Modern Era and Futuristic Pharmacological Management of Aortic Stenosis: Pre and Post Intervention

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Disclosure of Relevant Financial Relationships

Within the prior 24 months, I have had a financial relationship with a company producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients:

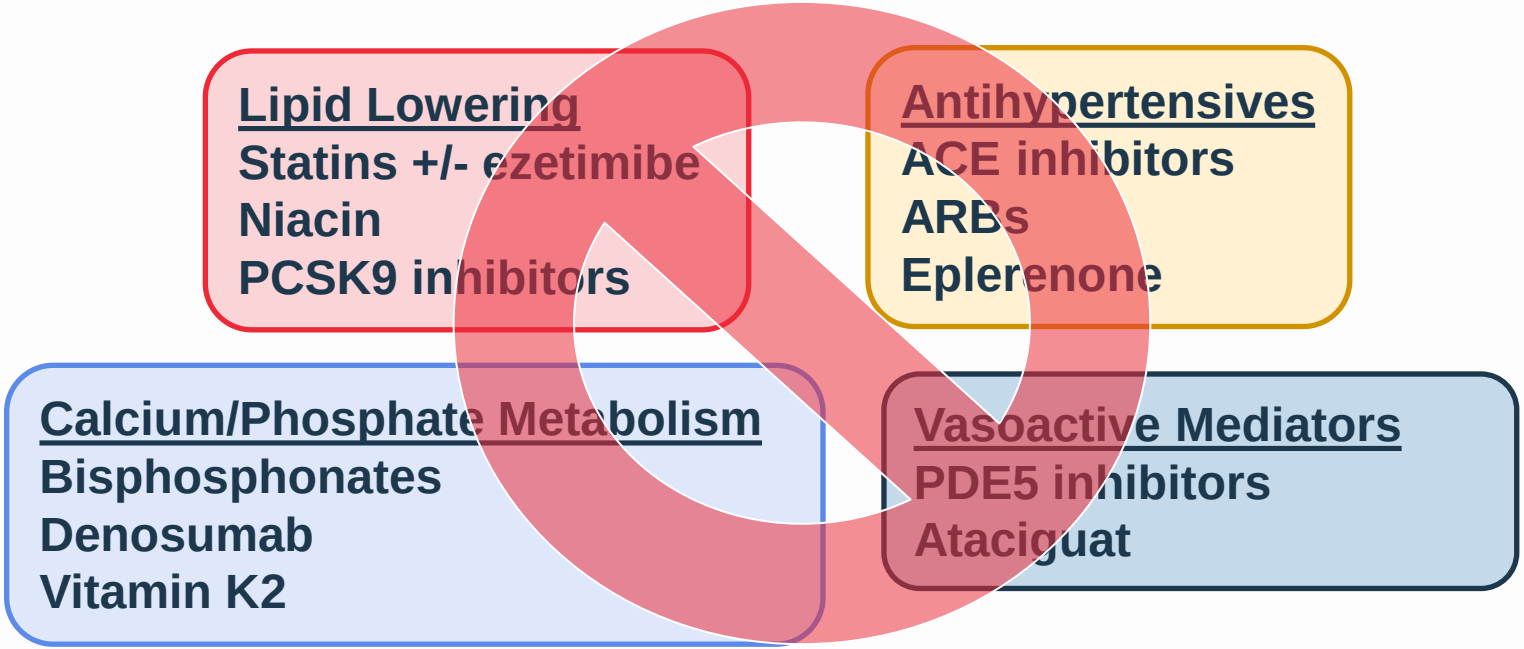
Nature of Financial Relationship	Ineligible Company
Consultant Fees/Honoraria	Boston Scientific, Edwards

All relevant financial relationships have been mitigated.
Faculty disclosure information can be found on the app

Pharmacologic Management of Aortic Stenosis

Can we prevent the onset or progression of aortic stenosis?

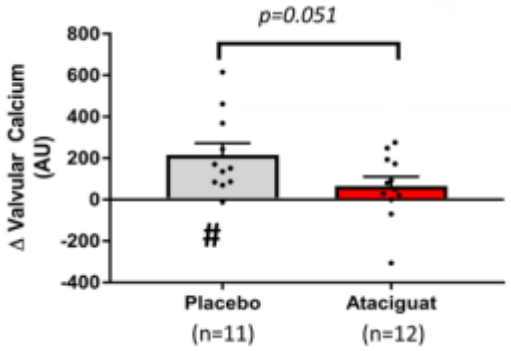
We Don’t Know How to Prevent the Progression of Aortic Stenosis…*Yet*



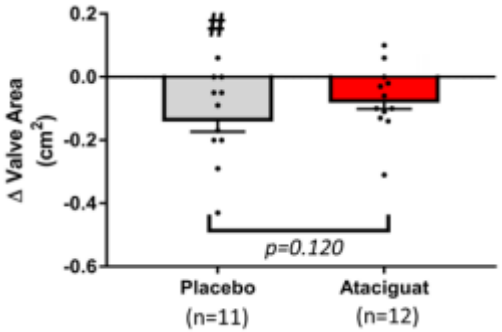
Marquis-Gravel et al. *Circulation*. 2016;134
Zhang et al. *Circulation*. 2025;151
Diederichsen et al. *Circulation*. 2022;145

Ataciguat Shows Promise in PHASE II Trial

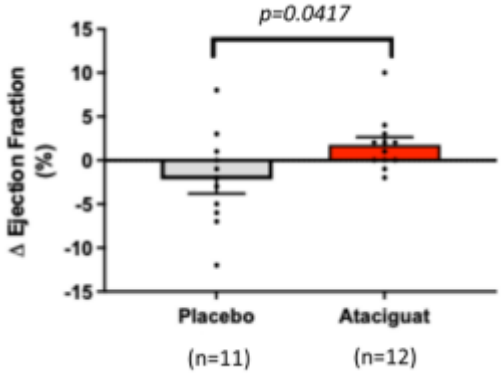
Phase II RCT of 23 patients with mild/moderate AS randomized to 200 mg QD ataciguat vs. placebo



AV calcium score



Valve Area



Ejection Fraction

6-month changes

Zhang et al. *Circulation*. 2025;151:913-930.

Pharmacologic Management of Aortic Stenosis

Can we prevent the onset or progression of aortic stenosis?

Can we improve outcomes of patients with aortic stenosis?

Case 1: 86yo F with severe symptomatic AS treated with TF 29mm CV

PMH
Breast cancer
Hypothyroidism
STS 3.6%

Work-up
EF 70%
PLFLG AS
AV MG = 28 mmHg
Svi 23 mL/m^2
1-2+ MR, +heavy MAC
1+ TR
PASP 32 mmHg, normal RV
No CAD

Post Procedure
EF 75%
AV MG = 3 mmHg
Trace PVL

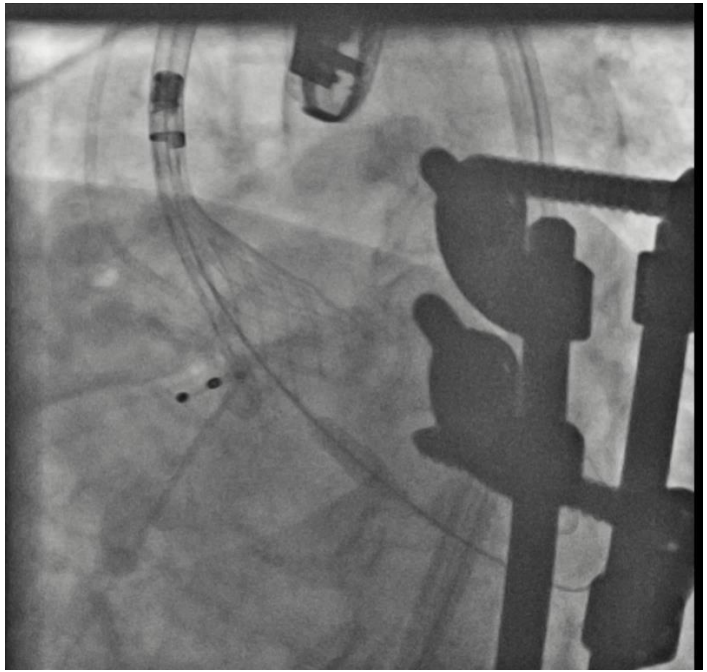
PASP 39 → 84 mmHg over 2 years

Multiple HF hospitalizations

Case 2: 80yo F with severe symptomatic AS treated with TF 23 mm CV

PMH
Breast cancer
OSA
STS 2.6%

Work-up
EF 75%
AV MG = 39 mmHg
1+ MR, +heavy MAC
1+ TR
PASP 73 mmHg!
Normal RV size/ function
No CAD



Post Procedure
EF 70%
AV MG = 5 mmHg
No PVL

CHB → PPM
New AF → DCCV

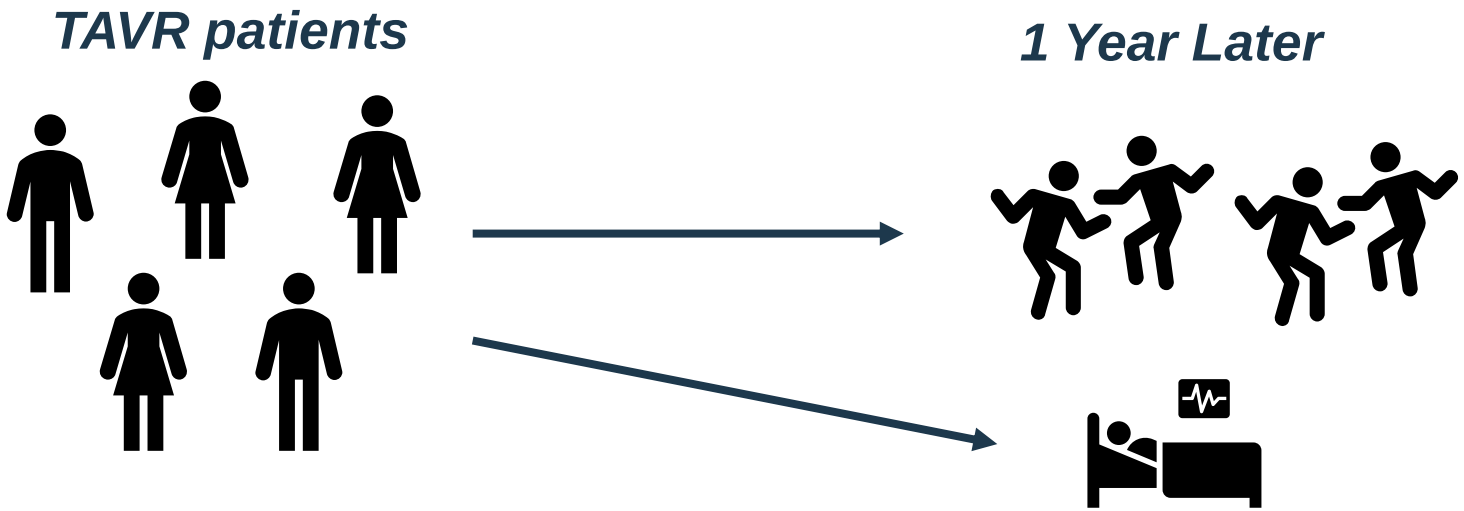
2 HF hospitalizations over the following year and died 18 months post TAVR

Some Patients Struggle After TAVR…

- The rate of death / poor QoL at 1 year after TAVR is high!
  - Low risk – 10%
  - Intermediate risk – 25%
  - High risk – 30-40%
- Heart failure hospitalization: up to 25% in 1st year
- ***Can we improve these outcomes?***

Reynolds et al. J Am Coll Cardiol. 2022: 60 (6)
Arnold et al. Circ Cardiovasc Qual Outcomes. 2013;6.
Vekstein et al. Circulation. 2025;151(16)
Arnold et al. JAMA Cardiology. 2017;2(4).

One Size Does Not Fit All:
Heterogeneity of Treatment Effect

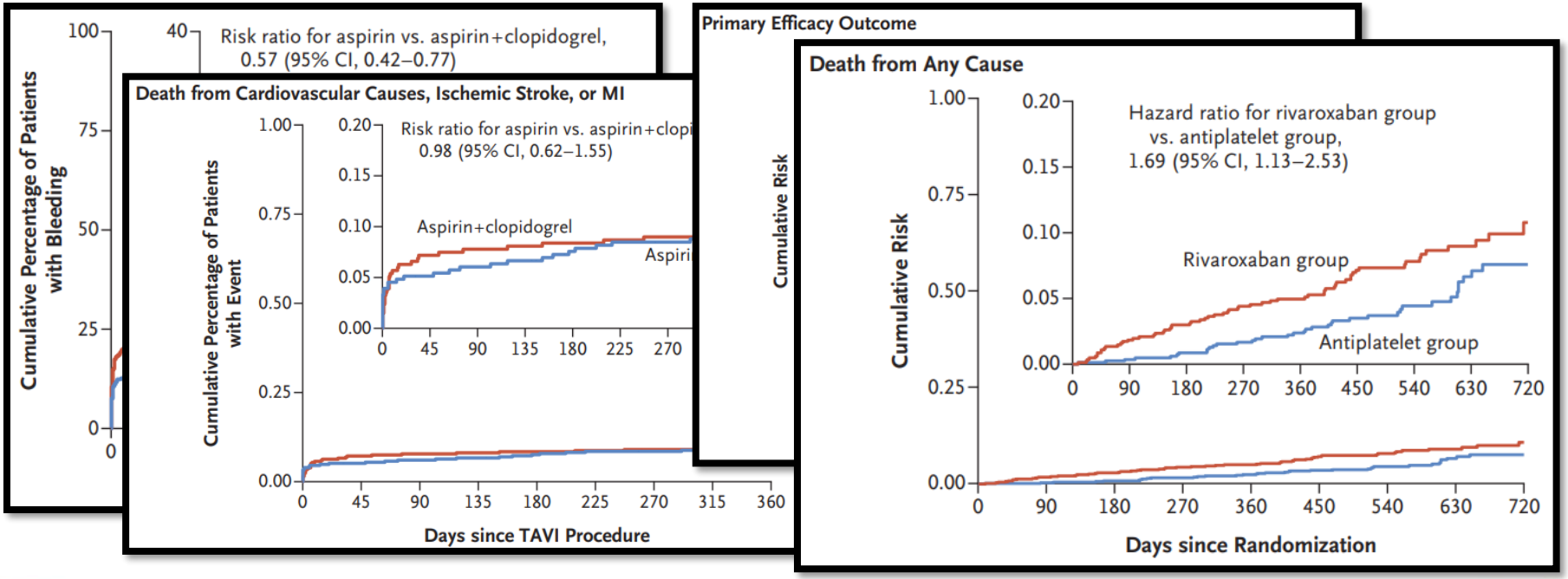


Can pharmacological treatments improve outcomes?

Antithrombotic Therapy after TAVR: Less is More

POPular TAVI Trial:
ASA vs. DAPT x 3mo

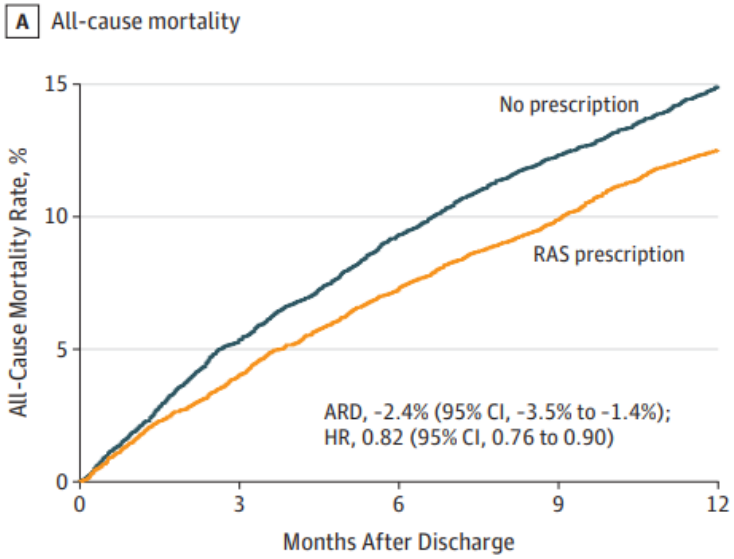
GALILEO Trial:
Rivaroxaban 10 mg + ASA vs. DAPT

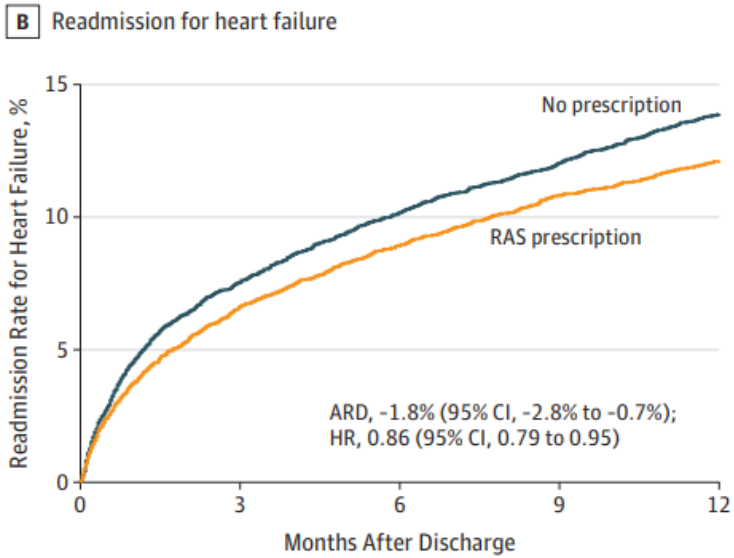


Brouwer J et al. *N Engl J Med*. 2020
Dangas GD et al. *N Engl J Med*. 2020

Renin Angiotensin Inhibition is Associated with Lower Mortality & HF Rehospitalization after TAVR

TVT Registry 2014-2016
15,896 propensity matched pts

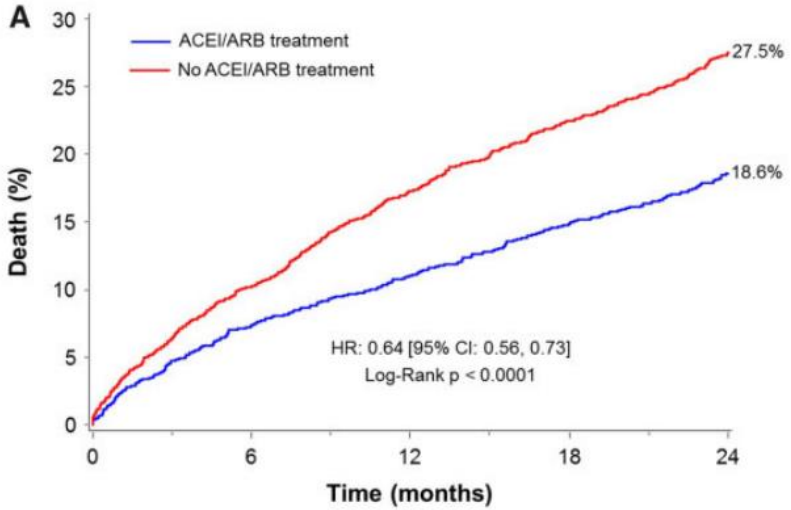




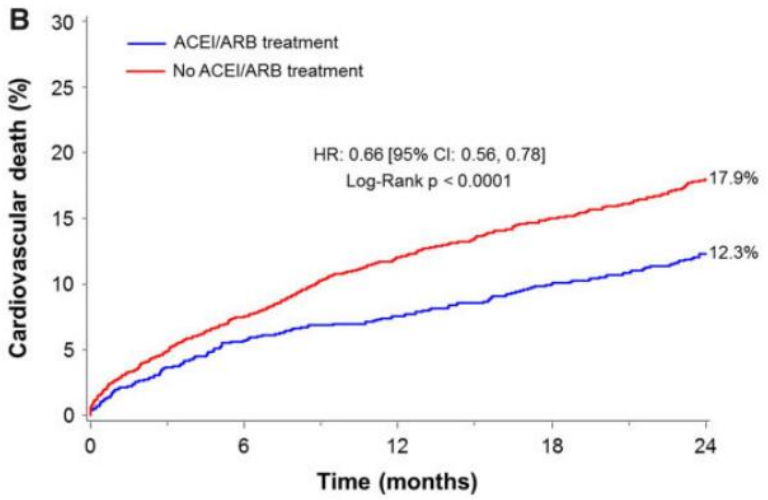
Inohara et al. *JAMA*. 2018;320(21)

Renin Angiotensin Inhibition is Associated with Lower All-Cause & CV Death after TAVR

PARTNER 2 Trial
3,979 pts



Adjusted HR 0.70 (0.60-0.82), p<0.0001



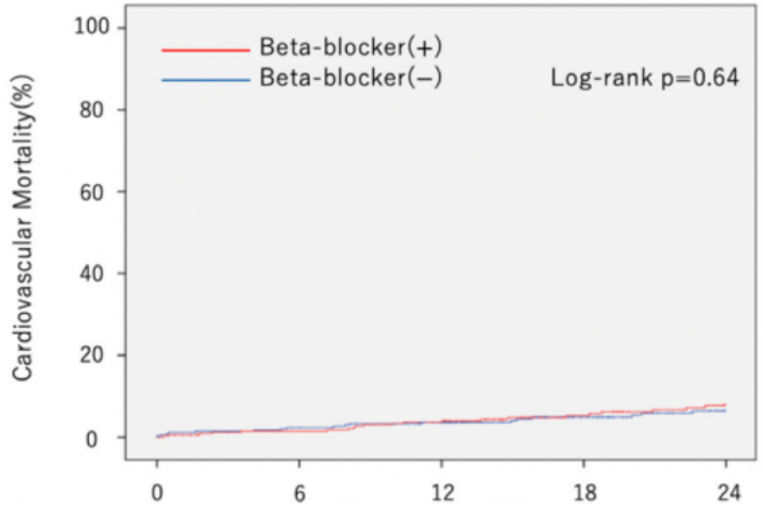
Adjusted HR 0.69 (0.56-0.84), p=0.0003

Chen S et al. *Eur Heart J*. 2020;41

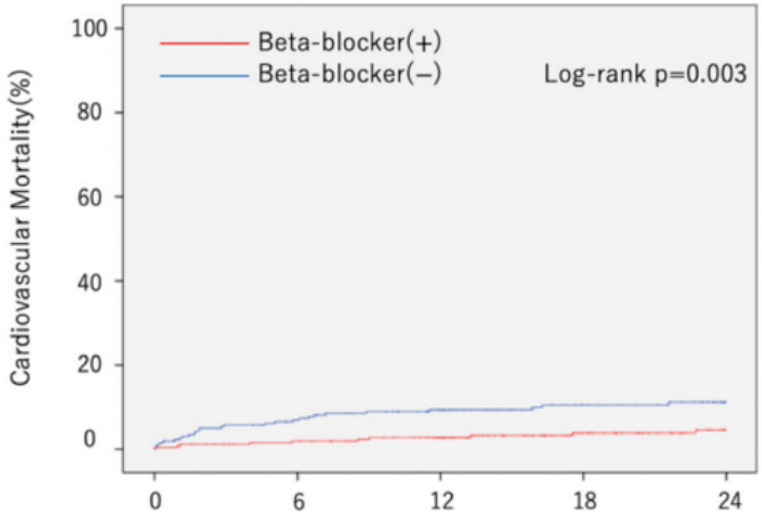
Beta Blockers ~↓CV Mortality in Pts with ↑ BNP

Ocean TAVI Registry
1,558 propensity matched pts, 2yr f/u

Patients with BNP < 400 pg/ml

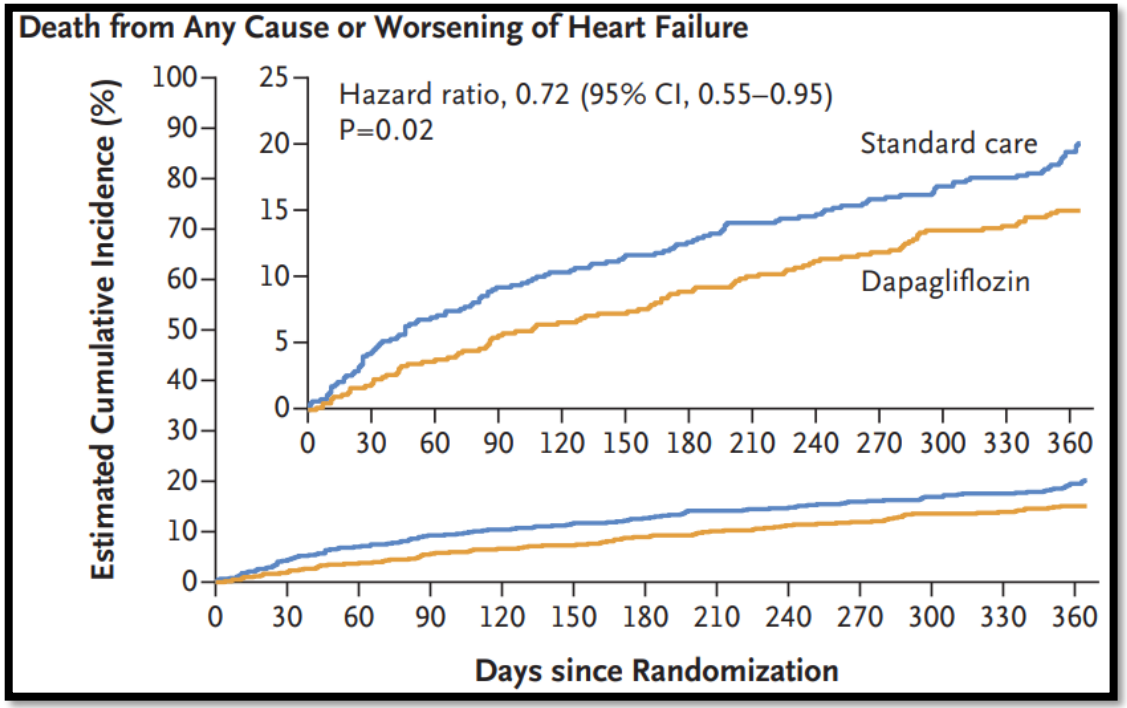


Patients with BNP ≥ 400 pg/ml



Saito T, et al *Open Heart.* 2020;7:e001269.

DAPA TAVI RCT: Dapagliflozin 10mg daily led to less worsening heart failure after TAVR

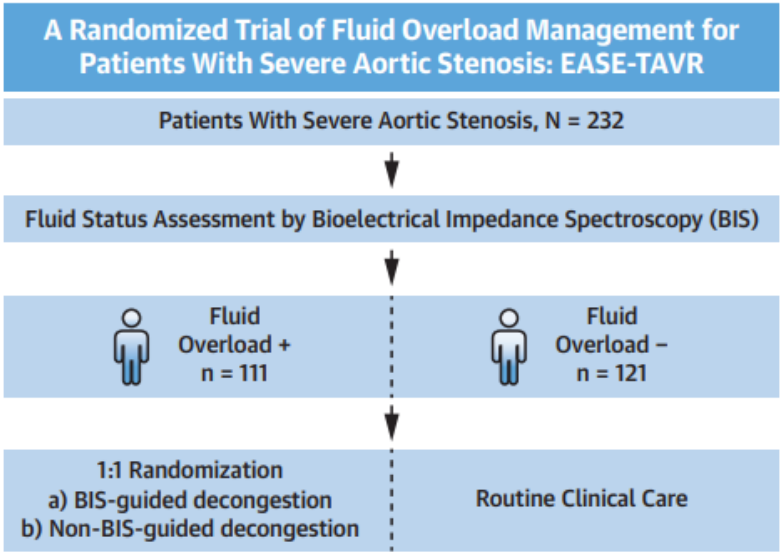


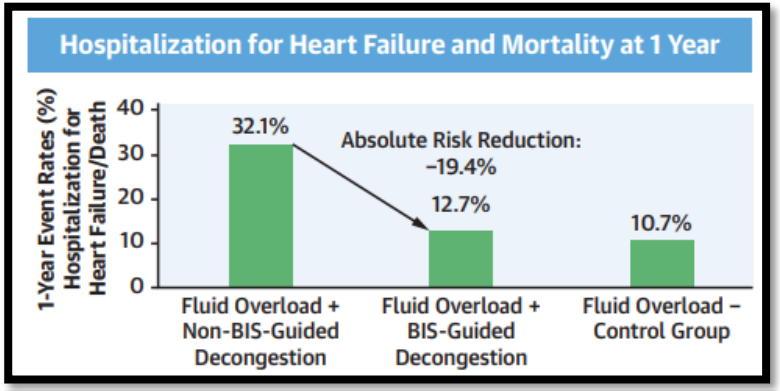
Death:
HR 0.87 (95% CI, 0.59–1.28)

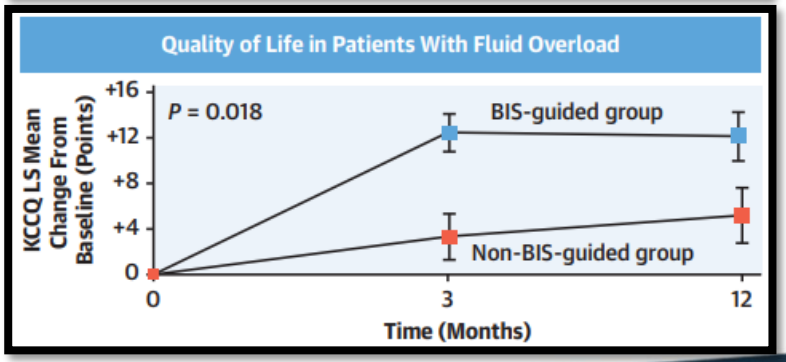
Worsening HF:
sHR, 0.63 (95% CI, 0.45–0.88)

Raposeiras-Roubin et al. *N Engl J Med*. 2025

EASE TAVI RCT: Decongestion & GDMT Improves Outcomes after TAVR







Halavina K, et al. JACC Cardiovasc Interv. 2024;17(17)

State of the Art Medical Therapy after TAVR in 2025

- **Diuretics** (*EASE TAVI RCT*)
- **SGLT2i** (*DAPA TAVI RCT*)
- **RAAS Inhibitors** (*Observational*)
- **Beta Blockers** (*Observational*)

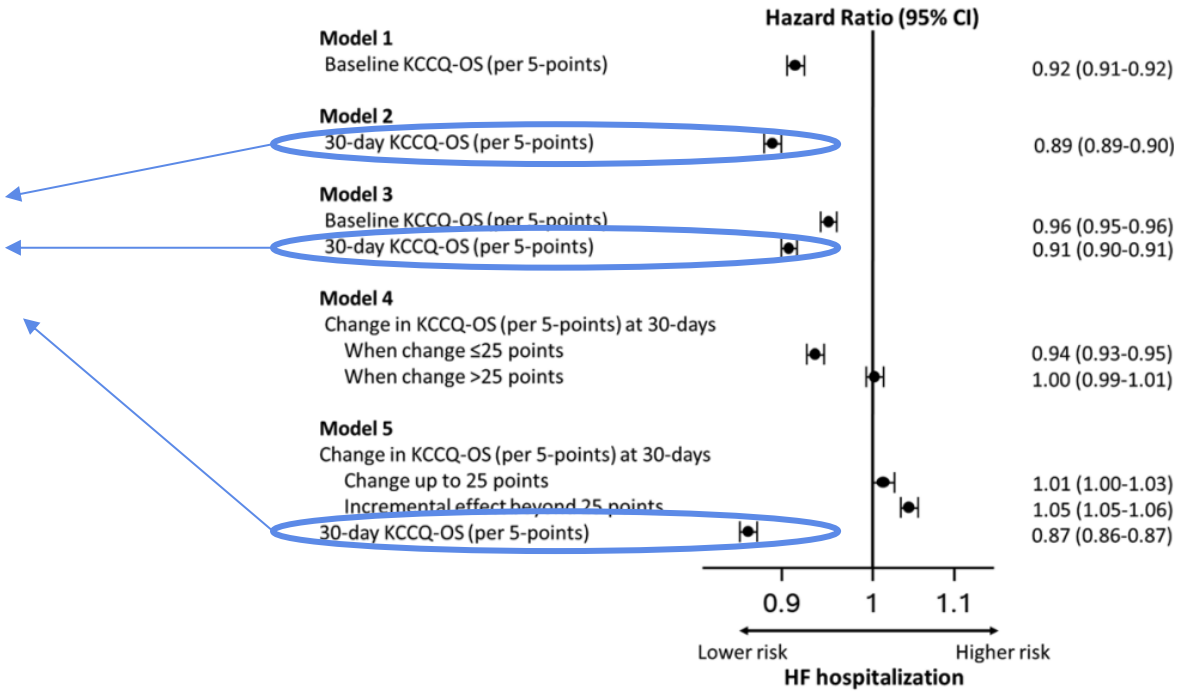
↓ **HF events**
↓ **mortality**
↑ **QoL**

- **SAPT** (Multiple RCT)

↓ **Bleeding &**
↓ **Adverse events**

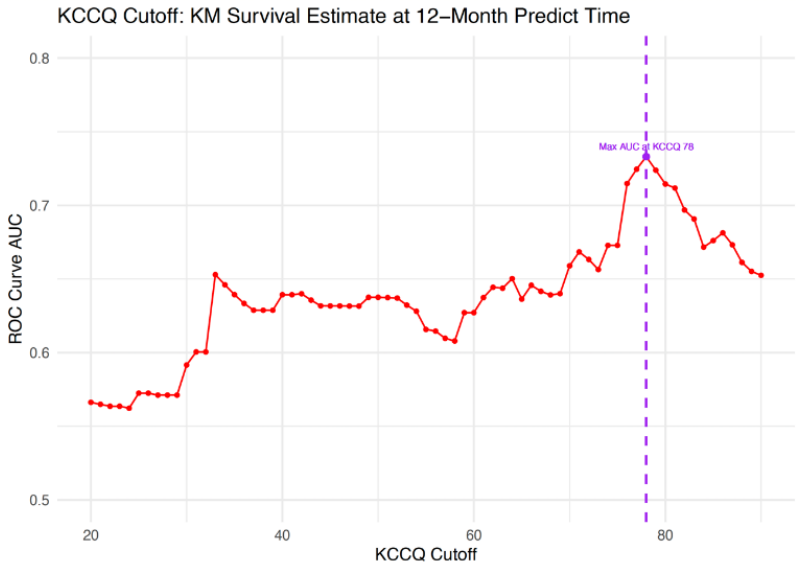
Which Patients Need More Attention After TAVR?

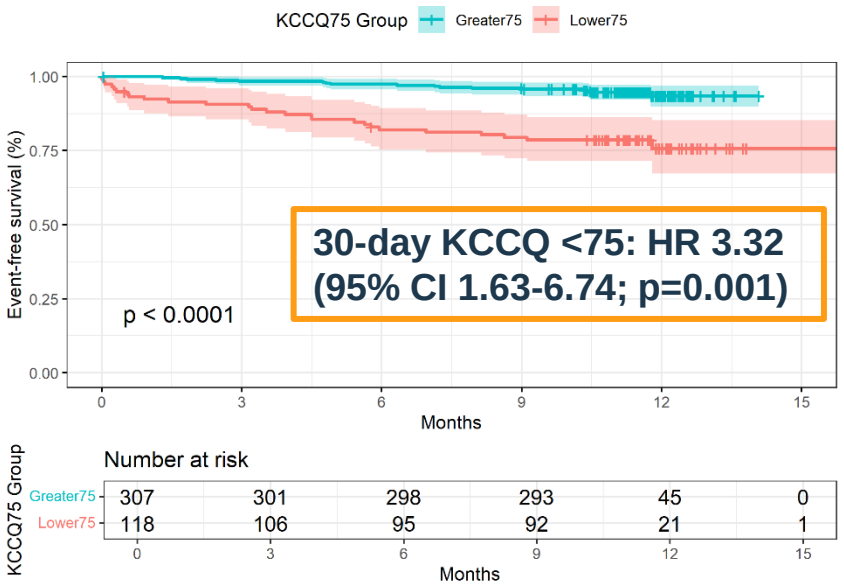
30-Day KCCQ is a stronger predictor of 1 year HF hospitalization than baseline or change in KCCQ



Hejjaji et al. Circ Cardiovasc Qual Outcomes. 2021

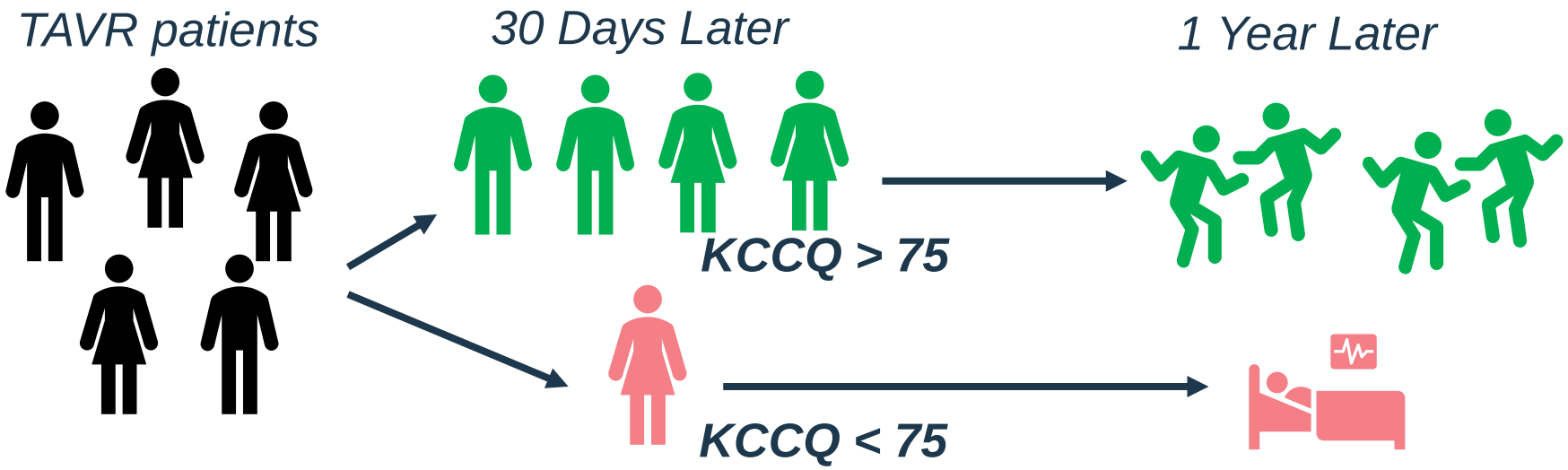
KCCQ-OS of <75 at 30 Days after TAVR is a Cause for Concern





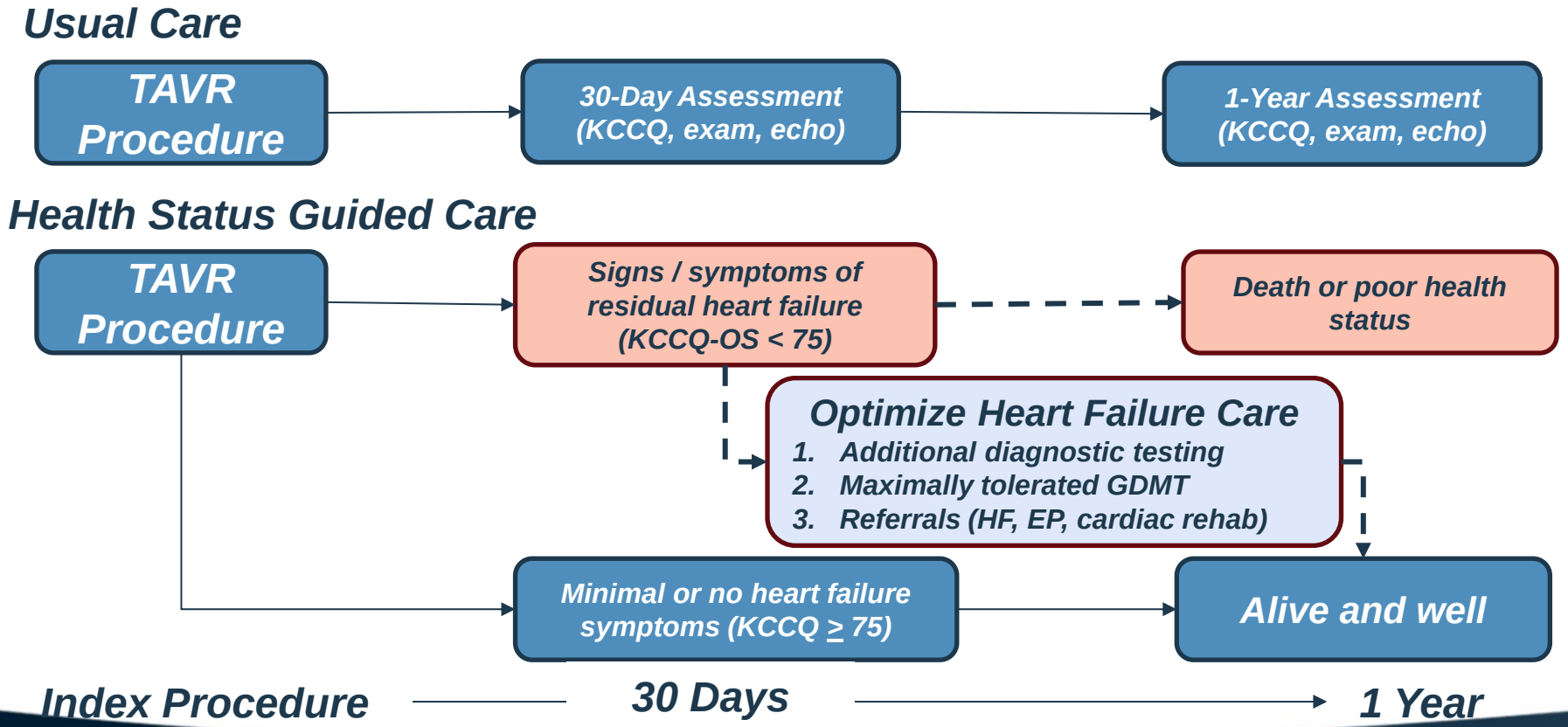
OC Martinez, CP Huded et al. NY Valves 2025

Which Patients Need More Attention After TAVR?



Our Patients are Telling Us the Answer!

Which Patients Need Medical Therapy after TAVR?



Huded C, et al. J Am Coll Cardiol, 2025

Pharmacologic Management of Aortic Stenosis in 2025

- We can't prevent AS…***yet.***
- Antithrombotic therapy: ***less is more***.
  - SAPT (RCT evidence)
- Heart failure medications: ***TAVR is not the finish line***.
  - Volume optimize (diuretic)
  - Beta blockers, RAAS (observational evidence)
  - SGLT2i (RCT evidence)
- KCCQ after TAVR: ***look & respond to scores < 75.***
  - ***Patients are telling us the answers!***