Οξεία καρδιακή ανεπάρκεια: Ποιες παράμετροι συμβάλλουν στη διαστρωμάτωση κινδύνου των ασθενών;

Γ. Φιλιππάτος, MD, FACC, FESC, FCCP
Επ. Καθηγητής Καρδιολογίας Πανεπ. Αθηνών

Clinical Outcomes in Patients Hospitalized with Heart Failure

All-cause mortality:	
In hospital	**3-7%**
At 60 - 90 days	**10 - 16%***
Readmissions:	
At 60 - 90 days	**20 - 25%***

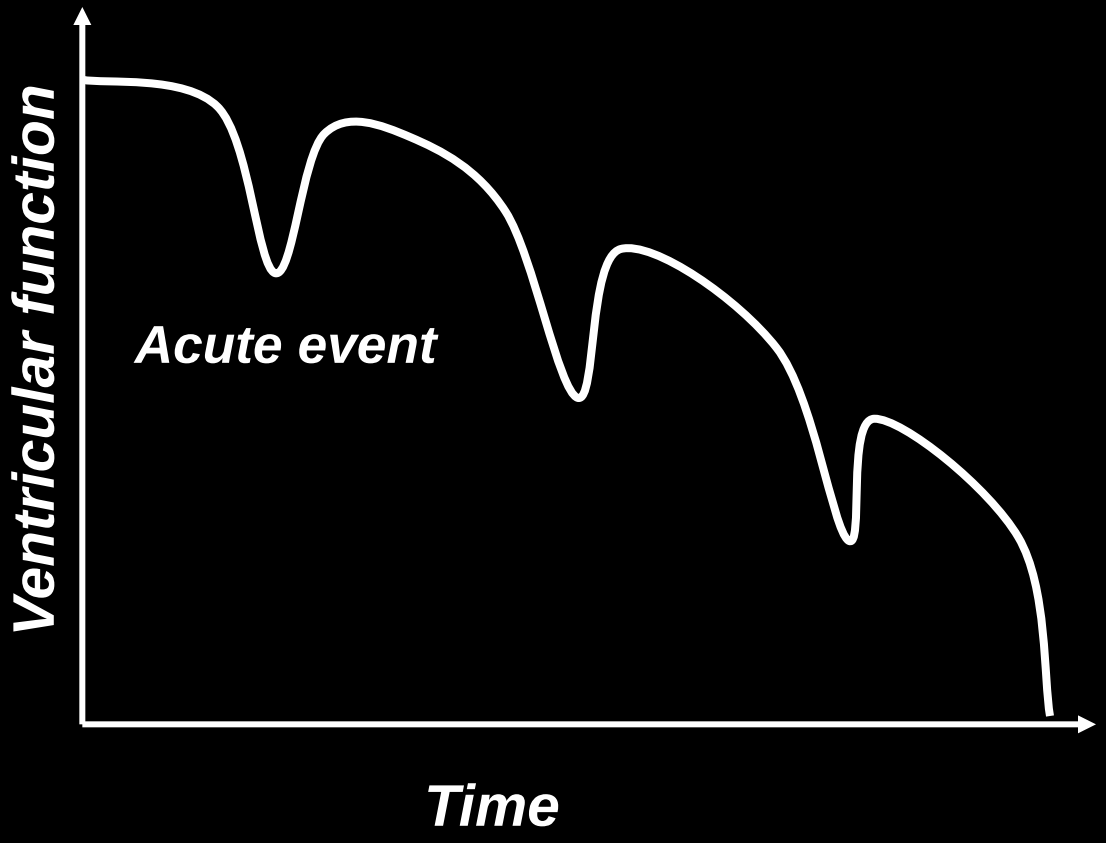
*50% in pts. with BP<120mmHg at admission

- *Fonarow GC. Rev Cardiovasc Med. 2003*
- *Gheorghiade M, Filippatos G et al. Am J Med 2006*
- *Nieminen M et al Eur Heart J 2007*
- *Cleland JGF et al. Eur Heart J. 2003*

Understanding defeat is preparing for victory

Mao Ce-tung

Acute Exacerbations May Contribute to the Progression of the Disease



With each event, hemodynamic alterations contribute to progressive ventricular dysfunction.

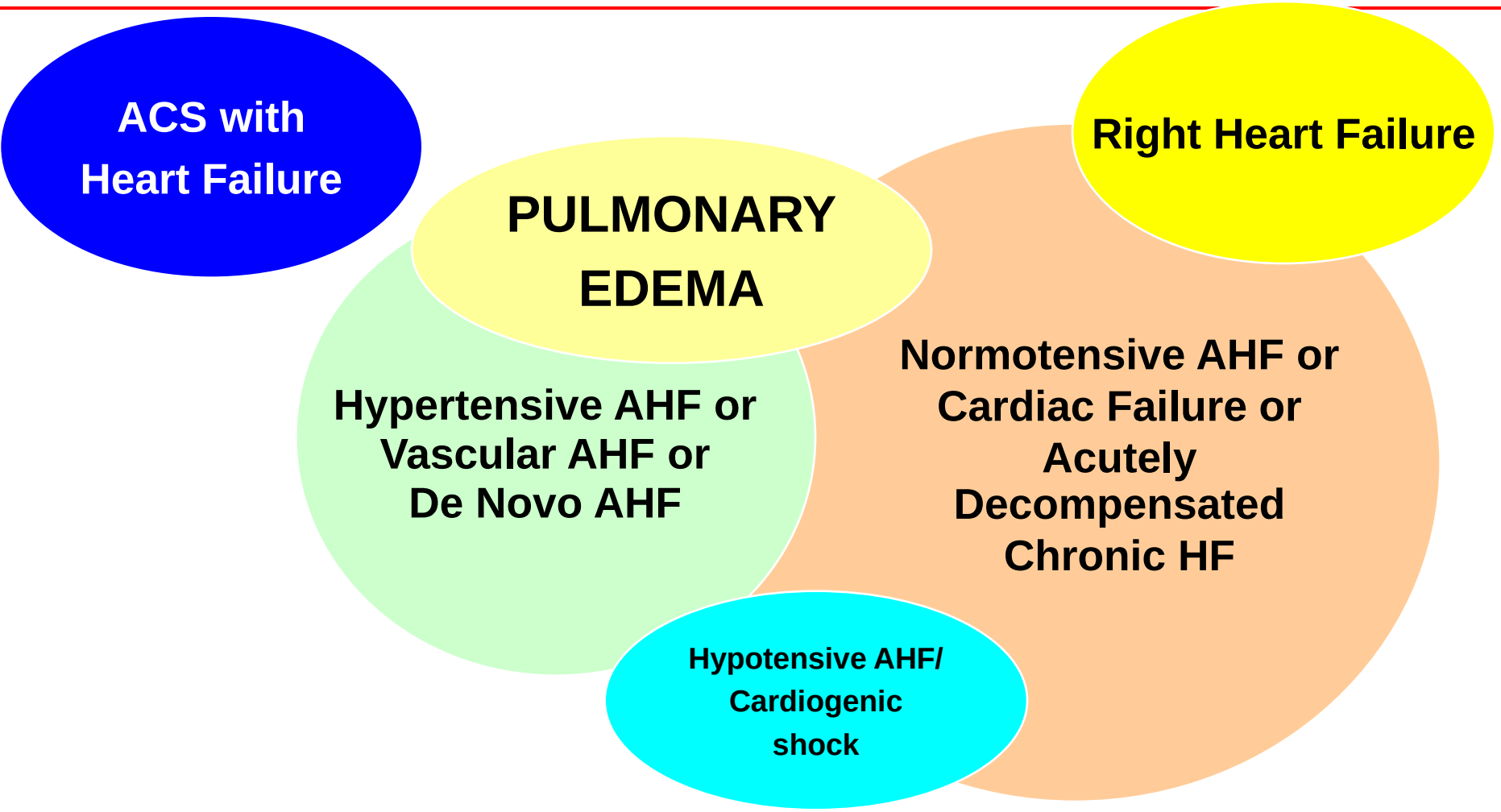
Gheorghiade M, De Luca L, Fonarow G, Filippatos G, Francis G, . Am J Cardiol 2005

Symptoms, Left Ventricular Dysfunction, and Prognosis in Heart Failure

There is a poor relationship between symptoms, the severity of cardiac dysfunction, and prognosis

Unlike AMI/ACS, there have been no readily available tests or risk scores for estimation of prognosis in HF

Classification of AHFS

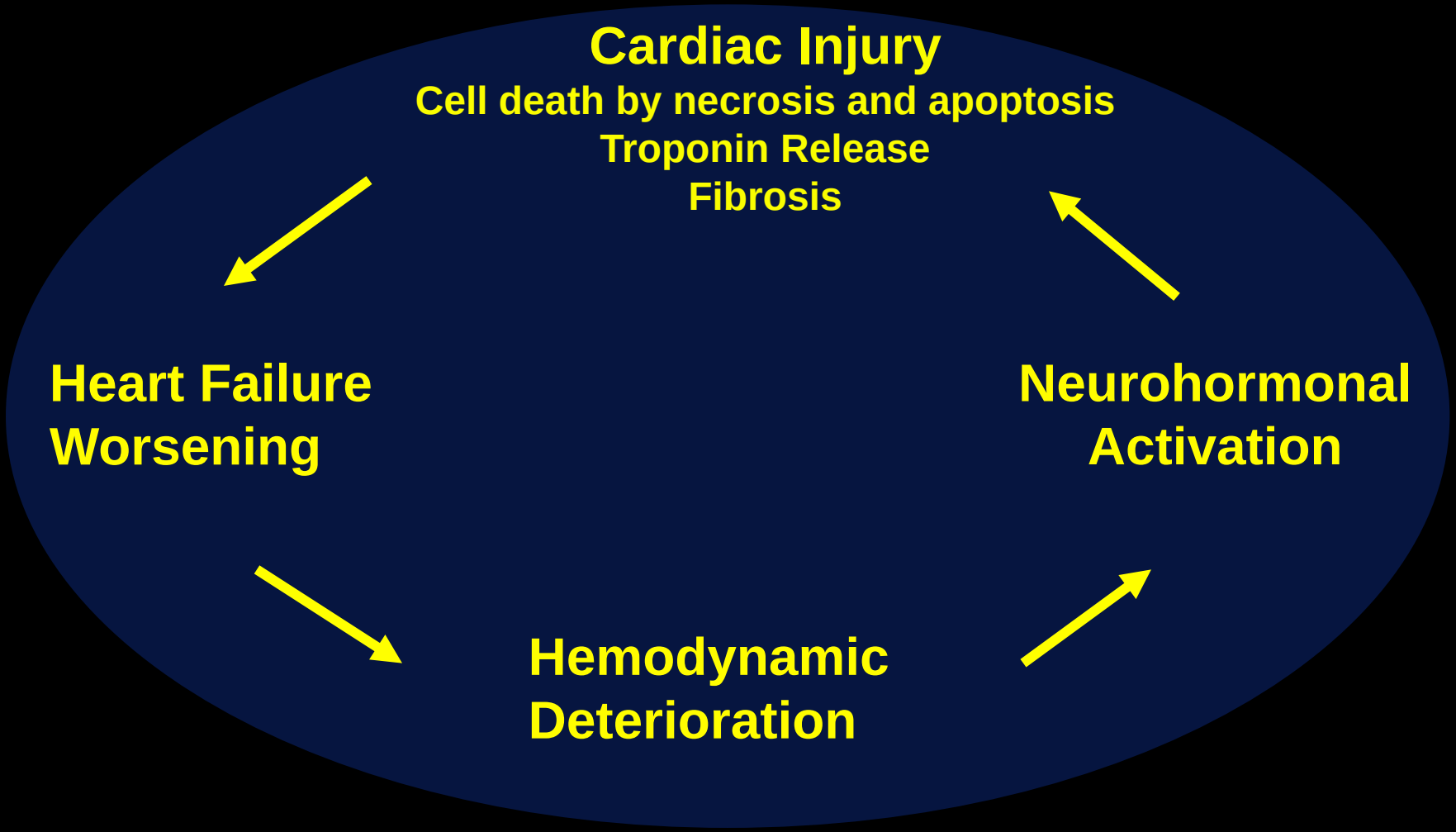


Filippatos G. Heart Failure Rev 2007

AHFS: Emerging Predictors of Prognosis

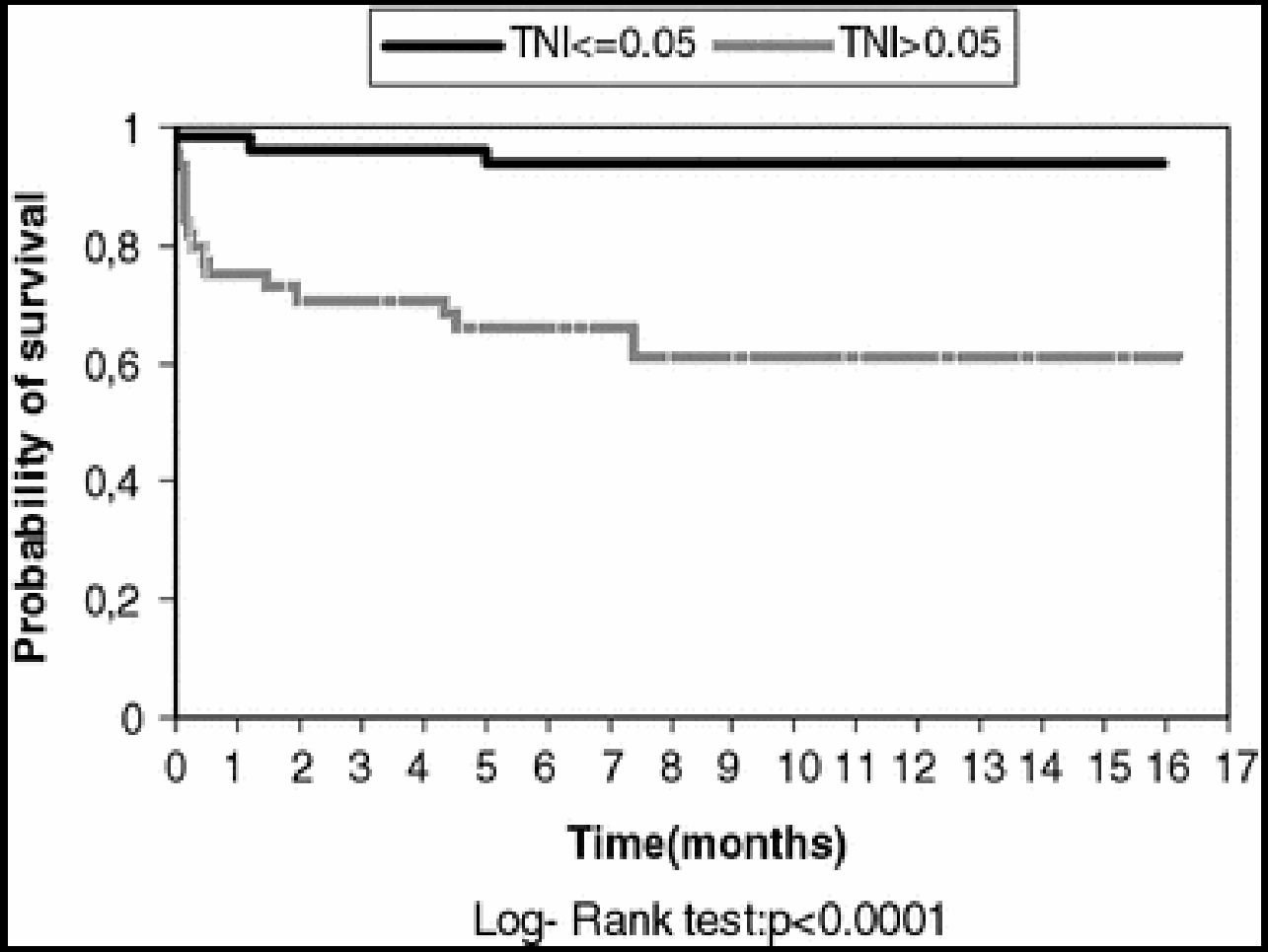
- **Troponin (*myocardial injury*)**
- **Blood pressure (*CV performance*)**
- **Hyponatremia (*neuro-hormonal activation*)**
- **Creatinine/BUN (*renal dysfunction?*)**
- **Clinical signs and symptoms (*congestion*)**
- **Natriuretic Peptides (*myocardial stress*) and other biomarkers**

MECHANISMS OF DISEASE PROGRESSION IN HEART FAILURE



Modified from Filippatos G et al. Am J Physiol 1998

AHFS: Prognostic Value of Tn T

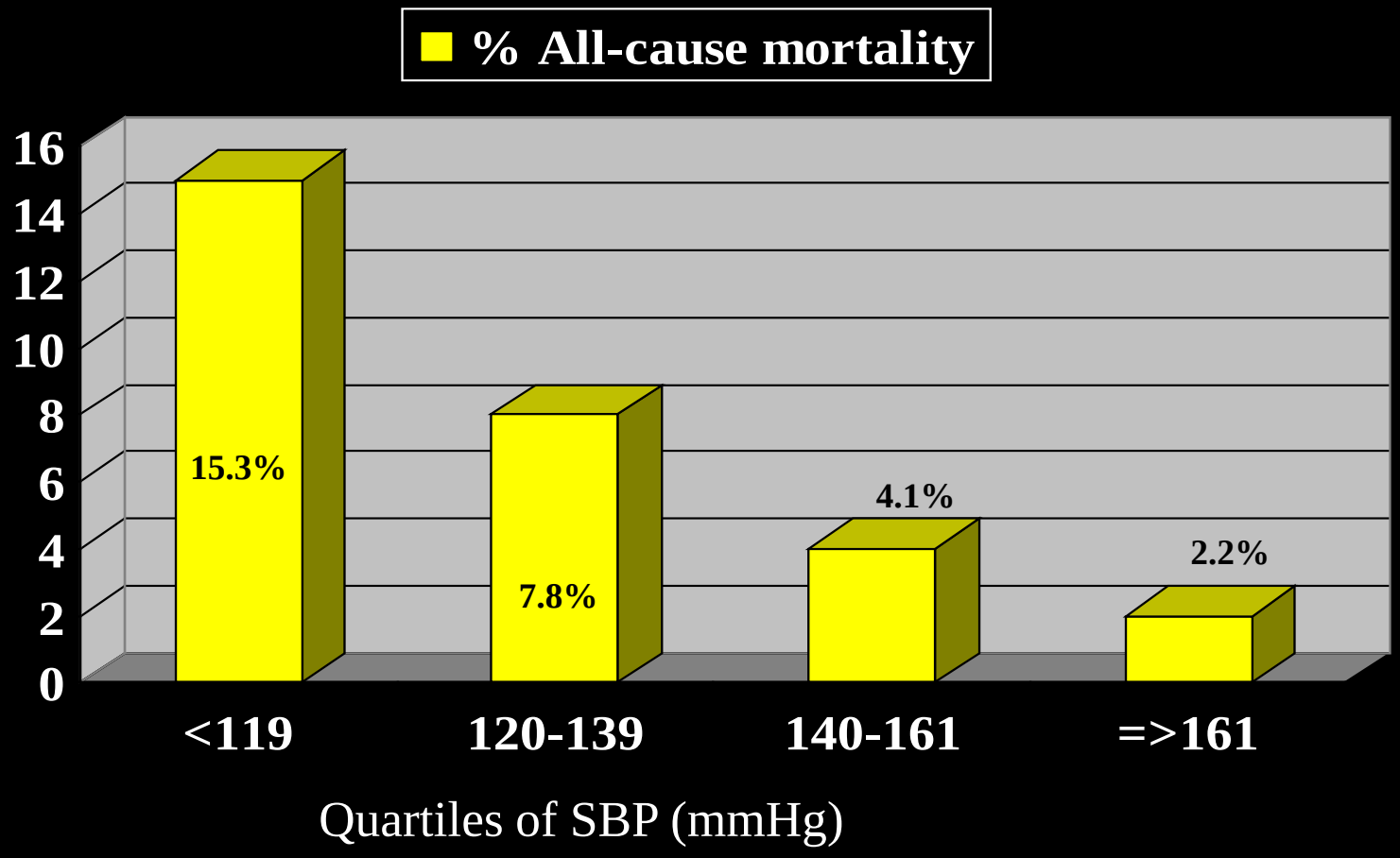


Perna ER et al. Am Heart J. 2002;143:814
Parenti N, et al. Int Emerg Med 2008;3:43

In Diastolic HF: 31% troponin I > 0.5 Ann Cardiol Angeiol 2003;52:308

Italian Survey on Acute Heart Failure

In hospital all-cause mortality according to the systolic BP at admission

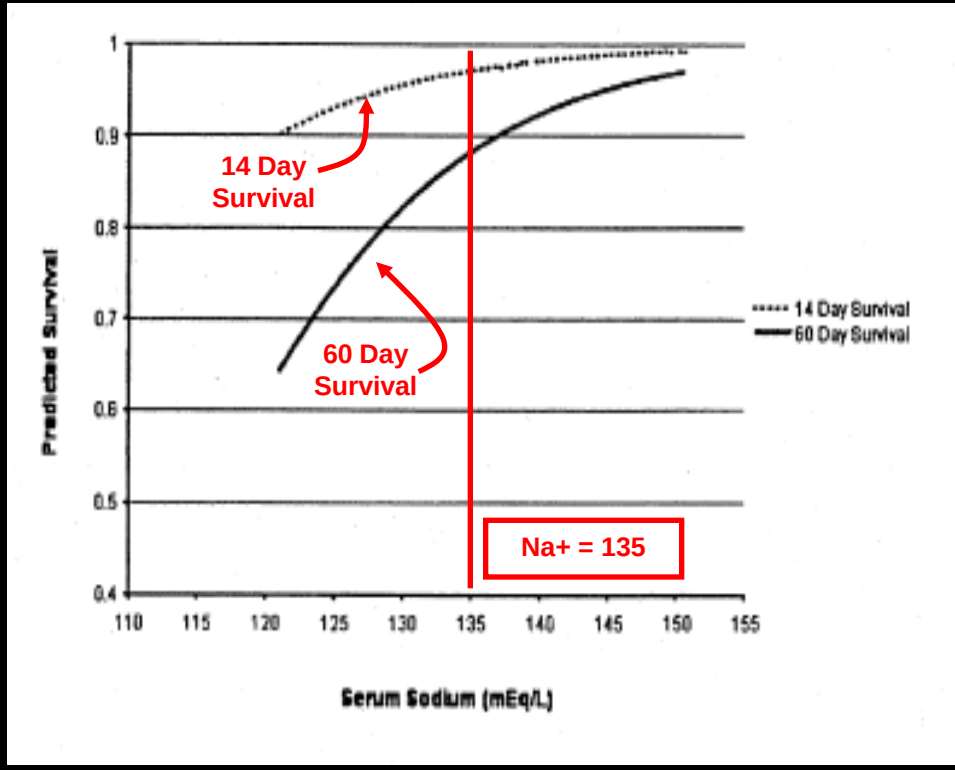


Gheorghiade M et al. JAMA Nov 2006

Tavazzi L Eur Heart J 2006; 27: 1207

Predictive Value of Hyponatremia in AHFS

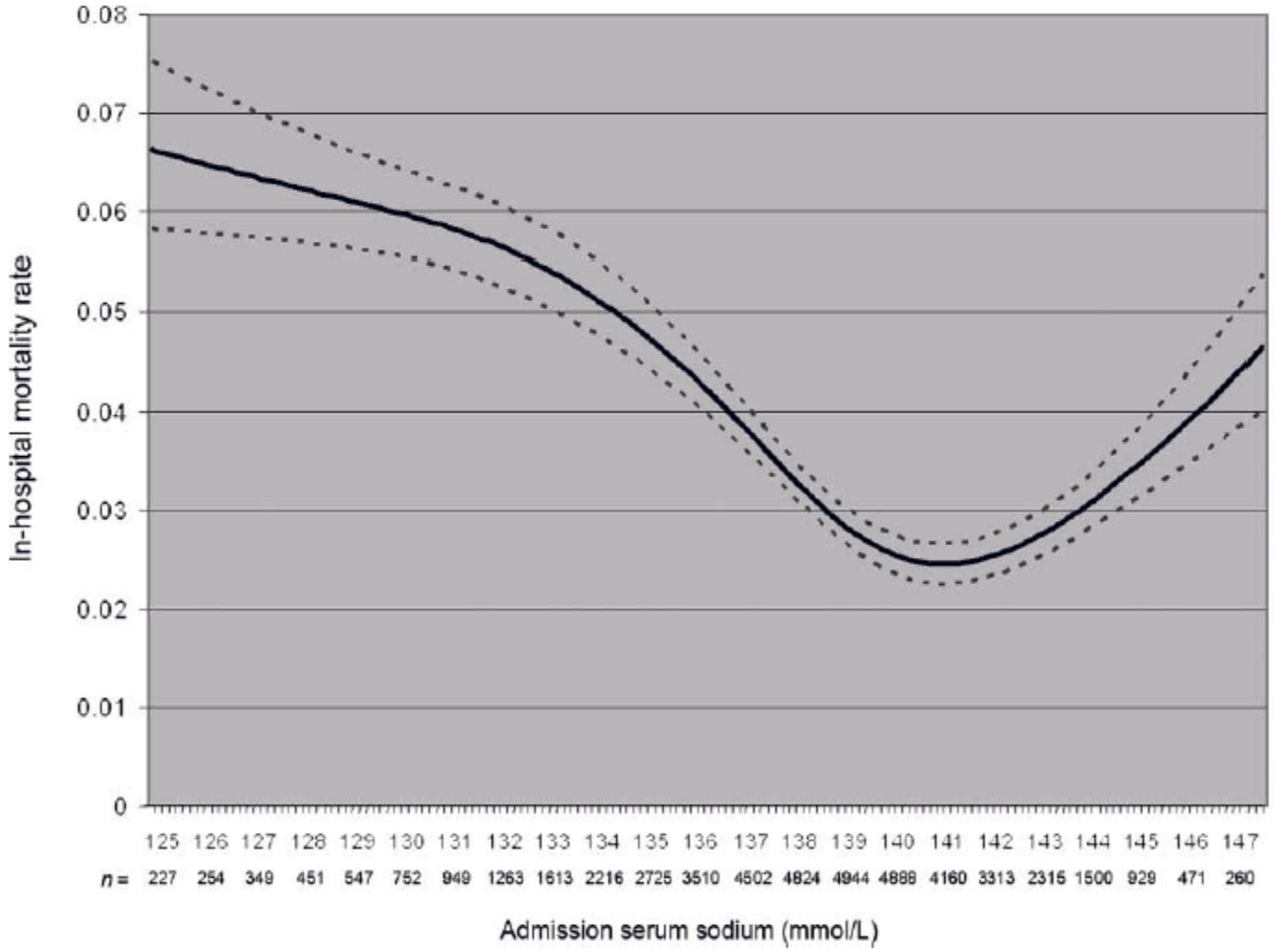
OPTIME CHF



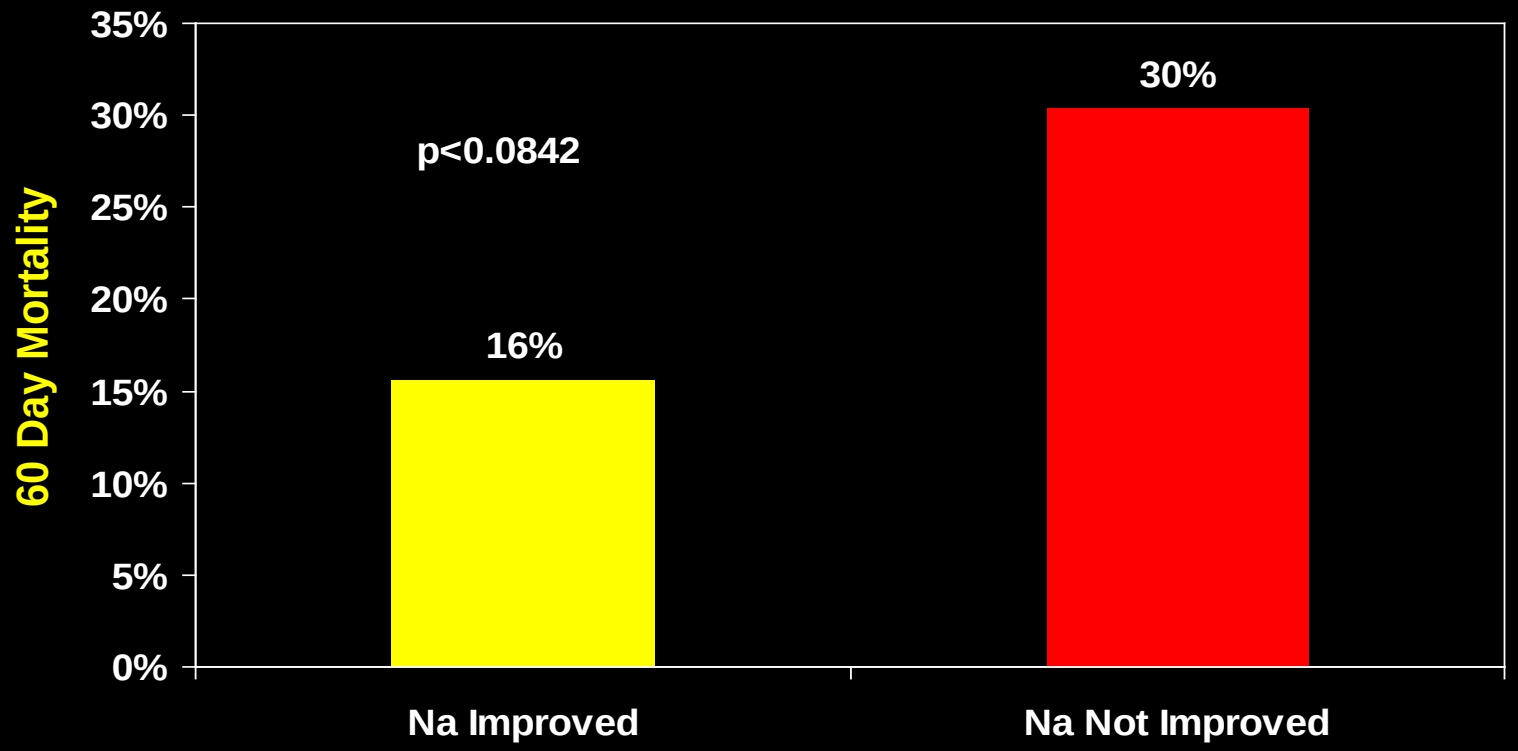
Klein L, et al Circulation 2005; 111:2454-2460

OPTIMIZE-HF: Relationship between admission serum sodium level and in-hospital mortality

Gheorghiade M et al Eur Heart J 2007



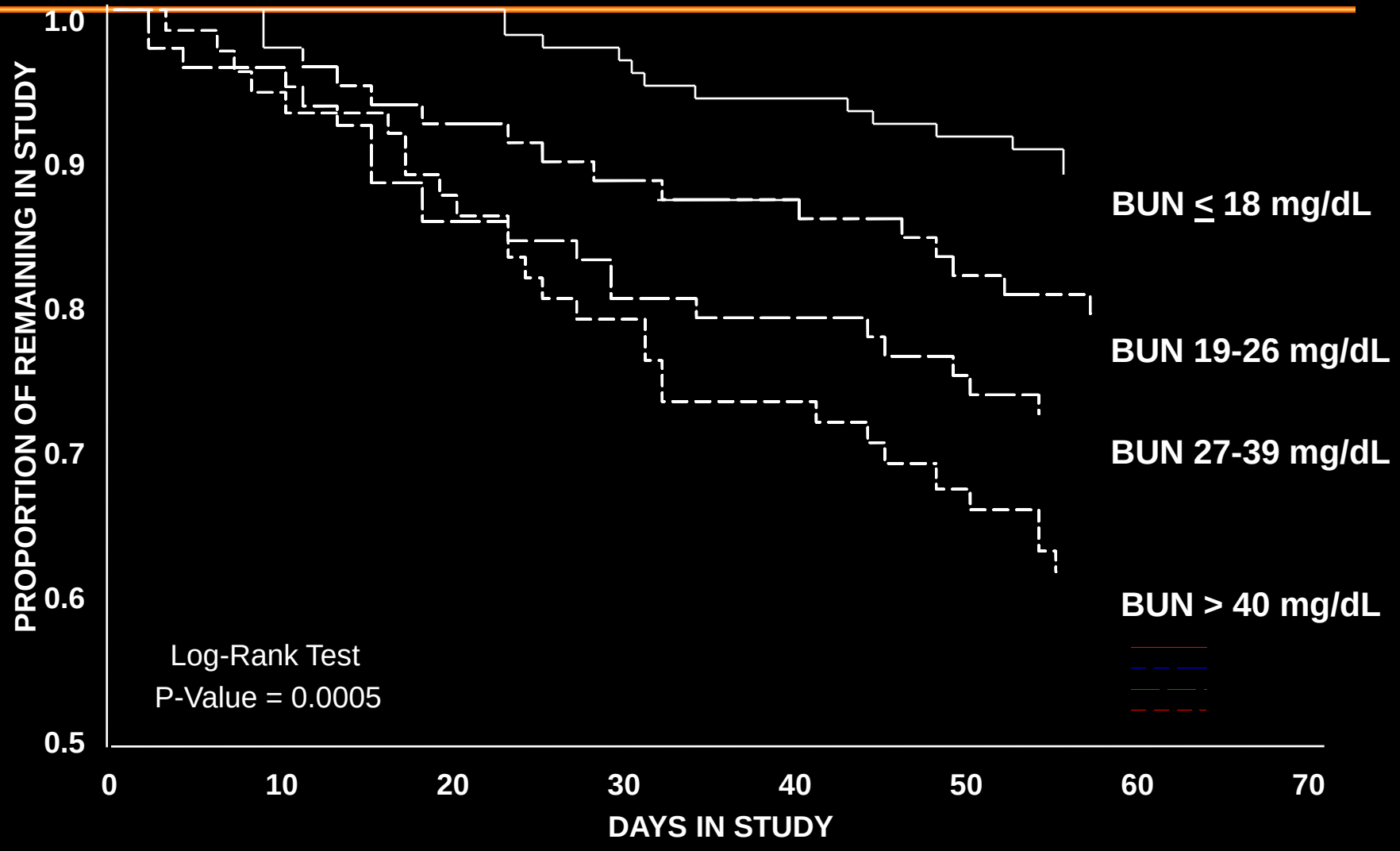
Improvement in Hyponatremia and Mortality in The ACTIVE-CHF Trial



- **serum Na^+ of ≥2 mEq/L was associated with a RR 0.86 (95% CI 0.75-0.98, After adjustment for other factors, a change in p<0.0269) for mortality at 60 days**

Gheorghiade M et al. *ACC,JACC; 2005;45:145A Abstract*

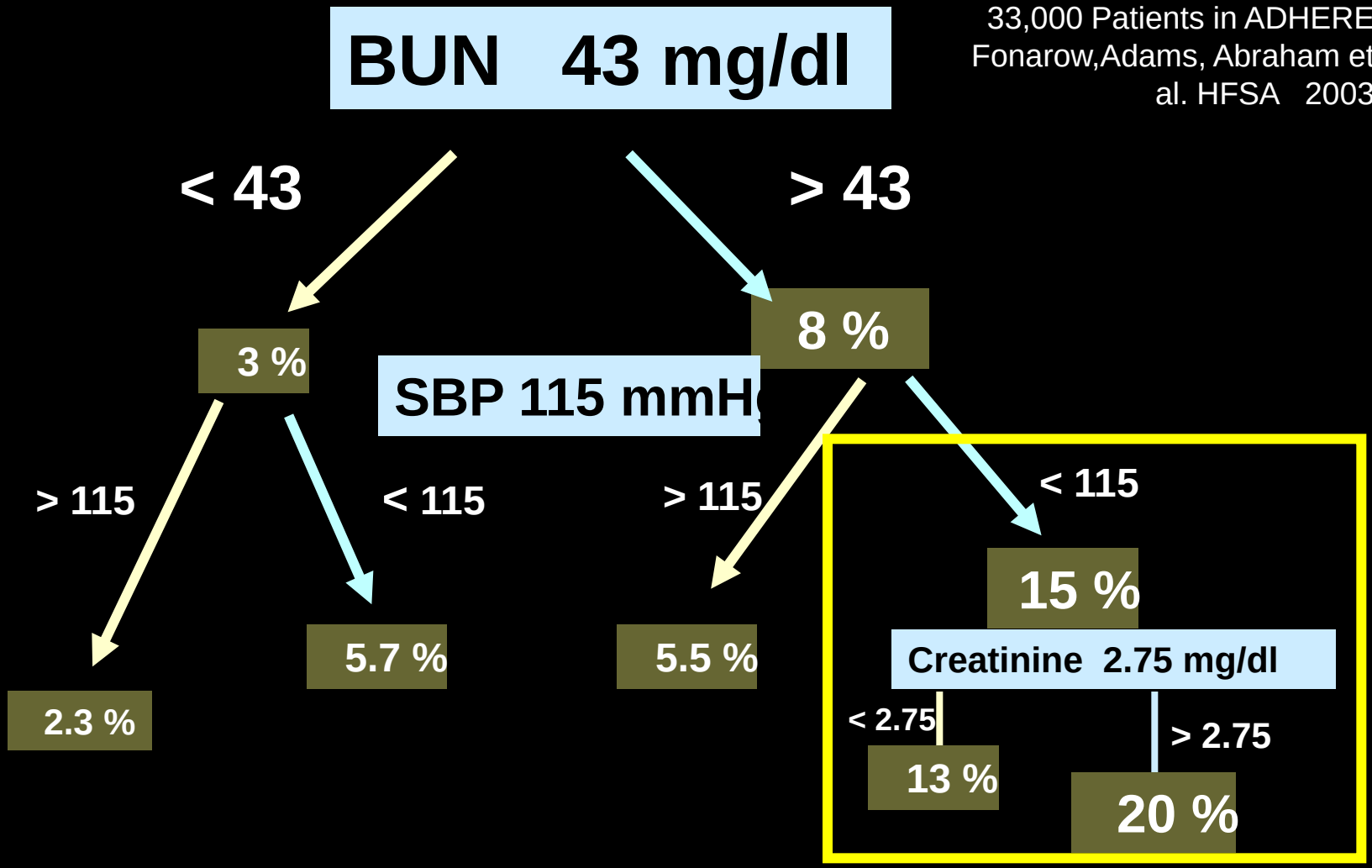
BUN and Death or HF Rehospitalization in The ACTIV in CHF Trial



Filippatos et al .J Cardiac Failure 2007

Predicting In-Hospital Mortality

33,000 Patients in ADHERE
Fonarow,Adams, Abraham et al. HFSA 2003



Relation of Low Hemoglobin and Anemia to Morbidity and Mortality in Patients Hospitalized With Heart Failure (OPTIMIZE-HF Registry)

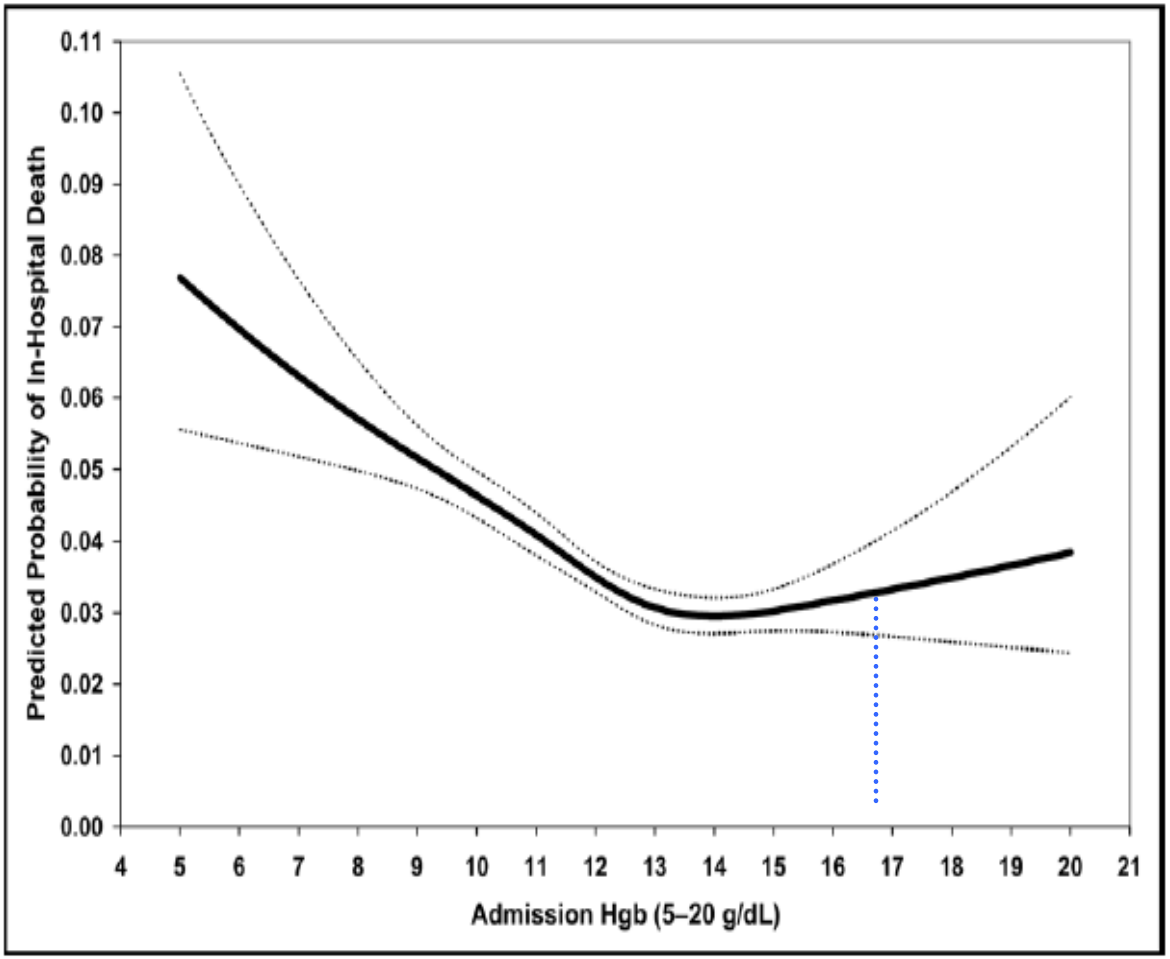
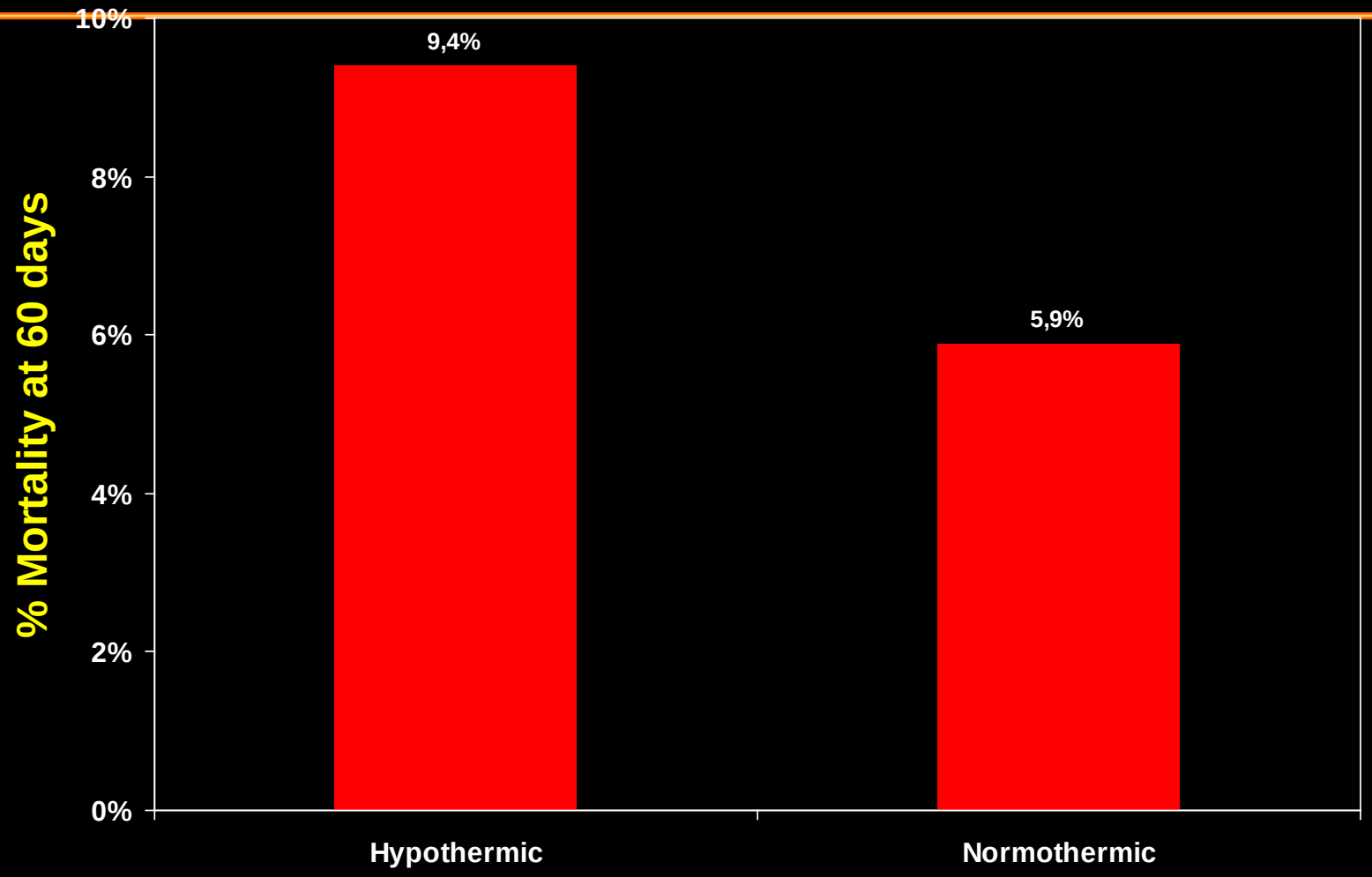


Figure 2. Estimated relation between admission hemoglobin and in-hospital mortality. Restrictive cubic spline transformation plot with 95% confidence intervals is shown.

Young et al. Am J Cardiol 2008

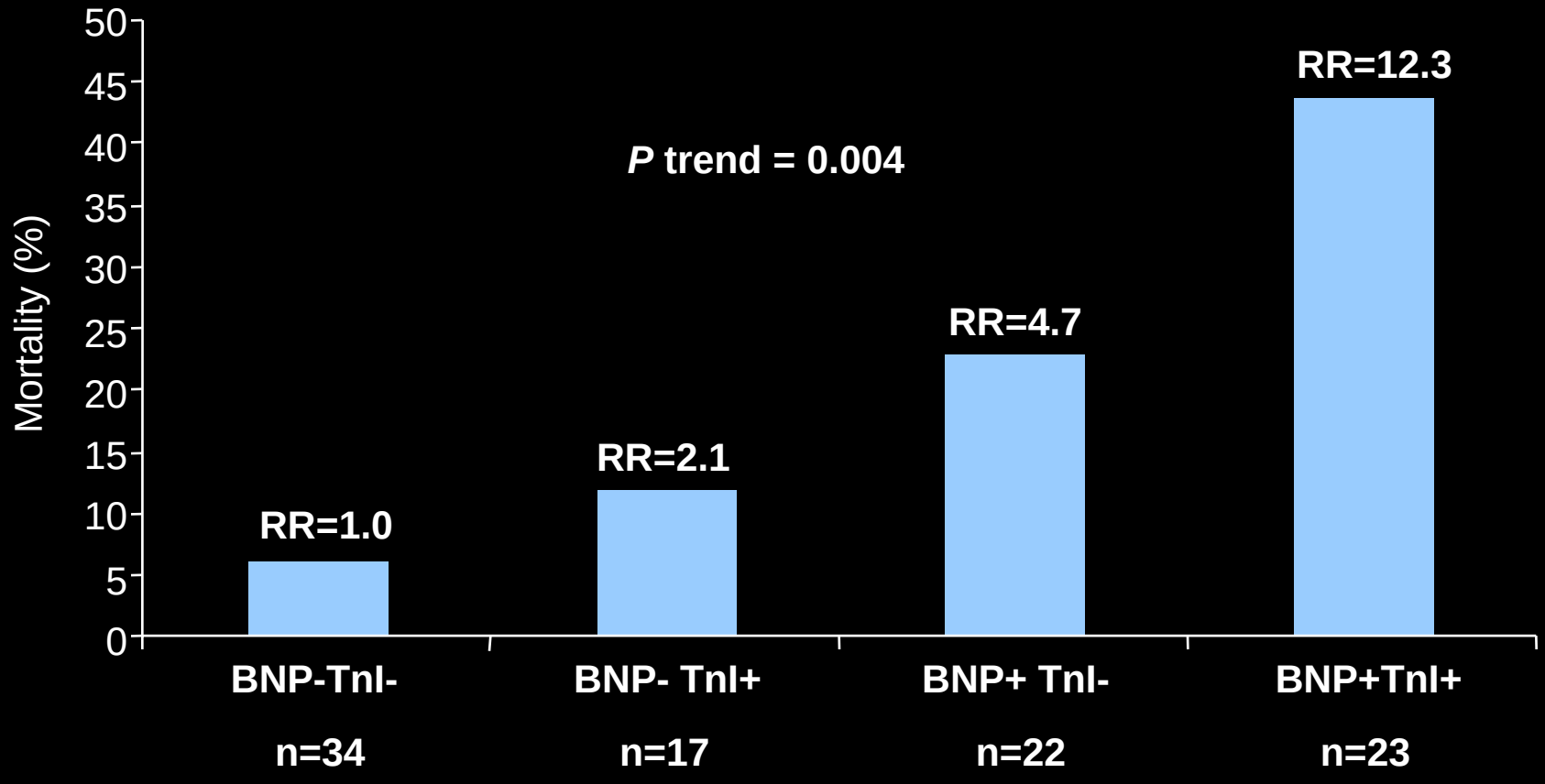
ACTIVE in CHF Trial: Effect of Mild Hypothermia on Mortality



- **3/32 (9.4%) deaths in the hypothermic group; 17/287 (5.9%) deaths in the normothermic group**

Payvar et al; in press: AJC

Addition of BNP to TnI Improves Prognostic Value

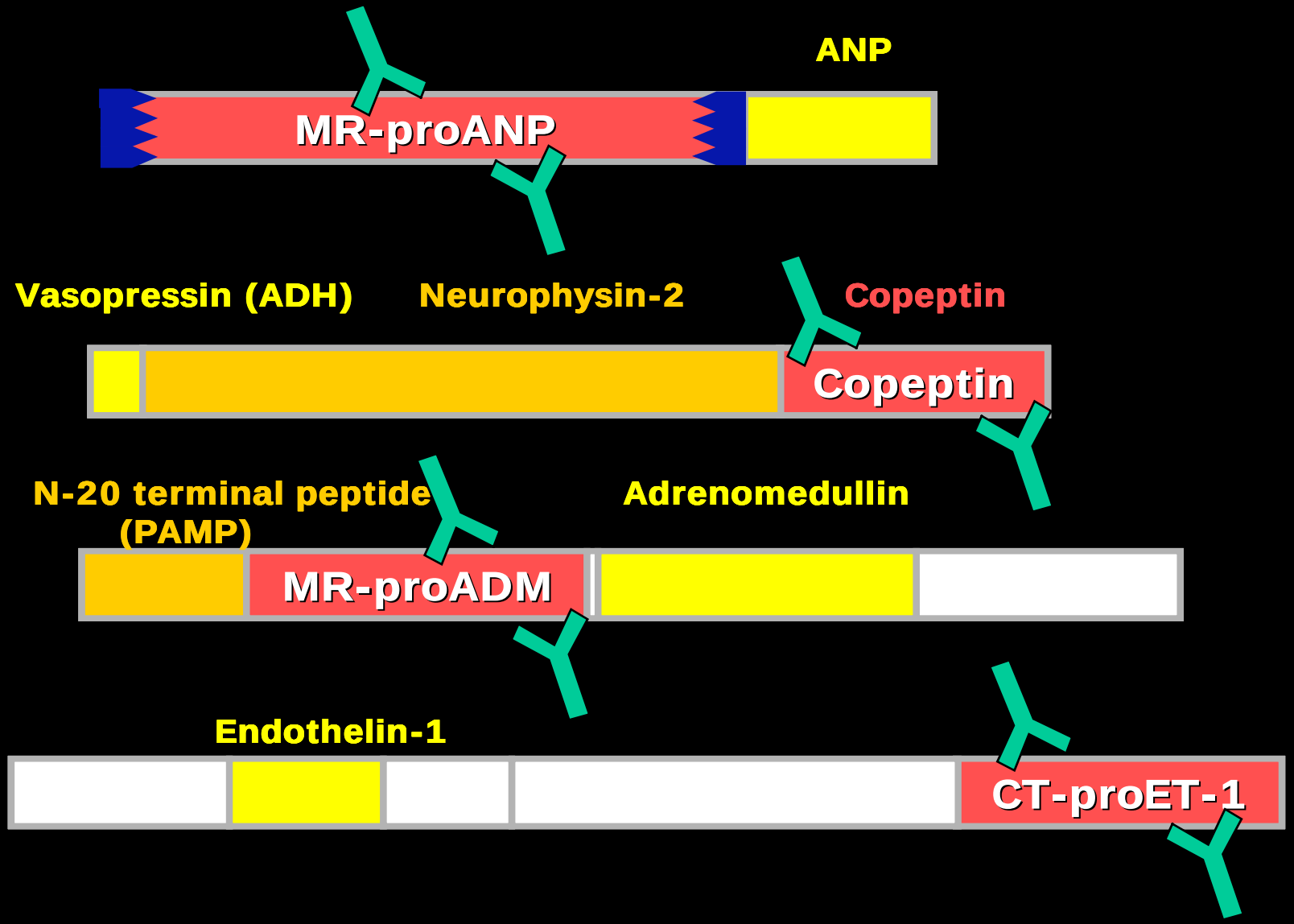


TnI -, TnI <0.04 ng/mL; TnI+, TnI ≥ 0.04 ng/mL

BNP-, BNP <485 pg/mL; BNP+, BNP ≥ 485 pg/mL

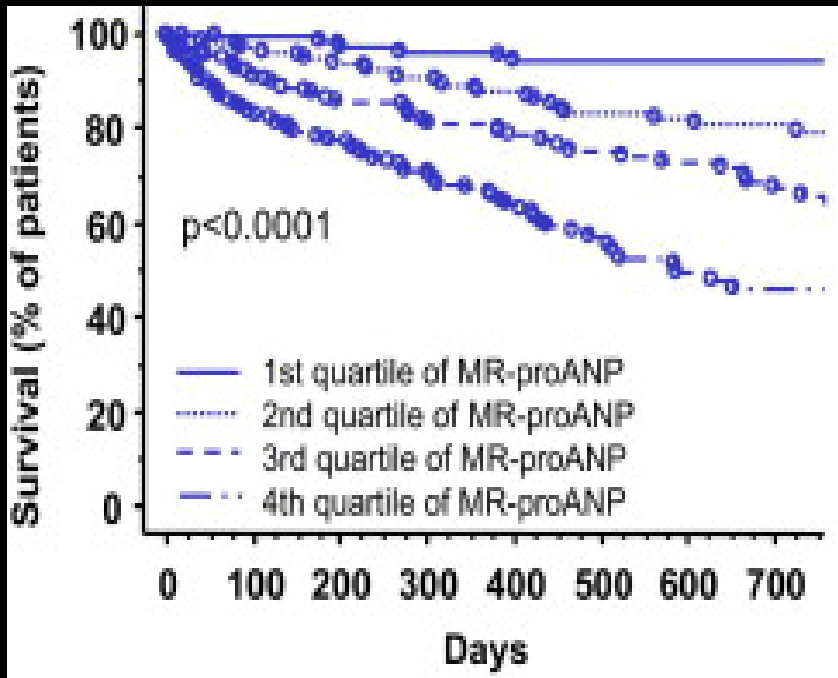
Horwich TB, Fonarow GC. *Circulation.* 2003;108:833-838.

Immunoassay Technology



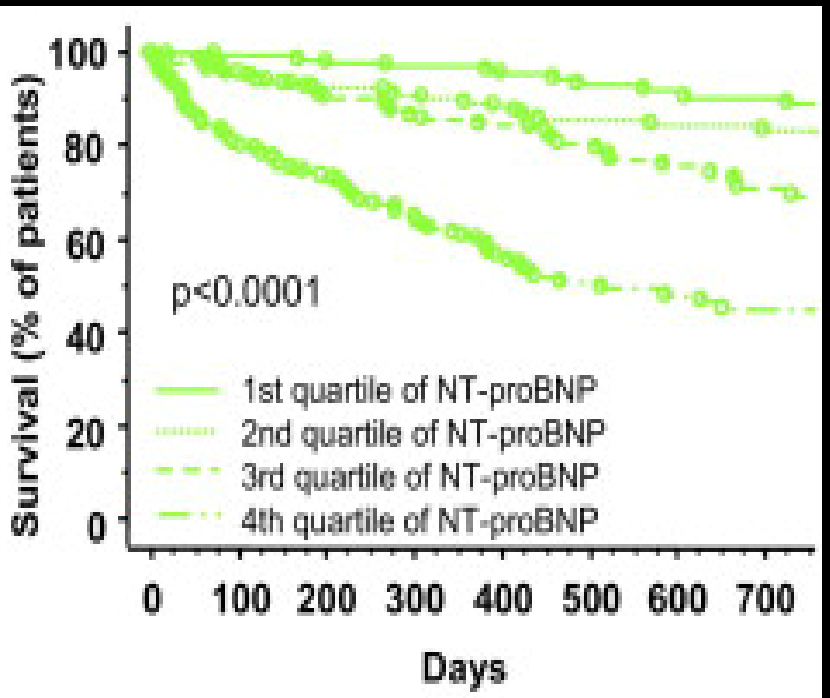
Comparison of Midregional Pro-ANP With N-Terminal Pro-BNP in Predicting Survival in Heart Failure

von Haehling S,. Filippatos G,.Kremastinos D, Anker SD. J Am Coll Cardiol 2007



Patients at risk

131	130	128	120	106	79	70	62
131	127	123	113	104	78	67	59
131	119	112	102	92	63	58	46
132	110	102	91	73	43	30	23

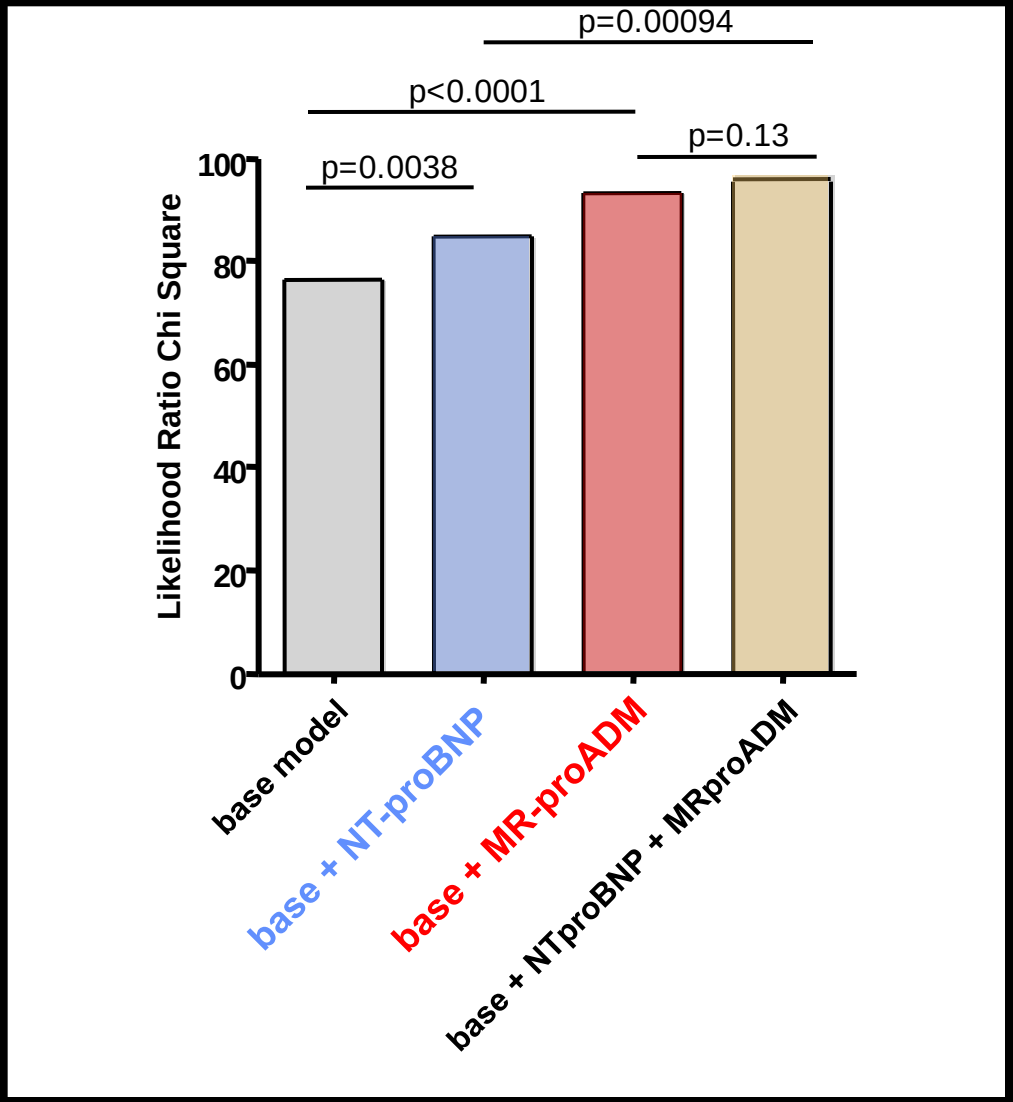


Patients at risk

131	130	129	118	104	77	65	60
131	125	121	113	104	77	72	60
131	125	118	109	101	69	54	43
132	106	97	86	66	40	34	27

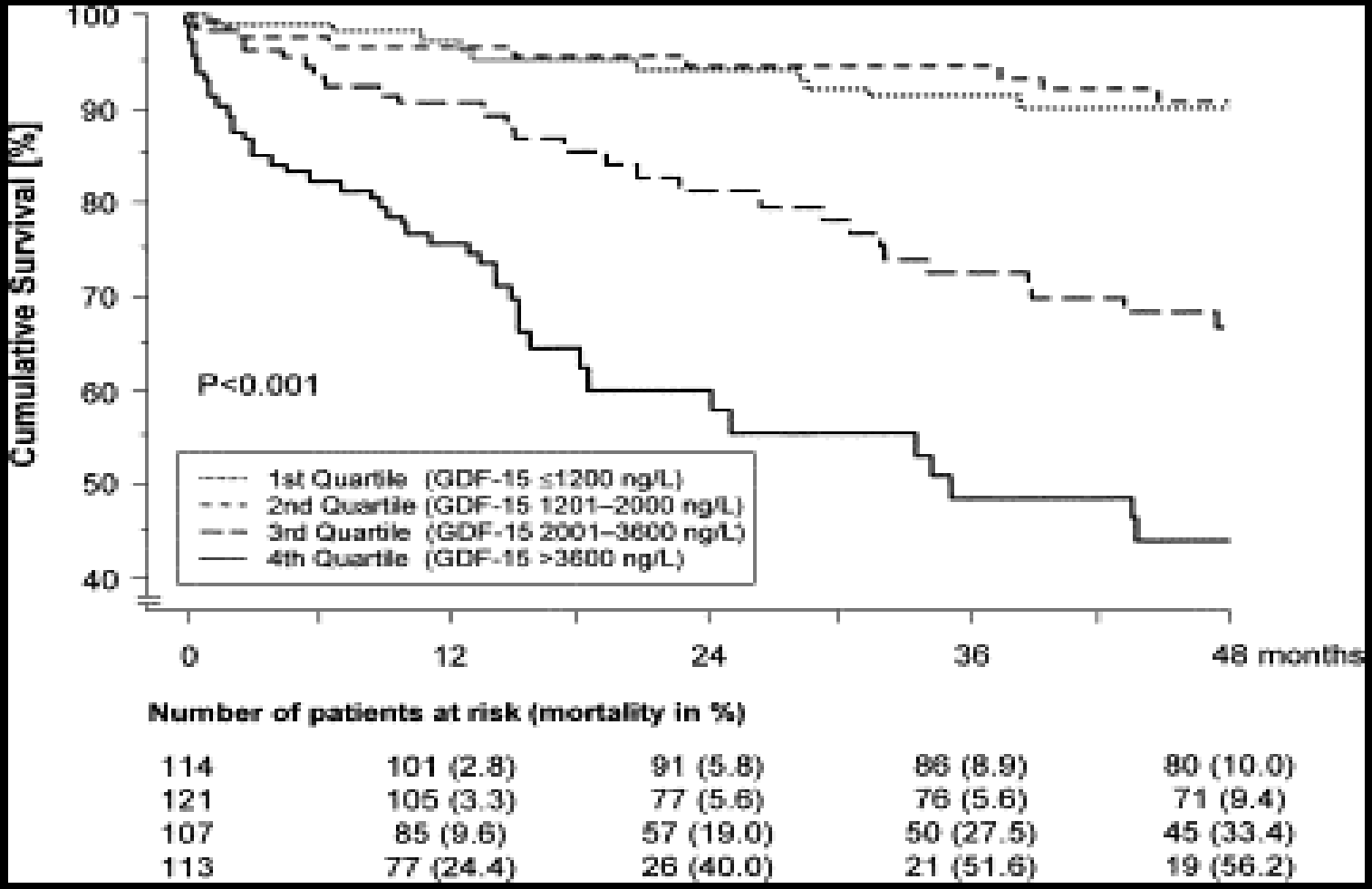
MR-proADM and NT-proBNP and the power to predict prognosis in CHF

Filippatos G,. von Haehling S,. Anker SD, Kremastinos D. Unpublished data



Biomarkers in **AC**ute **H**eart Failure (BACH): An International, Multi-center Trial Evaluating the Prognostic and Diagnostic Utility of Biomarkers in Patients with Heart Failure Presenting with Shortness of Breath.

Prognostic utility of growth differentiation factor-15 in 455 patients with heart failure



J Am Coll Cardiol 2007

Acute Heart Failure Syndromes

Current State and Framework for Future Research

Mihai Gheorghiade, MD; Faiez Zannad, MD, PhD; George Sopko, MD, MPH; Liviu Klein, MD, MS; Ileana L. Piña, MD; Marvin A. Konstam, MD; Barry M. Massie, MD; Edmond Roland, MD; Shari Targum, MD; Sean P. Collins, MD; Gerasimos Filippatos, MD; Luigi Tavazzi, MD; for the International Working Group on Acute Heart Failure Syndromes

- **Stage A: Immediate – Improve symptoms**
  - Restore oxygenation and improve organ perfusion
  - Avoid or limit cardiac – renal damage
- **Stage B: Intermediate – Stabilize patient and optimize treatment**
  - Initiate life saving therapies
  - Minimize ICU and hospital length of stay
- **Stage C: Predischarge and Longer term disease management**
  - Prevent early readmission
  - Improve symptoms and survival

Circulation. 2005;December.

ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2008

The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2008 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association of the ESC (HFA) and endorsed by the European Society of Intensive Care Medicine (ESICM)

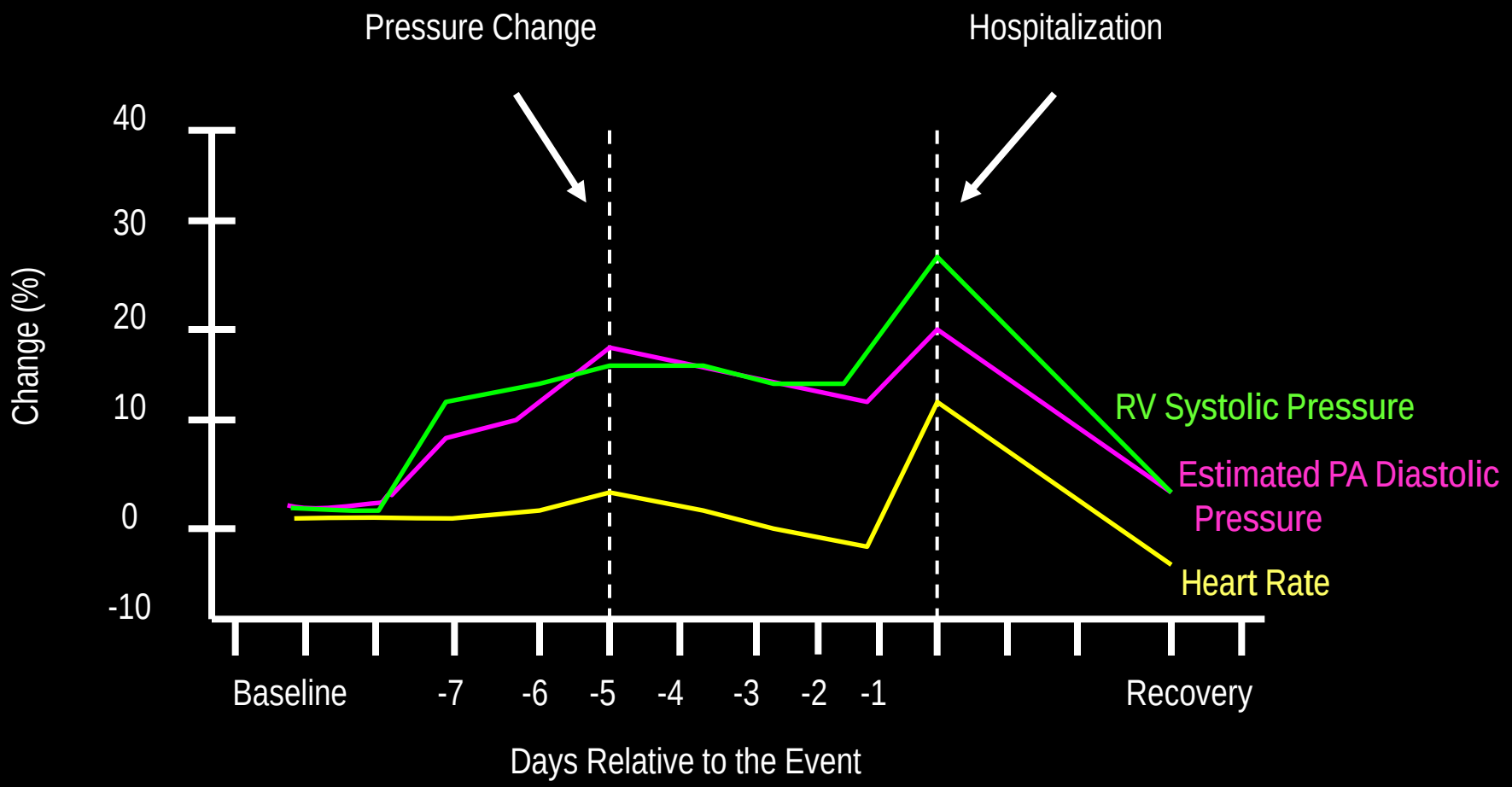
Authors/Task Force Members: Kenneth Dickstein (Chairperson) (Norway)*, Alain Cohen-Solal (France), Gerasimos Filippatos (Greece), John J.V. McMurray (UK), Piotr Ponikowski (Poland), Philip Alexander Poole-Wilson (UK), Anna Strömberg (Sweden), Dirk J. van Veldhuisen (The Netherlands), Dan Atar (Norway), Arno W. Hoes (The Netherlands), Andre Keren (Israel), Alexandre Mebazaa (France), Markku Nieminen (Finland), Silvia Giuliana Priori (Italy), Karl Swedberg (Sweden)

Prognostic factors in AHF

- **Low blood pressure**
- **Low sodium and**
- **High urea and creatinine serum levels**
- **High Troponin and NPs**

are adverse prognostic factors in AHF.

Congestion Precedes Hospitalization



Adamson PB et al. J Am Coll Cardiol. 2003; 41: 565

In caring for patients, there are

“a few things we know, a few things we think we know (but probably don’t), and lots of things we don’t know”

Naylor CD. Grey zones of clinical practice: some limits to evidence-based medicine. Lancet 1995

HEART FAILURE REVIEWS

Special Issue on Acute Heart Failure Syndromes
Guest Editors: Gerasimos Filippatos and Faiez Zannad

SIDNEY GOLDSTEIN, M.D. and **HANI N. SABBAH**, PH.D. Editors