



That this House believes HFpEF should be prevented by treating coexistent systemic hypertension, not early AVR

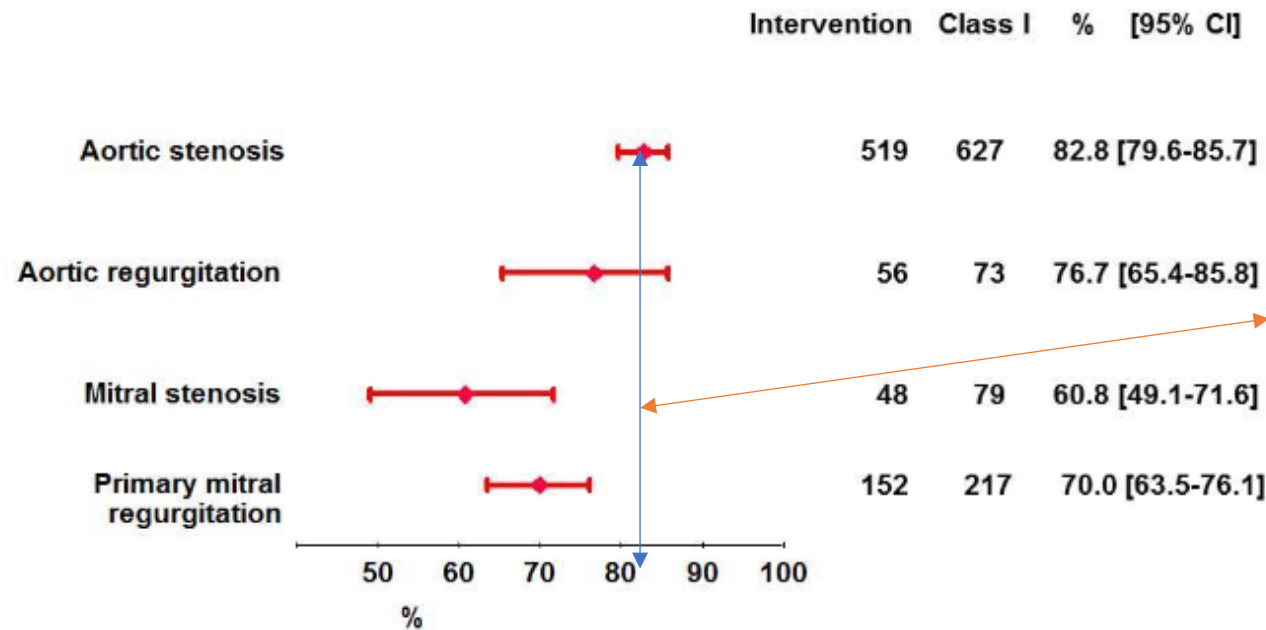
GEORGE D. ATHANASSOPOULOS
Director Cardiology Section
Head Noninvasive Cardiology
Onassis Cardiac Surgery Center Athens

Contemporary Presentation and Management of Valvular Heart Disease

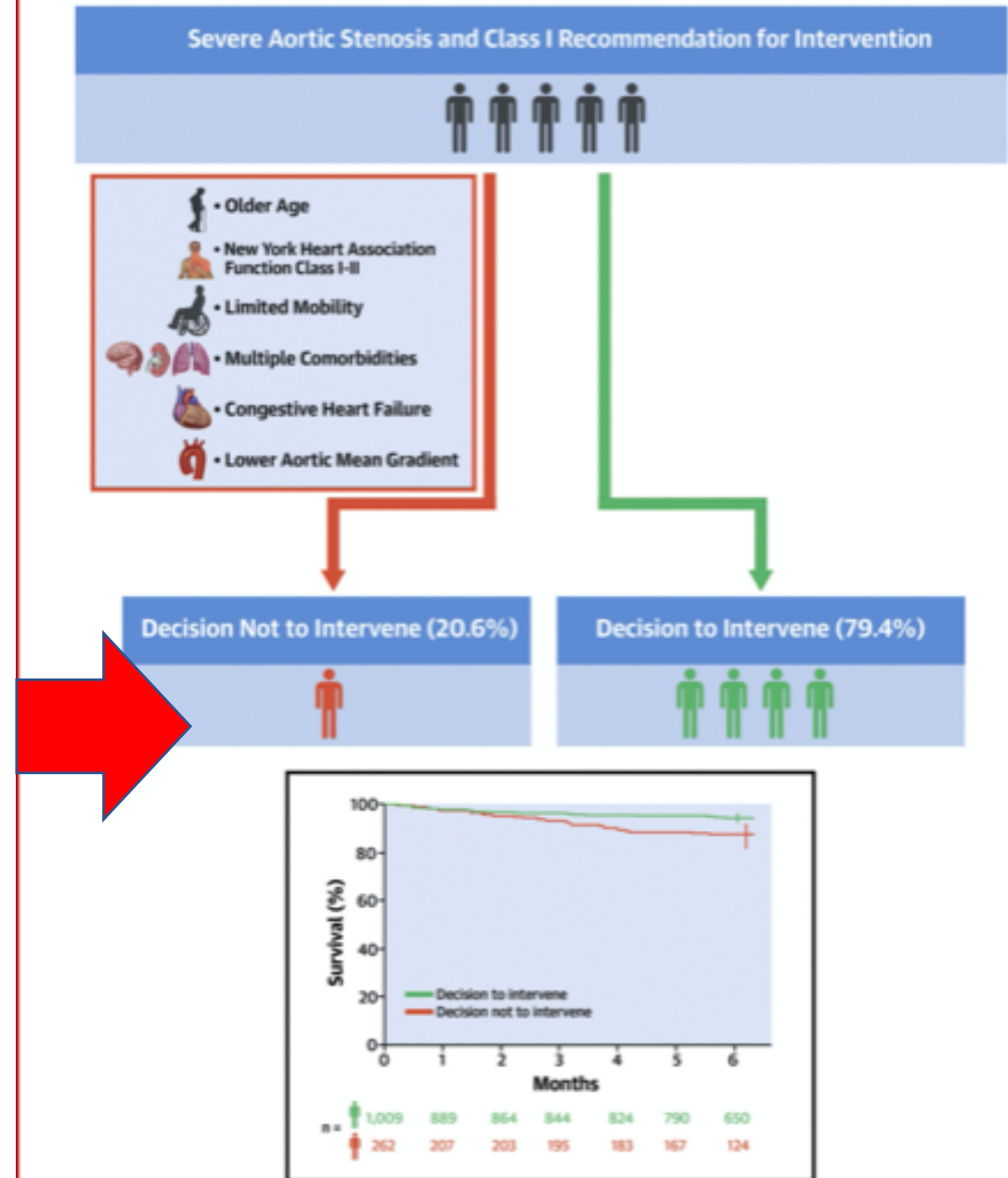
The EURObservational Research Programme Valvular Heart Disease II Survey

Supplemental Figure 2A: Concordance between guideline Class I indications and performed or scheduled intervention in symptomatic patients in University centers.

A

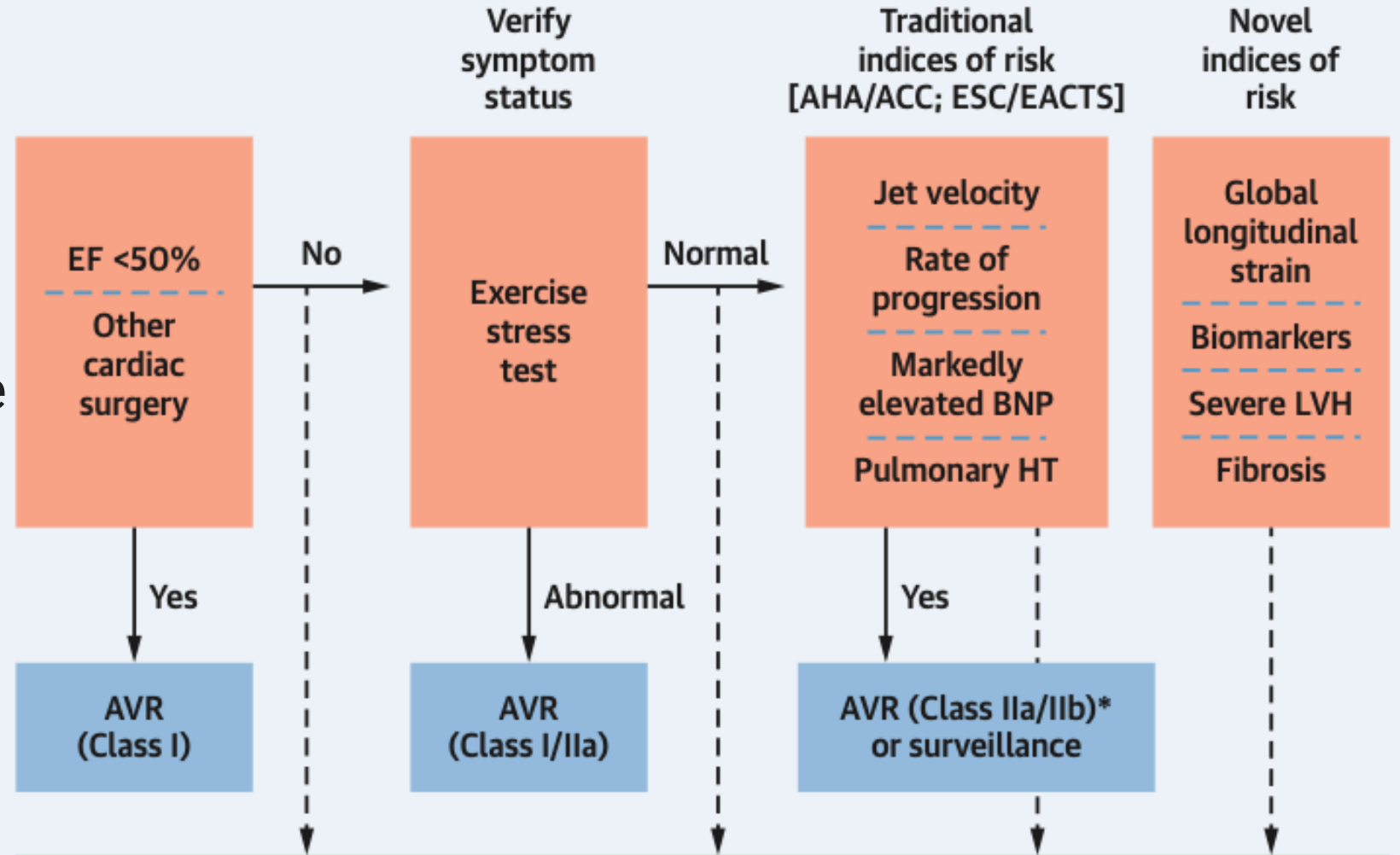


CENTRAL ILLUSTRATION: Survival at 6 Months According to the Decision for Intervention



Asymptomatic Severe AS

Low prevalence of asymptomatic severe AS with EF<50%

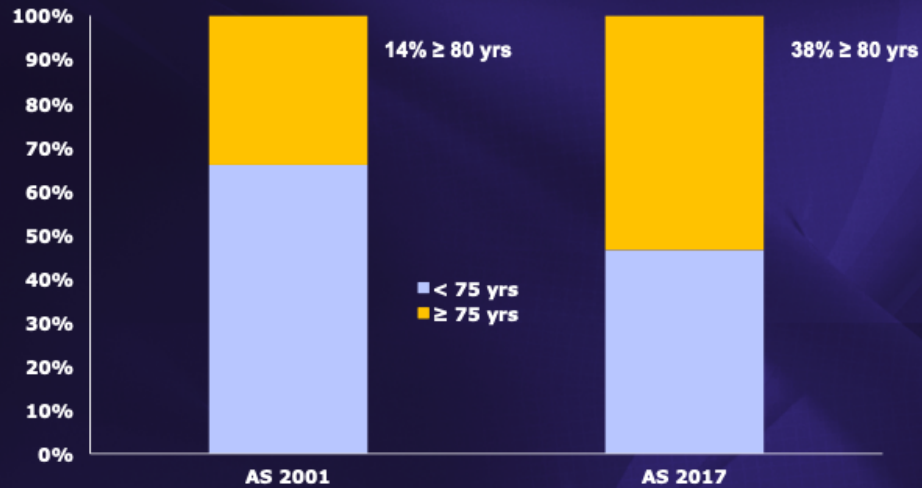


RCTs of early AVR versus clinical surveillance and delayed AVR:

- EARLY TAVR: broad inclusion, severe AS age >65 years
- EVOLVED: severe AS with elevated hsTnI and midwall fibrosis

INCREASED PREVALENCE AORTIC STENOSIS (AND) MITRAL REGURGITATION ATRIAL FIBRILLATION

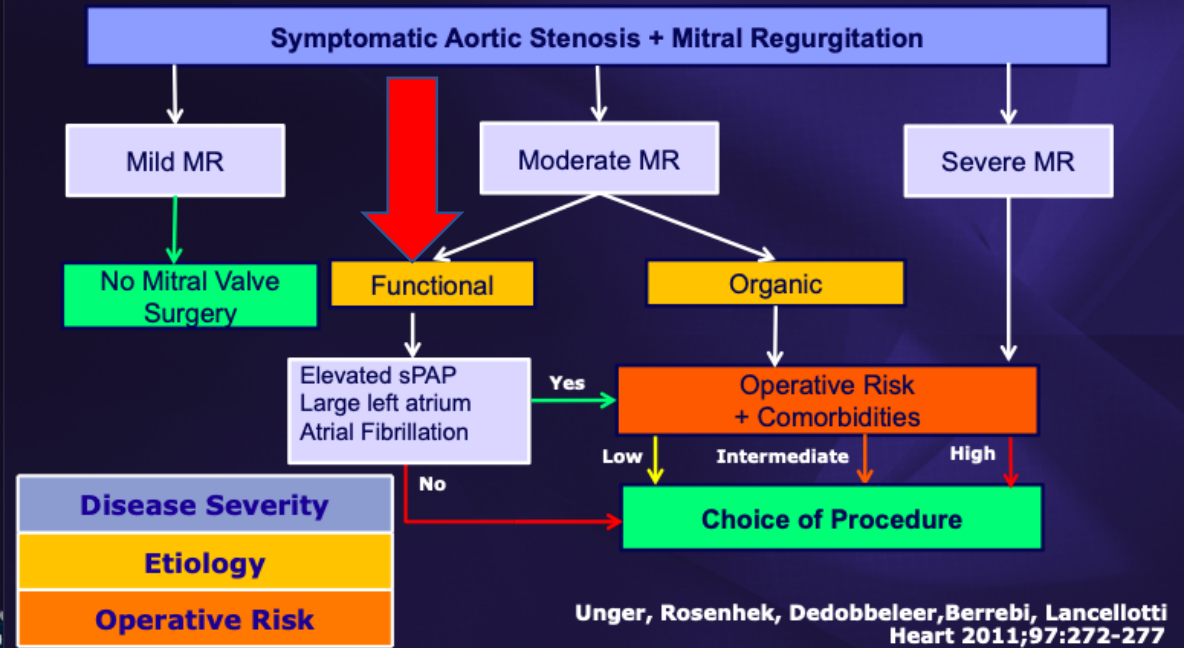
EuroHeart Survey 2001 and EORP VHD II 2017
Aortic Stenosis Age Distribution



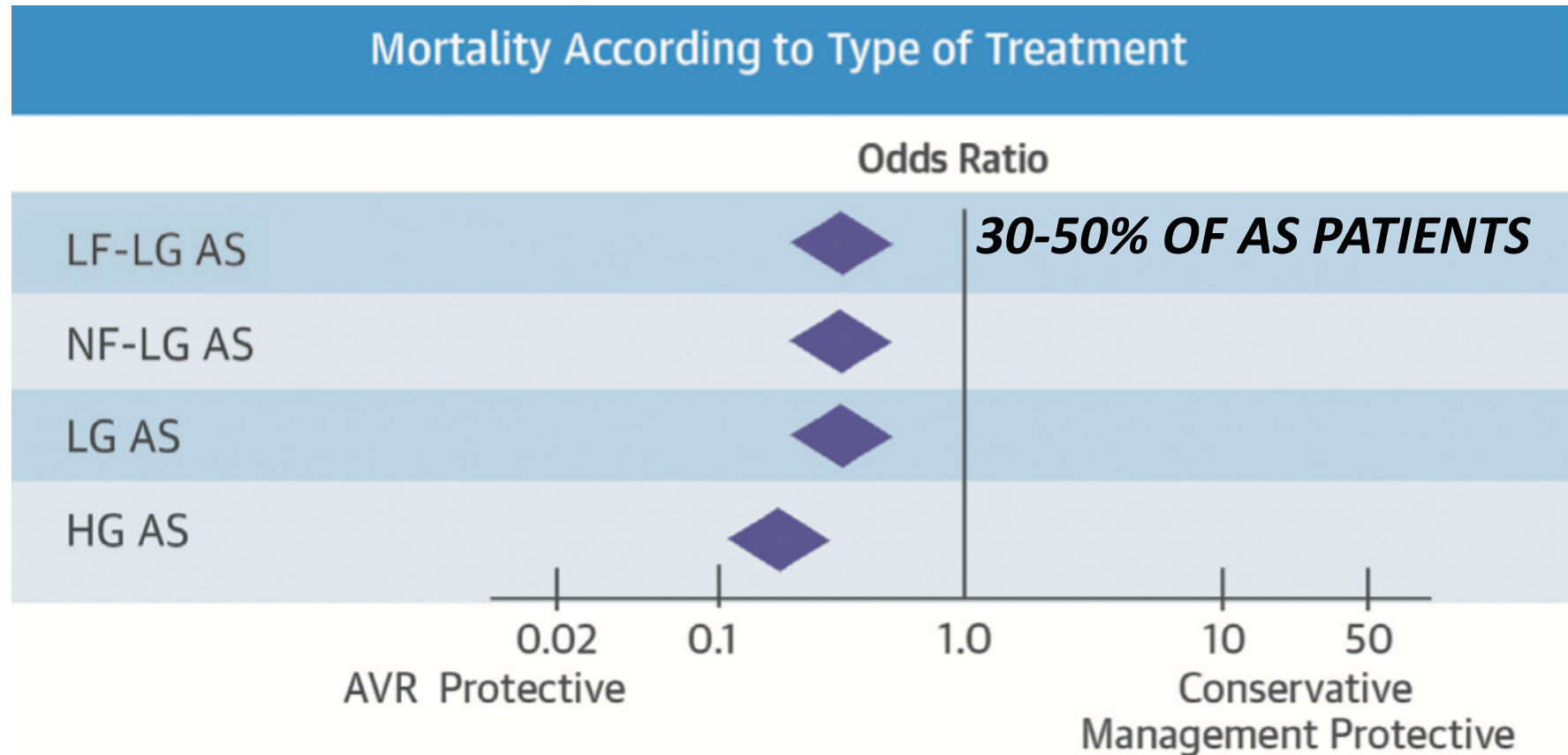
Iung B et al. ESC 2018.

Aortic Stenosis and Mitral Regurgitation

Comprehensive Assessment



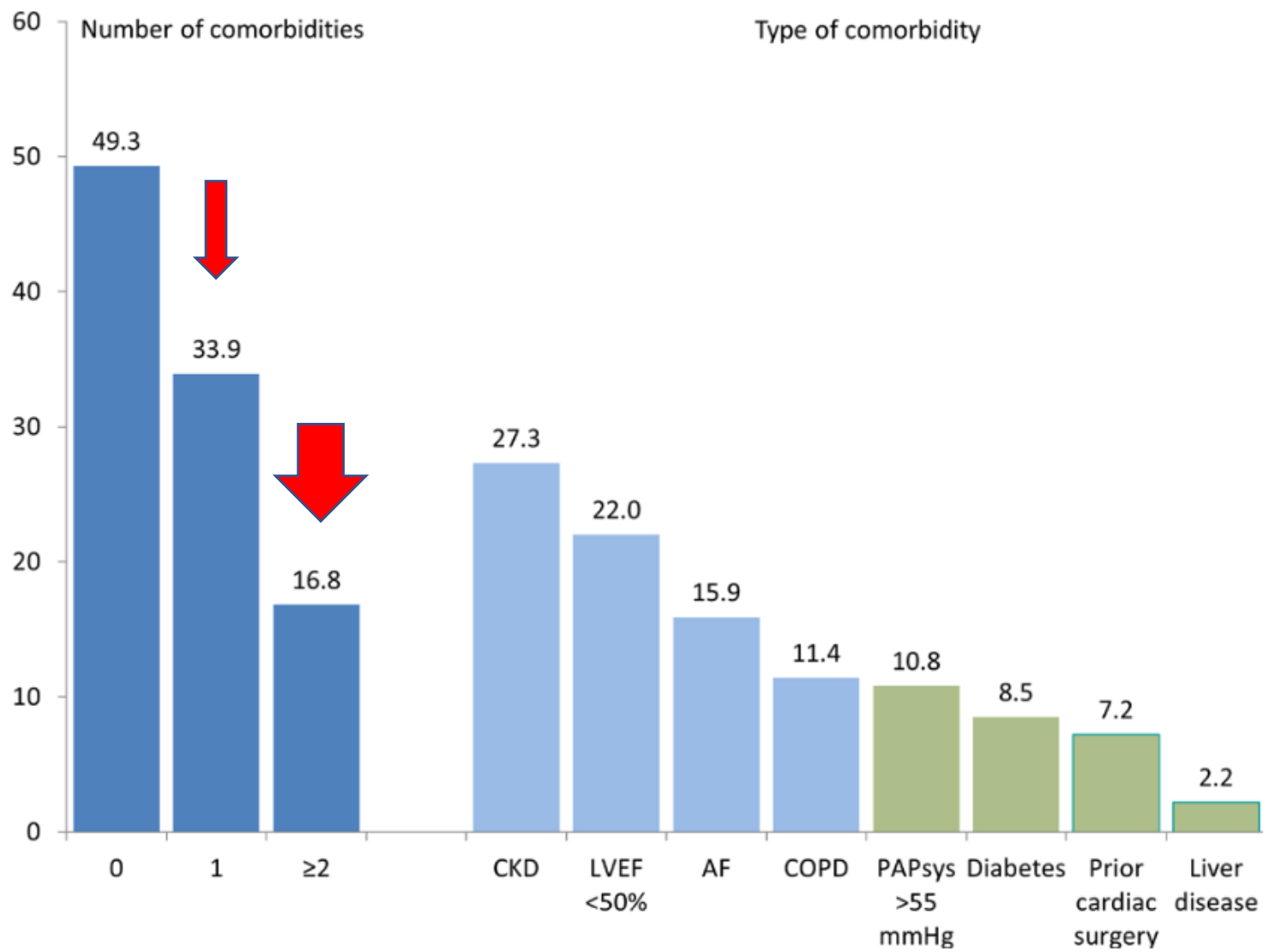
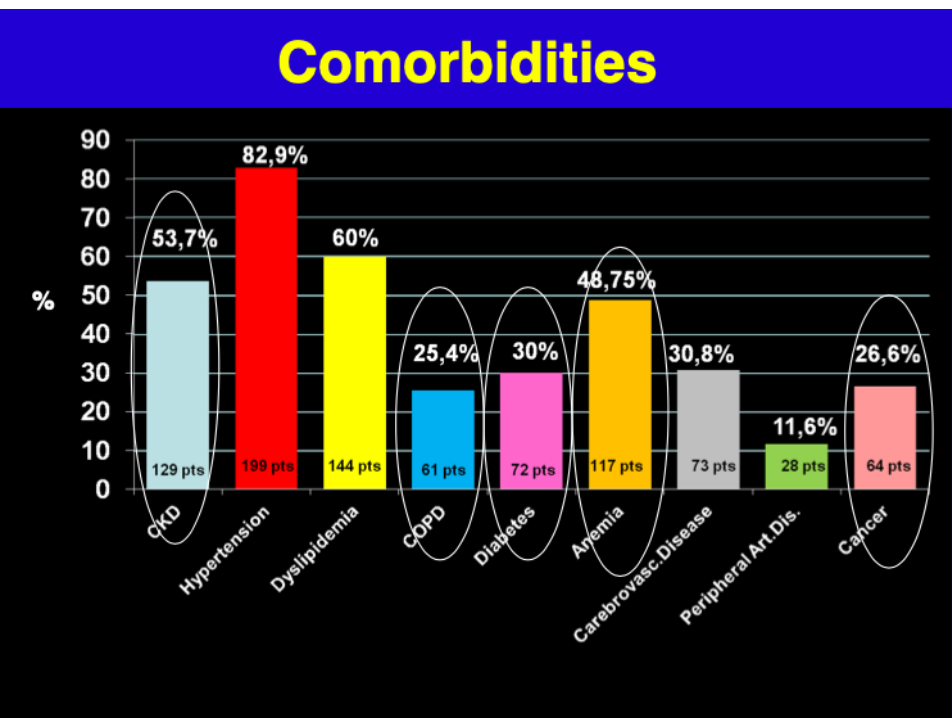
1. Benefit of AVR in all spectrum of AS pathophysiology?
Any limiting effect of low gradient in AVR?
Low gradient: Evidence of HFpEF?



ELDERLY POPULATION WITH COMORBIDITIES-AF-HYPERTENSION

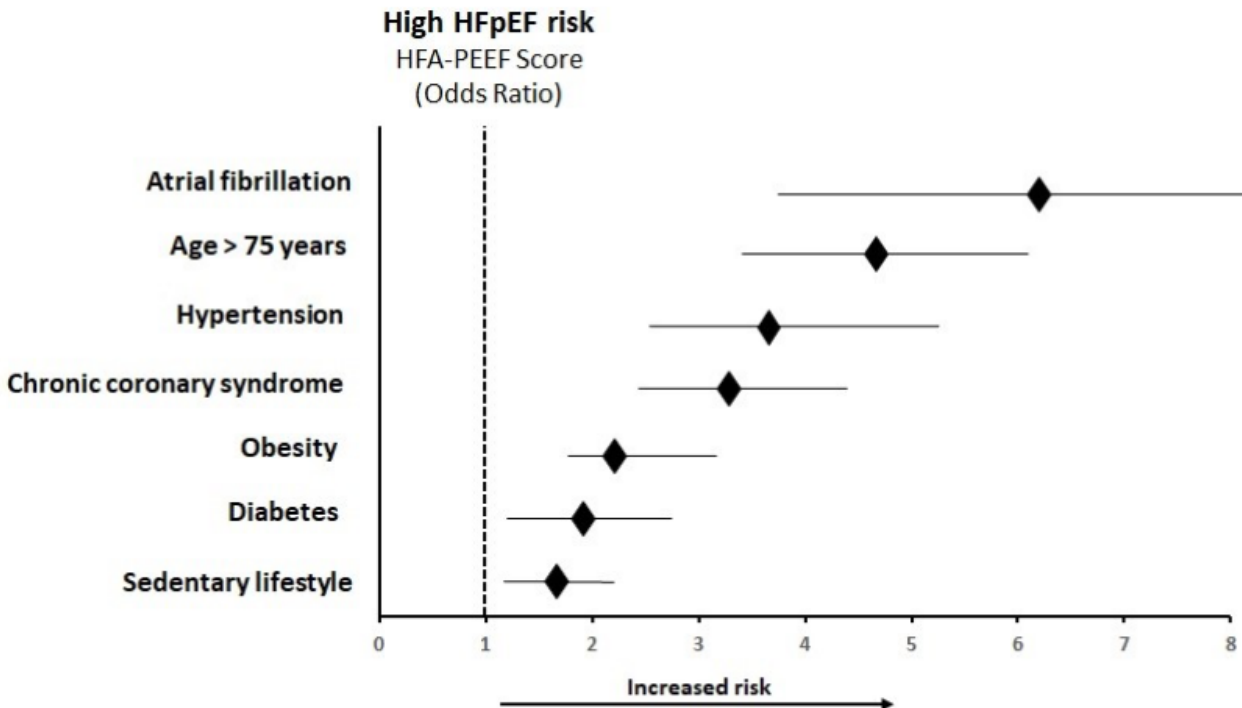
Impact of selected comorbidities on the presentation and management of aortic stenosis

Rudolph TK, et al. *Open Heart* 2020;7:e001271. doi:10.1136/openhrt-2020-001271



HPpEF and hypertension

- Key contribution of hypertension for to the HFpEF risk score
- Key predispositional phenotype of HFpEF is hypertension

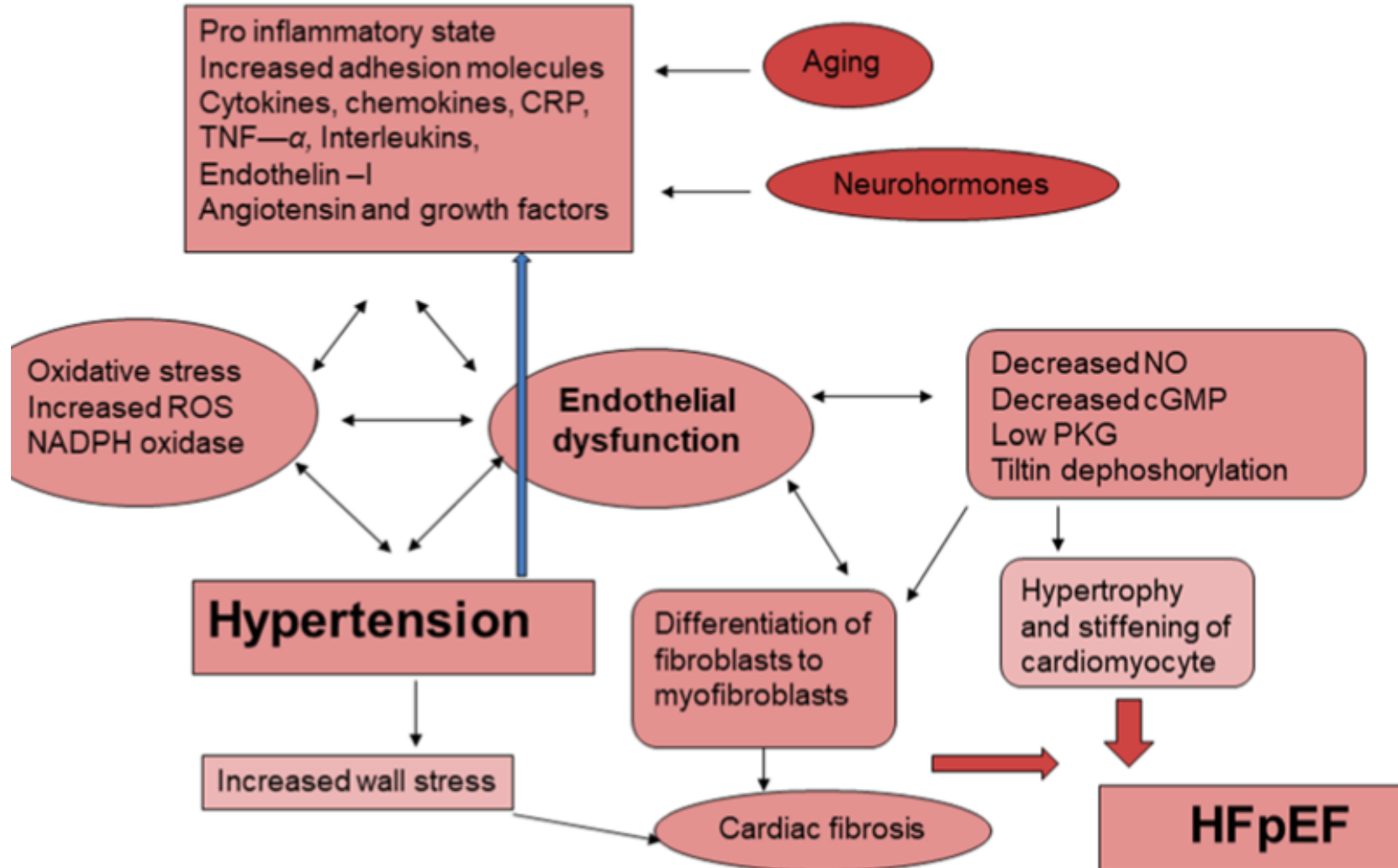


HFpEF Clinical Presentation Phenotypes						
	Lung Congestion	+Chronotropic Incompetence	+Pulmonary Hypertension (CpcPH)	+Skeletal muscle weakness	+Atrial Fibrillation	
HFpEF Predisposition Phenotypes	Overweight/obesity/ metabolic syndrome/ type 2 DM	<ul style="list-style-type: none"> • Diuretics (loop diuretic in DM) • Caloric restriction • Statins • Inorganic nitrite/nitrate • Sacubitril • Spironolactone 	+Rate adaptive atrial pacing	+Pulmonary vasodilators (e.g. PDE5I)	+Exercise training program	+Cardioversion + Rate Control +Anticoagulation
+Arterial hypertension	+ACEI/ARB	+ACEI/ARB +Rate adaptive atrial pacing	+ACEI/ARB +Pulmonary vasodilators (e.g. PDE5I)	+ACEI/ARB +Exercise training program	+ACEI/ARB +Cardioversion + Rate Control +Anticoagulation	
+Renal dysfunction	+Ultrafiltration if needed	+Ultrafiltration if needed +Rate adaptive atrial pacing	+Ultrafiltration if needed +Pulmonary vasodilators (e.g. PDE5I)	+Ultrafiltration if needed +Exercise training program	+Ultrafiltration if needed +Cardioversion + Rate Control +Anticoagulation	
+CAD	+ACEI +Revascularization	+ACEI +Revascularization +Rate adaptive atrial pacing	+ACEI +Revascularization +Pulmonary vasodilators (e.g. PDE5I)	+ACEI +Revascularization +Exercise training program	+ACEI +Revascularization +Cardioversion + Rate Control +Anticoagulation	

Changing paradigm for hypertension

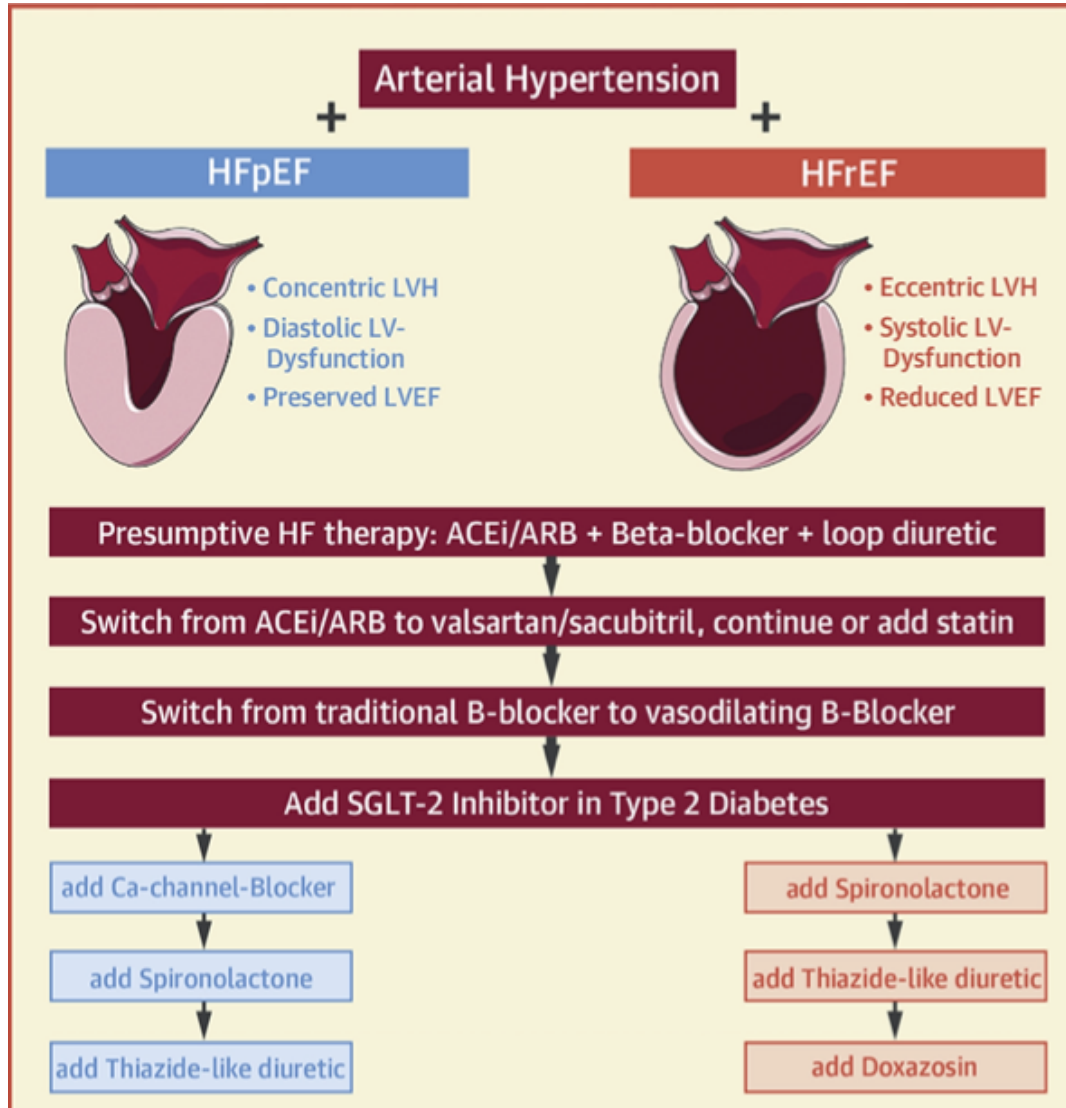
Role of inflammation-endothelial dysfunction

Similar pathophysiology to HFpEF

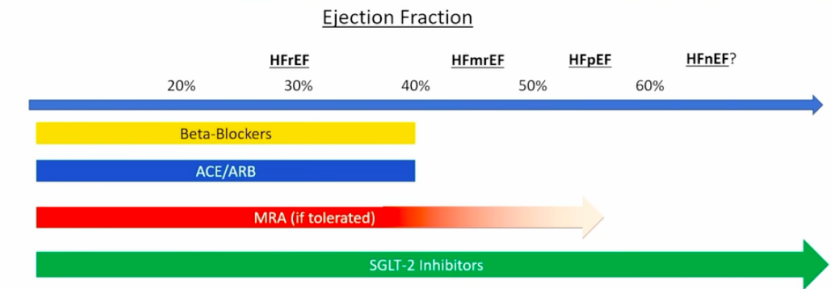


UNIFIED CONCEPT FOR HFpEF /HYPERTENSION TREATMENT

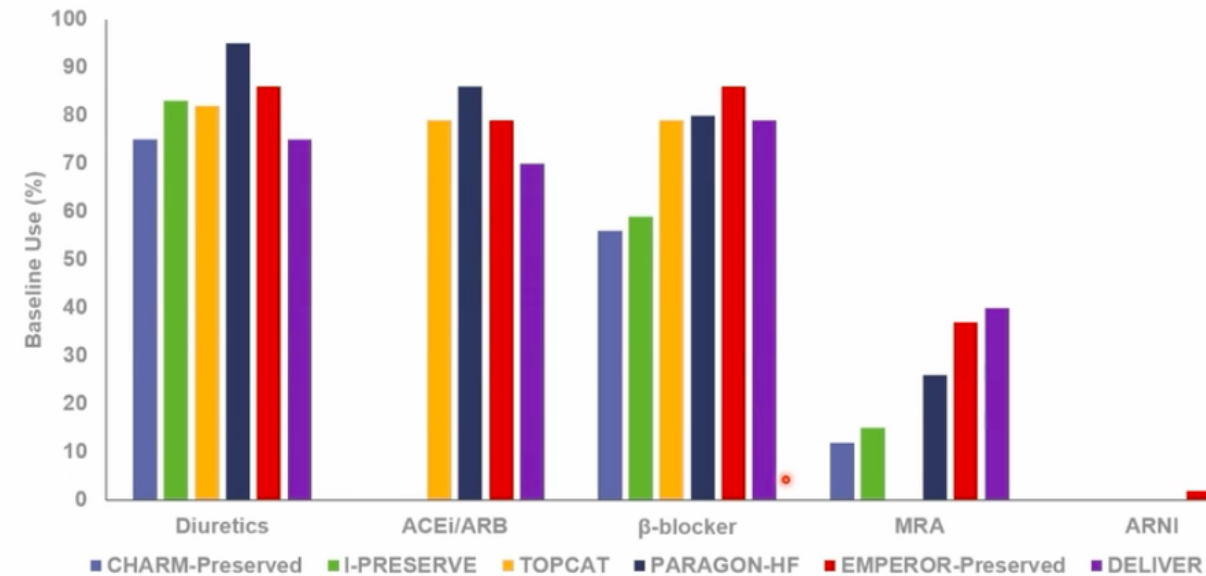
EVOLVING PLURALISM IN THERAPY



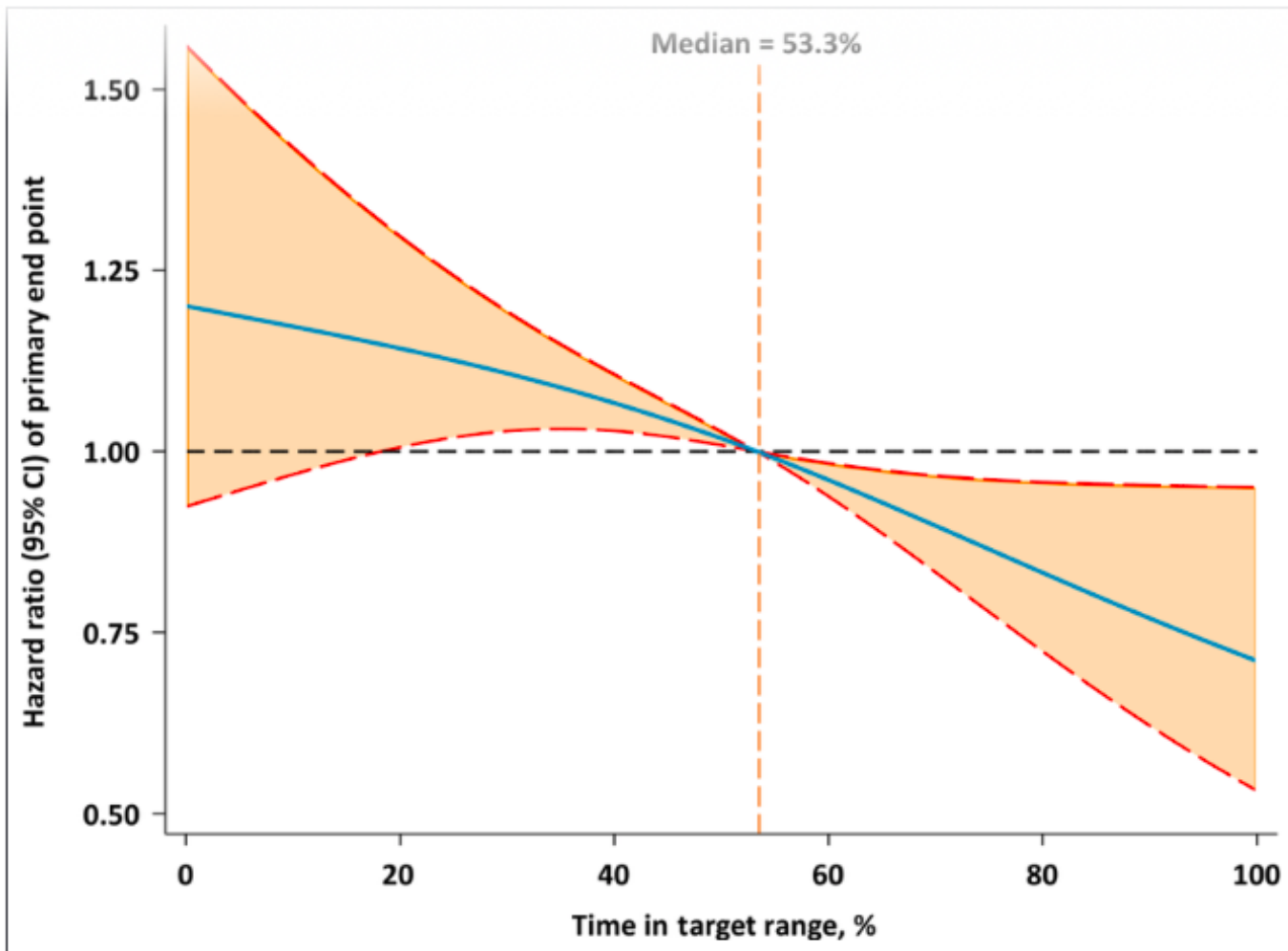
Pharmacologic Treatment of Heart Failure in 2022



Medication use in HFpEF Trials



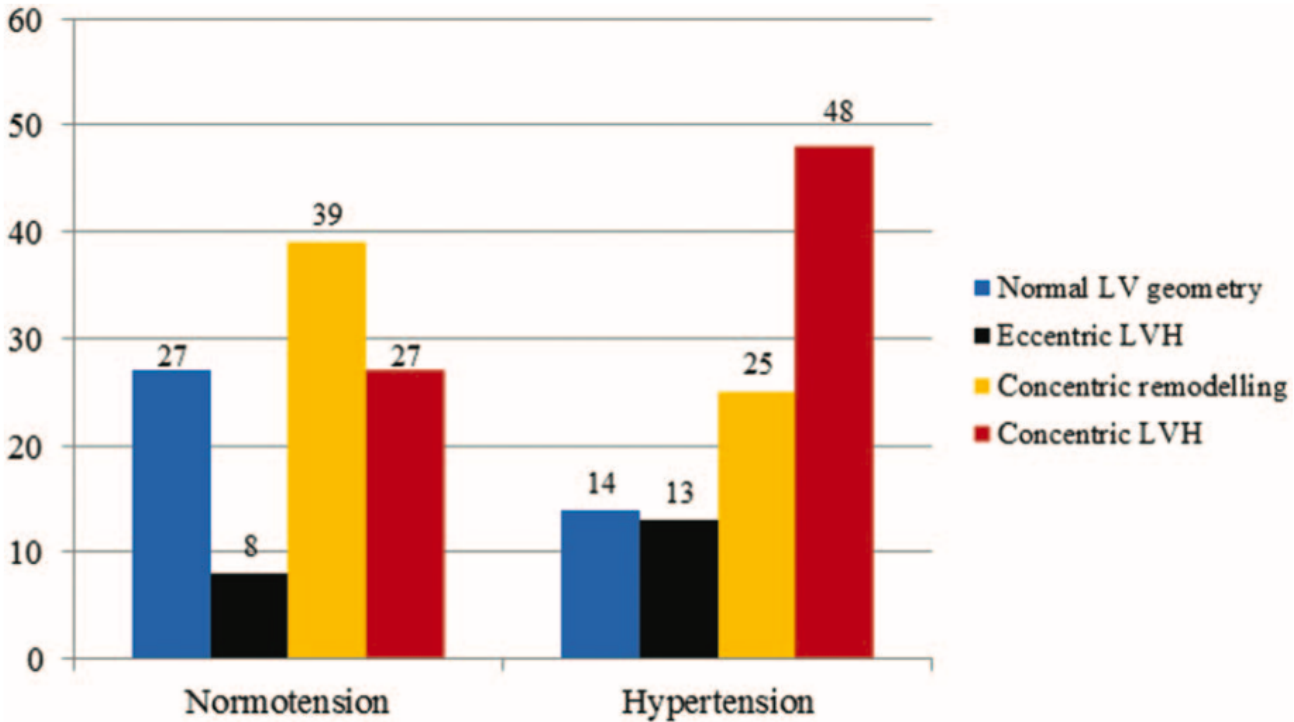
Extended duration related efficacy of blood pressure control improves the outcome in HFpEF data from “failed trial” TOPCAT



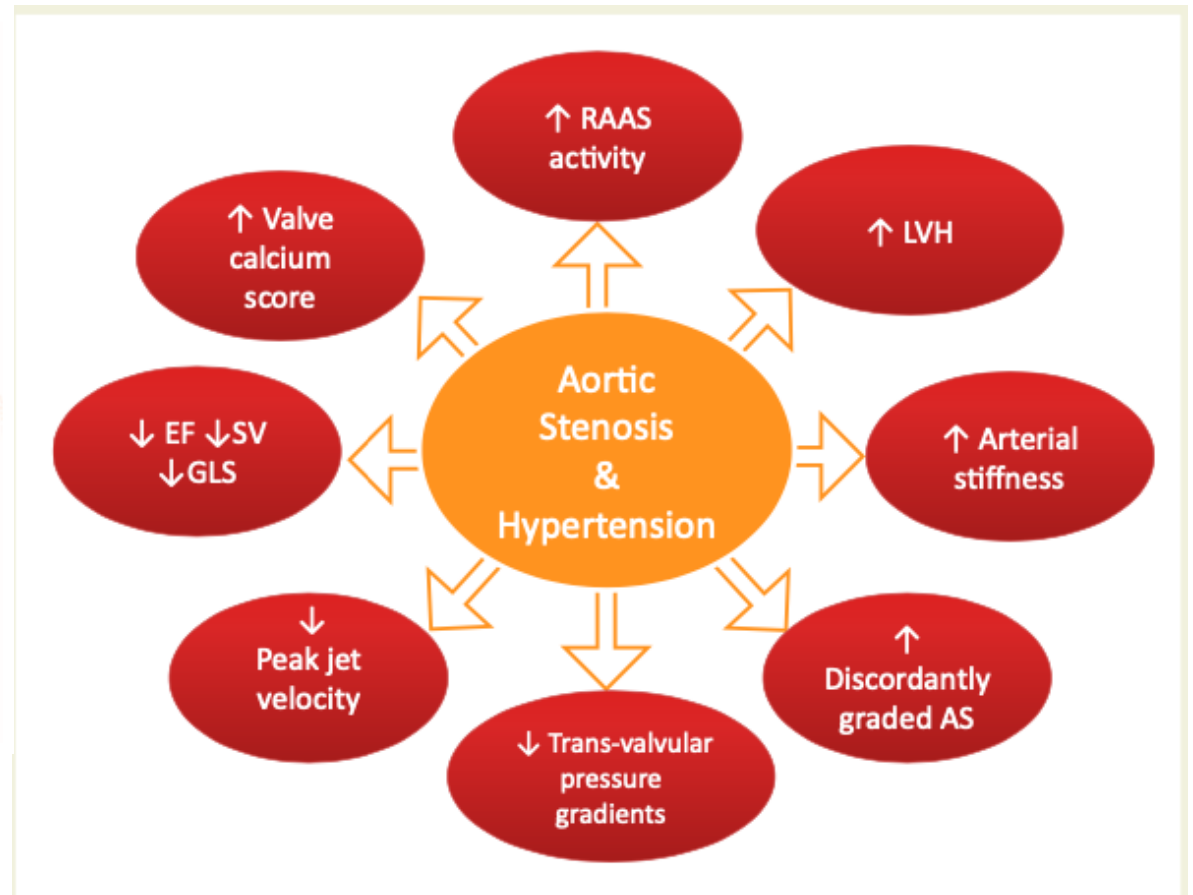
HYPERTENSION IN AORTIC STENOSIS

An inappropriate relationship

Effect on LV structure



Multiparametric effect



Hypertension adverse effect on AS prognosis

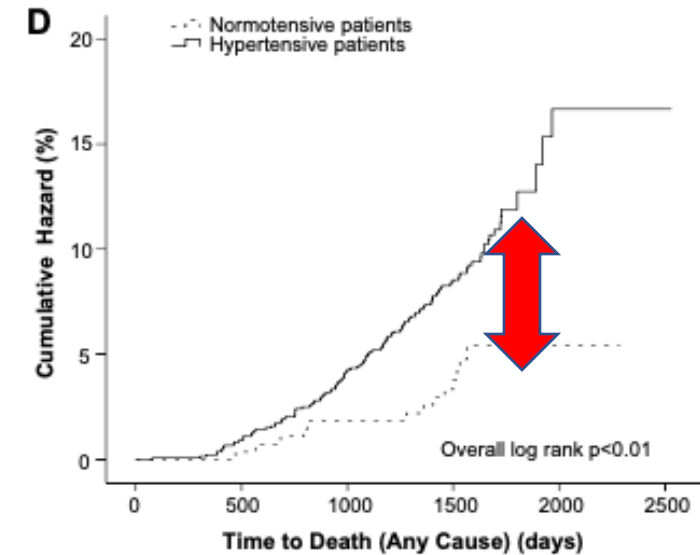
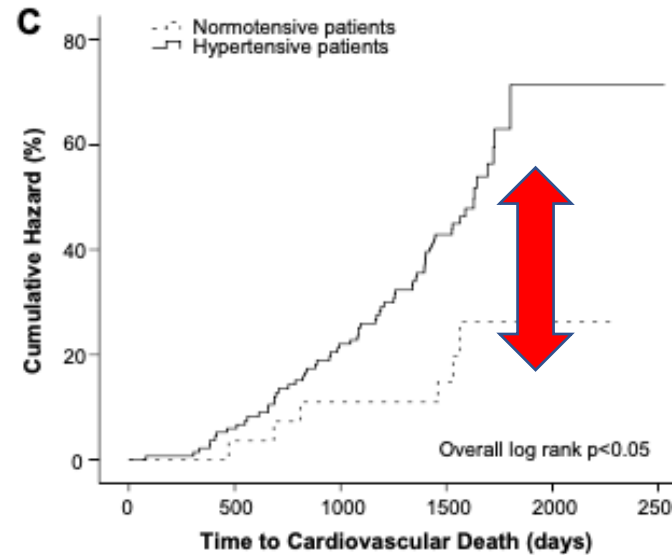
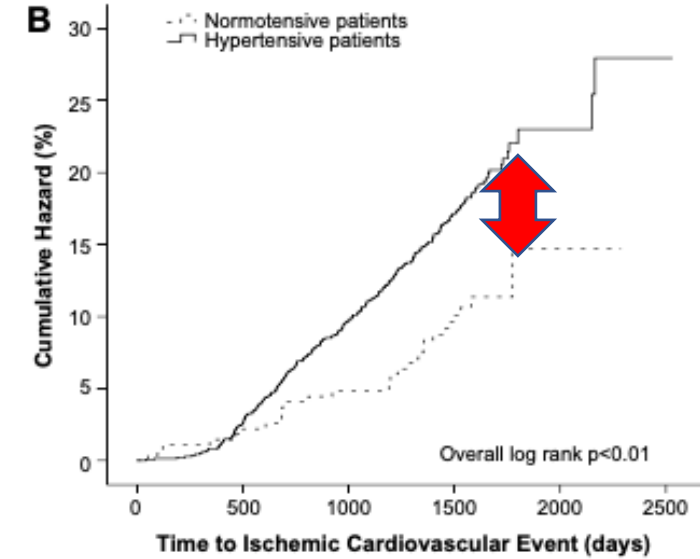
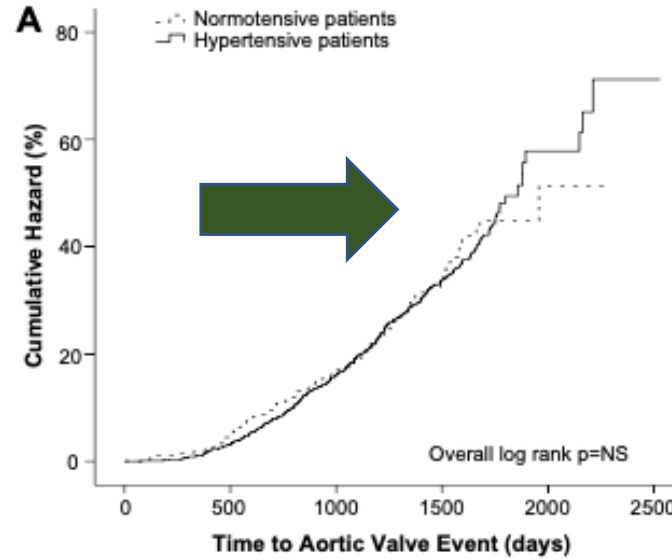
±75%

Isolated Systolic

50% more ischemic events

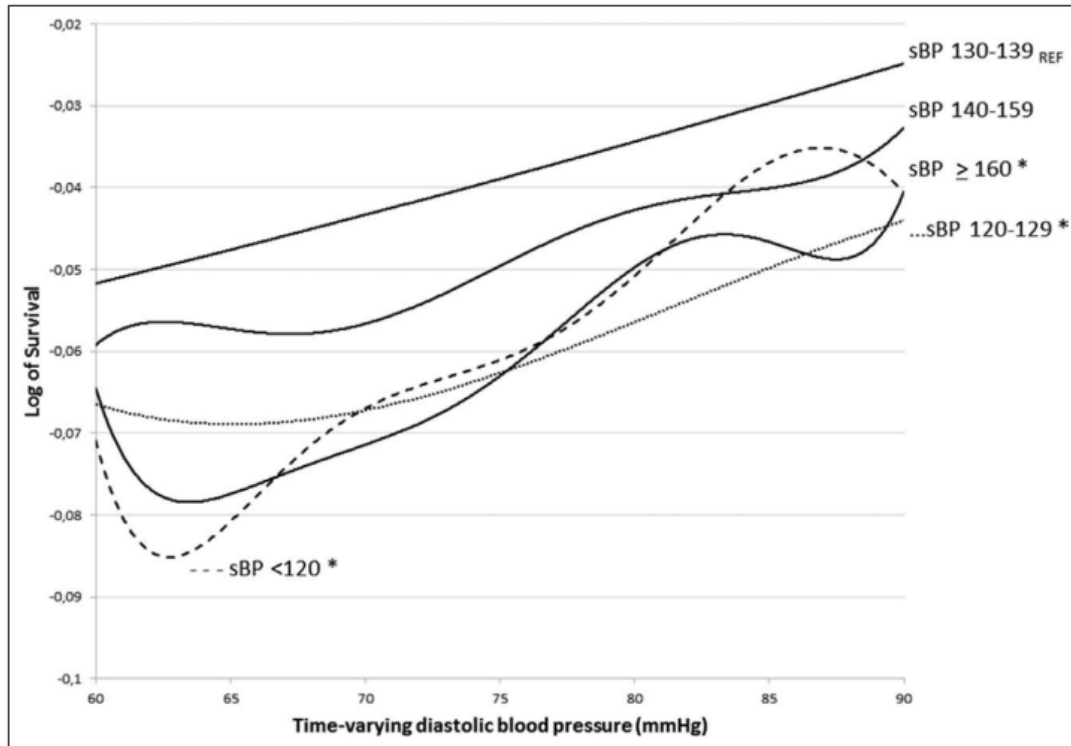
2-fold higher mortality

Does not Increased rate for AVR)

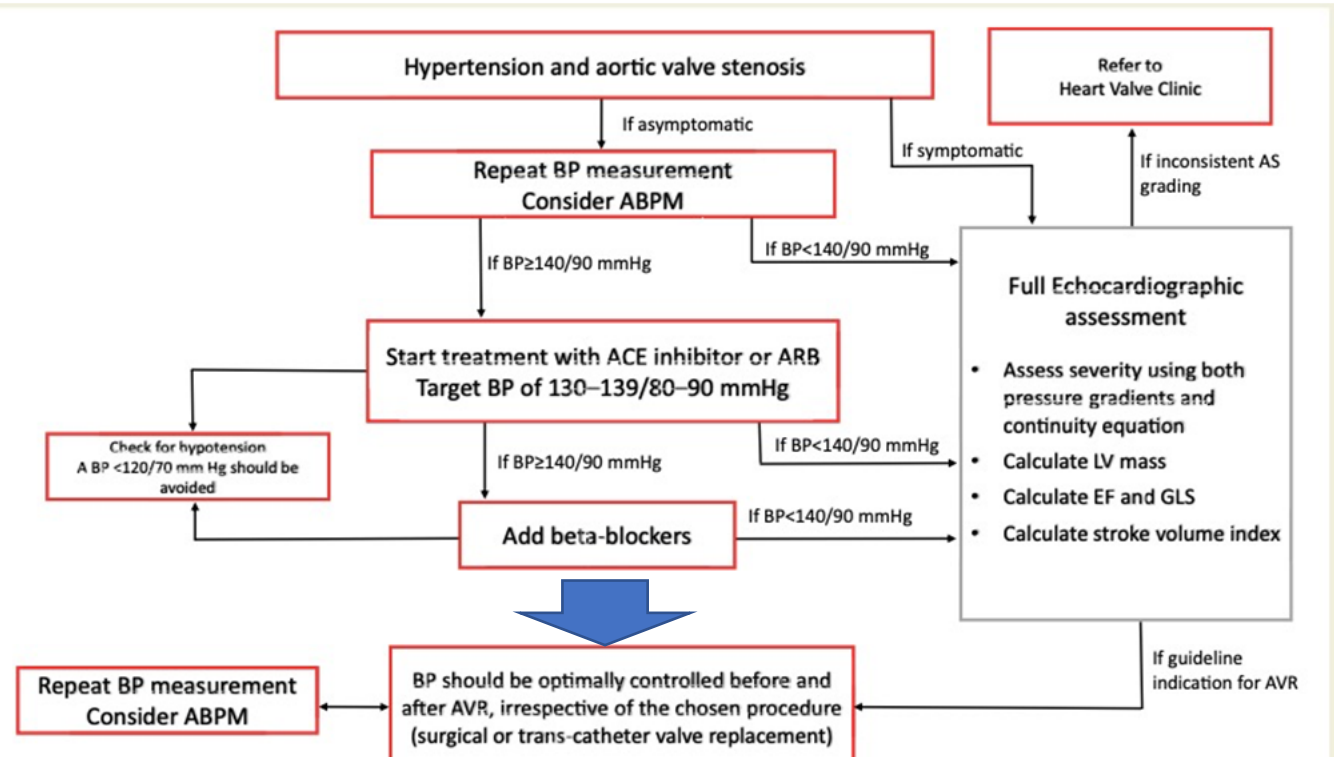


Optimization of BP control in AS

SEAS study

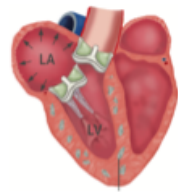


Management of patients with combined arterial hypertension and aortic valve stenosis: a consensus document from the Council on Hypertension and Council on Valvular Heart Disease of the European Society of Cardiology, the European Association of Cardiovascular Imaging (EACVI), and the European Association of Percutaneous Cardiovascular Interventions (EAPCI)



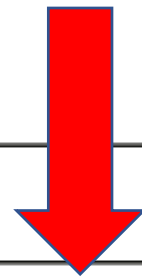
HFpEF prevalence post valve surgery

Negative prognosis



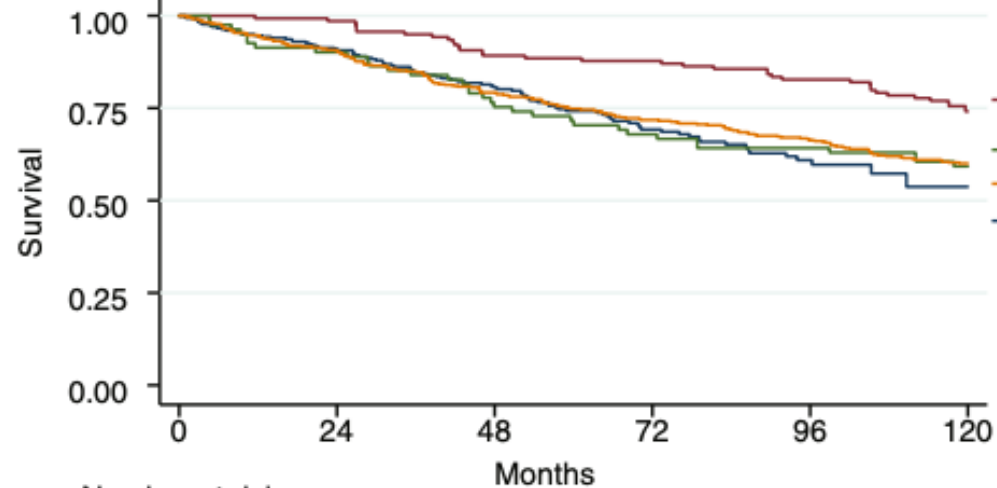
Patients late after left-sided surgery
n=673

HFA-PEFF score 4.7±1.3
HFA-PEFF score ≥5 55.6%



HF Guideline Definition

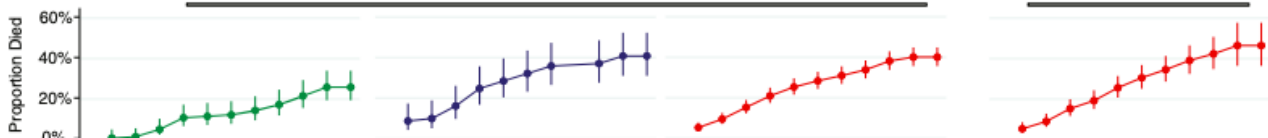
	No HF	HFmrEF / HFrEF	HFpEF
Proportion	20.7%	11.6%	67.3%
Icon			



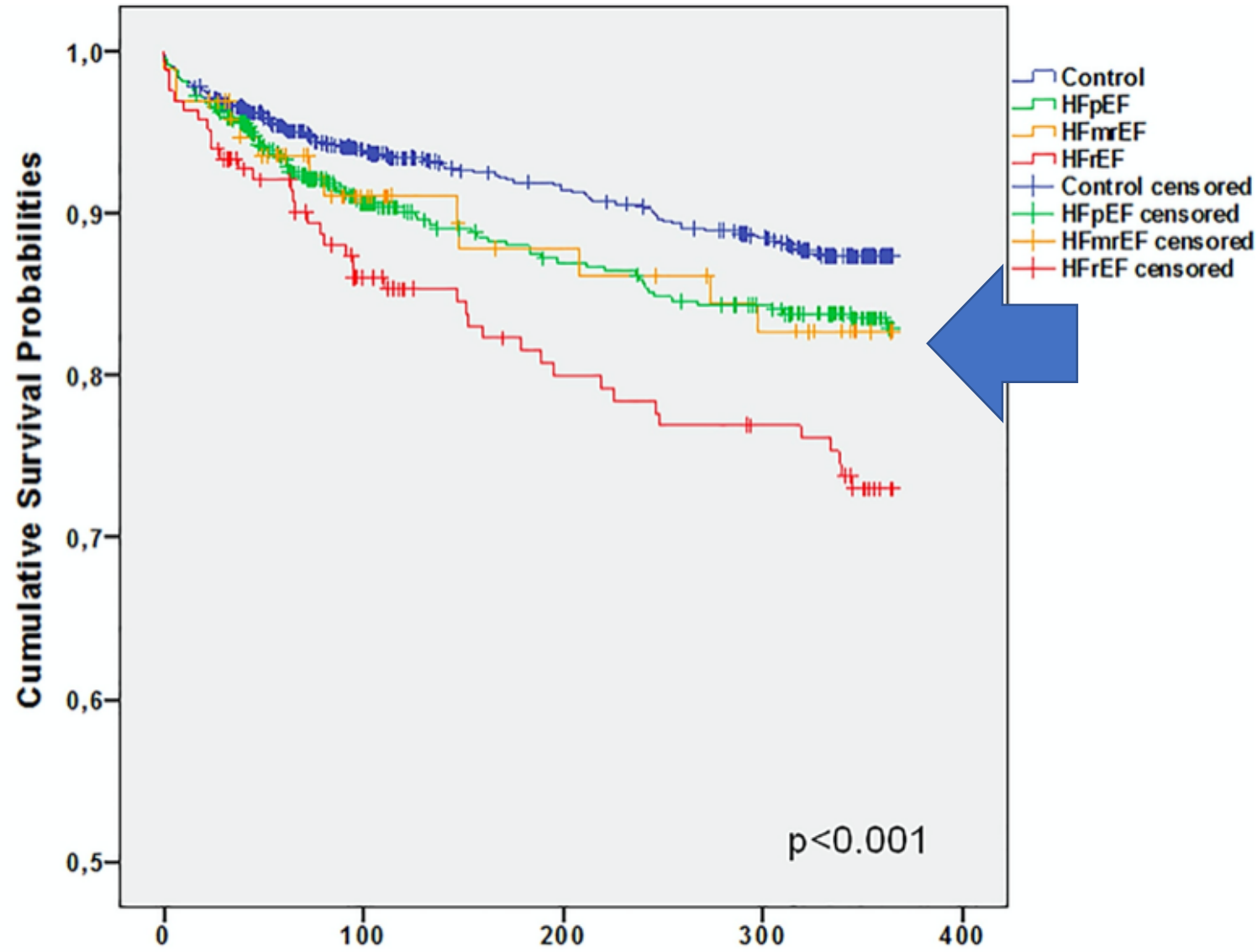
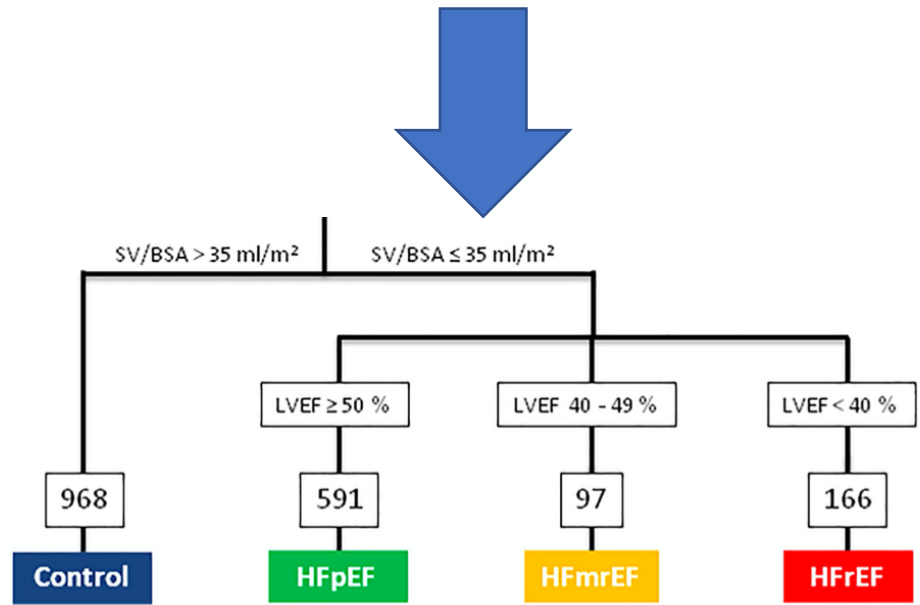
Number at risk

Months	0	24	48	72	96	120
Cardiac Surgery, no HF	300	272	191	114	51	5
Cardiac Surgery, HFmrEF/HFrEF	138	137	124	122	115	103
Cardiac Surgery, HFpEF	81	73	61	55	52	48
No cardiac surgery, HFpEF	454	407	345	303	276	245

- Cardiac Surgery, no HF
- Cardiac Surgery, HFmrEF/HFrEF
- Cardiac Surgery, HFpEF
- No cardiac surgery, HFpEF



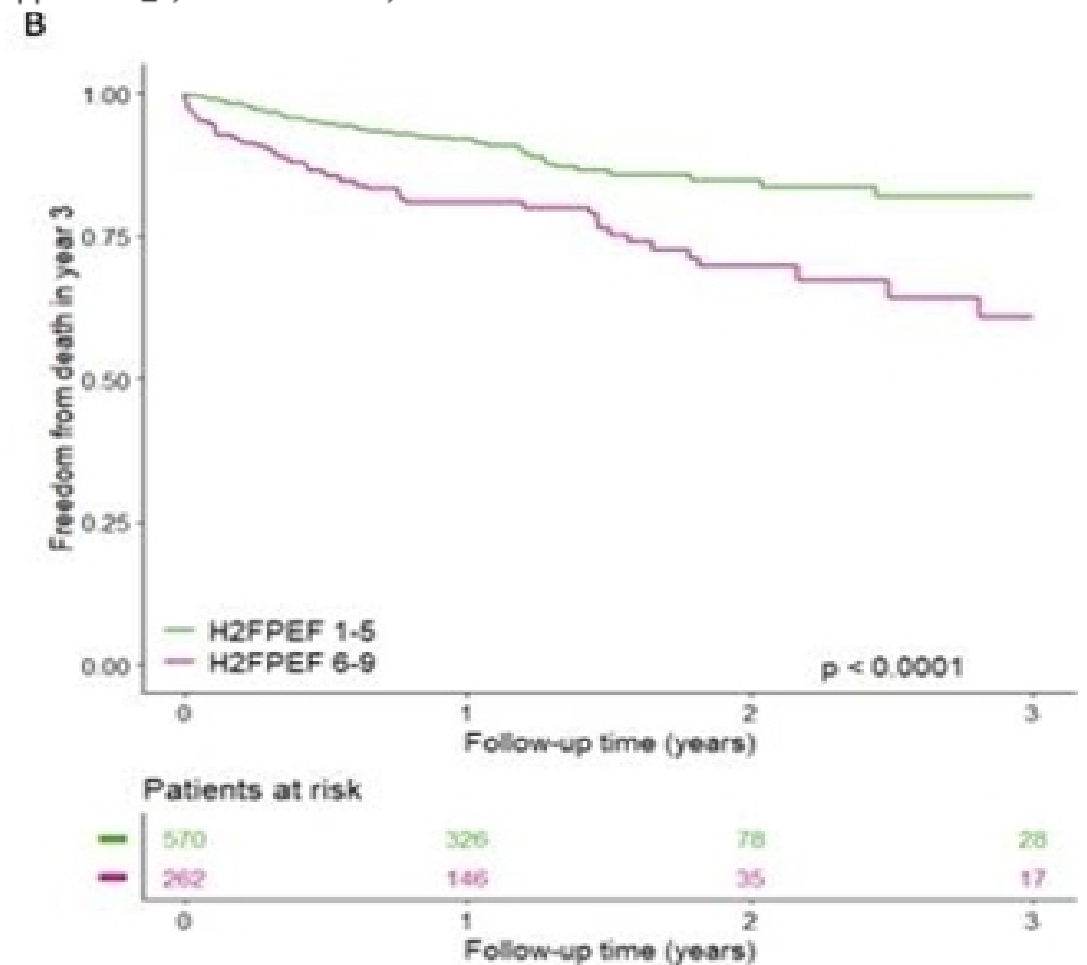
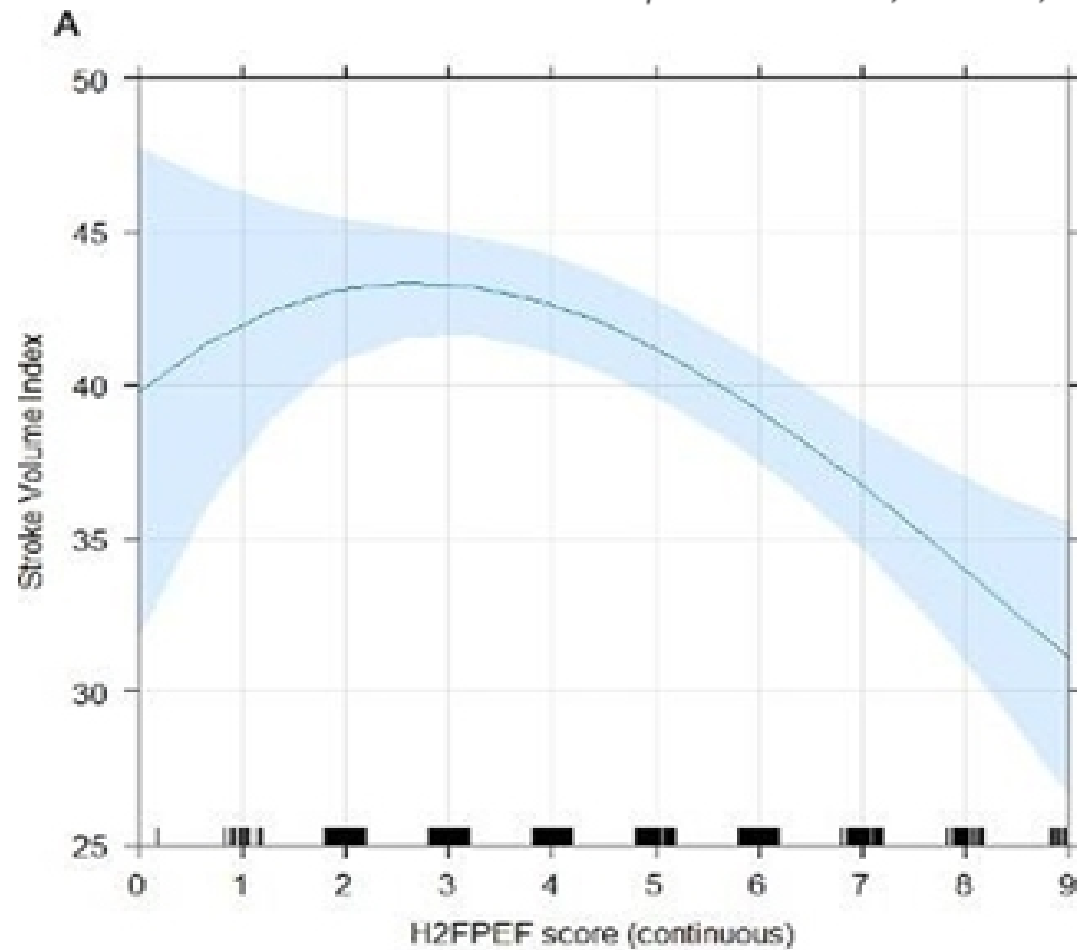
negative effect of HFpEF in the post TAVI outcome: similar to HFmEF



The adverse impact of HFpEF in patients with aortic stenosis: evaluation of the H2FPEF score for risk assessment among patients with preserved ejection fraction undergoing TAVI

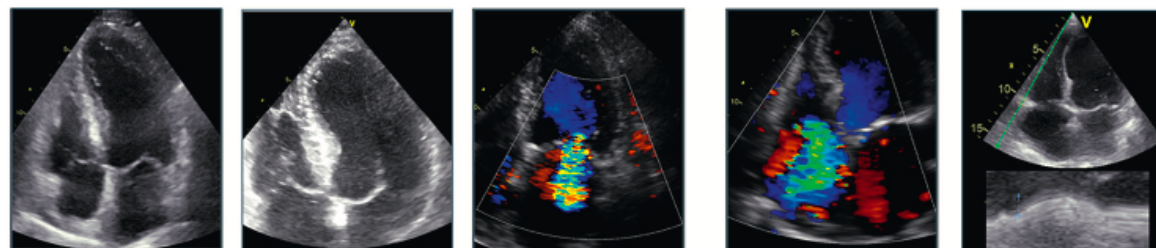
S Ludwig, C Pellegrini, A Gossling, T Rheude, L Waldschmidt, O.D Bhadra, M Linder, J Schirmer, M Seiffert, H Reichenspurner ... [Show more](#)

European Heart Journal, Volume 41, Issue Supplement_2, November 2020,



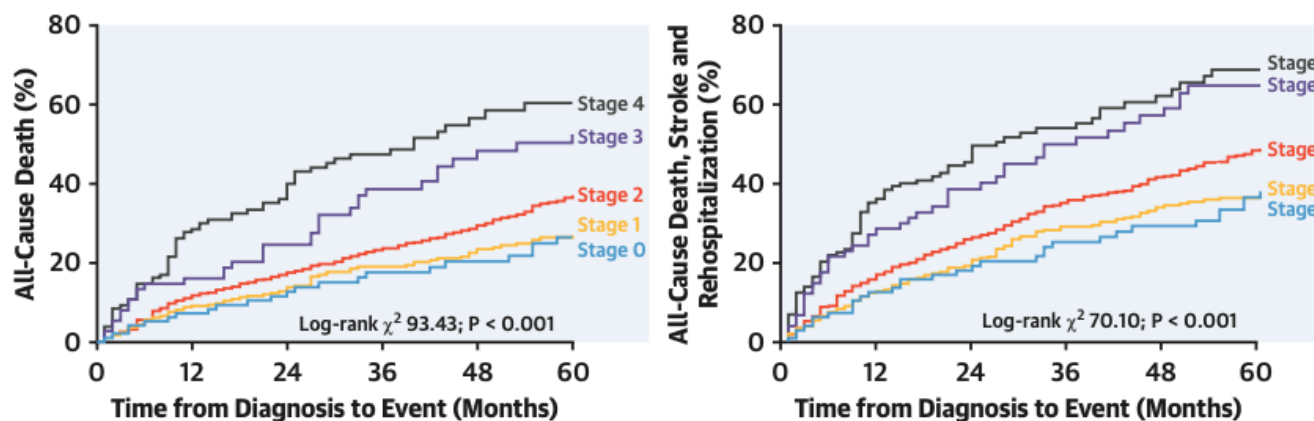
in severe symptomatic AS (age 75 ± 11)
 presence of LV damage (stage 1: $EF < 50\%$ or LVH or $E/e' > 14$)
 does not affect outcome post AVR (!)

Staging Classification According to Extent of Cardiac Damage



	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4
	No cardiac damage	Left ventricular damage	Left atrial or mitral valve damage	Pulmonary vasculature or tricuspid valve damage	Right ventricular damage
Prevalence in cohort	8% (N = 97)	24% (N = 282)	49% (N = 588)	7% (N = 82)	12% (N = 140)

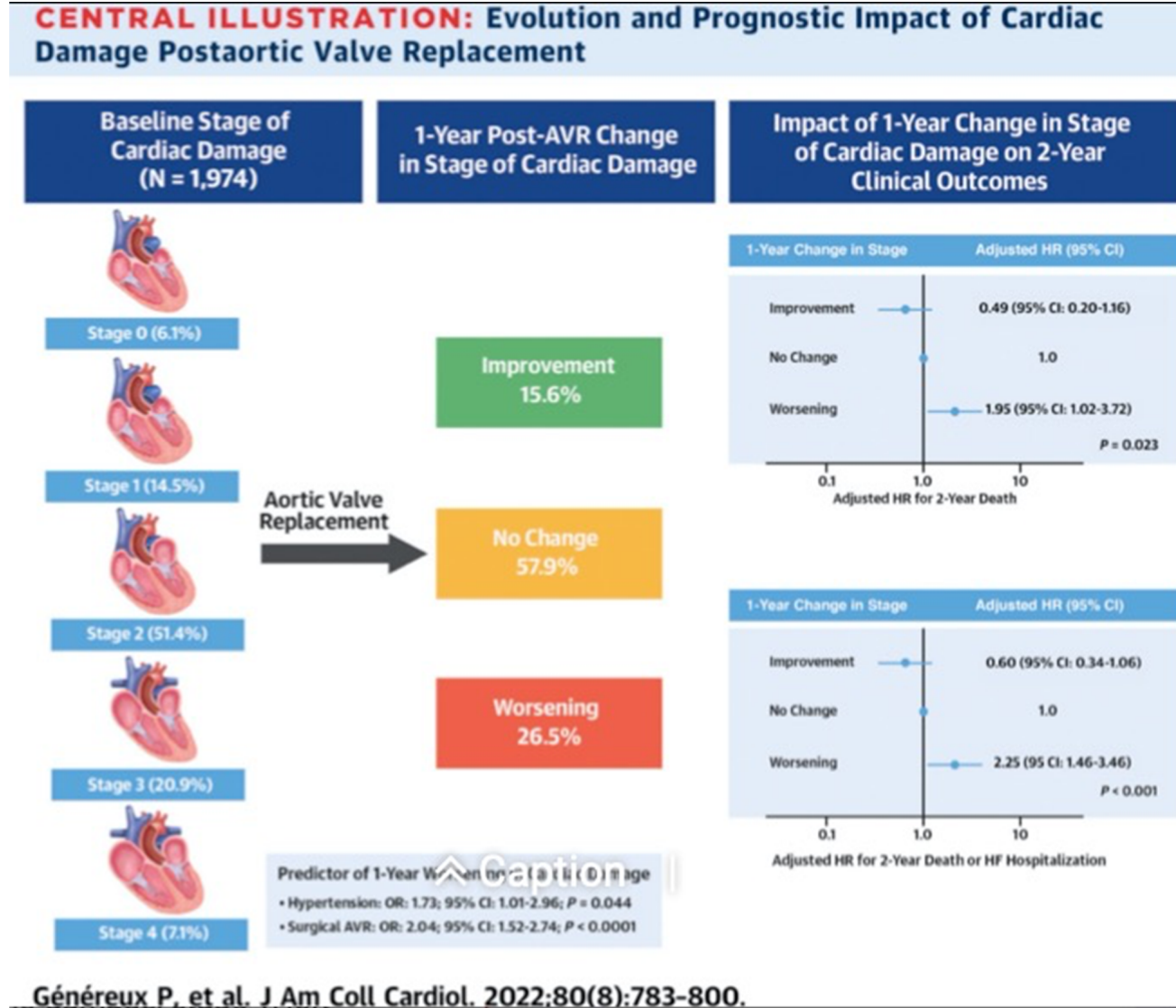
Outcomes According to Stages of Cardiac Damage



50% TAVI
 50% surgical
 ←

Post TAVI, fail to improve cardiac damage (improvement only in 16%)

Potential role of age >75



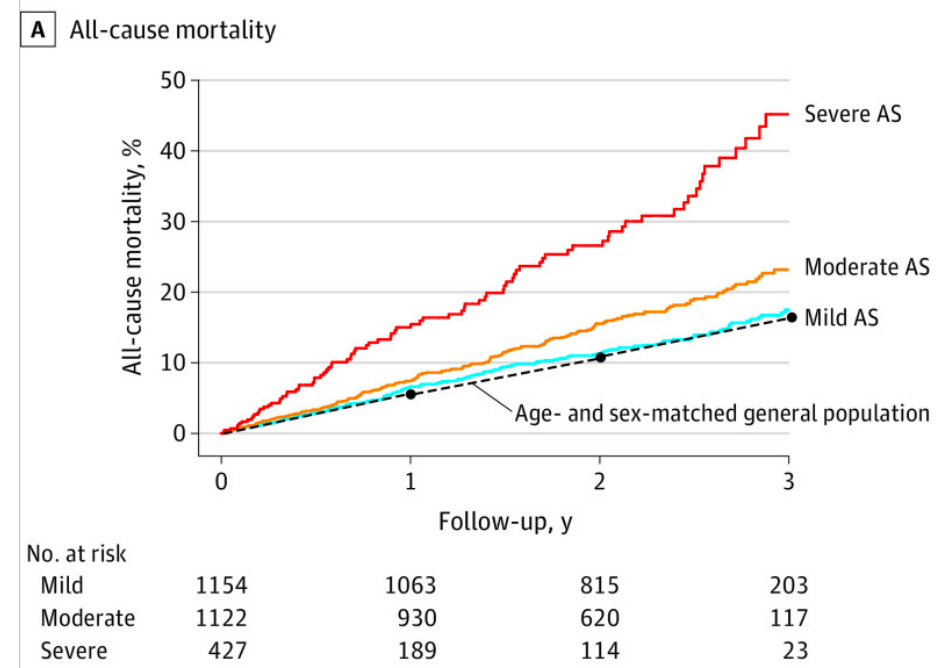
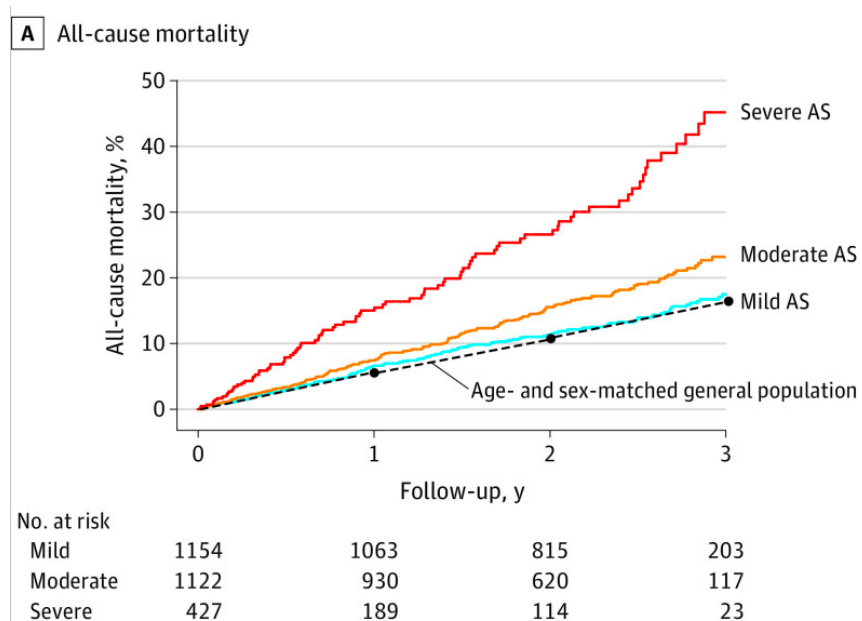
Moderate AS in outpatients (VALVENOR study)

Association of Mortality With Aortic Stenosis Severity in Outpatients

Results From the VALVENOR Study

Augustin Coisne, MD, PhD, David Montaigne, MD, PhD, [...],
and Christophe Bauters, MD

Asymptomatic moderate AS is not exposed to an increased risk of mortality



Characteristics and Prognosis of Patients With Moderate Aortic Stenosis and Preserved Left Ventricular Ejection Fraction

Geraud Delesalle, MD;* Yohann Bohbot, MD;* Dan Rusinaru, MD, PhD; Quentin Delpierre, MD; Sylvestre Maréchaux, MD, PhD; Christophe Tribouilloy, MD, PhD

Clinical Perspective

What Is New?

AGE

ATRIAL FIBRILLATION

COMORBIDITIES

CHARLSON INDEX

- Patients with moderate aortic stenosis (AS) have an increased mortality compared with the general population, mainly related to associated comorbidities.
- Cardiovascular risk factors are frequent in patients with moderate AS and must be appropriately managed.
- The cumulative incidence of aortic valve replacement at 6 years is high, reaching 30%.

Impact of Moderate Aortic Stenosis on Long-Term Clinical Outcomes: A Systematic Review and Meta-Analysis

Augustin Coisne¹, Andrea Scotti², Azeem Latib³, David Montaigne⁴, Edwin C Ho³, Sebastian Ludwig⁵, Thomas Modine⁶, Philippe Généreux⁷, Jeroen J Bax⁸, Martin B Leon⁹, Christophe Bauters¹⁰, Juan F Granada⁹

> Heart. 2022 Jun 13;heartjnl-2022-320897. doi: 10.1136/heartjnl-2022-320897.

Online ahead of print.

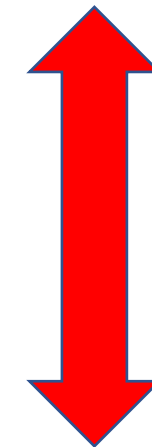
Diabetes mellitus and cardiovascular mortality across the spectrum of aortic stenosis

Augustin Coisne^{1 2 3}, David Montaigne⁴, Sandro Ninni⁴, Nicolas Lamblin⁵, Gilles Lemesle⁵, Pascal Delsart⁴, Alexandre Filiot⁶, Paul Andrey⁶, Pierre Balaye⁷, Laura Butruille⁴, Raphael Decoin⁴, Eloise Woitrain⁴, Juan F Granada^{2 3}, Bart Staels⁴, Christophe Bauters⁵, VAI VENOR investigators

Conclusion: The effect of DM on cardiovascular mortality varied across AS severity. Despite no association between DM and outcomes in patients with mild/moderate AS, DM was strongly associated with death from heart failure and sudden death in patients with severe AS.

MORTALITY INCREASES
WHEN:

CAD
SYMPTOMS
EF<50%
DIABETES



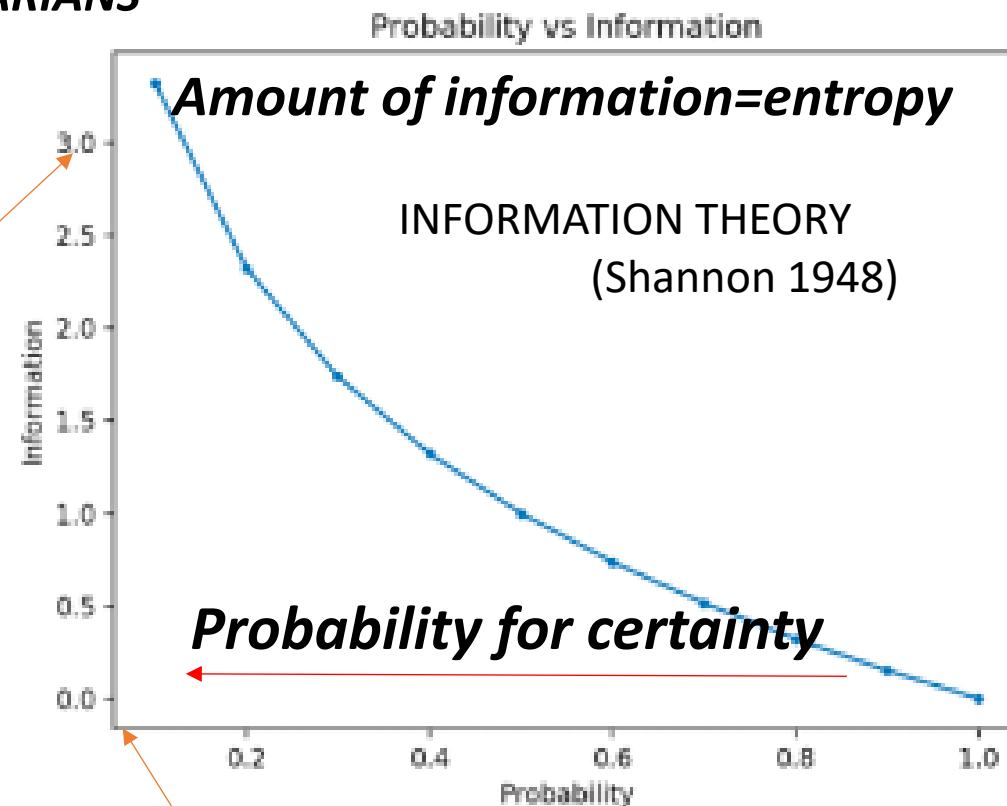
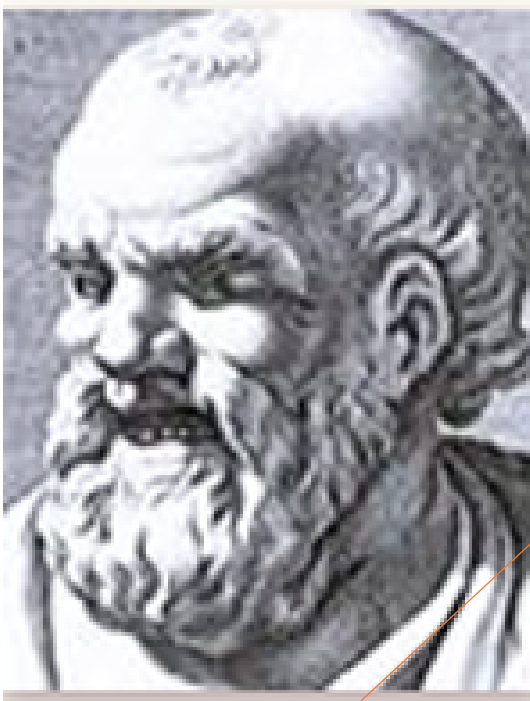
???
AMBIGUITY

DECISION MAKING IN AORTIC STENOSIS=ELIMINATING CONFOUNDING FACTORS

MORE COMPLEXITY IN OCTOGENARIANS

Δημόκριτος, 470-370 π.Χ.

DEMOKRITOS



Μη πάντα επίστασθαι προθύμεο, μη πάντων αμαθής γένη.

Do not want to learn everything, because you will be in danger to know nothing

WISDOM PROVIDED BY A CENTENARIAN

CONCLUDING REMARKS

- HFpEF is prevalent among AS contemporary cohorts.
- HFpEF deserves proper application of evolving treatments, ameliorating the hypertensive pathophysiology.
- Asymptomatic moderate to severe AS in aging population is amenable to watchful waiting strategy, providing that comorbidities are controlled and hypertension is carefully managed.
- Individualized patient strategies have to be considered (simulation of precision medicine?)