

# Novel Biomarkers in Heart Failure

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## Disclosures

Grant Support: Biosite

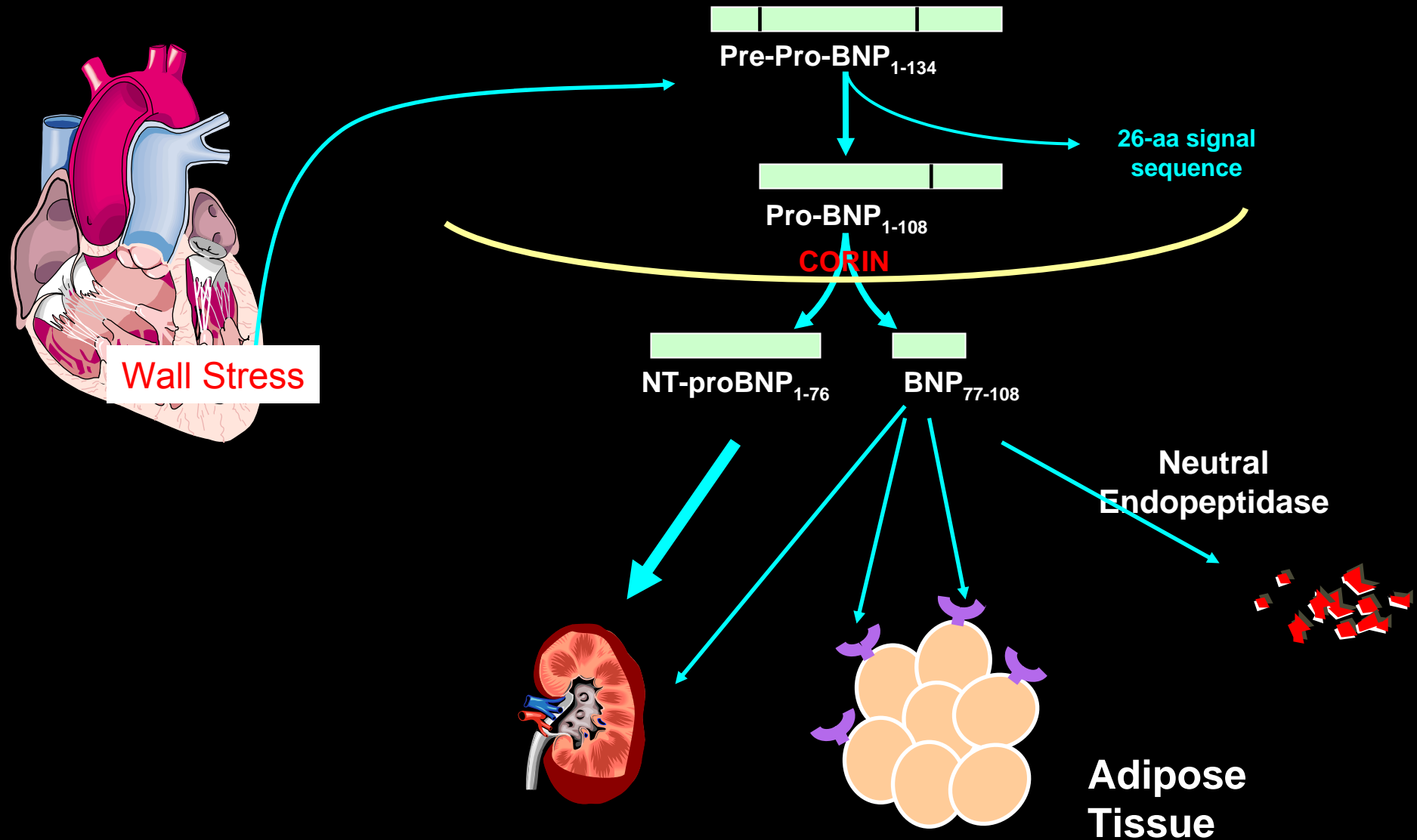
Consulting: Biosite/Inverness, Roche, Tethys, Bayer

# Personalized Medicine

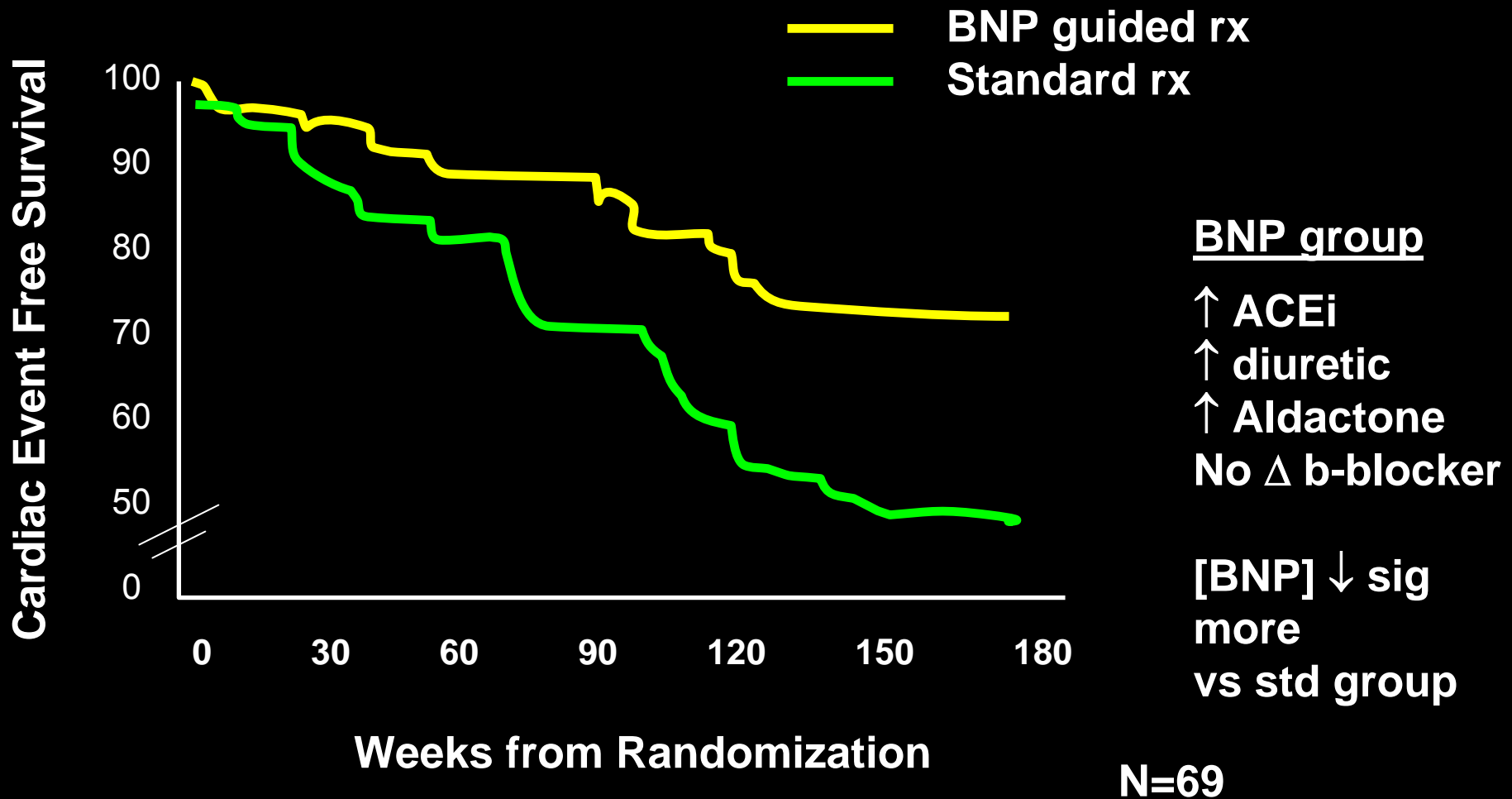
“The right treatment, for the right patient, at the right time”

- By characterizing inter-individual differences in pathophysiology, biomarkers may lead the way
- Opportunities in Heart Failure
  - Enhanced Risk Stratification
  - Selection between alternative therapies
  - Tailoring individual therapy beyond clinical signs/symptoms
  - Identifying cardiac toxicity from noncardiac drugs

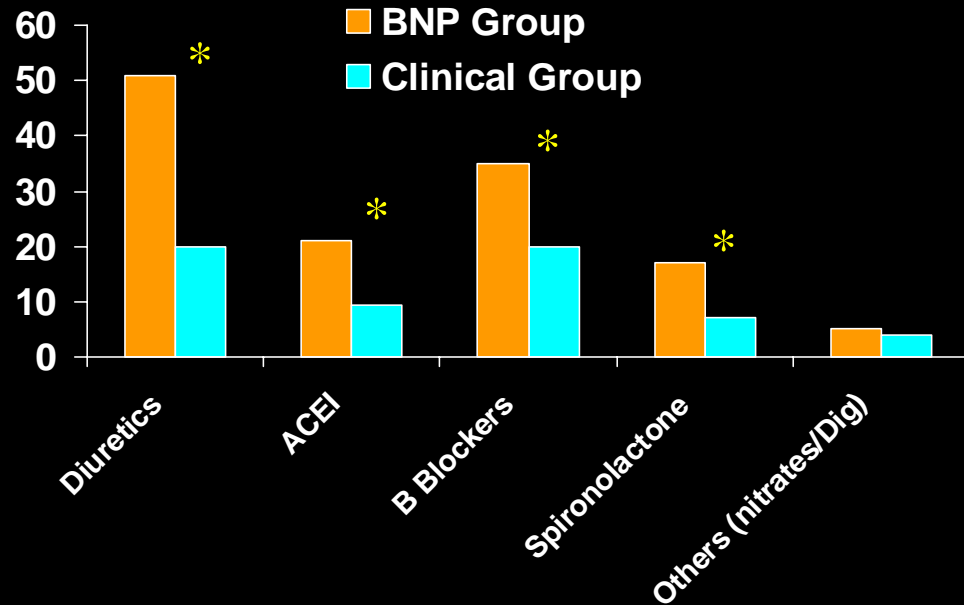
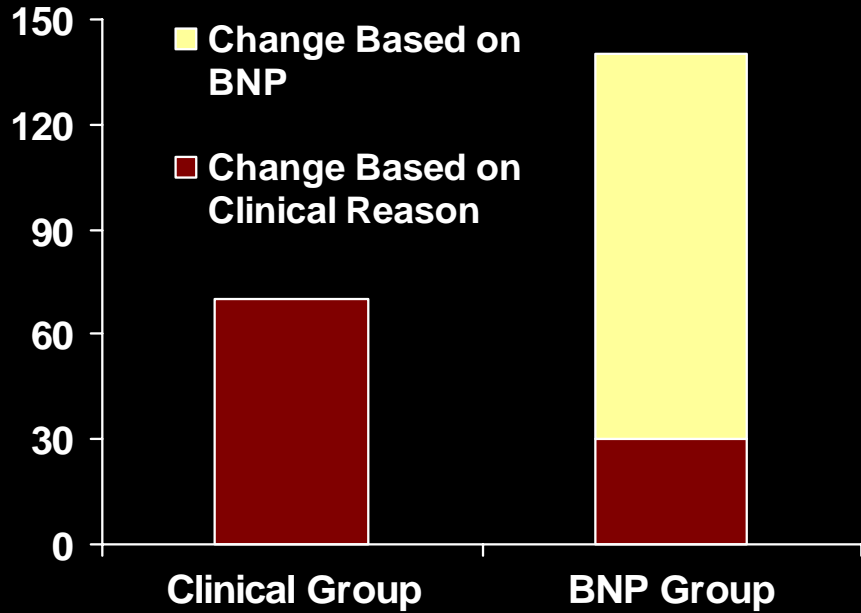
# Natriuretic Peptide Synthesis and Clearance



# BNP-guided therapy



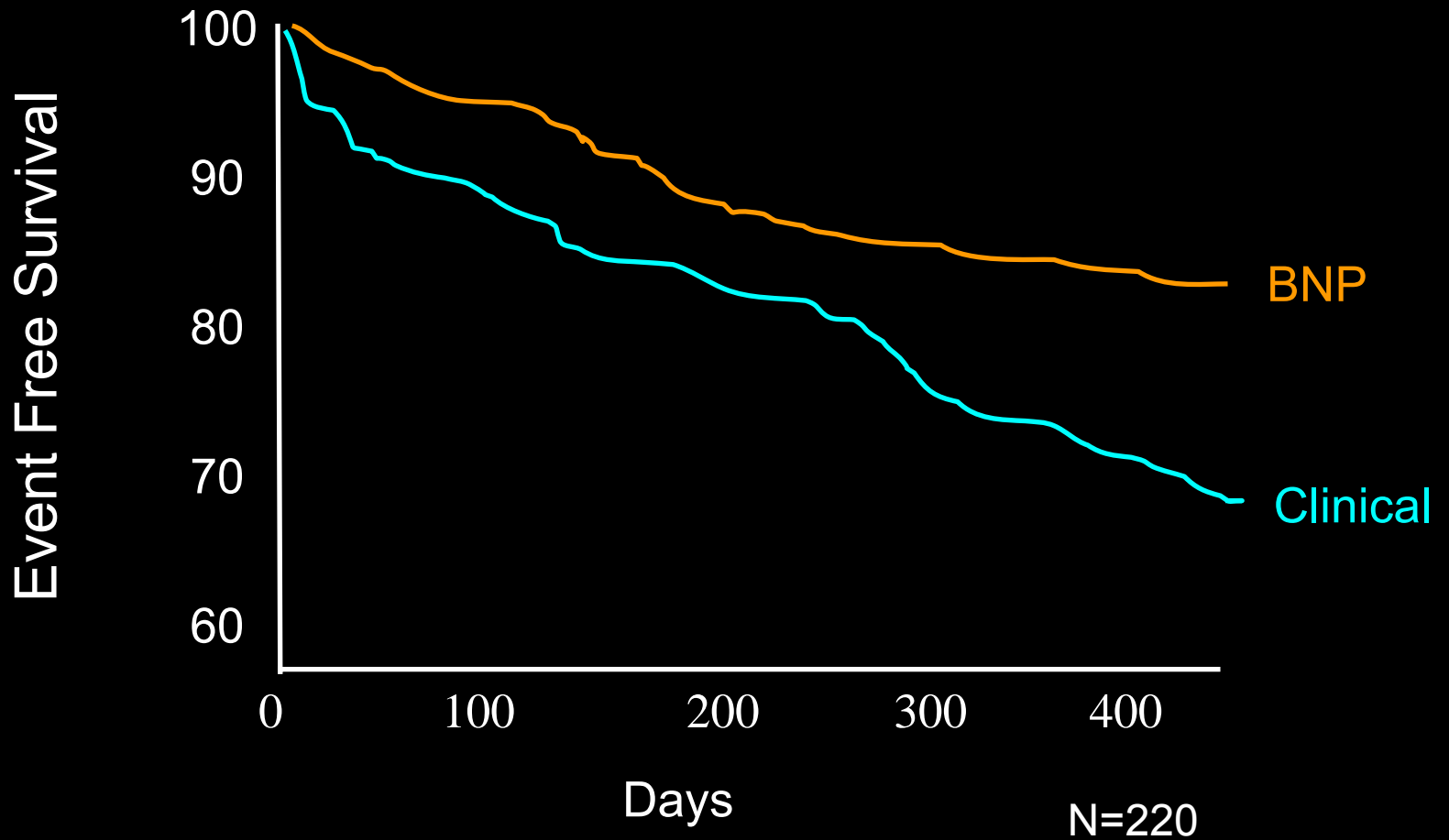
# STARS-BNP



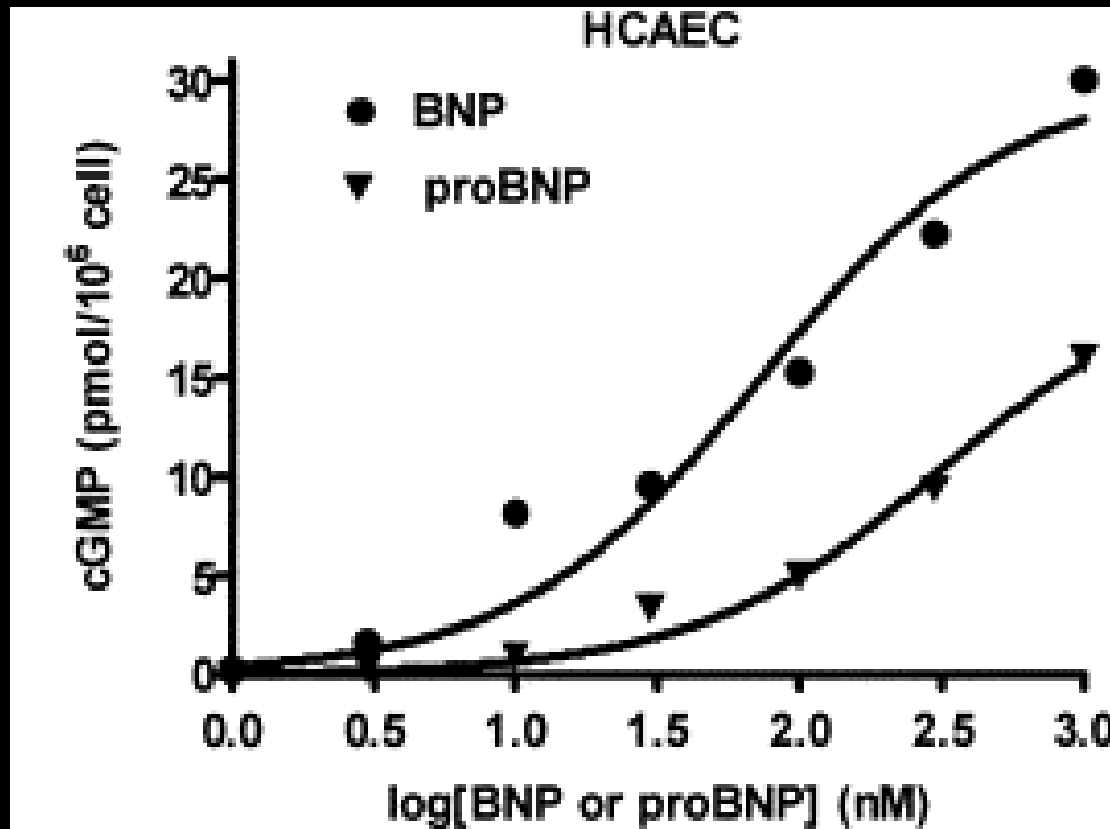
N=220

\* P<0.05

# STARS-BNP



# Functional Heterogeneity of BNP

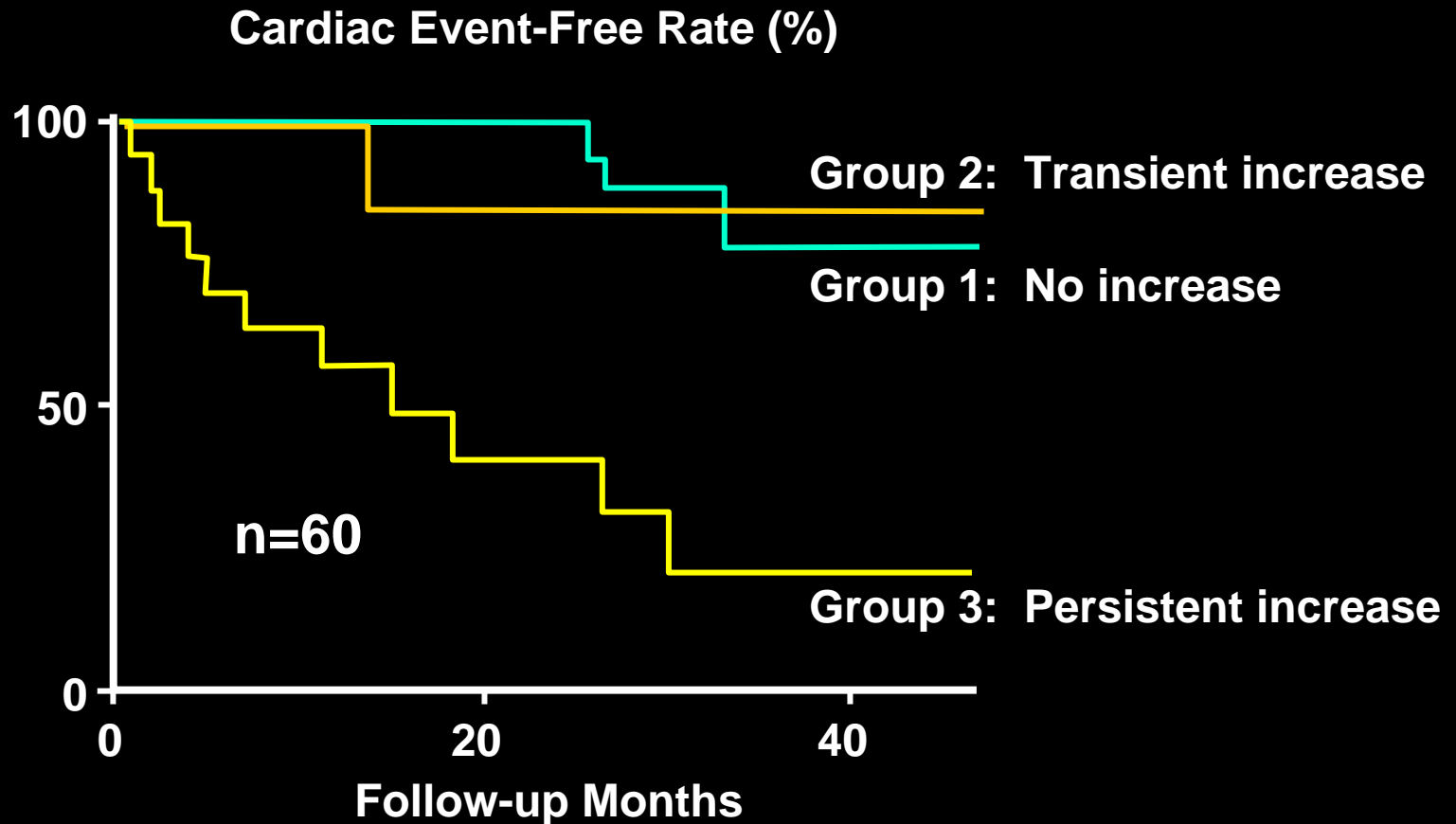


# Cross-Reactivity of Assays

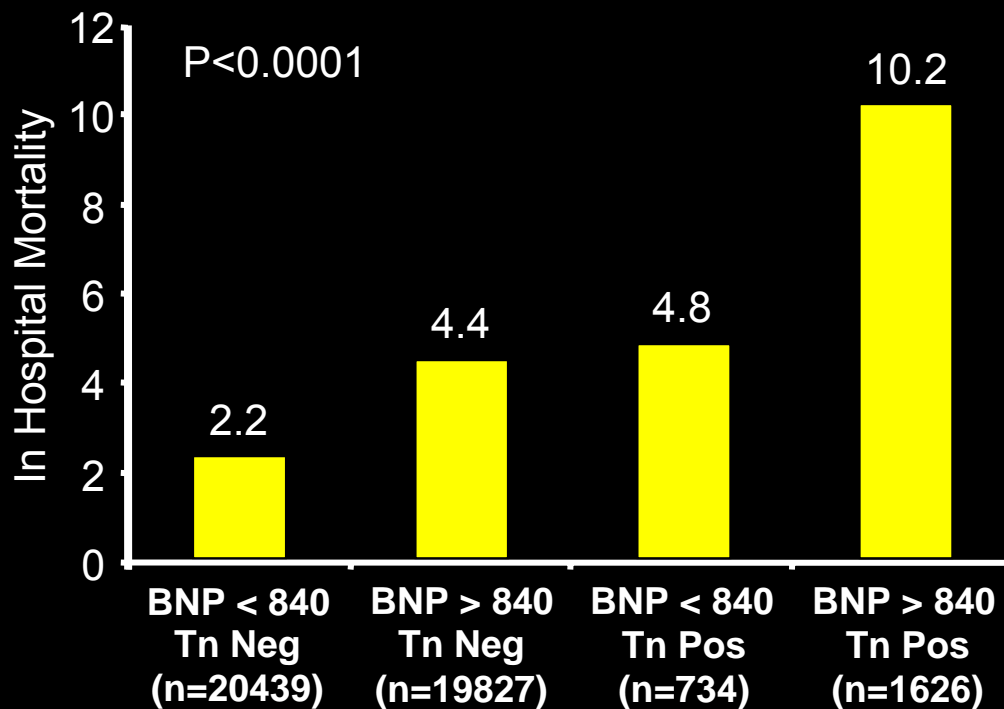
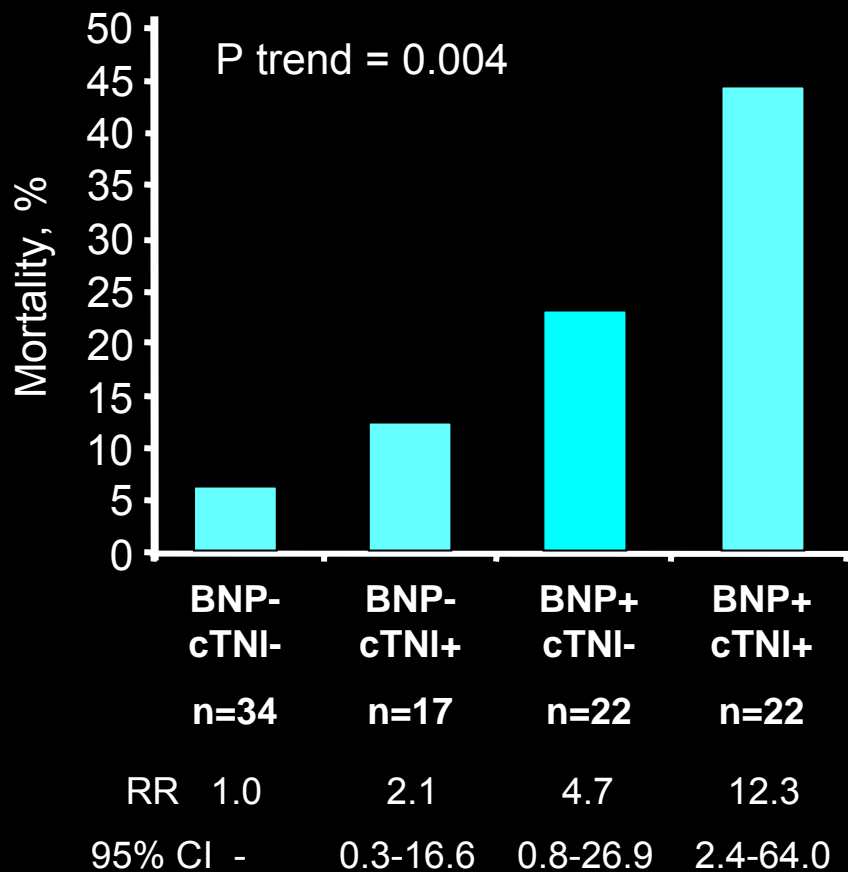
<u>Assay</u>	<u>BNP Forms Detected</u>		
	BNP	NT-proBNP	proBNP
Triage	yes	no	yes
Centaur	yes	no	yes
ElecSys	no	yes	yes



# Troponin T in Heart Failure



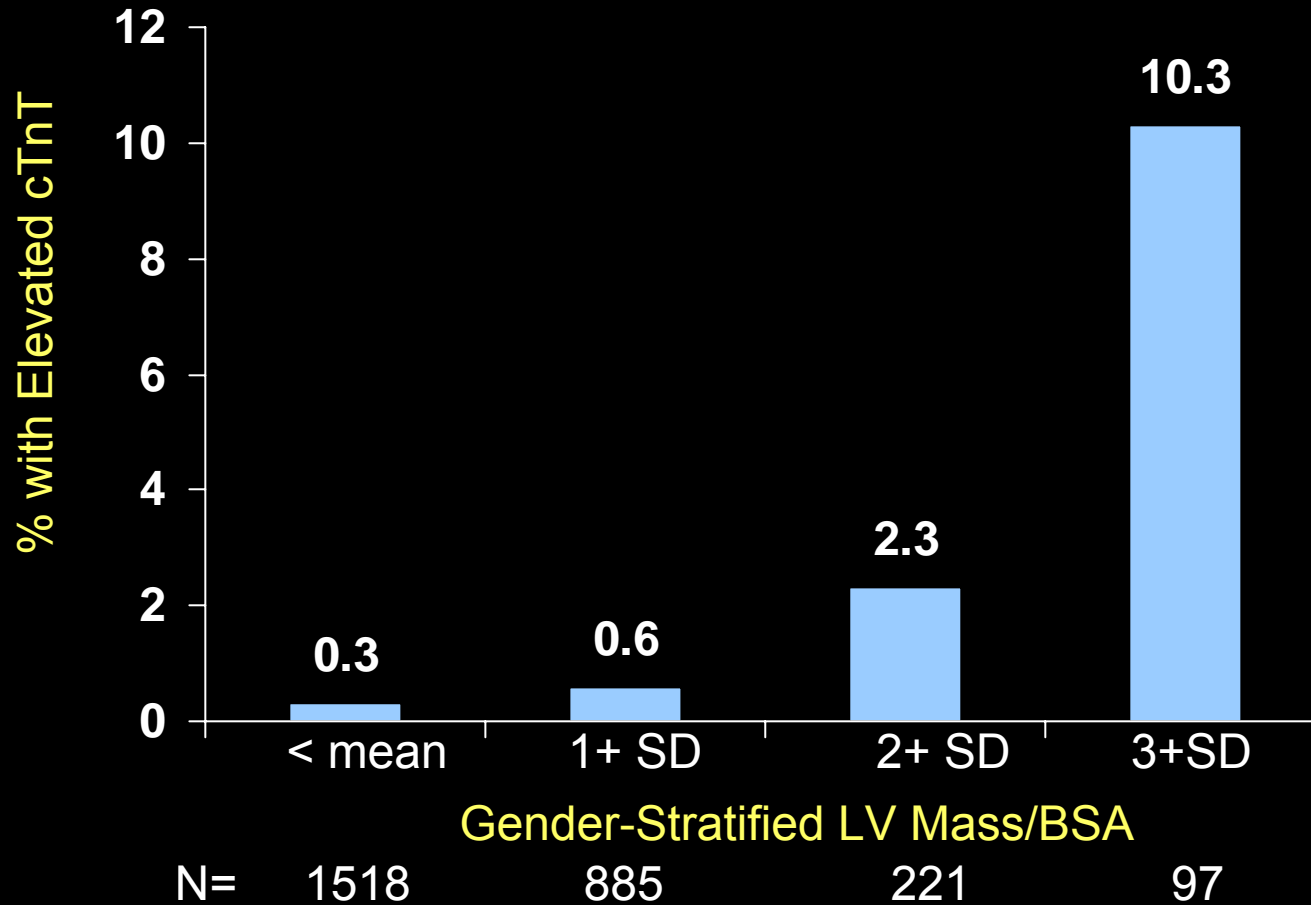
# Troponin and BNP in Heart Failure



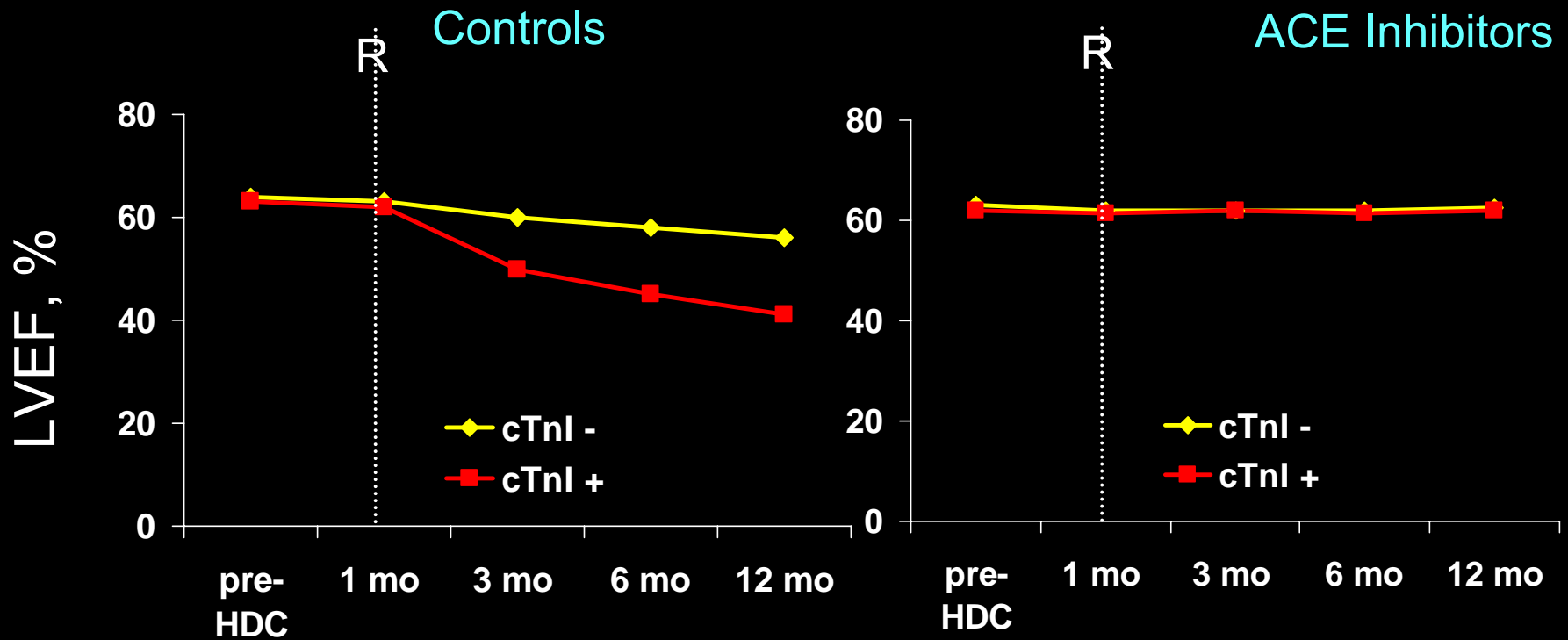
Peacock F from the ADHERE Registry



# LV Mass and cTnT

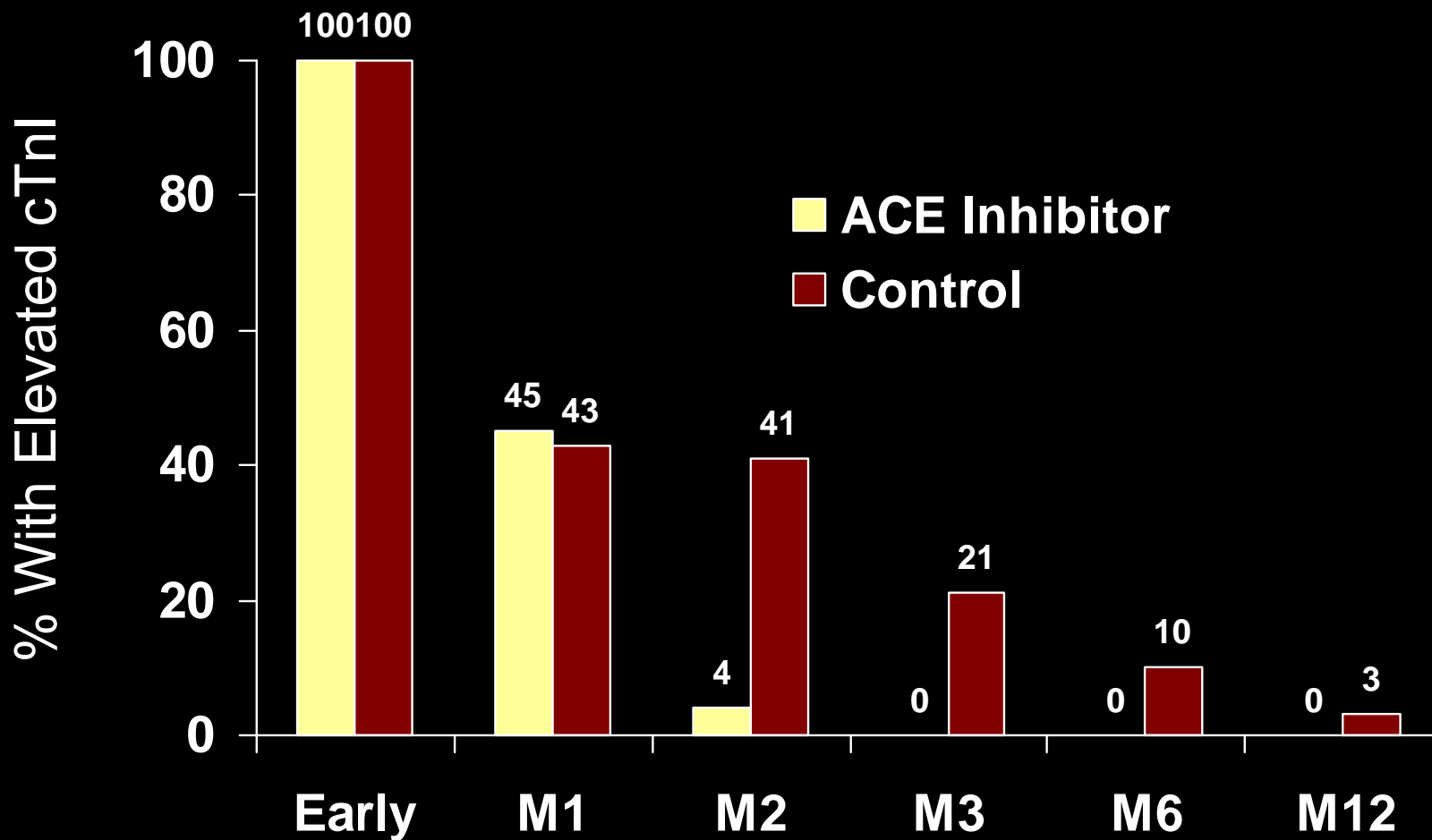


# cTnI in Cancer Chemotherapy



\*cTnI increased in 114/473 pts receiving high dose chemo

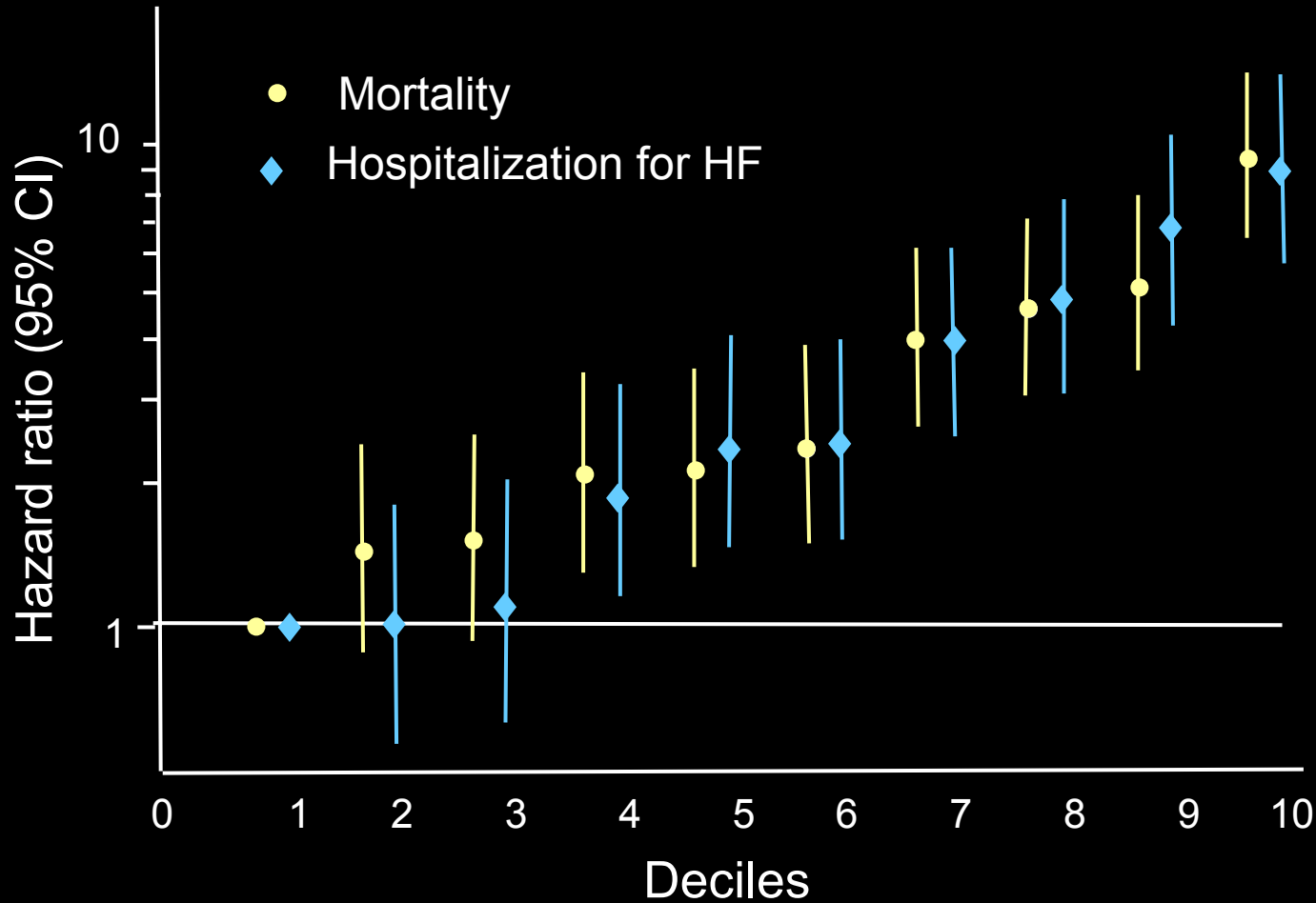
# cTnI in Cancer Chemotherapy



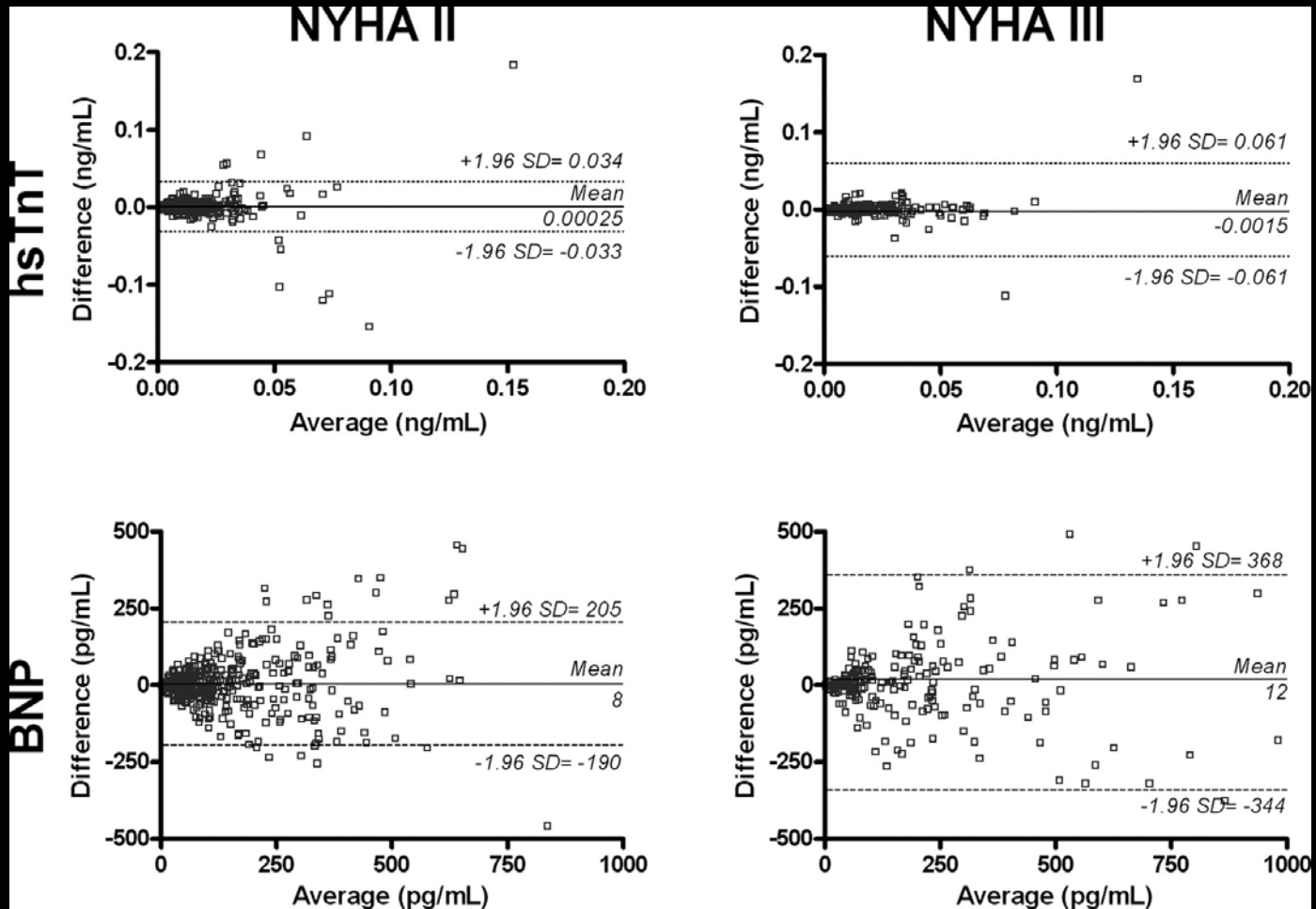
# The next opportunity (and challenge)

High sensitivity troponin testing

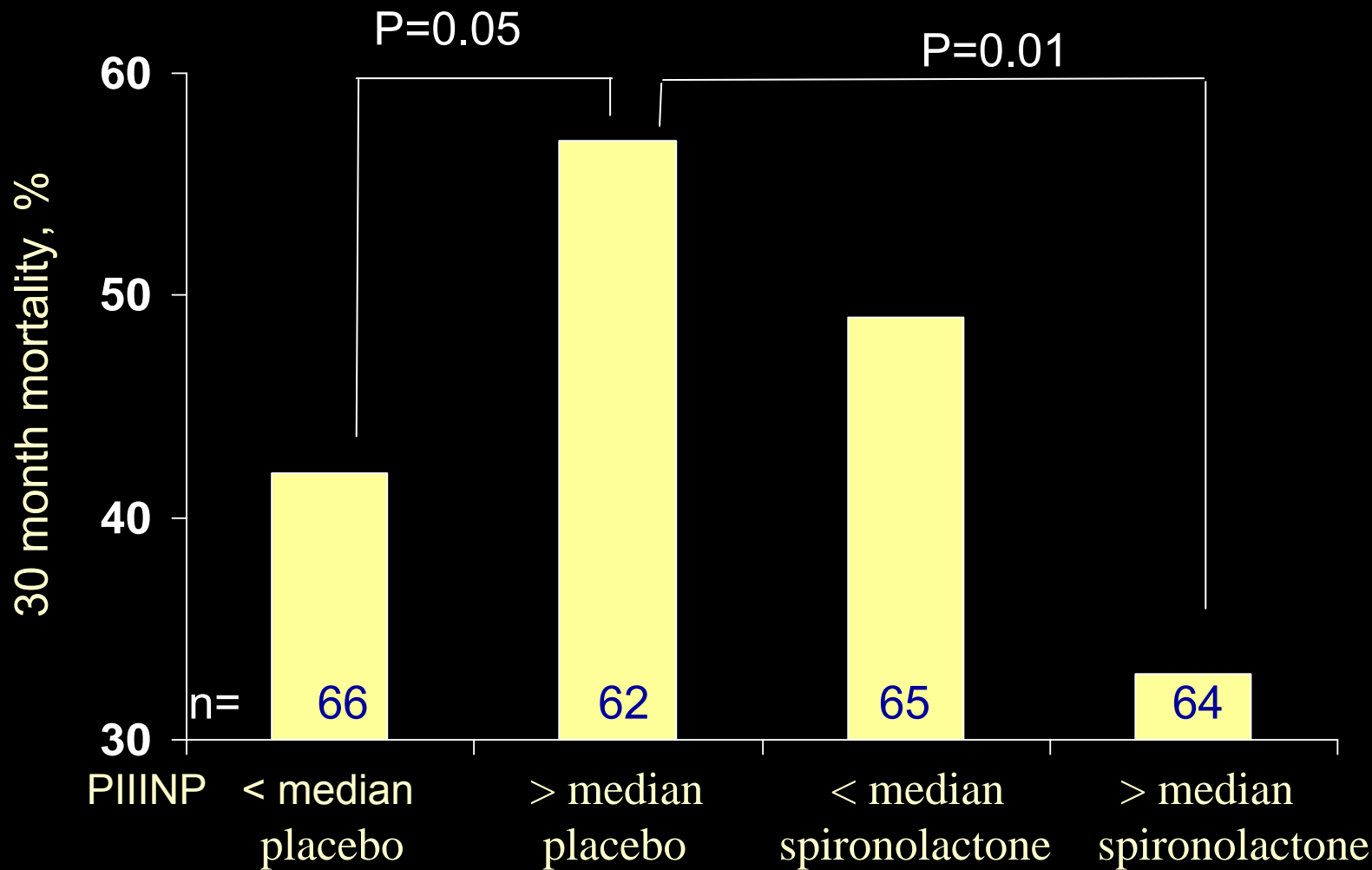
# HS-cTnT in VAL-HEFT



# Stability Over Time



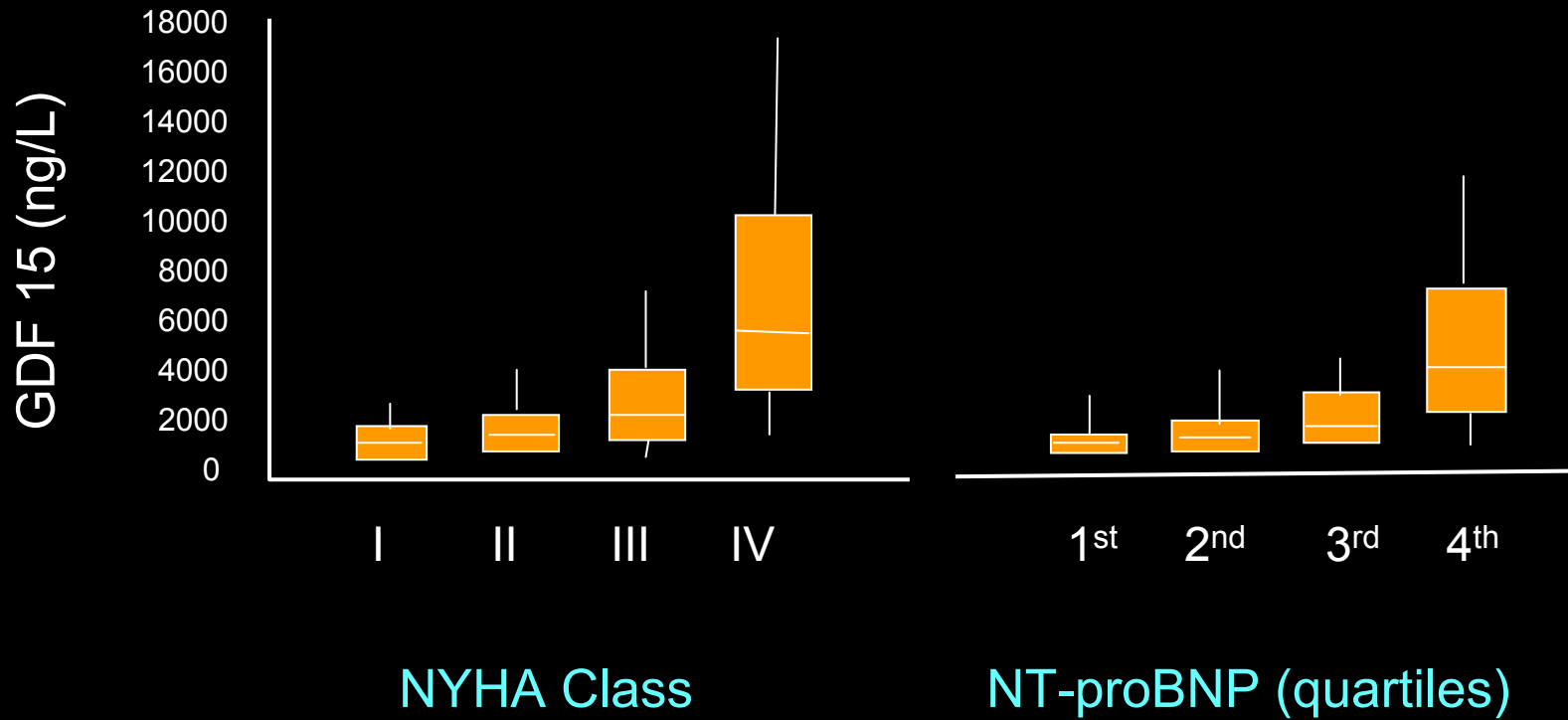
# Markers of Fibrosis and Spironolactone



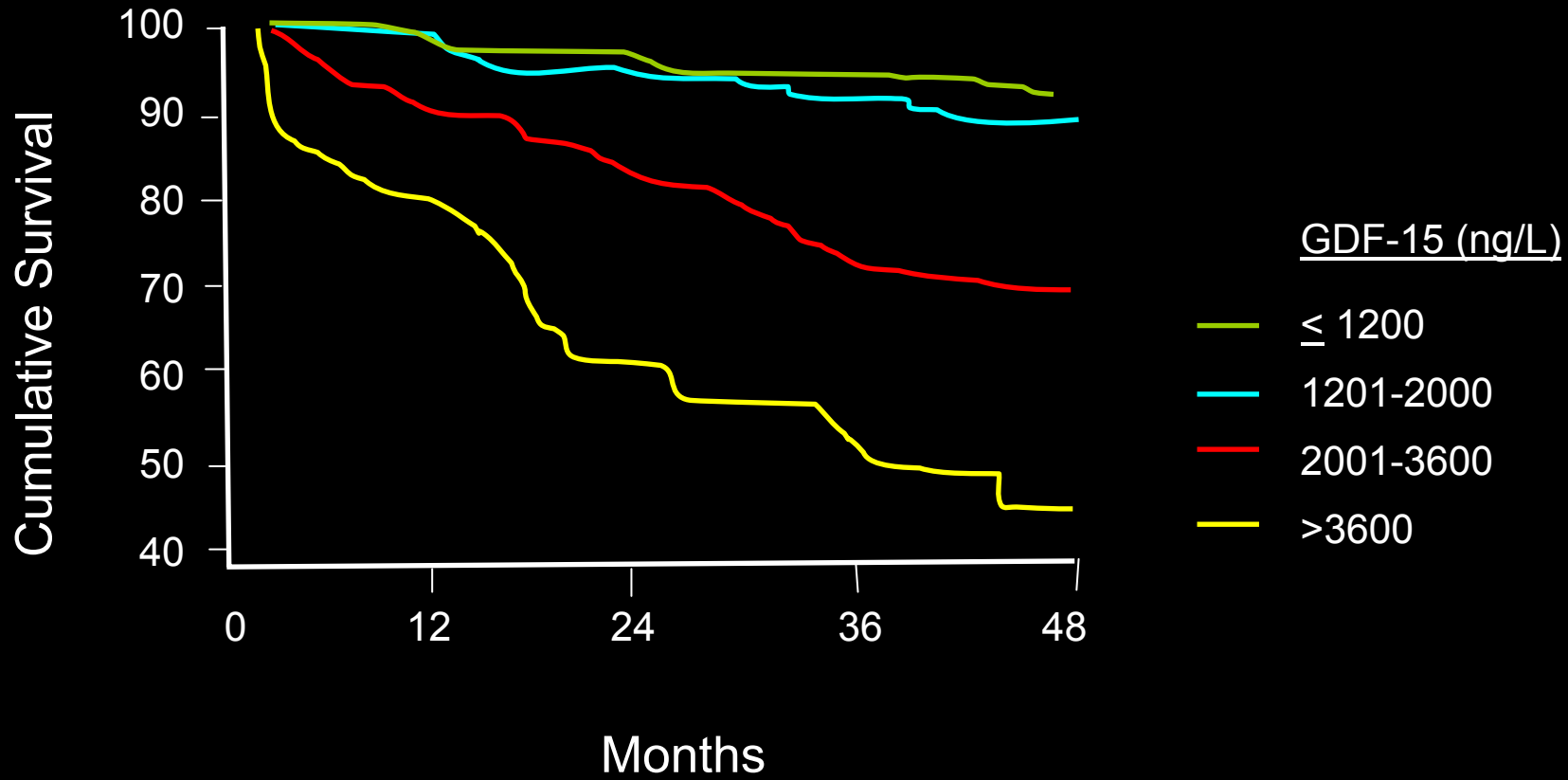
# ST-2 In CHF



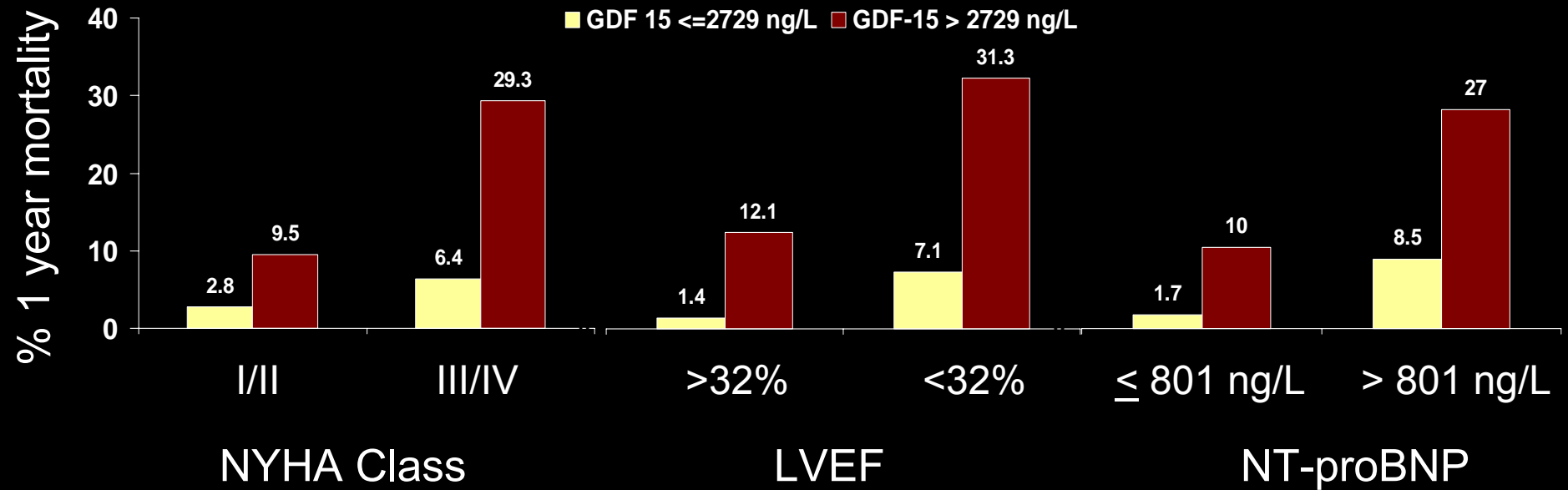
# GDF-15



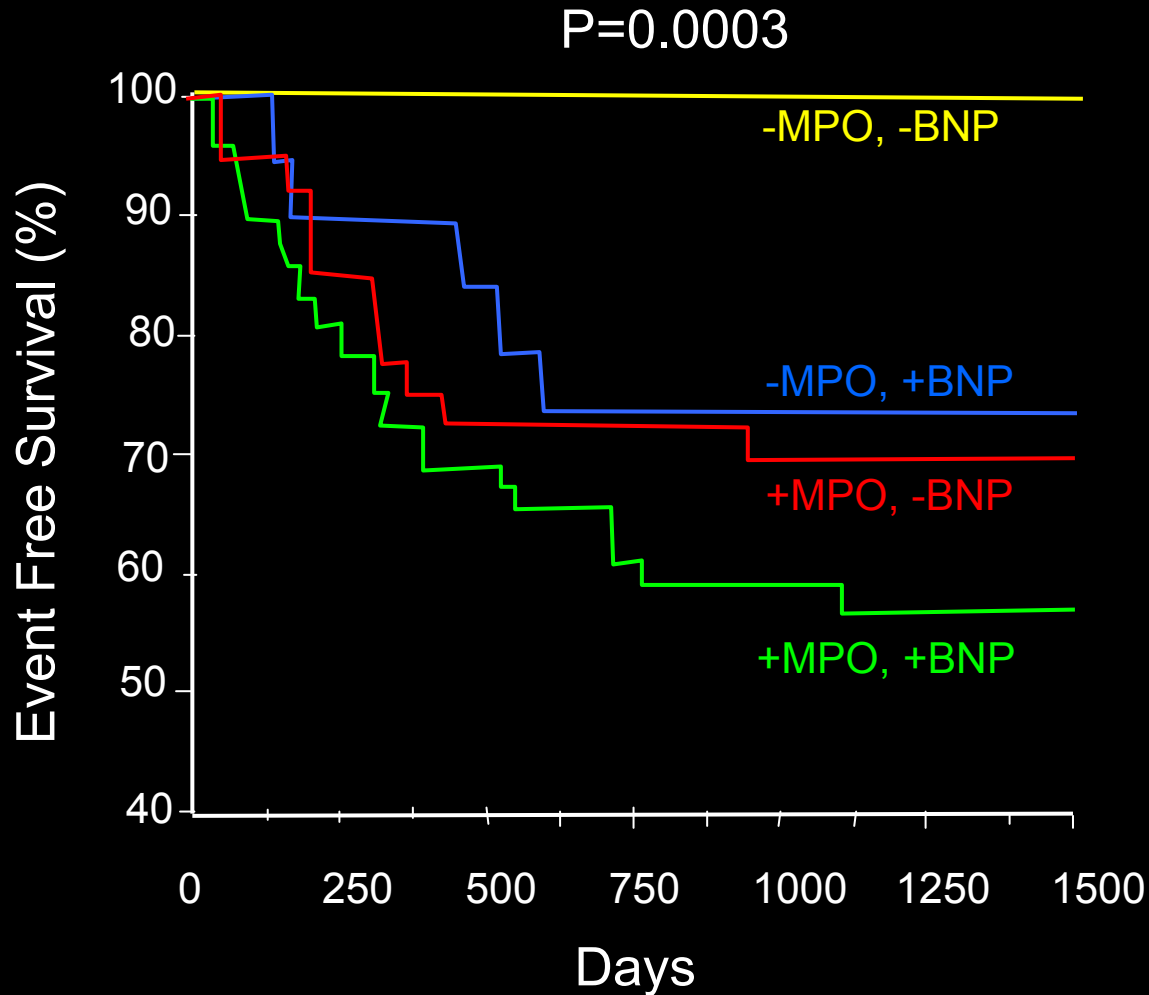
# GDF-15



# GDF-15



# Myeloperoxidase in Heart Failure





# OPG and LV Structure/Function

Dependent variable	Men		Women	
	Coeff (SE)	p-value	Coeff (SE)	p-value
LV mass/BSA (g/ m <sup>2</sup> )	4.02 (0.95)	<0.001	2.78 (0.63)	<0.001
LV wall thickness (mm)	0.38 (0.09)	<0.001	0.42 (0.07)	<0.001
LV mass/volume	0.10 (0.02)	<0.001	0.08 (0.02)	<0.001
LV ejection fraction (%)	-1.33 (0.48)	0.006	-1.35 (0.32)	<0.001
LV end-diastolic volume (mL)	-1.38 (1.47)	0.35	-0.70 (0.92)	0.45

## Conclusions—advances in the past year

- BNP/NT-proBNP as disease monitoring tools
- Troponins as modifiable markers of cardiotoxicity from noncardiac rx
  - High sensitivity assays coming
- Promising data for
  - GDF-15
  - ST-2
  - MPO
  - OPG
- Many hurdles to cross