Corso 1 - L'INSUFFICIENZA CARDIACA NELL'ANZIANO

1 dicembre 2022

IL GENERE E L'ETÀ CONDIZIONANO GLI OUTCOME A LUNGO TERMINE DELL'INSUFFICIENZA CARDIACA NELL'ANZIANO?

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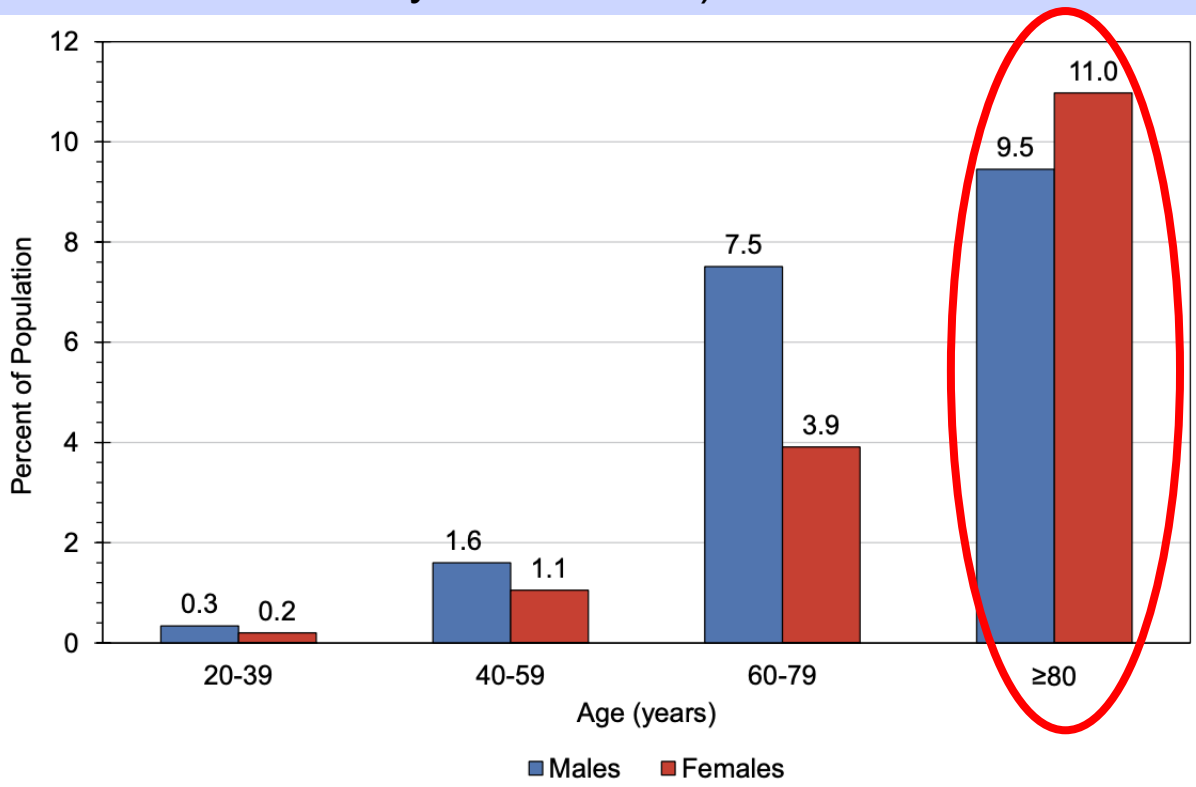
SOCIETÀ ITALIANA DI GERONTOLOGIA E GERIATRIA

Roma, 30 novembre - 3 dicembre 2022
UNIVERSITÀ CATTOLICA DEL SACRO CUORE

AHA STATISTICAL UPDATE

Heart Disease and Stroke Statistics—2022 Update: A Report From the American Heart Association

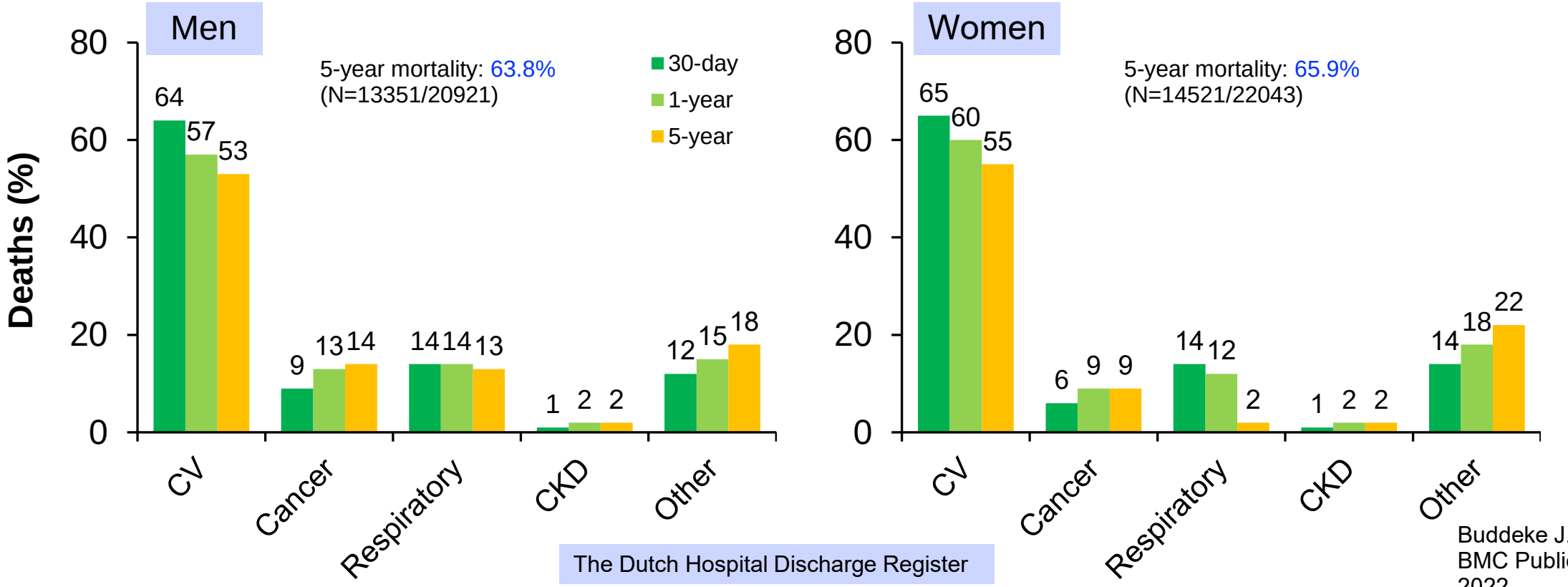
Prevalence of heart failure among US adults ≥20 years of age, by sex and age (NHANES - National Health and Nutrition Examination Survey, 2015–2018)



Tsao CW.
Circulation 2022

Mortality after hospital admission for heart failure: improvement over time, equally strong in women as in men

Causes of death of patients who died after hospital admission for HF (2008-10; age - M: 75, W: 79 years)

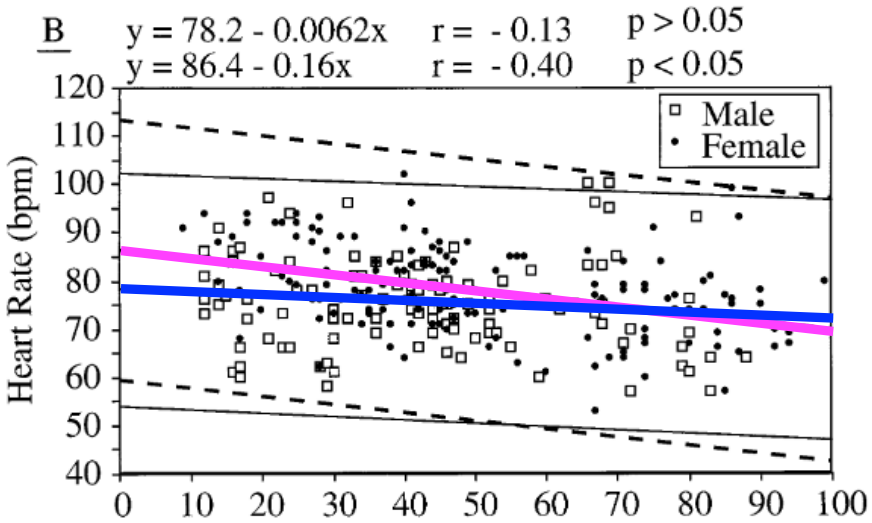


The Dutch Hospital Discharge Register

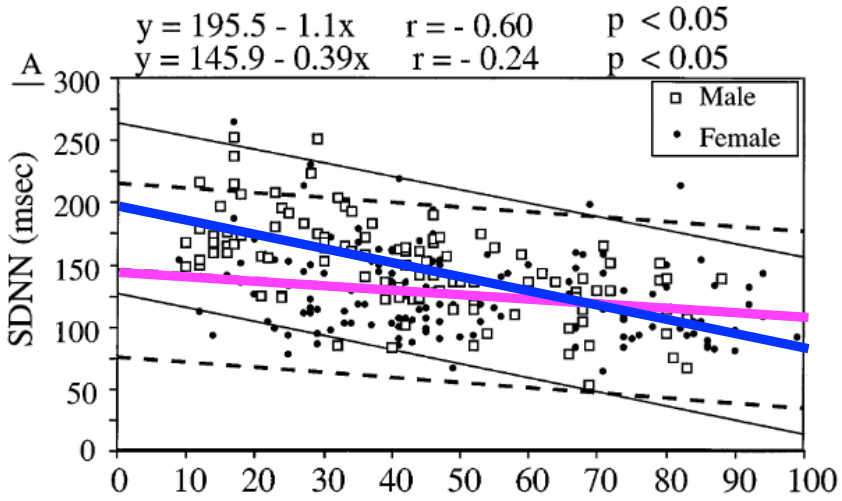
Buddeke J.
BMC Public Health
2022

Twenty-Four Hour Time Domain Heart Rate Variability and Heart Rate: Relations to Age and Gender Over Nine Decades

Relations between age and heart rate, and age and HRV determined by SDNN in 260 healthy subjects (age: 10 – 99 years; women: 148, 56.9%)



Heart Rate for women was significantly higher than that for age-matched men <50 years. Gender difference disappeared at >50 years.

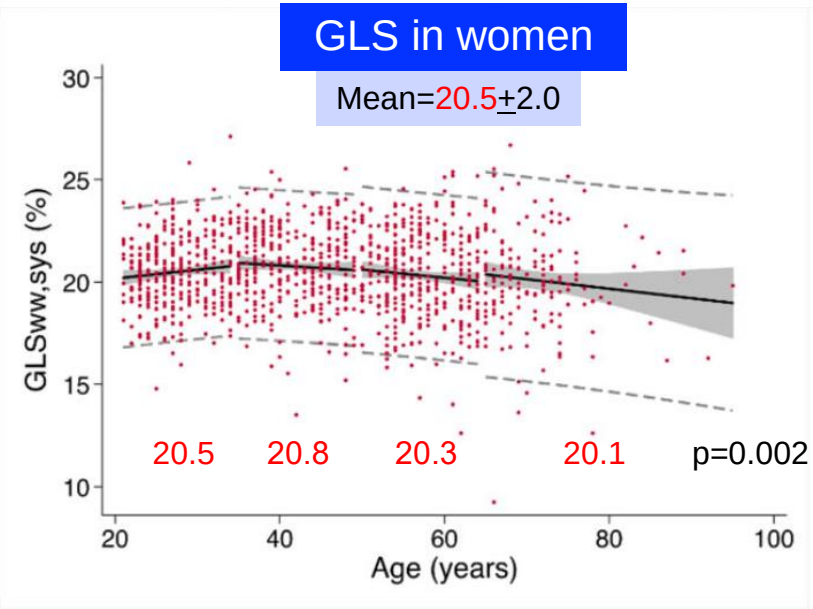


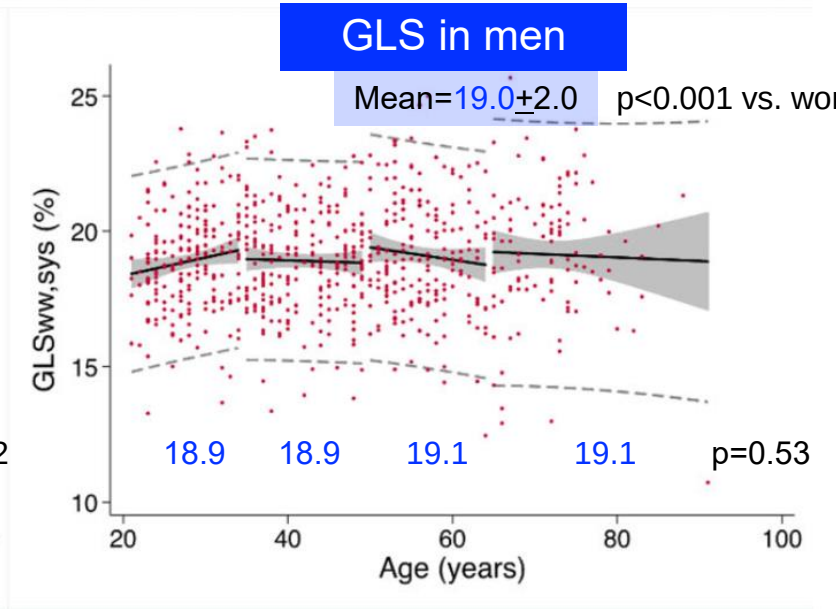
The SDNN pattern of decrease with aging was steeper for men than for women. SDNN reflects both sympathetic and parasympathetic activity

Umetani K.
JACC 1998

Age- and sex-based normal values of layer-specific longitudinal and circumferential strain by speckle tracking echocardiography: the Copenhagen City Heart Study

Normal values of peak systolic layer-specific GLS according to age and sex in 1997 members of the Copenhagen City Heart Study free of CV disease and RF (age: 21 – 97 years)



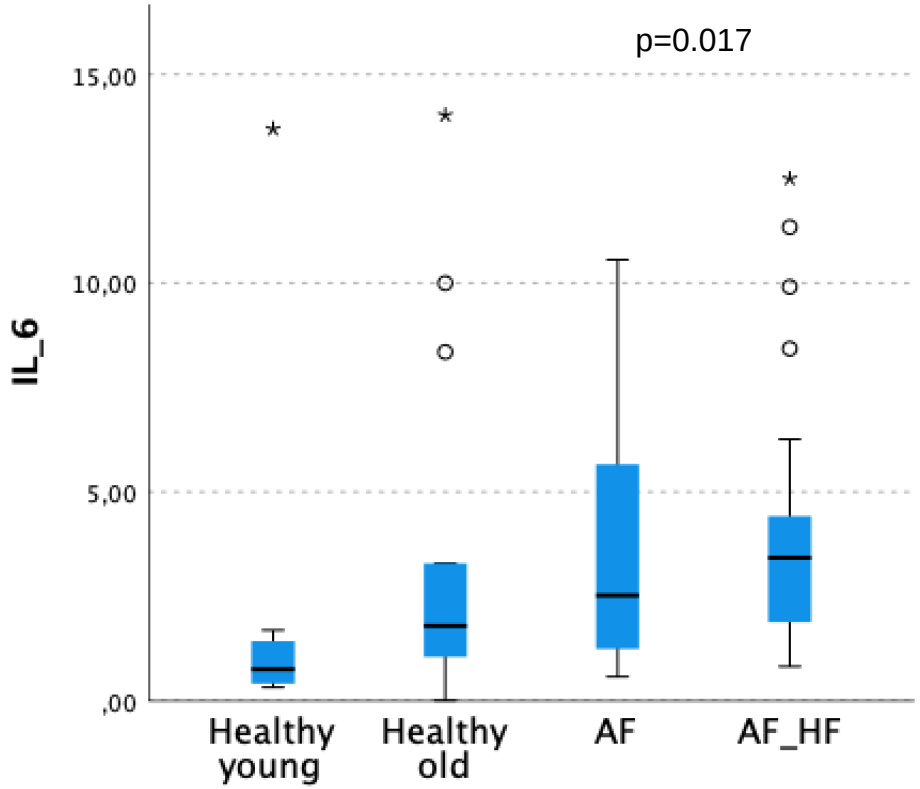


Two-dimensional speckle tracking echocardiography has been established as a useful tool for quantification of myocardial function
GLS: global longitudinal strain

Grundtvig Skaarup K.
Eur Heart J – Cardiov Imaging 2022

FIBRILLAZIONE ATRIALE E FRAGILITÀ. UNA POSSIBILE ASSOCIAZIONE CON L'INFIAMMAZIONE

Interleukin-6 concentration (pg/mL) in healthy controls and in AF patients with and without heart failure (HF)

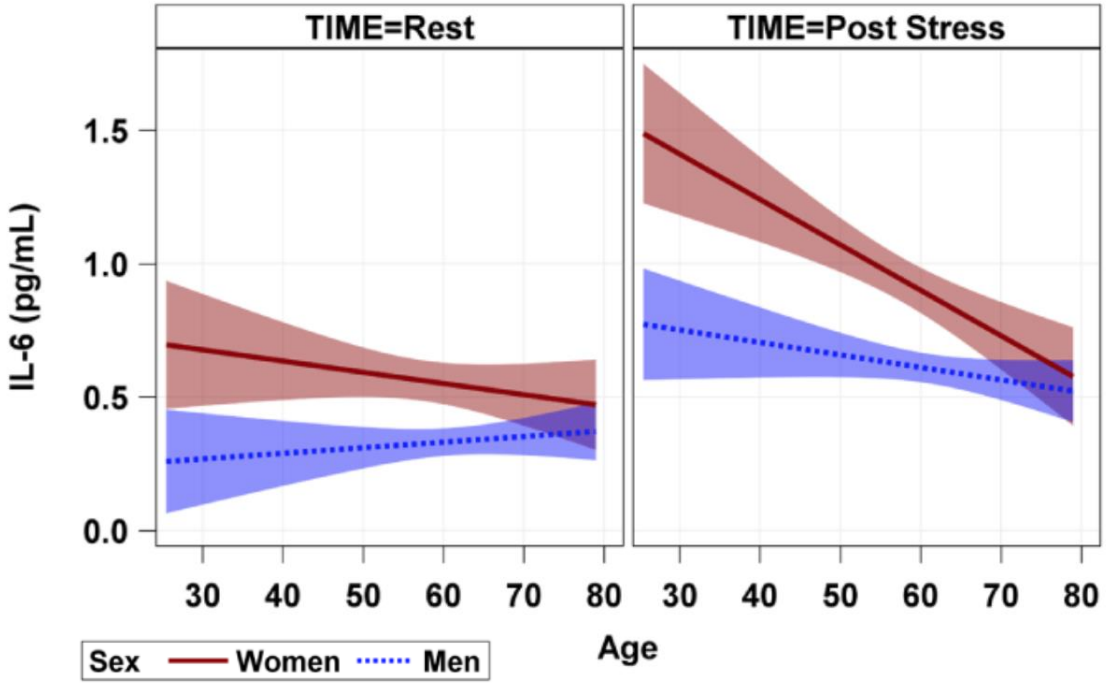


Ricciardi G.
Congresso SIGG
2022

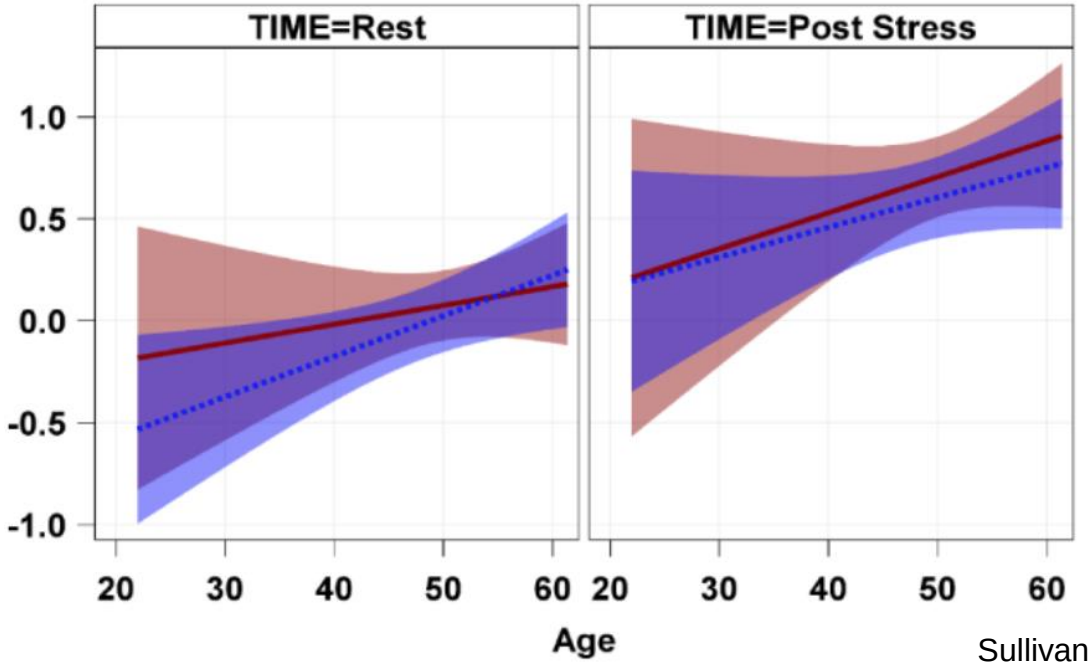
Young Women With Coronary Artery Disease Exhibit Higher Concentrations of Interleukin-6 at Baseline and in Response to Mental Stress

Unadjusted regression slopes for age for IL-6 among women and men with CAD and among controls

Patients - W: 257, 58 y; M: 567, 61 y



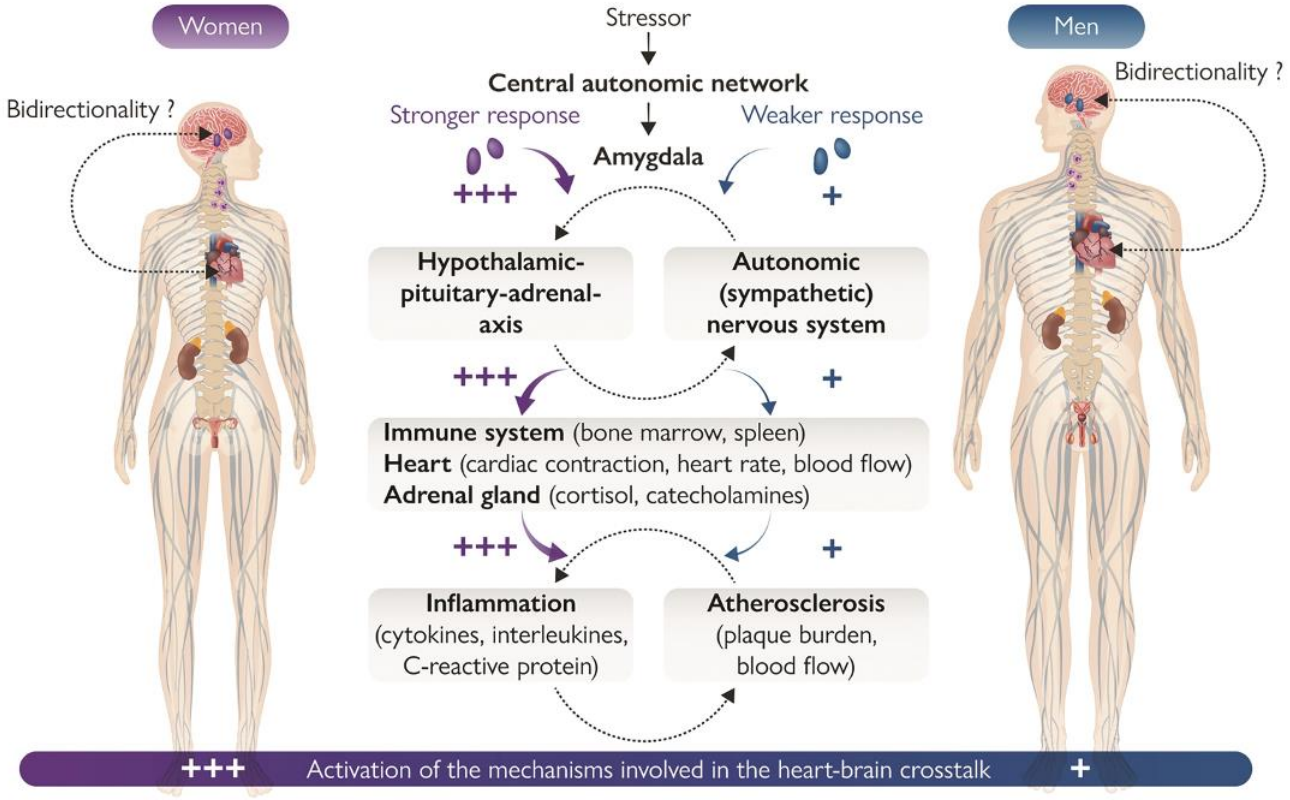
Controls - W: 50, 50 y; M: 48, 48 y



Sullivan S.
JAHA 2018

Heart–brain interactions in cardiac and brain diseases: why sex matters

Sex differences in the main mechanisms and neurohumoral circuits involved in heart–brain crosstalk



Rossi A.
Eur Heart J
2022

Heart–brain interactions in cardiac and brain diseases: why sex matters

Table 1 Sex-specific differences identified in the main pathways transmitting along the heart–brain axis for specific cardiac and brain disorders

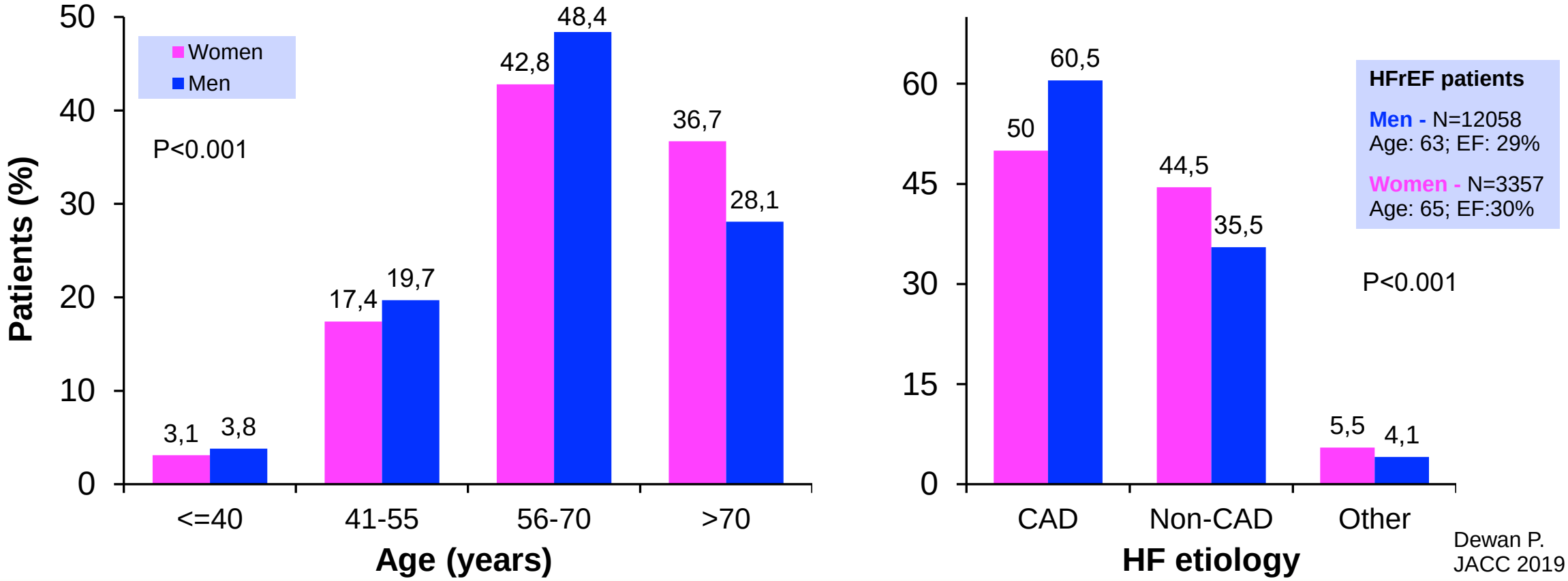
	IHD	HF	TTS	Stroke	Depression	Dementia
Atherosclerosis	+			+		+
SNS	+	+	+	+	+	
Hyperactivation of amygdala and limbic system	+		+			
HPA axis			+	+		
Inflammation	+			+	+	
RAAS		+				
Impaired cerebral blood flow		+				+

HF: heart failure; HPA: hypothalamic–pituitary–adrenal; IHD: ischaemic heart disease; RAAS: renin–angiotensin–aldosterone system; SNS: sympathetic nervous system; TTS: Takotsubo syndrome.

Rossi A.
Eur Heart J
2022

Differential Impact of Heart Failure With Reduced Ejection Fraction on Men and Women

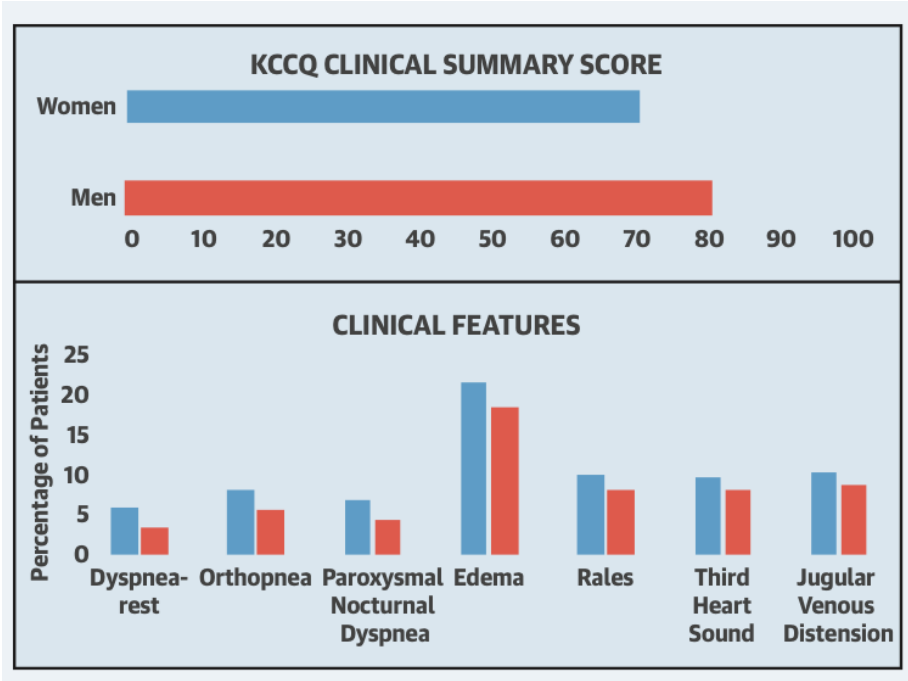
Age stratification and HF etiology by sex in the PARADIGM-HF and in the ATMOSPHERE trials

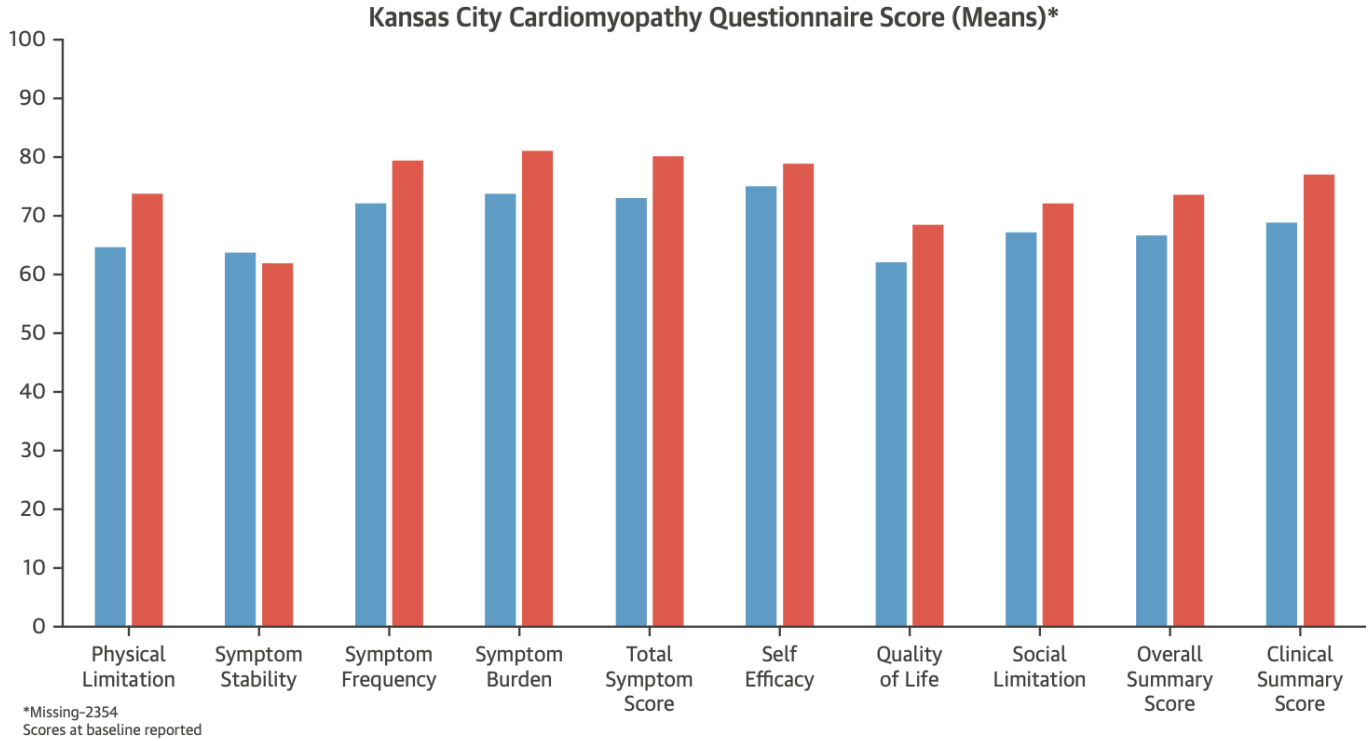


Dewan P.
JACC 2019

Differential Impact of Heart Failure With Reduced Ejection Fraction on Men and Women

Sign / Symptom burden and Quality of Life in Women (blue) and Men (red) with HFrEF

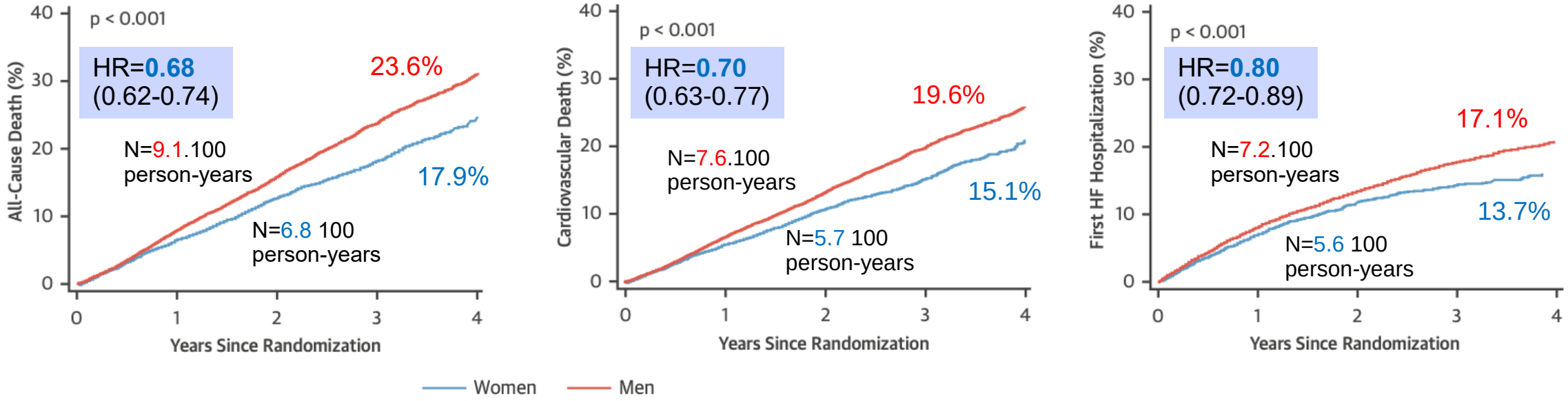




Dewan P.
JACC 2019

Differential Impact of Heart Failure With Reduced Ejection Fraction on Men and Women

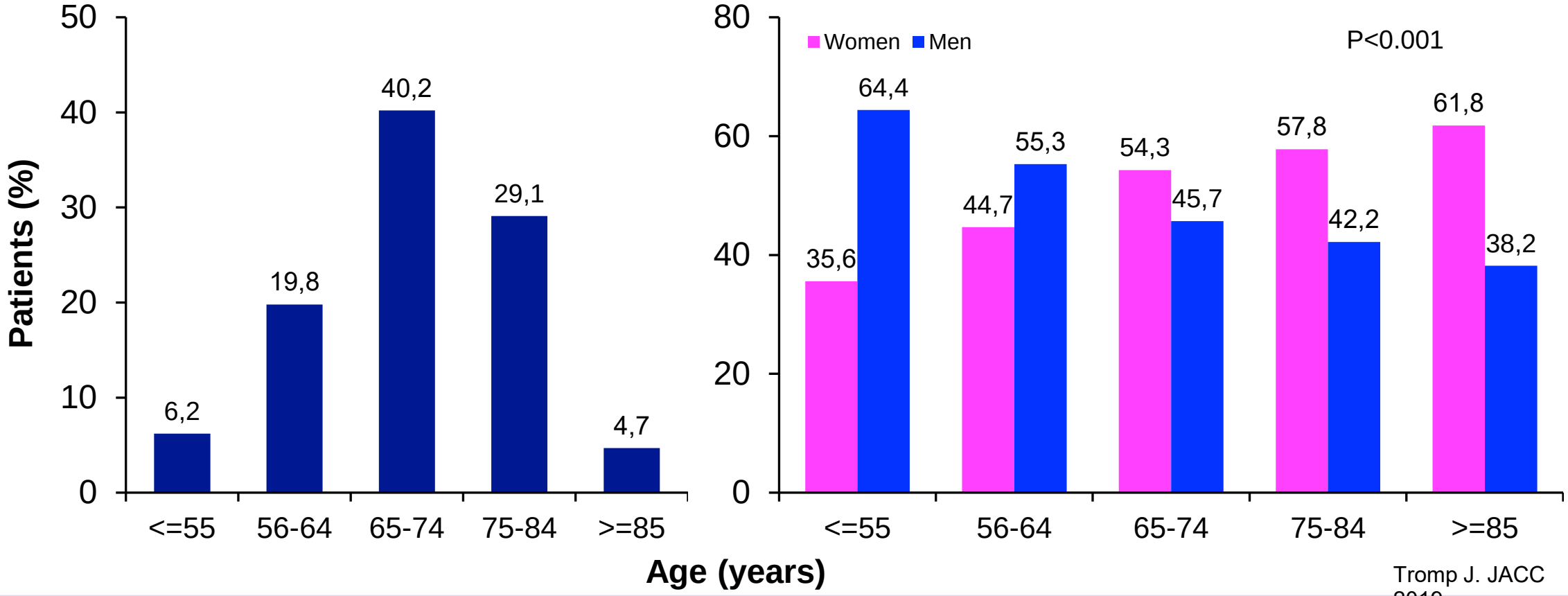
Clinical outcomes by sex in patients with HFrEF in the PARADIGM-HF (FU: 26.6 months) and in the ATMOSPHERE (FU: 36.7 months) trials



Dewan P.
JACC 2019

Age-Related Characteristics and Outcomes of Patients With Heart Failure With Preserved Ejection Fraction

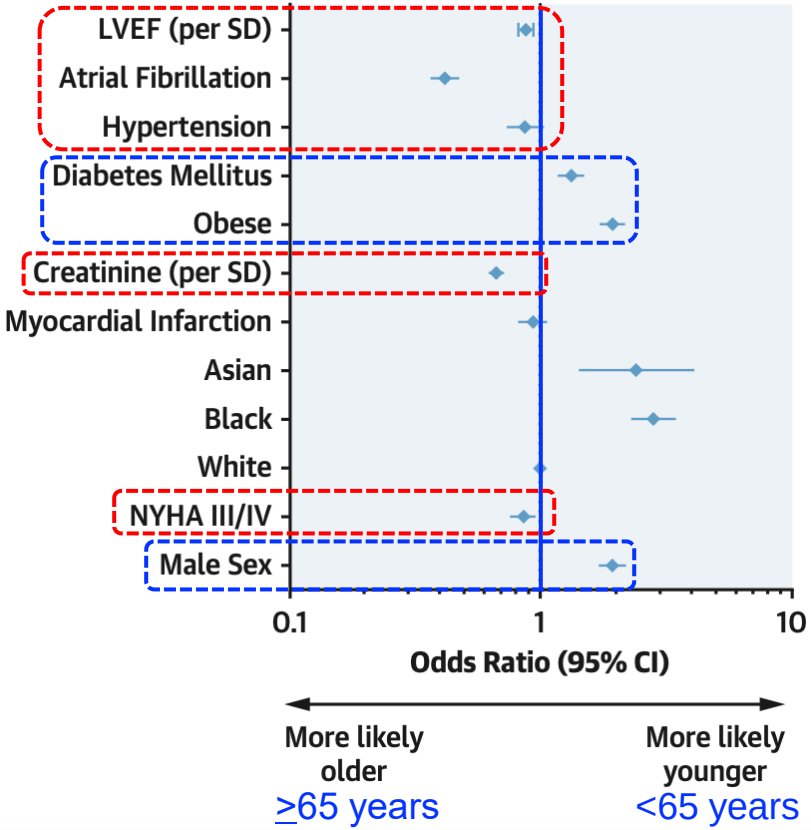
Age Stratification and Sex in the CHARM-Preserved, I-PRESERVE and TOPCAT Trials (N=8468)



Tromp J. JACC 2019

Age-Related Characteristics and Outcomes of Patients With Heart Failure With Preserved Ejection Fraction

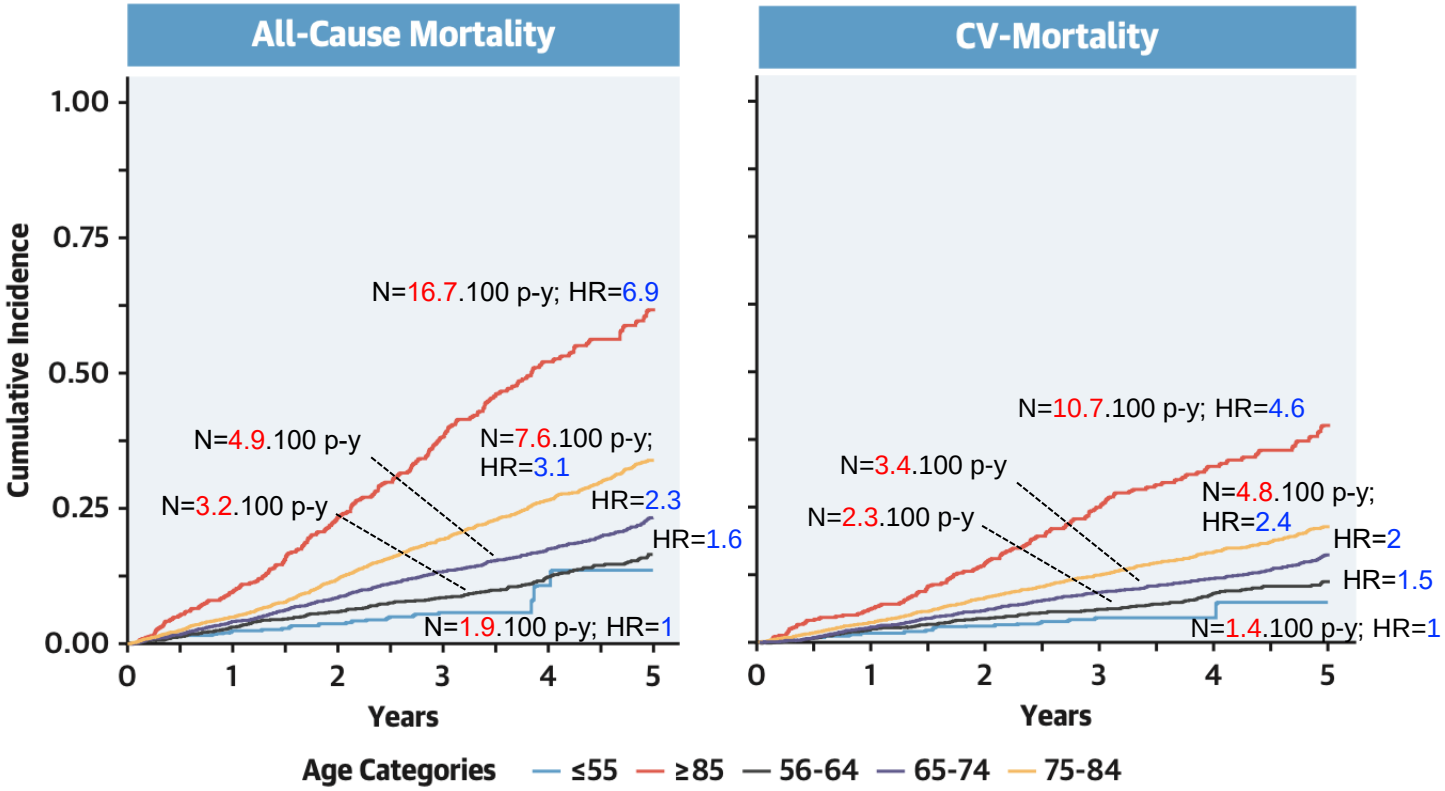
Association Between Baseline Clinical Characteristics and Odds of Being Age <65 Years Versus ≥65 Years in the CHARM-Preserved, I-PRESERVE and TOPCAT Trials

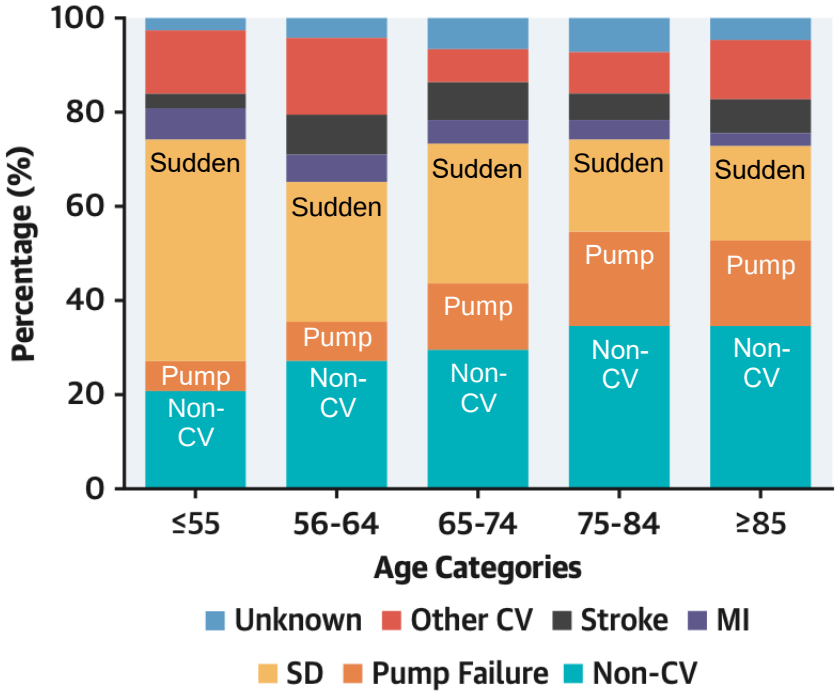


Tromp J. JACC 2019

Age-Related Characteristics and Outcomes of Patients With Heart Failure With Preserved Ejection Fraction

Mortality Curves and Causes of Death by Age Strata in the CHARM-Preserved, I-PRESERVE and TOPCAT Trials Patients





Tromp J. JACC 2019

Age-Related Characteristics and Outcomes of Patients With Heart Failure With Preserved Ejection Fraction

Age-Related Differences in Patients With Heart Failure With Preserved Ejection Fraction

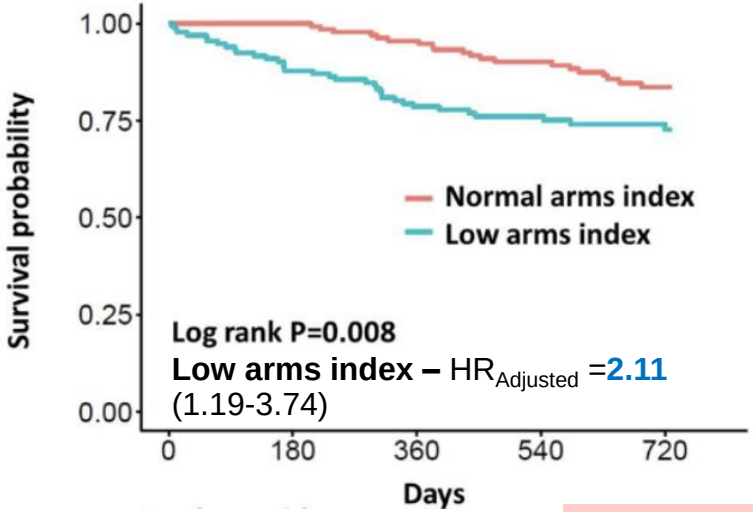
Young Heart Failure With Preserved Ejection Fraction	Elderly Heart Failure With Preserved Ejection Fraction
Clinical characteristics *Men* ↑ *Obese*	**Clinical characteristics** *Women* ↑ *Atrial fibrillation, hypertension, renal disease*
Cardiac structure and function ↑ *Concentric hypertrophy* ↑ *Filling pressures* ↑ *Left ventricular volume*	**Cardiac structure and function** ↑ *Left atrial size*
Clinical outcomes ↑ *Cardiovascular cause of death* ↑ *Sudden cardiac death*	**Clinical outcomes** ↑ *Noncardiovascular cause of death*

Tromp J. JACC 2019

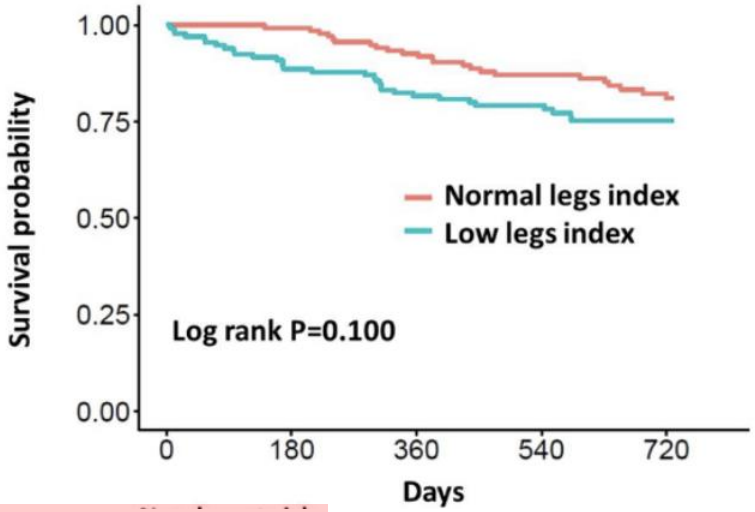
Arm lean mass measured using dual-energy X-ray absorptiometry to predict mortality in older patients with heart failure

Kaplan–Meier curves for all-cause mortality between low and normal muscle mass groups (N=271; age: 83 years; men: 50.6%; LVEF: 47%; mortality: 19.9%; FU: 690 days)

Arms



Legs



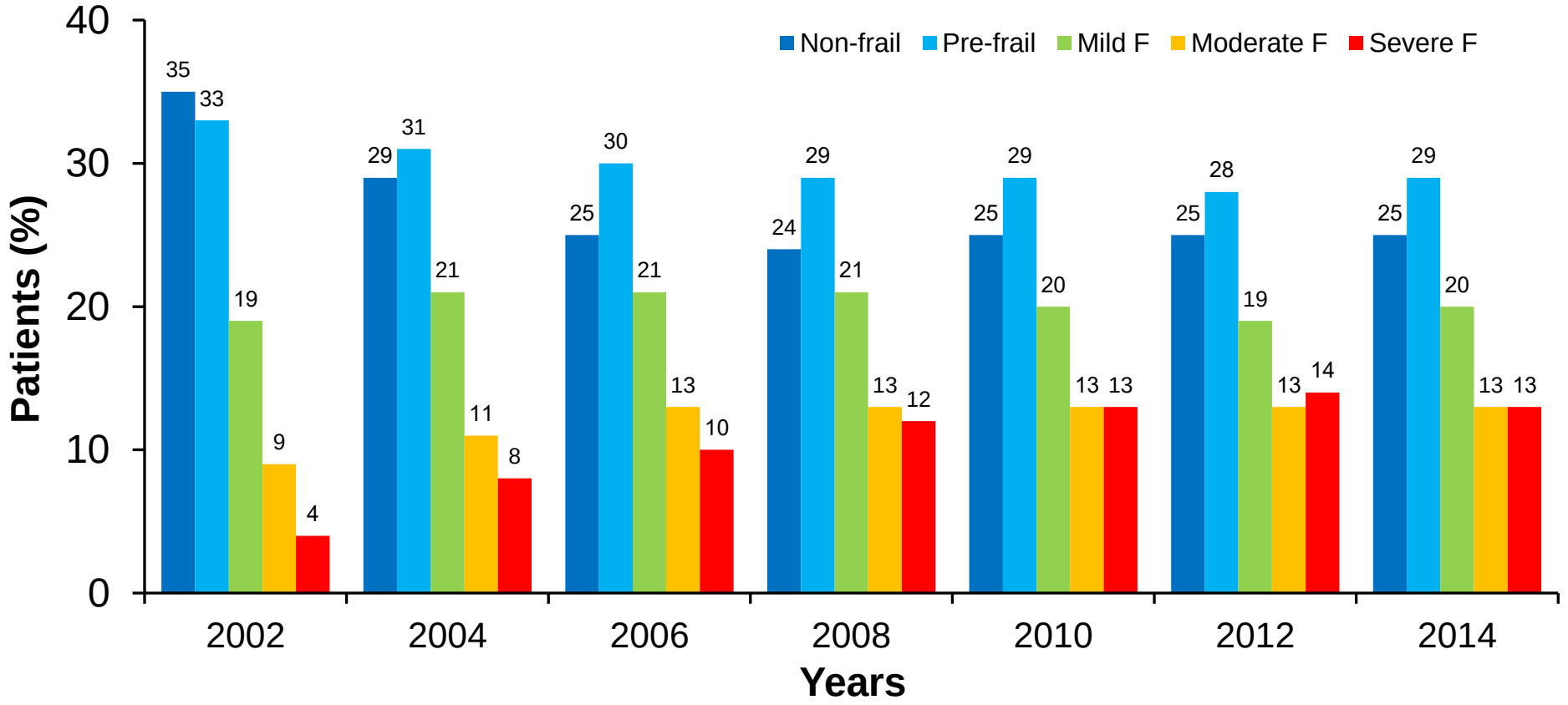
Arms - Legs index

Arms - Legs muscle mass / h^2 (kg/m^2)
Median: 1.67 – 4.37 kg/m^2

Saito H.
Arch Gerontol Geriatr 2022

Frailty and cardiovascular mortality in more than 3 million US Veterans

Veterans aged ≥65 years by frailty (N=3,068,439; baseline age: 74-77 years; 2002–17; Rockwood 0-31)

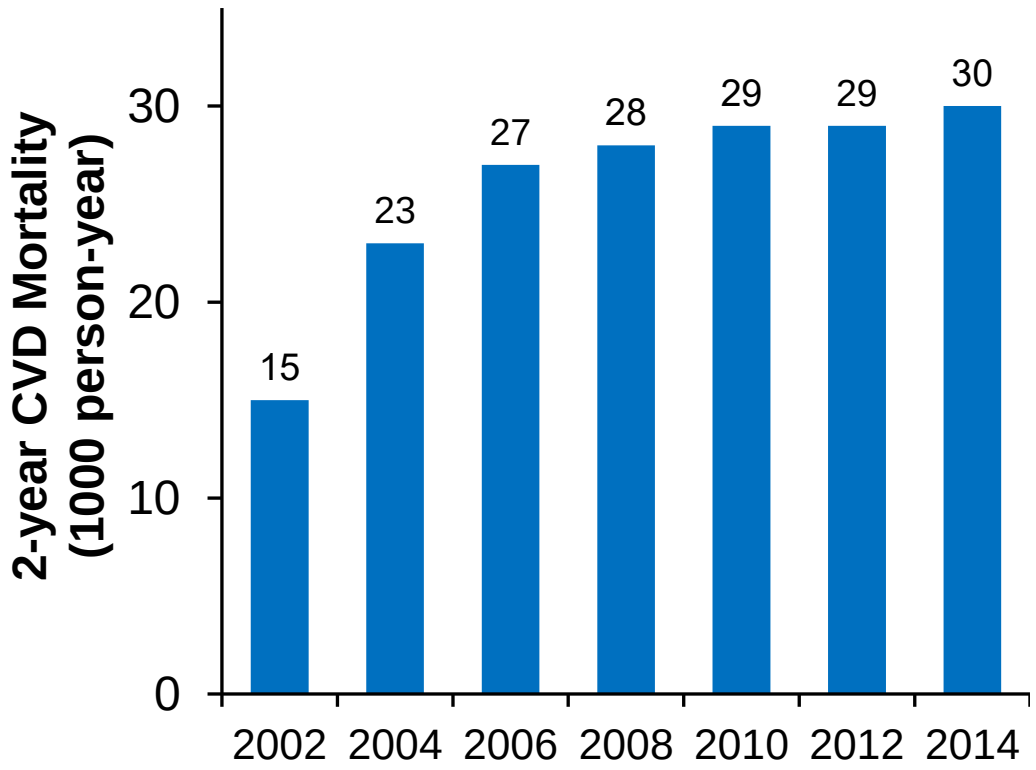


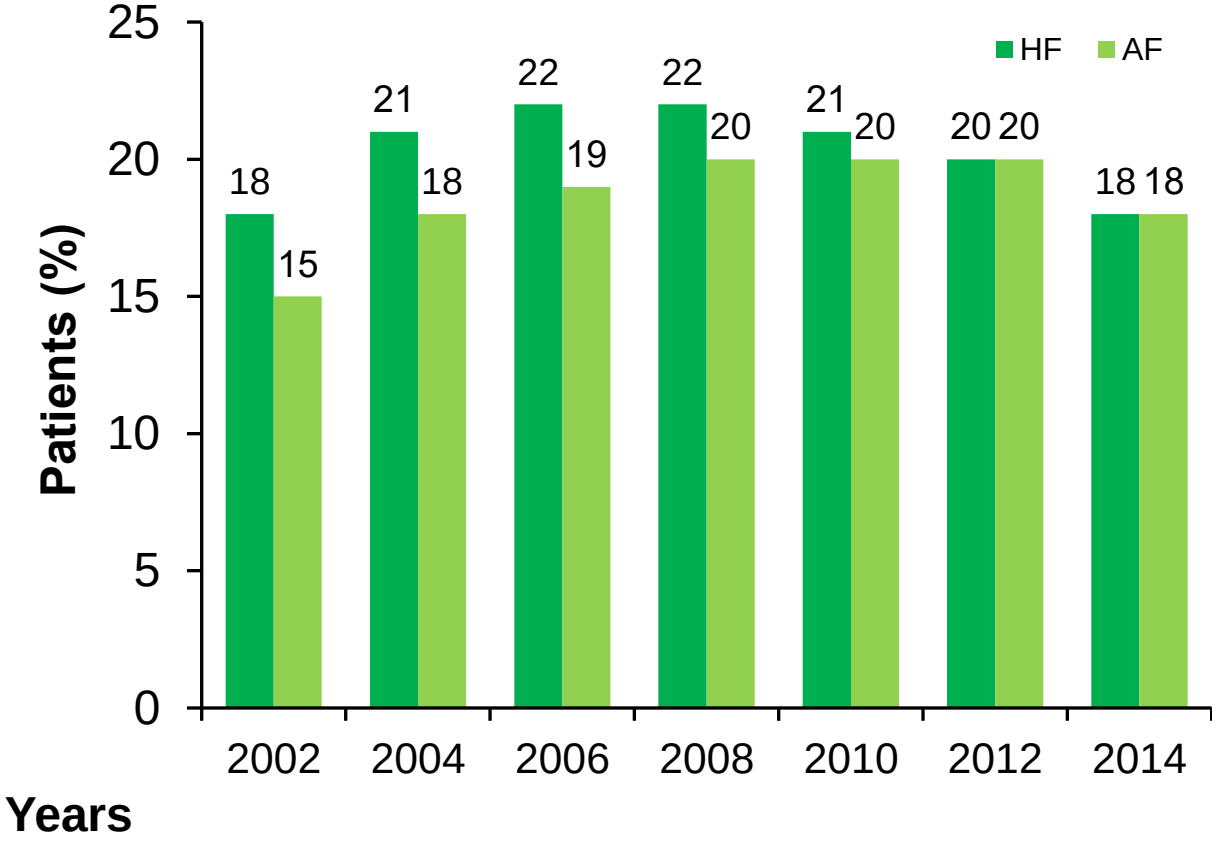
Shrauner W.
Eur Heart J
2022

Frailty and cardiovascular mortality in more than 3 million US Veterans

Shrauner W.
Eur Heart J 2022

CVD Mortality and prevalence of heart failure and atrial fibrillation among Veterans aged ≥65 years, 2002–16

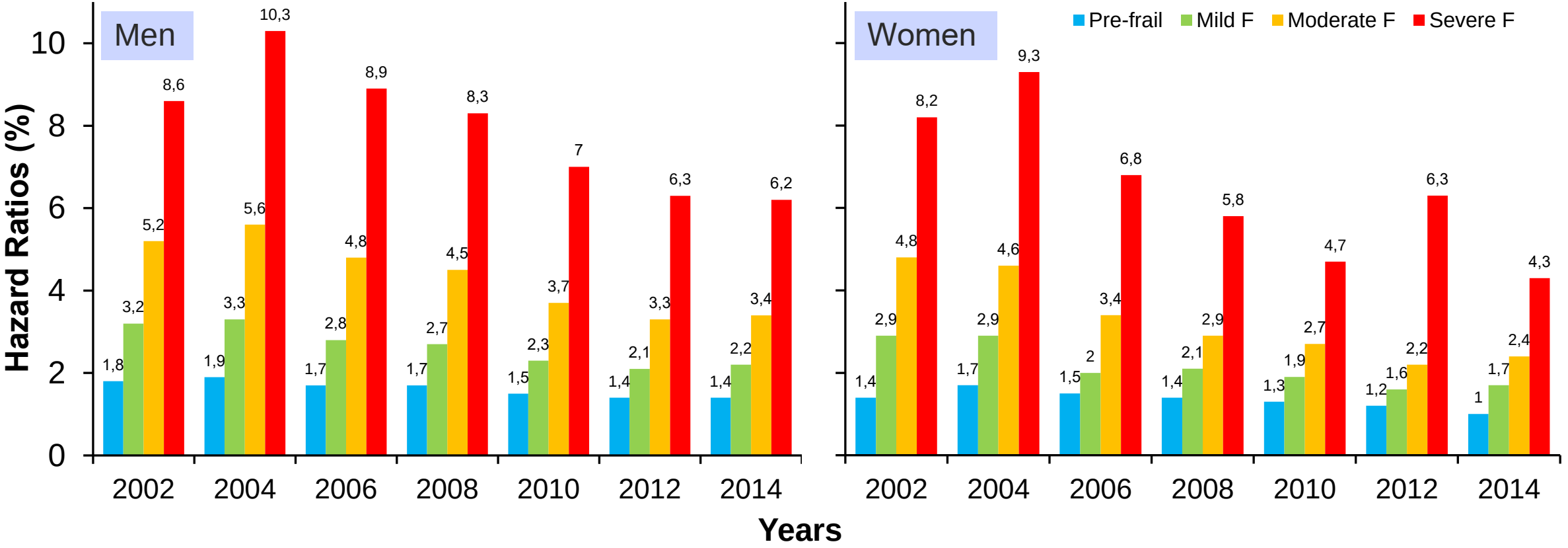




Frailty and cardiovascular mortality in more than 3 million US Veterans

Shrauner W.
Eur Heart J 2022

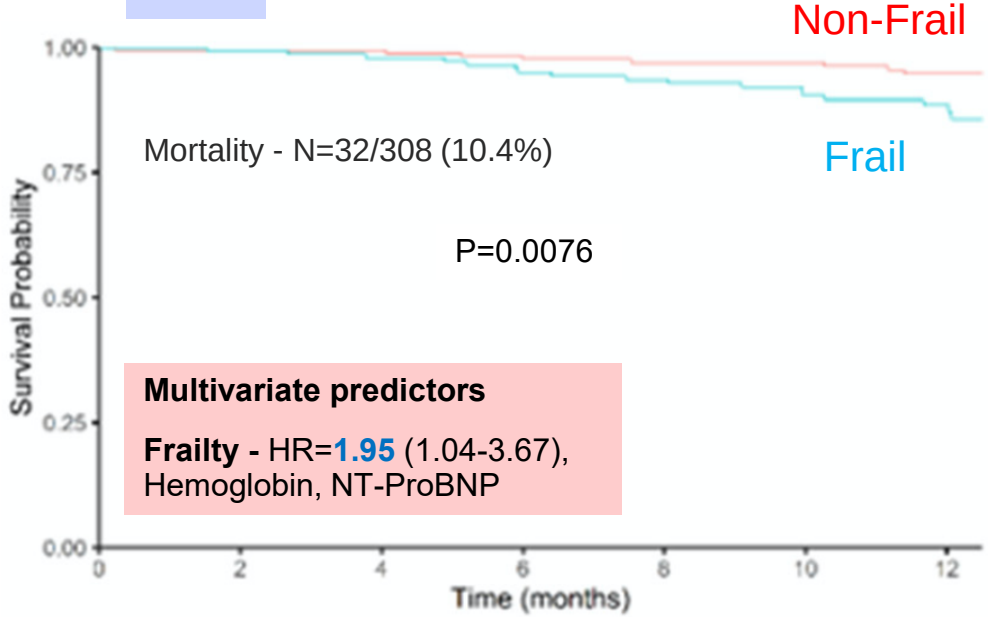
Hazard Ratios Stratified by Sex for CV Mortality by Frailty Among U.S. Veterans (Ref.: Non-Frail)



Sex differences in the impact of frailty in elderly outpatients with heart failure

Kaplan–Meyer for 1-year mortality according to frailty category (Mobility Visual Scale), by sex in the FRAGIC registry (N=499; age: 81 years; women: 38%; mortality: 11.6%; FU: 371 days)

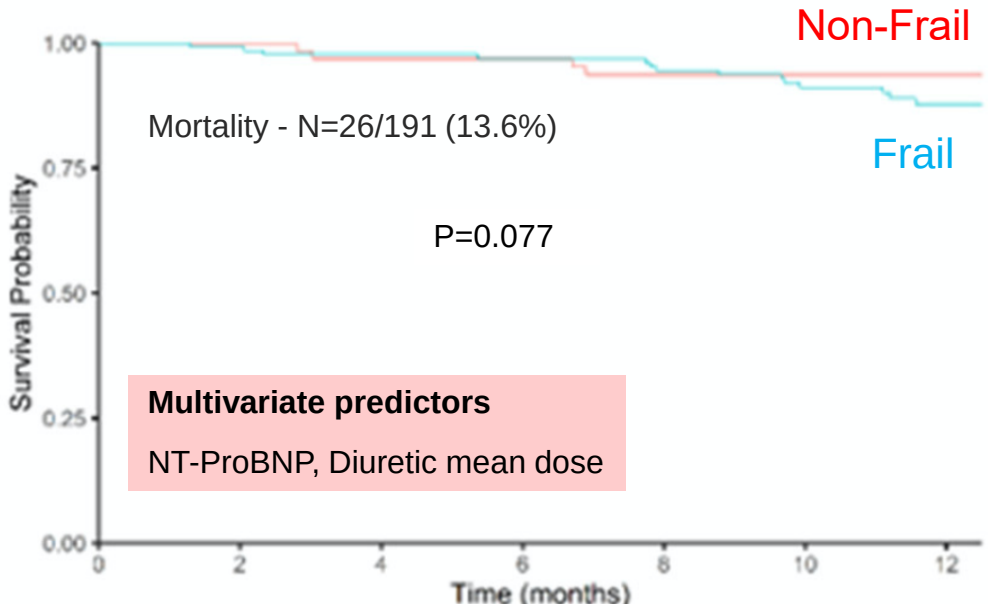
Men



Multivariate predictors

Frailty - HR=**1.95** (1.04-3.67), Hemoglobin, NT-ProBNP

Women



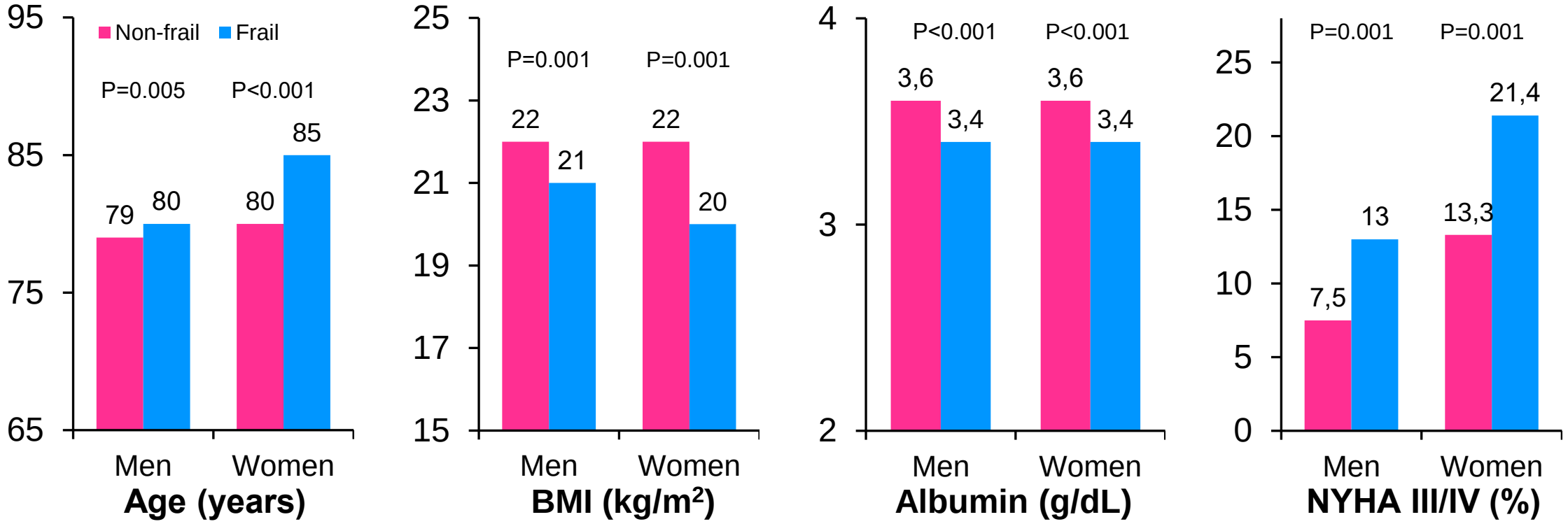
Multivariate predictors

NT-ProBNP, Diuretic mean dose

Díez-Villanueva P.
Front Cardiovasc Med 2022

Sex differences in the prevalence and prognostic impact of physical frailty and sarcopenia among older patients with heart failure

Baseline characteristics by sex and frailty in the FRAGILE-HF study (assessed: N=1219/1332, 91%)

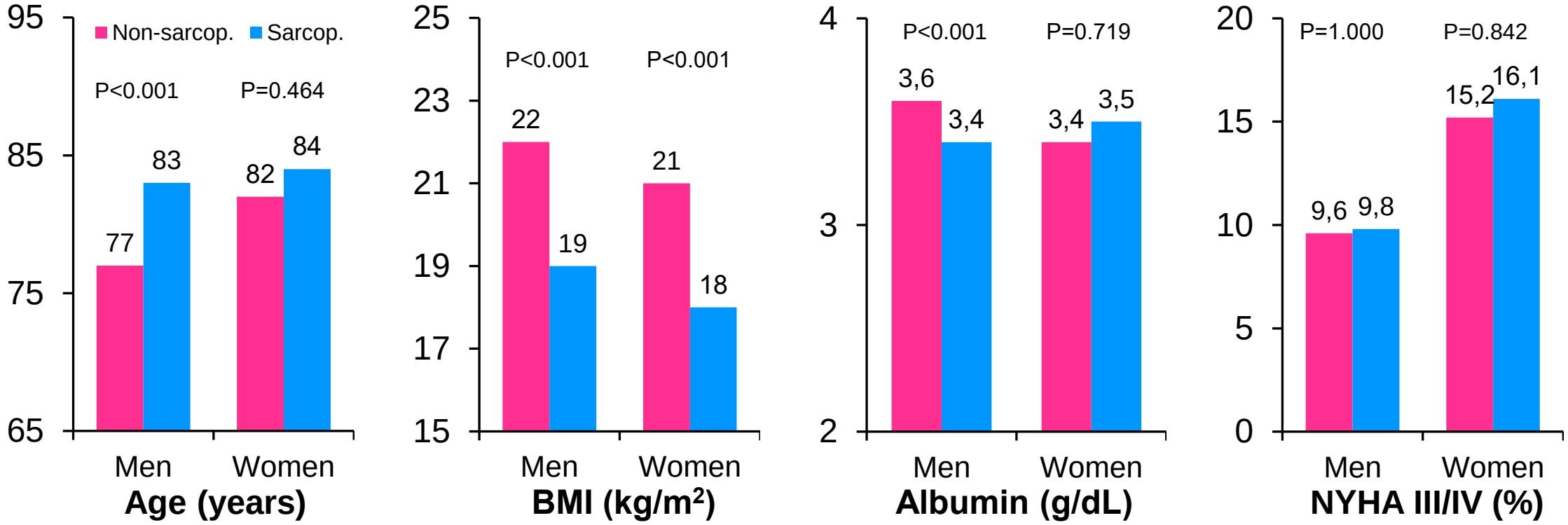


Frailty - Fried phenotype model
Men: 53.9%; Women: 61.0%

Maeda D. Nutr Metab Cardiovasc Dis 2022

Sex differences in the prevalence and prognostic impact of physical frailty and sarcopenia among older patients with heart failure

Baseline characteristics by sex and sarcopenia in the FRAGILE-HF study (assessed: N=960/1332, 72%)



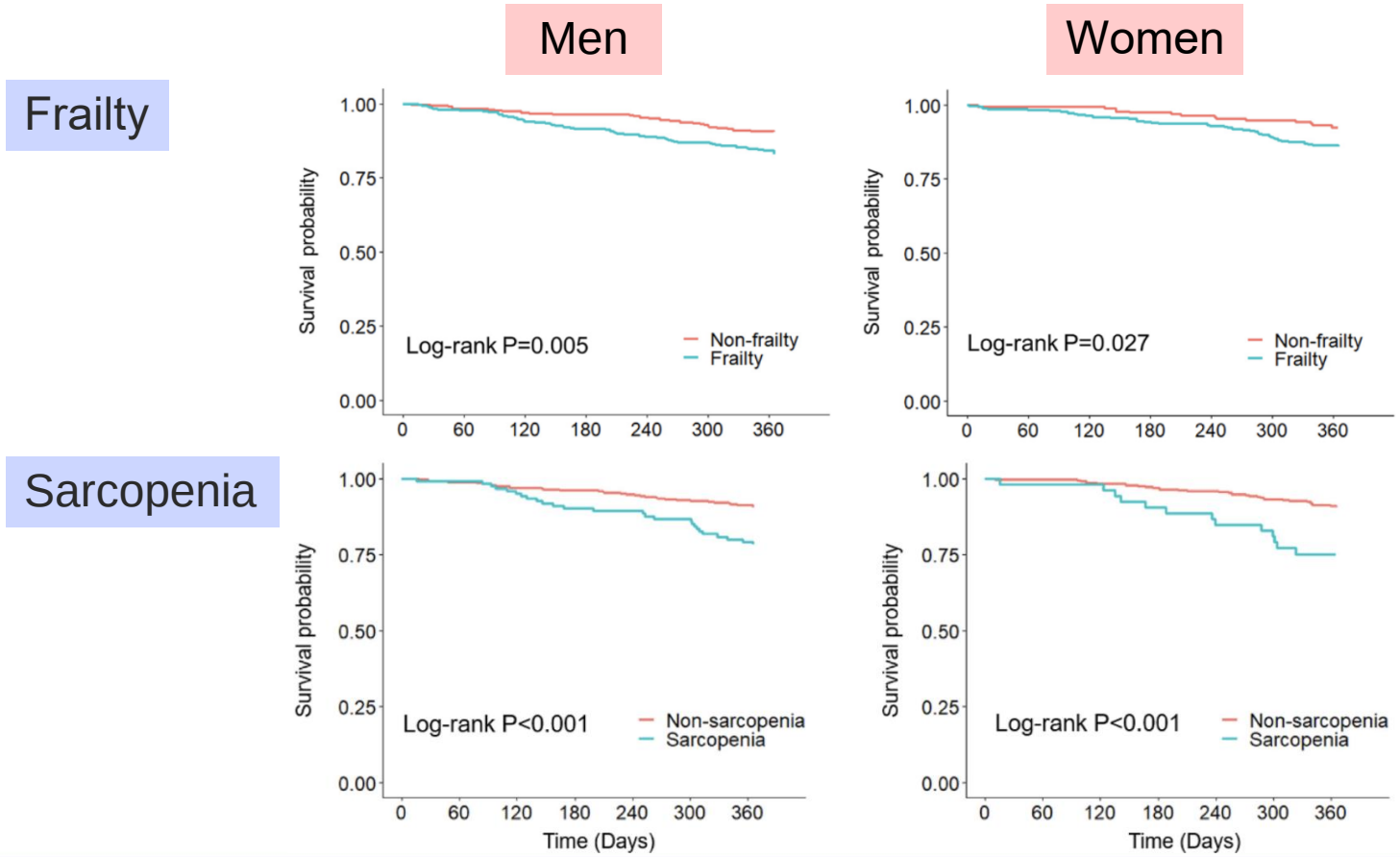
Sarcopenia – AWGS criteria
Men: ≤7.0 kg/m²; Women: ≤5.7 kg/m²

Sarcopenia – AWGS criteria
Men: 23.7%; Women: 14.0%

Maeda D. Nutr Metab Cardiovasc Dis 2022

Sex differences in the prevalence and prognostic impact of physical frailty and sarcopenia among older patients with heart failure

All-cause mortality by sex and the presence of frailty and sarcopenia in the FRAGILE-HF study

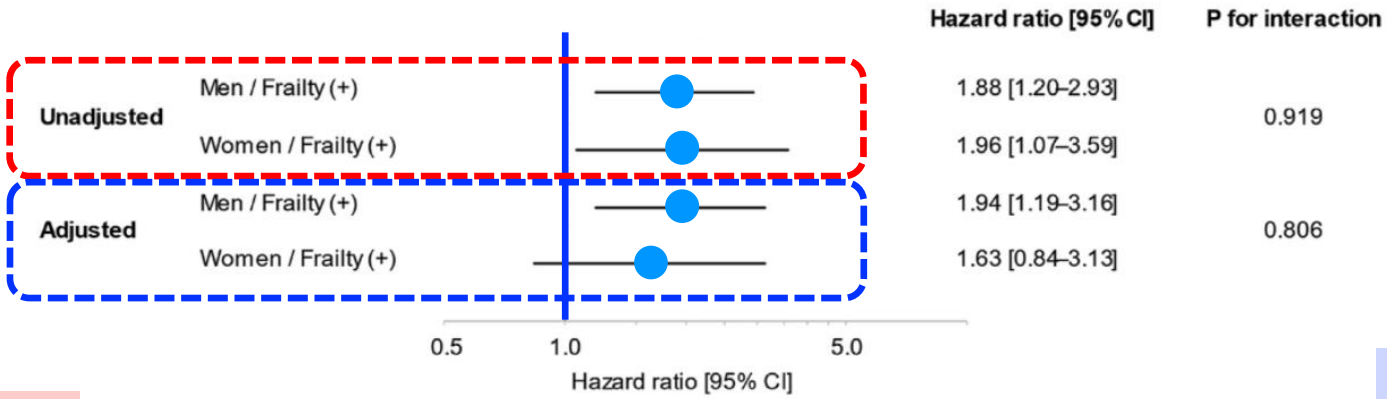


Maeda D. Nutr Metab Cardiovasc Dis 2022

Sex differences in the prevalence and prognostic impact of physical frailty and sarcopenia among older patients with heart failure

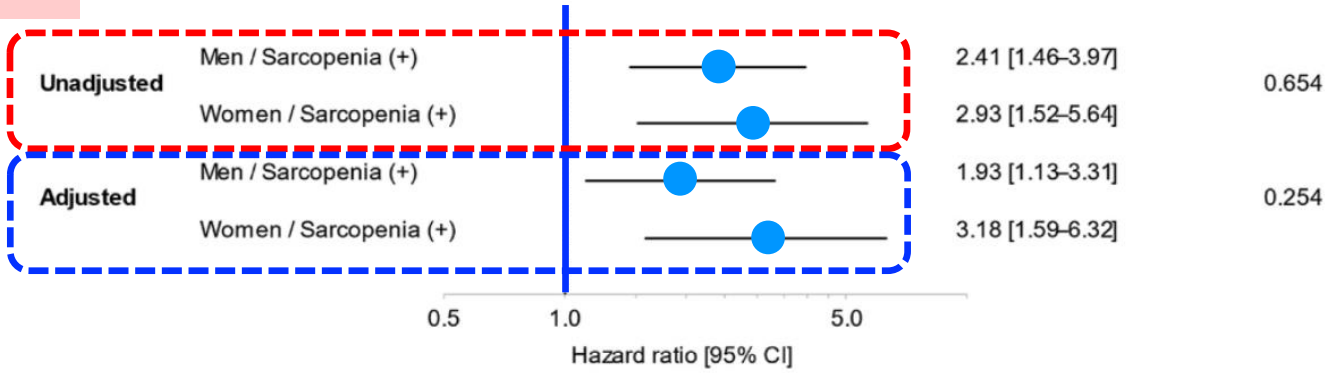
Cox hazard analysis and interaction between sex and impact of frailty/sarcopenia on mortality

Frailty



Adjustment for the MAGGIC risk score and the log-transformed BNP

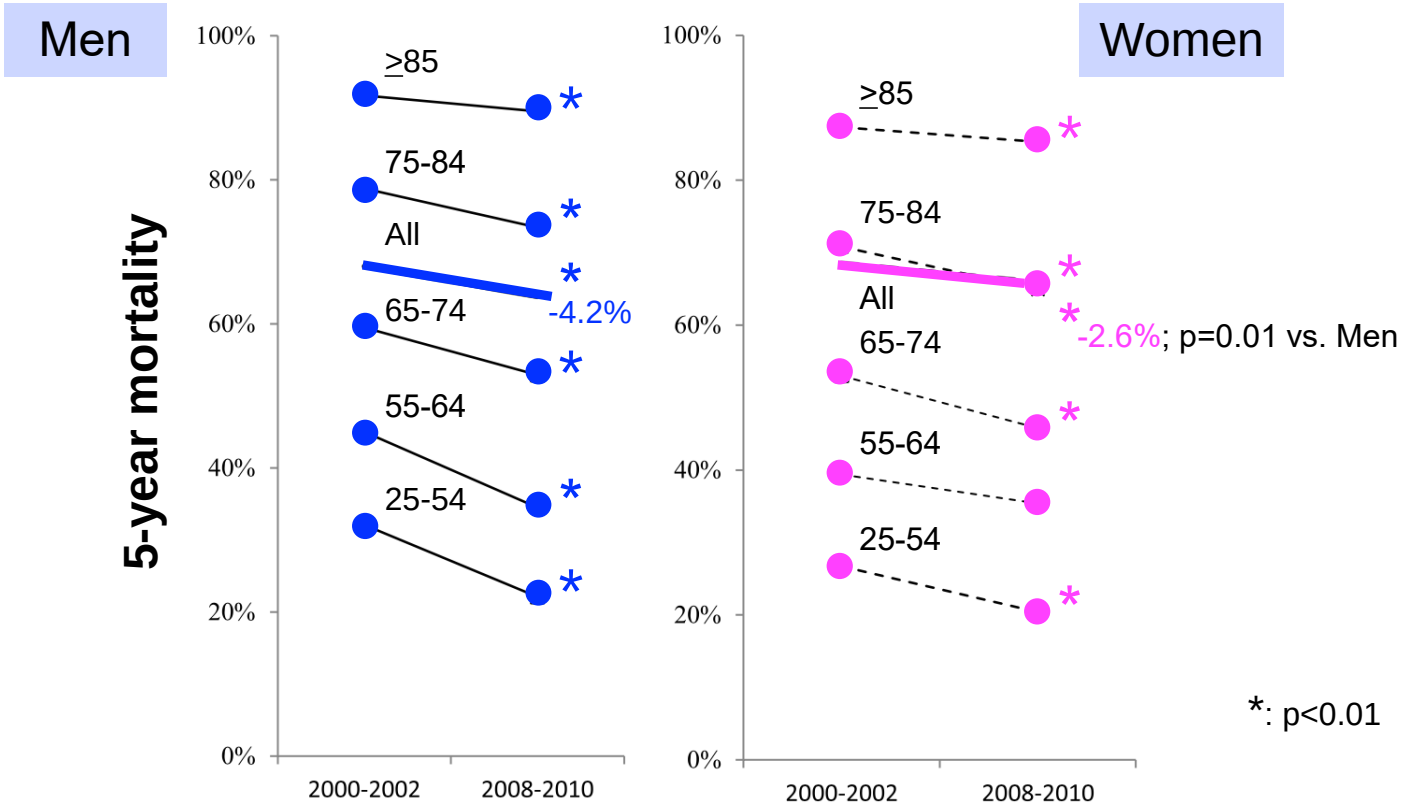
Sarcopenia



Maeda D. Nutr Metab Cardiovasc Dis 2022

Mortality after hospital admission for heart failure: improvement over time, equally strong in women as in men

Difference in 5-year mortality between the 2000–02 (N=38848) and the 2008–10 cohort (N=42964) in men and women in the Dutch Hospital Discharge Register



Buddeke J.
BMC Public Health
2022

Conclusioni

- ✓ La prevalenza di scompenso cardiaco è molto alta nella popolazione femminile di età avanzata
- ✓ Differenze correlate al sesso in meccanica cardiaca, attività del SNA e stato infiammatorio possono determinare un andamento clinico specifico in donne e uomini
- ✓ Nelle donne con HFrEF, sintomi e qualità di vita sono peggiori di quelli degli uomini
- ✓ La prevalenza di HFpEF è maggiore fra le donne anziane, comorbose; in loro la mortalità è spesso dovuta a patologie non CV
- ✓ Fragilità e scompenso cardiaco sono condizioni correlate significativamente
- ✓ La sarcopenia si associa a una mortalità aumentata in uomini e donne; la fragilità sembra un fattore prognostico più importante soprattutto negli uomini
- ✓ I miglioramenti nella gestione clinica e nella terapia dello scompenso cardiaco hanno ridotto la mortalità a lungo termine in uomini e donne