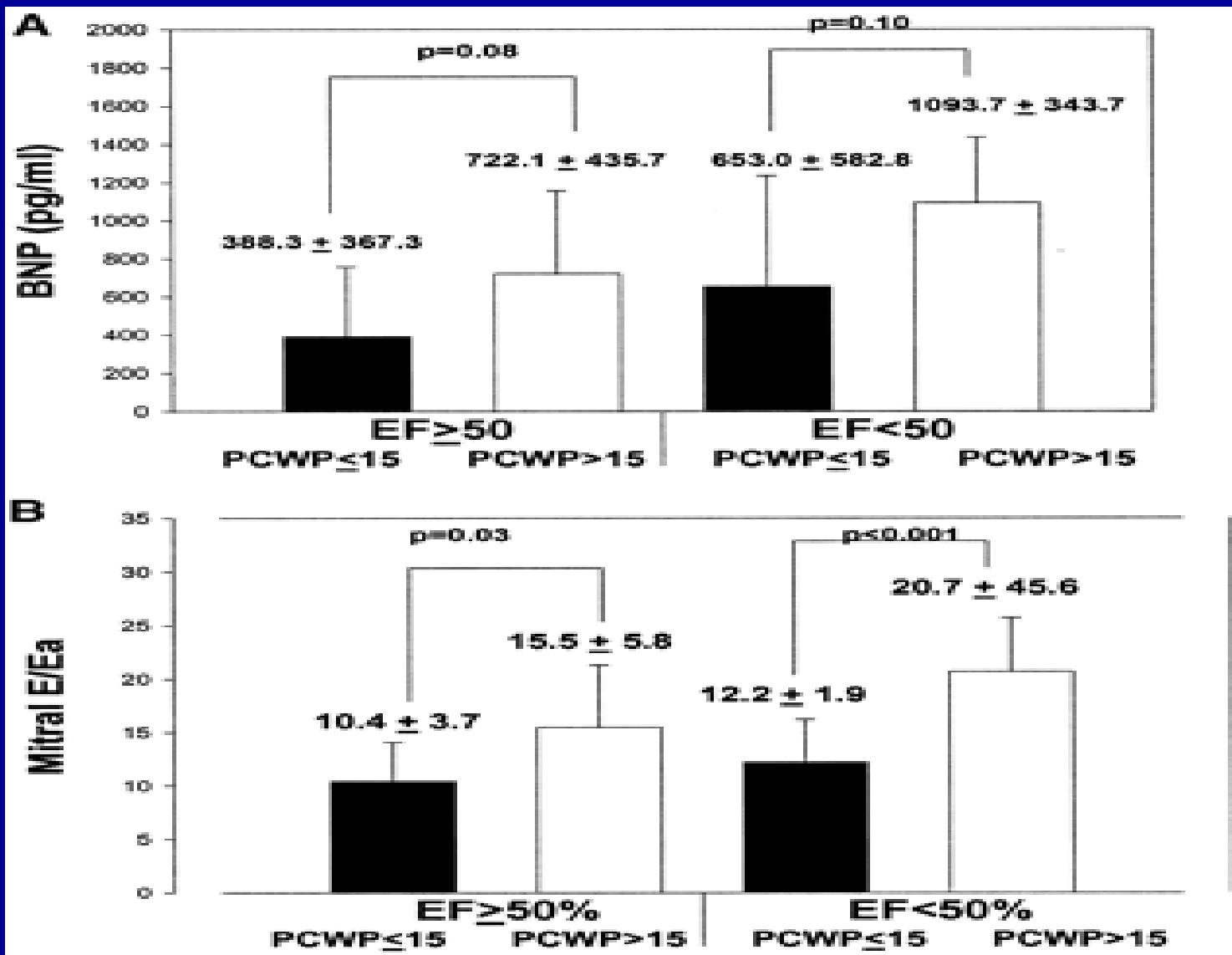


Evidence

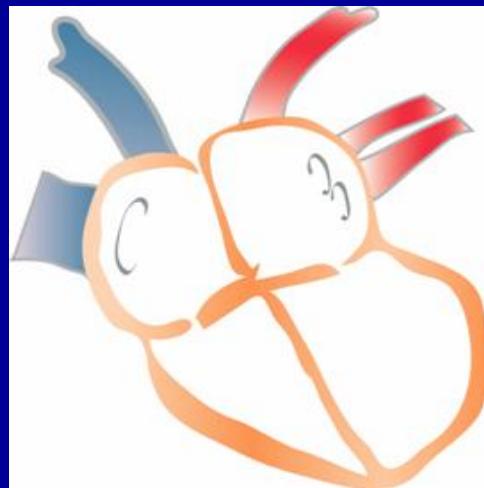
*BNP Levels of Patients Diagnosed
Without CHF, With Baseline Left Ventricular
Dysfunction, and With CHF*



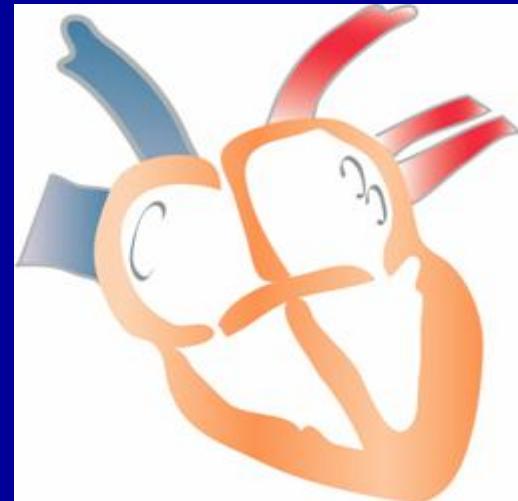
Dao, Q., Maisel, A. et al. J. American College of Cardiology, Vol 37, No. 2, 2001



Systolisk svikt



Diastolisk svikt



LVEF



BNP



NTpro BNP



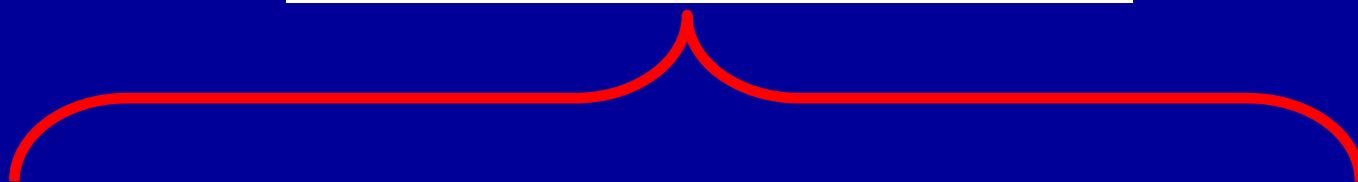
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Clinical examination, ECG, Chest X-ray



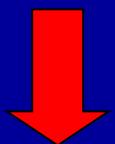
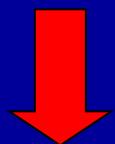
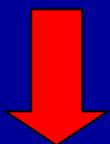
Natriuretic peptides



BNP <100
NTpro BNP <400

BNP 100-400
NTpro BNP 400-2000

BNP >400
NTpro BNP >2000



CHF
unlikely

CHF
uncertain

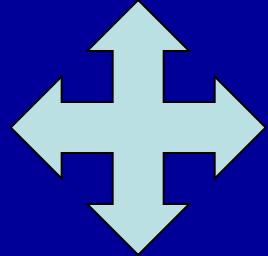
CHF
likely

Update in Pharmacological Treatment

Objectives of treatment of chronic heart failure

Prognosis

Life quality



Morbidity

Prevention

Farmaka vid hjärtsvikt

- Beta-adrenerga receptor blokerare (Beta-blokerare)
- ACE hämmare
- Aldosteron receptor antagonist
- Angiotensin receptor blokerare (AT1 blokerare)
- Digitalis
- Diuretika
- Antikoagulation
- Vasodilaterare
- Antiarytmika
- Inotropa
- Kalcium kanal blokerare
- Statin
- ASA

Evidence based step by step medications

Class II

β blocker

ACE inhibitor

Class III

β blocker

ACE inhibitor

ARB

Class IV

β blocker

ACE inhibitor

ARB

Spiromolacton



Symptomatic CHF

ACEI+BB

Yes

Persisting symptoms & sign

NO

ARB or
Aldosterone antagonist

Yes

Persisting symptoms

NO

LVEF<35%

QRS>120 ms

Yes

CRT/CRT-D

Yes

ICD

Symptomatic CHF



ACEI+BB

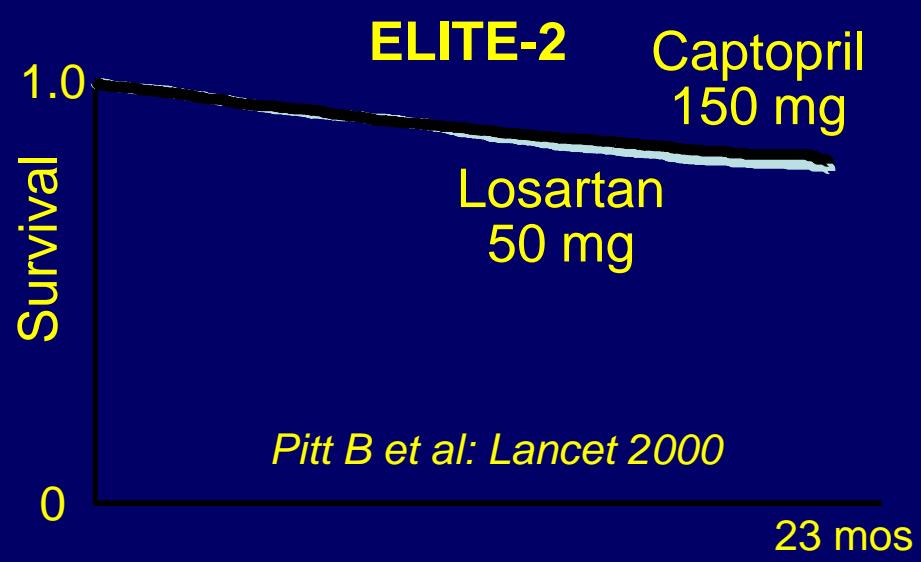
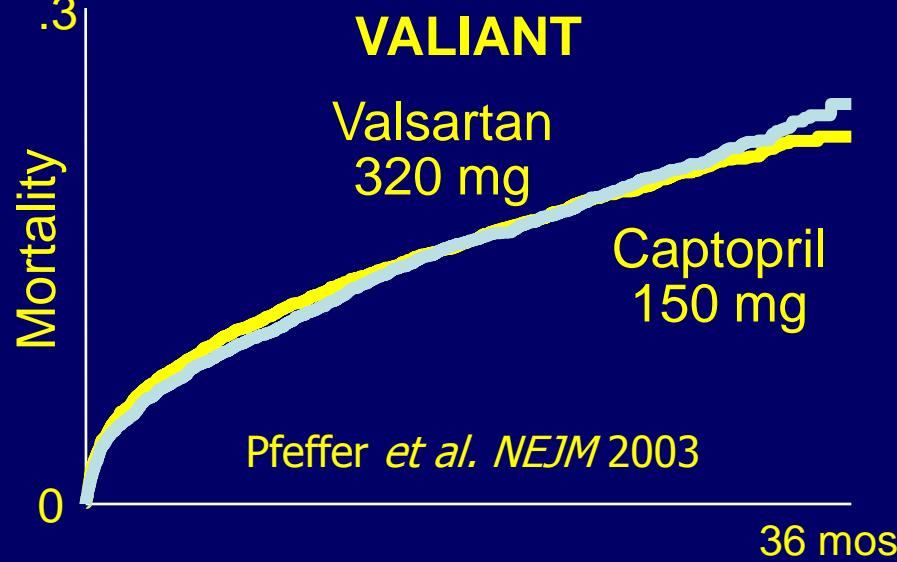
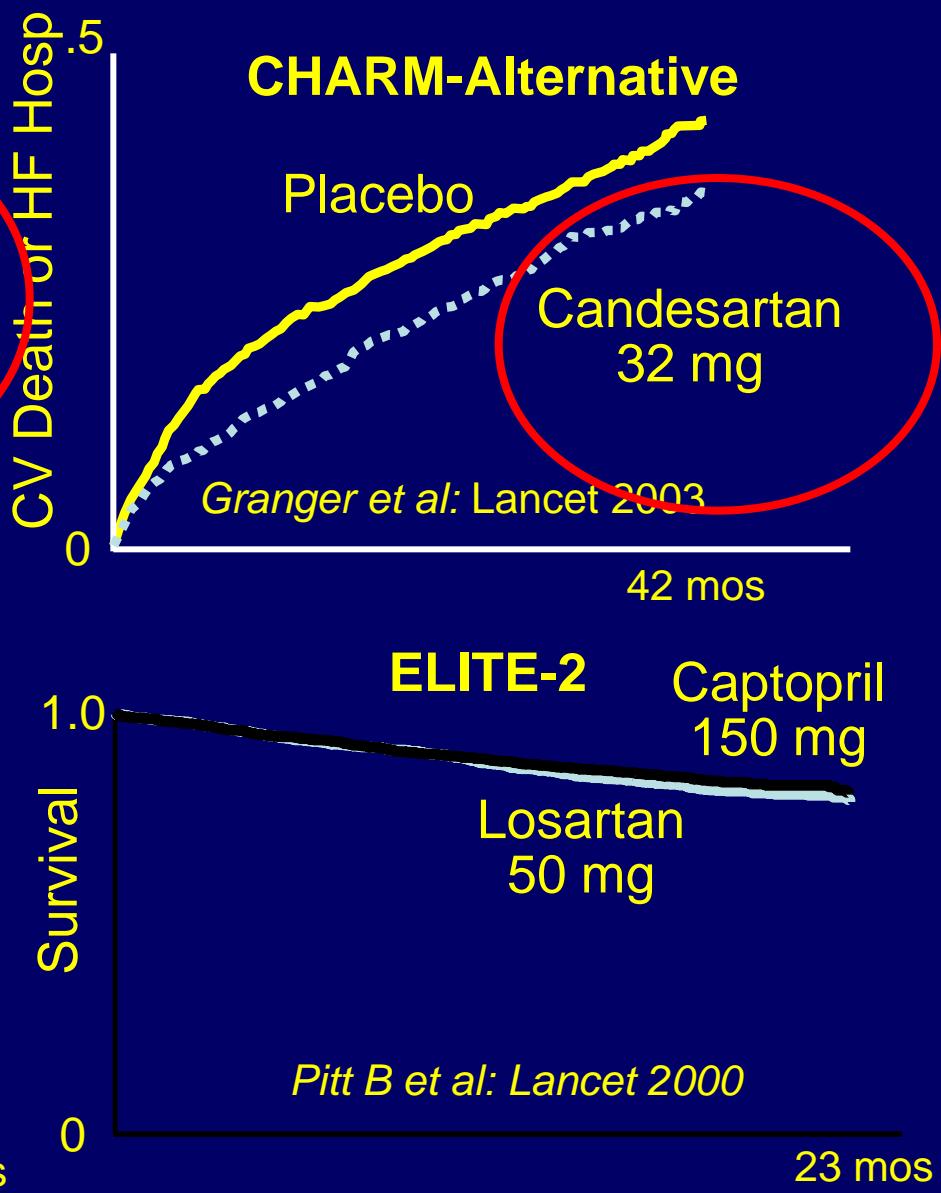
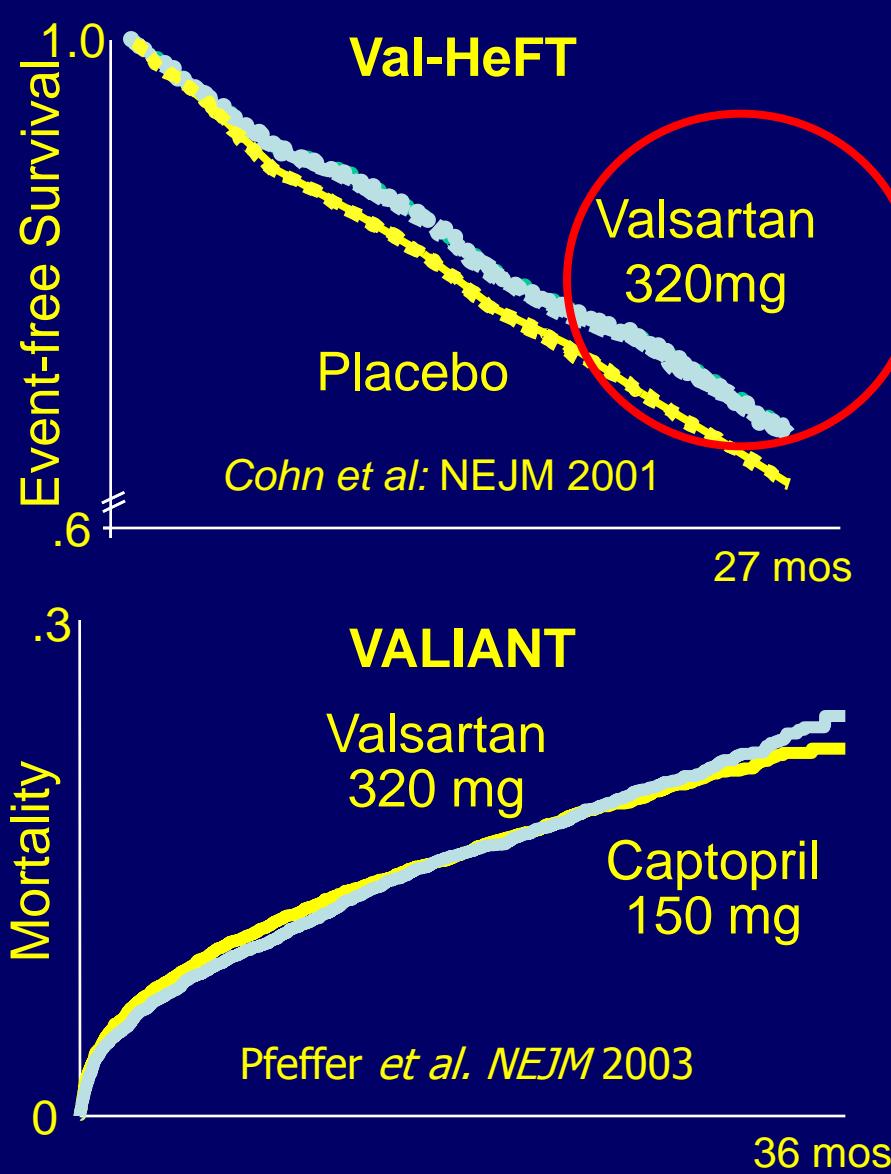


ACEI intolerance



ARB

VILKA ?

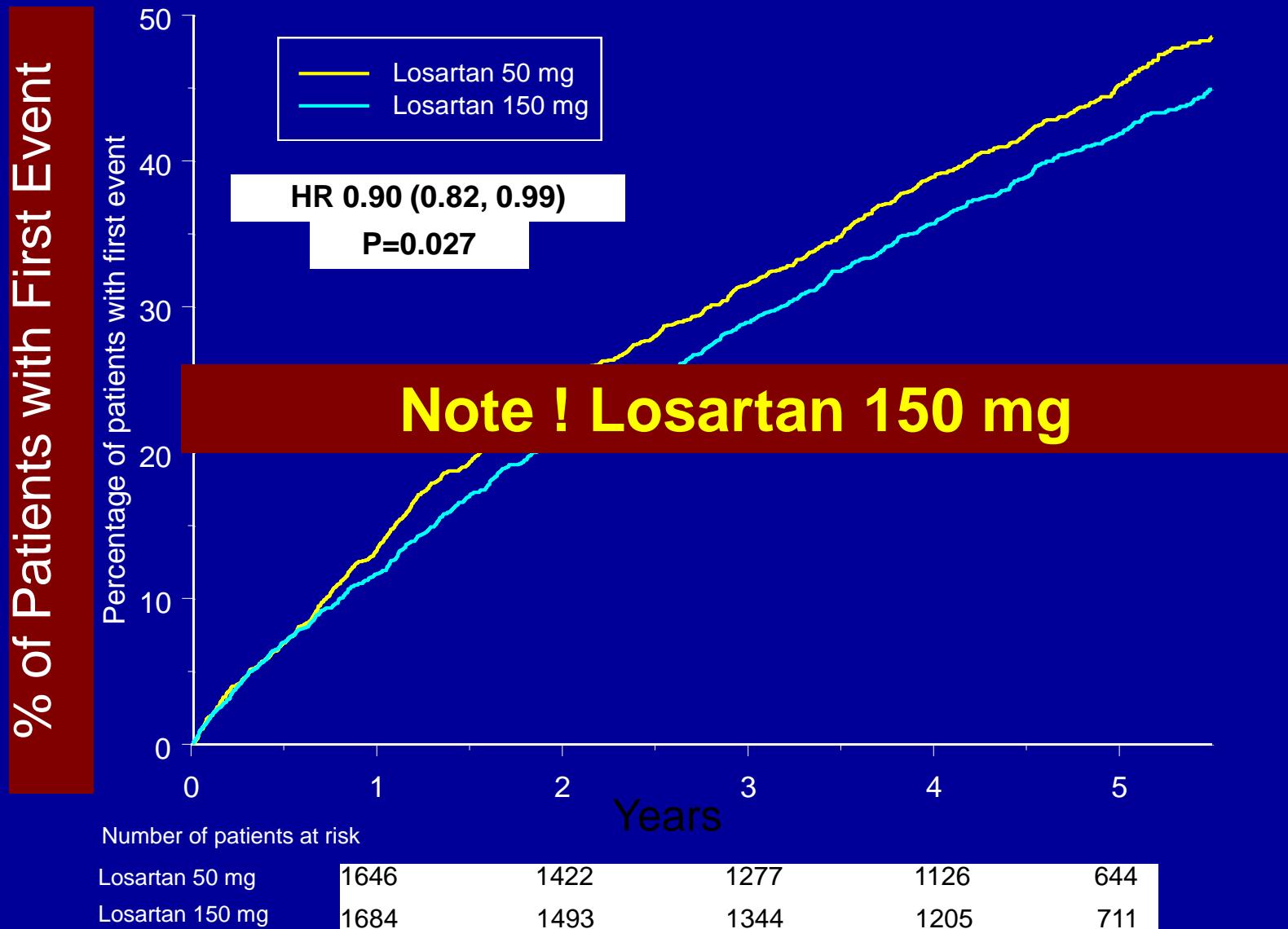


Comparison of Low-Dose Versus High-Dose Losartan Treatment on Morbidity and Mortality in Angiotensin-Converting-Enzyme-Inhibitor-Intolerant Patients with Heart Failure and Reduced Left Ventricular Ejection Fraction:

Results of the HEAAL* Study

Marvin A. Konstam, James D. Neaton, Kenneth Dickstein, Helmut Drexler, Michel Komajda, Felipe A. Martinez, Gunter A.J. Riegger, Ronald D. Smith, William Malbecq, Soneil Guptha, Philip A. Poole-Wilson for the HEAAL investigators

Death or Hospitalization for HF



ARB

Indication no. 1

Vid ACE inhibitor intolerance

Candesartan (Atacand)

Valsartan (Diovan)

Losartan * endast 150 mg

Symptomatic CHF



ACEI+BB



Yes

Persisting symptoms & sign

NO

ARB or
Aldosterone antagonist



VILKEN ?

As add-on

**ARB or Aldosteron antagonist
?**

ARB

Indication no. 2

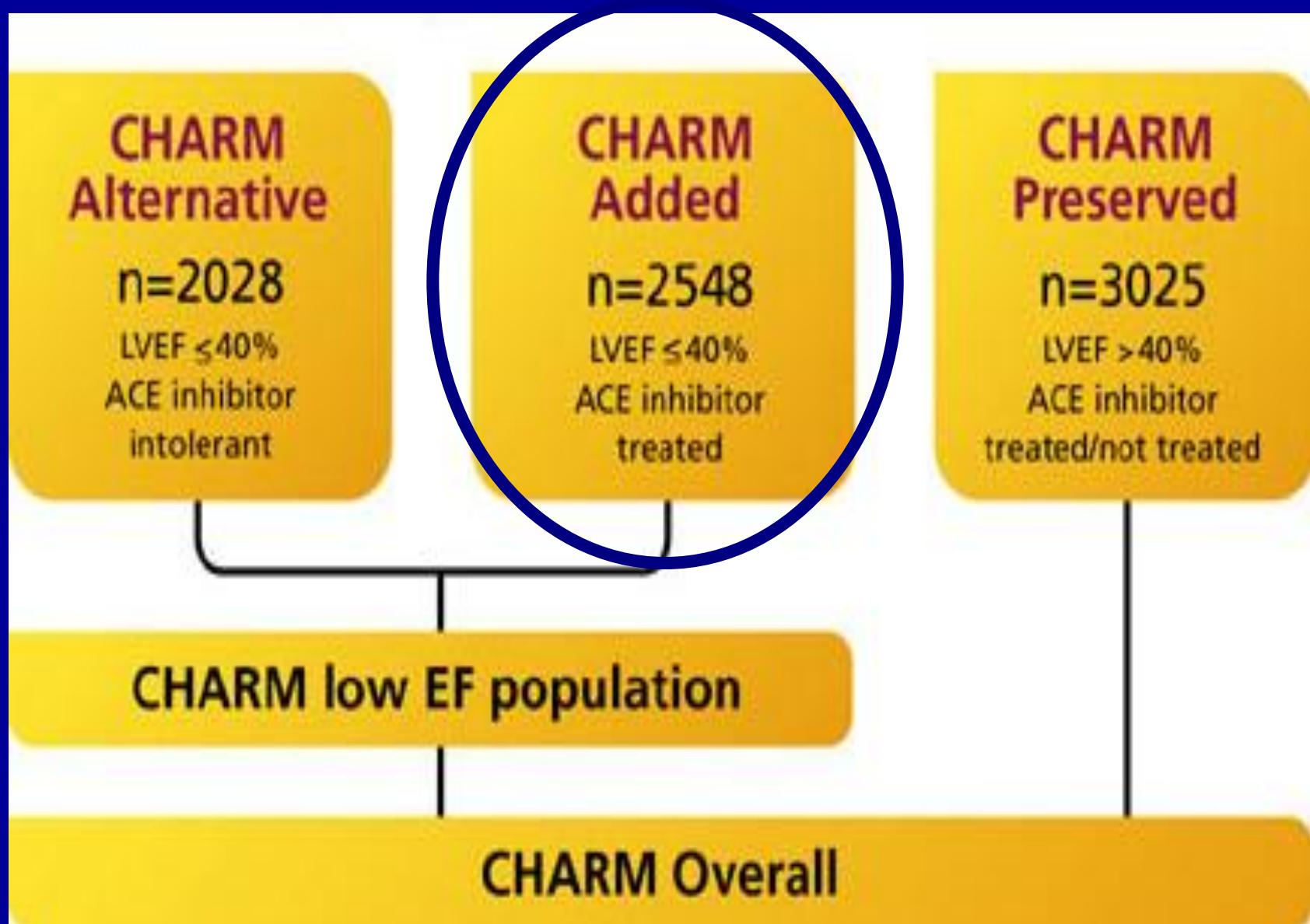
Add-on treatment (on top of ACEI)

Behandling med ARB

	Startdos (mg)	Måldos (mg)
Kandesartan	4-8 x 1	32 x 1
Valsartan	20 x 2	160 x 2

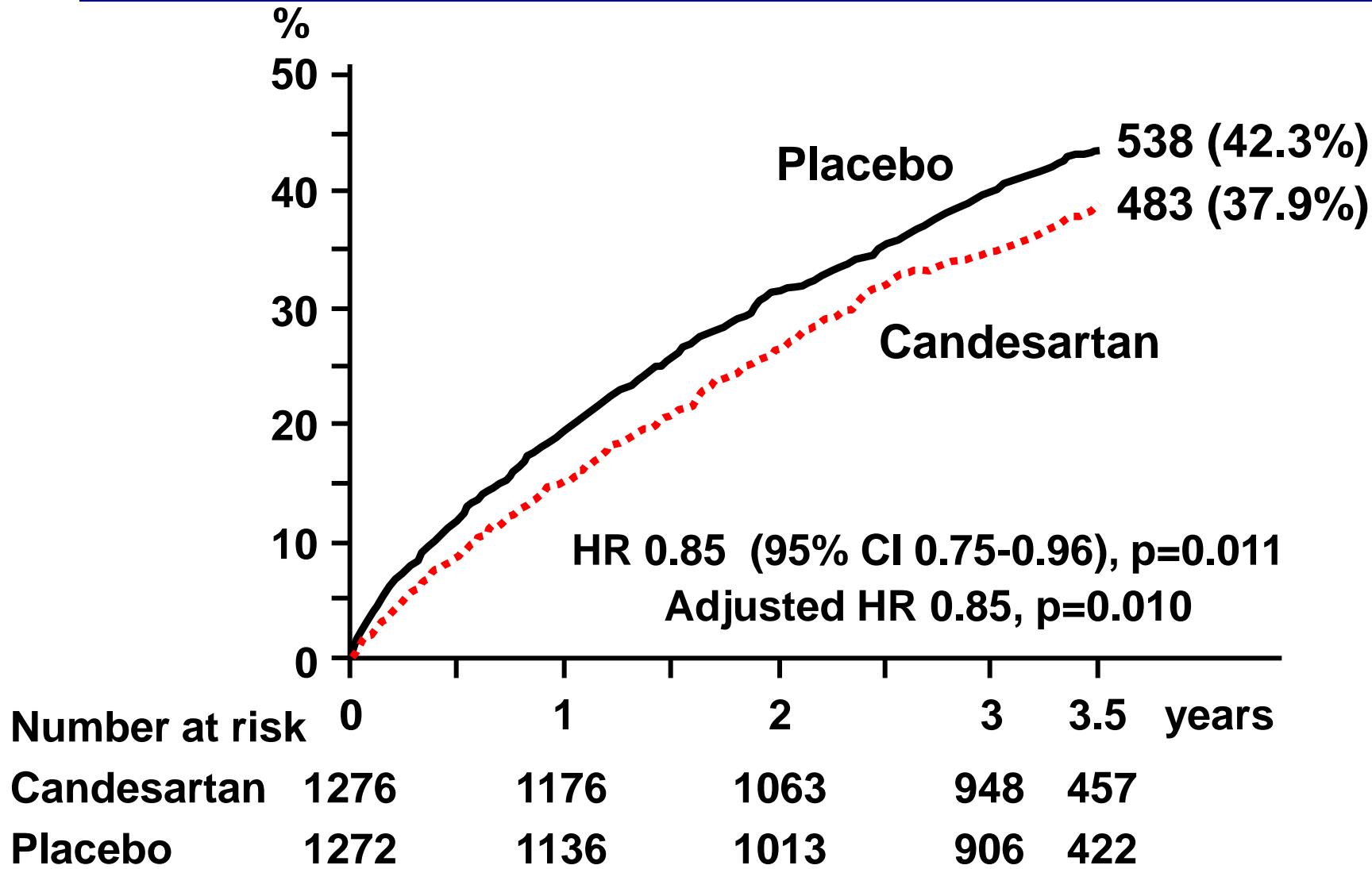
- Måldos eftersträvas.
- Dosdubbling varje till varannan vecka.
- Kontroll av s-kreatinin och s-kalium.

CHARM Programme



CHARM-Added

Primary outcome, CV death or CHF hospitalisation



Aldosteron antagonist

Eplerenone in Patients with Systolic Heart Failure and Mild Symptoms

EMPHASIS-HF*

Faiez Zannad, M.D., Ph.D., John J.V. McMurray, M.D., Henry Krum, M.B., PhD.,
Dirk J. van Veldhuisen, M.D.,Ph.D., Karl Swedberg, M.D., Ph.D, Harry Shi, M.S.,
John Vincent, M.B., PhD., Stuart J Pocock, Ph.D. and Bertram Pitt, M.D. for the
EMPHASIS-HF Study Group

ClinicalTrials.gov, NCT00232180

* Eplerenone in Mild Patients Hospitalization And Survival Study in Heart Failure

Mineralocorticoid Receptor Antagonists (MRAs) in Heart Failure

Survival
30% RR , P < 0.001

Total Mortality
15% RR, P=0.008

HYPOTHESIS:

Eplerenone, added to evidence-based therapy, is associated with improved clinical outcomes in patients with systolic heart failure and **mild symptoms**

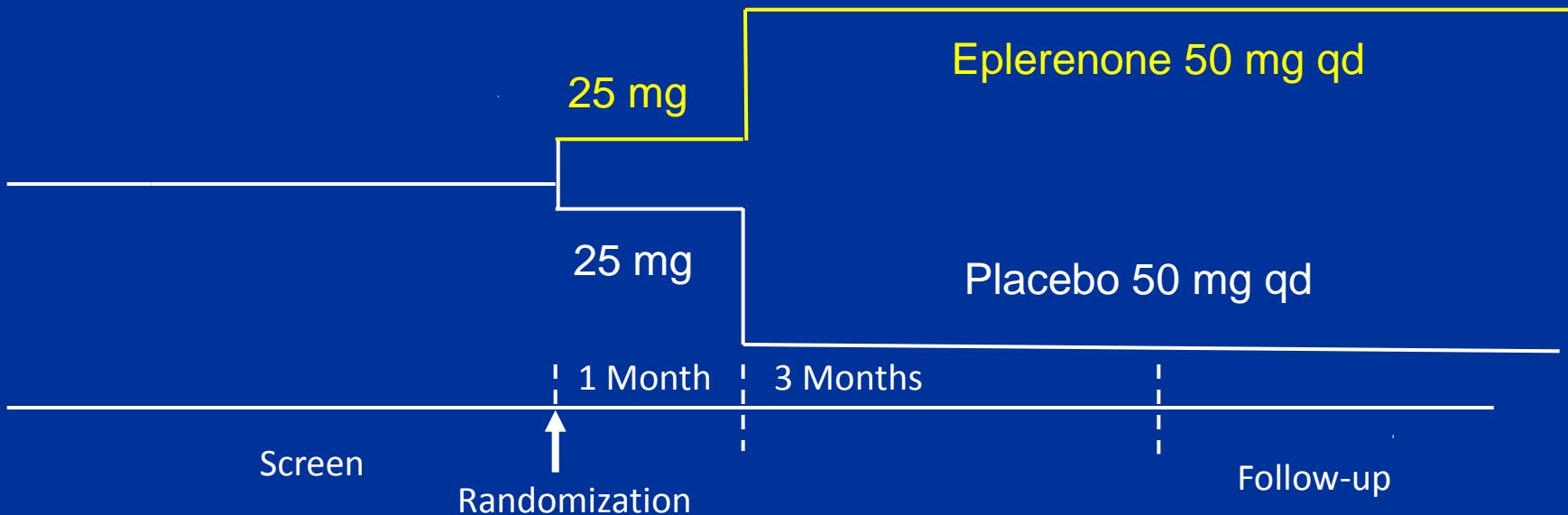
RALES (LVSD, CHF severe symptoms)

Pitt B, Zannad F, Remme WJ, et al. *N Engl J Med.* 1999

EPHESUS (LVSD + HF after MI)

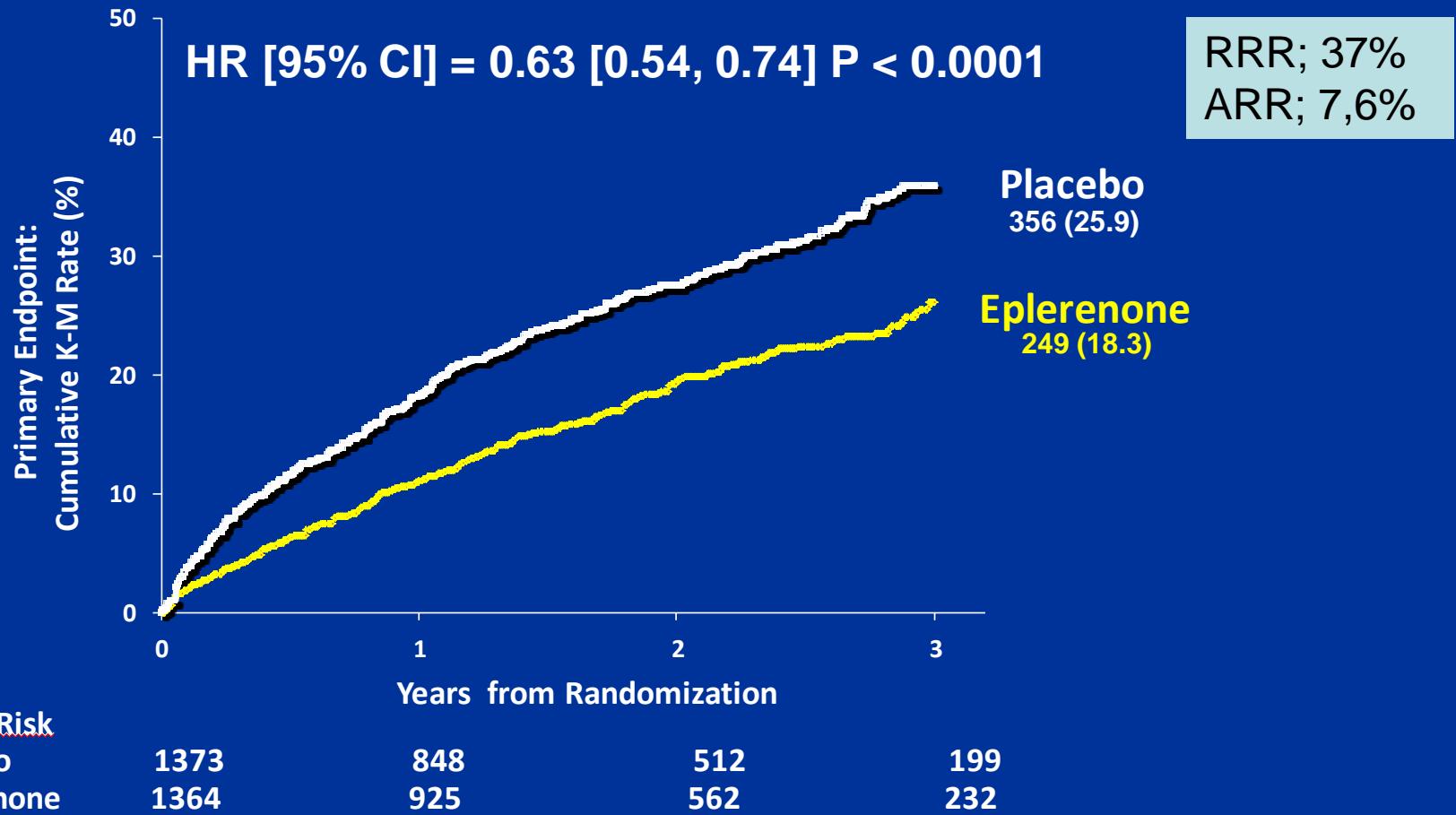
Pitt B, Remme W, Zannad F, et al. *N Engl J Med.* 2003

Study Design and Sample Size



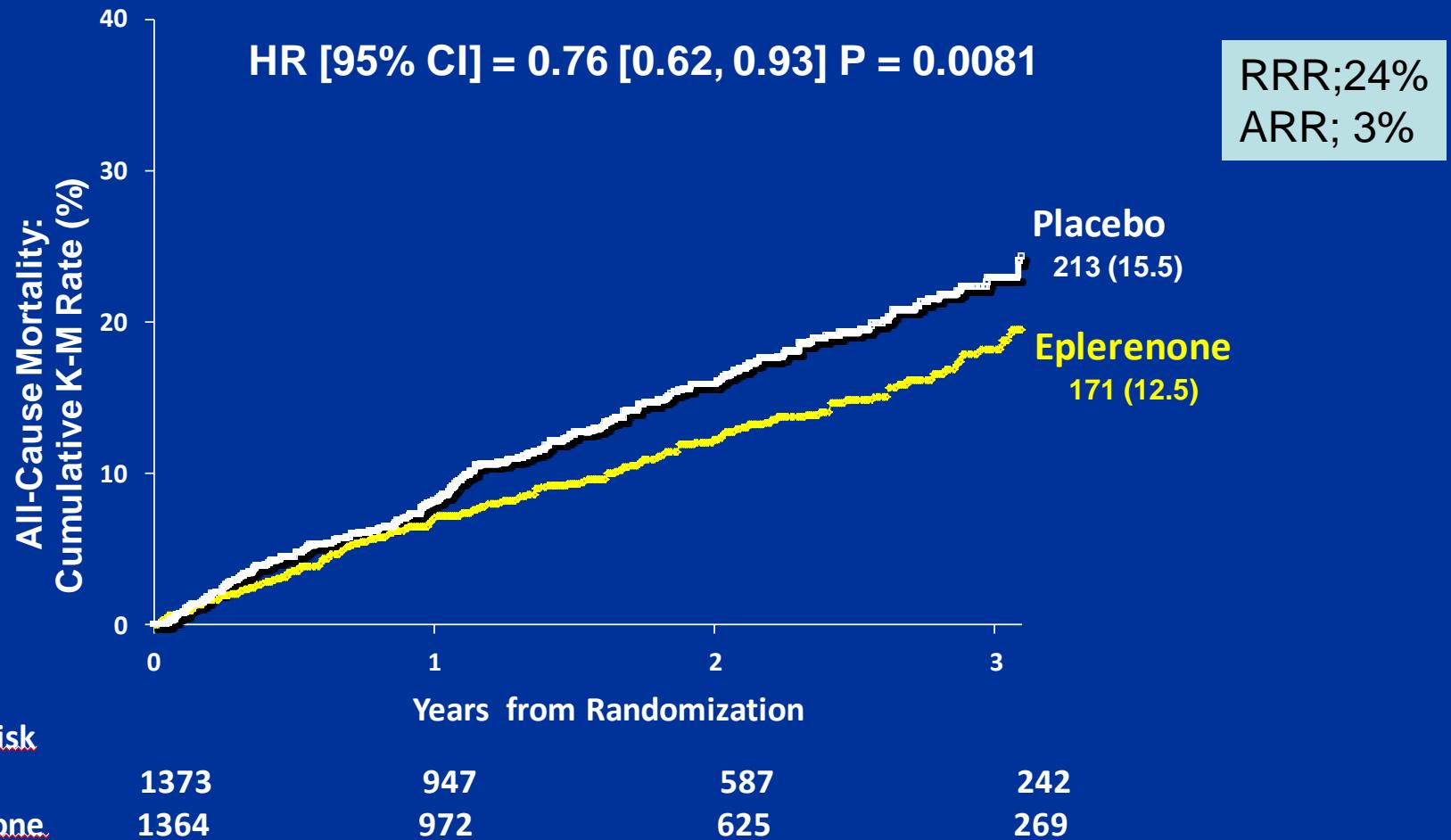
- Primary endpoint: CV death or hospitalization for HF

Primary Endpoint Cardiovascular Death or Hospitalization for HF



*Unadjusted HR 0.66; 0.56, 0.78; p<0.0001 Zannad et al N Engl Med 2011;364:11

Mortality From Any Cause



*Unadjusted HR, 0.78; 0.64, 0.95; p=0.01

Zannad et al N Engl Med 2011;364:11

As add-on

ARB or Spironolakton ?

Spironolakton

Evidence based step by step medications

Class II

β blocker

ACE inhibitor

Spironolacton

Class III

β blocker

ACE inhibitor

ARB

Spironolacton

Class IV

β blocker

ACE inhibitor

ARB

Spironolacton

Ivabradine



Systolic Heart failure treatment with I_f inhibitor ivabradine Trial

