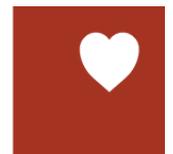


# Co nového přináší doporučení ESC 2025 pro aortální stenózu?

P. Lupínek

27. Symposium PS Chlopenní a vrozené srdeční vady v  
dospělosti

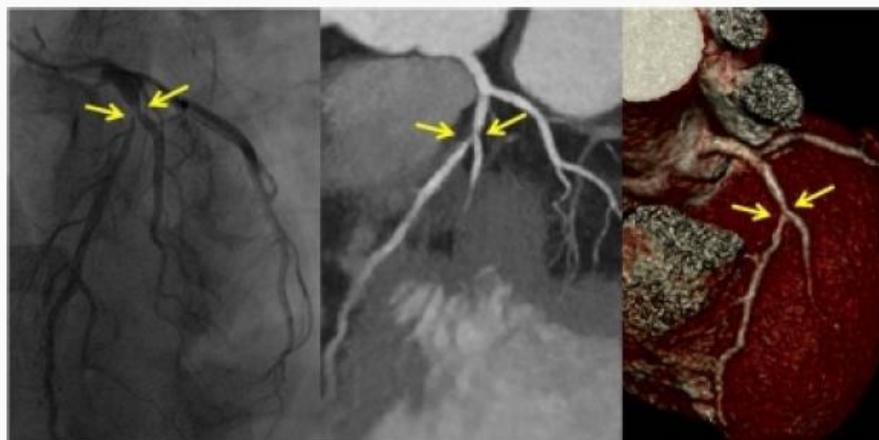
INSTITUT KLINICKÉ A EXPERIMENTÁLNÍ MEDICÍNY  
KLINIKA KARDIOLOGIE



# New and revised recommendations

## Imaging : Prominent role of CCTA

Recommendations	Class	Level
<b>Diagnosis of coronary artery disease</b>		
Omission of invasive coronary angiography should be considered in TAVI candidates, if procedural planning CCTA is of sufficient quality to rule out significant CAD.	Ia	B
<b>Management of coronary artery disease in patients with valvular heart disease</b>		
CCTA should be considered as an alternative to coronary angiography before valve surgery in patients with severe VHD and low probability of CAD.	Ia	C
CCTA is recommended before valve intervention in patients with moderate or lower ( $\leq 50\%$ ) pre-test likelihood of obstructive CAD.	I	B



Coronary angiography is recommended before valve surgery in patients with severe VHD and any of the following:

- History of cardiovascular disease
- Suspected myocardial ischaemia
- LV systolic dysfunction
- In men >40 years of age and post-menopausal women
- One or more cardiovascular risk factors.

**I**

**C**

Invasive coronary angiography is recommended before valve intervention in patients with high and very high (>50%) pre-test likelihood of obstructive CAD.

**I**

**C**

# Management of patients with symptomatic severe aortic stenosis

Recommendations	Class	Level
Intervention is recommended in symptomatic patients with severe, high-gradient AS [mean gradient $\geq 40$ mmHg, $V_{\max} \geq 4.0$ m/s, $AVA \leq 1.0$ cm <sup>2</sup> (or $\leq 0.6$ cm <sup>2</sup> /m <sup>2</sup> BSA)].	I	B
Intervention is recommended in symptomatic patients with low-flow ( $SV_i \leq 35$ mL/m <sup>2</sup> ), low-gradient (<40 mmHg) AS with reduced LVEF (<50%) after careful confirmation that AS is severe.	I	B
irrespective of evidence of flow (contractile) reserve		
Intervention should be considered in symptomatic patients with low-flow ( $SV_i \leq 35$ mL/m <sup>2</sup> ), low-gradient (<40 mmHg) AS with normal LVEF ( $\geq 50\%$ ) after careful confirmation that AS is severe.	IIa	B

2021



# Low flow low gradient AoS

## Indications for intervention in symptomatic severe aortic stenosis—Section 8.4.1

Intervention is recommended in symptomatic patients with severe low-flow ( $SV_i \leq 35 \text{ mL/m}^2$ ), low-gradient ( $< 40 \text{ mmHg}$ ) AS with reduced LVEF ( $< 50\%$ ), and evidence of flow (contractile) reserve.

**I**

**B**

Intervention is recommended in symptomatic patients with low-flow ( $SV_i \leq 35 \text{ mL/m}^2$ ), low-gradient ( $< 40 \text{ mmHg}$ ) AS with reduced LVEF ( $< 50\%$ ) after careful confirmation that AS is severe.

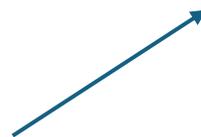
**I**

**B**

Intervention should be considered in symptomatic patients with low-flow, low-gradient severe aortic stenosis and reduced ejection fraction **without flow (contractile) reserve**, particularly when CCT calcium scoring confirms severe aortic stenosis.

**IIa**

**C**



# Figure 6

## Integrative imaging assessment of patients with aortic stenosis.

### Kalciové skóre Ao chlopně (AVCS)

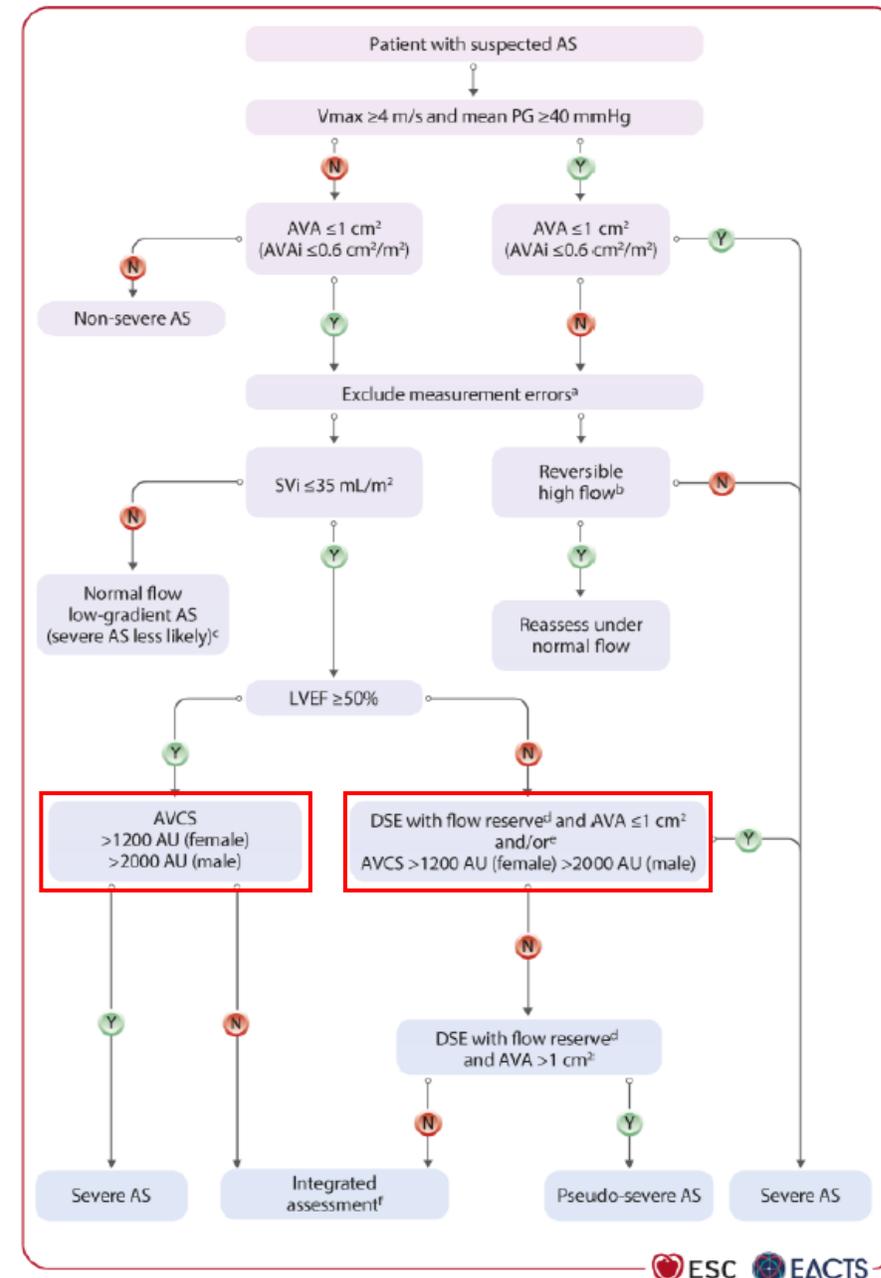
> 2000 AU (M) a >1200 (Ž) – senz a spec 85%

> 3000 AU (M) a >1600 AU (Ž) – vysoce specifické pro významnou AoS

< 1200 AU (M) a < 800 AU (Ž) – významná AoS nepravděpodobná

### CAVE:

- Bikuspidální Ao chlopeň
- Amyloidóza
- Postiradiační AoS
- Postrevmatická AoS
- Zánětlivá onemocnění

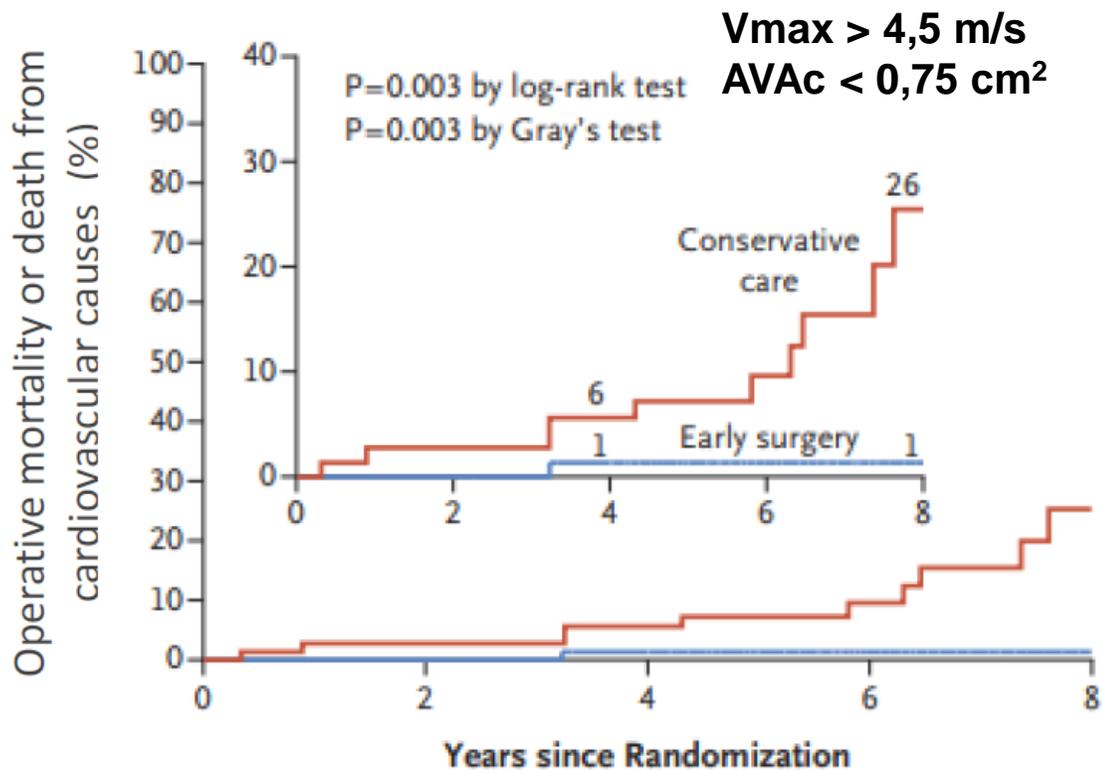


# Management of patients with asymptomatic severe aortic stenosis

Recommendations	Class	Level
Intervention is recommended in asymptomatic patients with severe AS and LVEF <50% without another cause.	I	B
Intervention should be considered in asymptomatic patients (confirmed by a normal exercise test, if feasible) with severe, high-gradient AS and LVEF ≥50% as an alternative to close active surveillance, if the procedural risk is low.	IIa	A <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">New</span>
Intervention should be considered in asymptomatic patients with severe AS and LVEF ≥ 50% if the procedural risk is low and one of the following parameters is present: <ul style="list-style-type: none"> <li>• Very severe AS (mean gradient ≥60 mmHg or <math>V_{max} &gt;5.0</math> m/s)</li> <li>• Severe valve calcification (ideally assessed by CCT) and <math>V_{max}</math> progression ≥0.3 m/s/year.</li> <li>• Markedly elevated BNP/NT-proBNP levels (more than three times age- and sex-corrected normal range, confirmed on repeated measurement without other explanation).</li> <li>• LVEF &lt;55% without another cause.</li> </ul>	IIa	B
Intervention should be considered in asymptomatic patients with severe AS and a sustained fall in BP (>20 mmHg) during exercise testing.	IIa	C

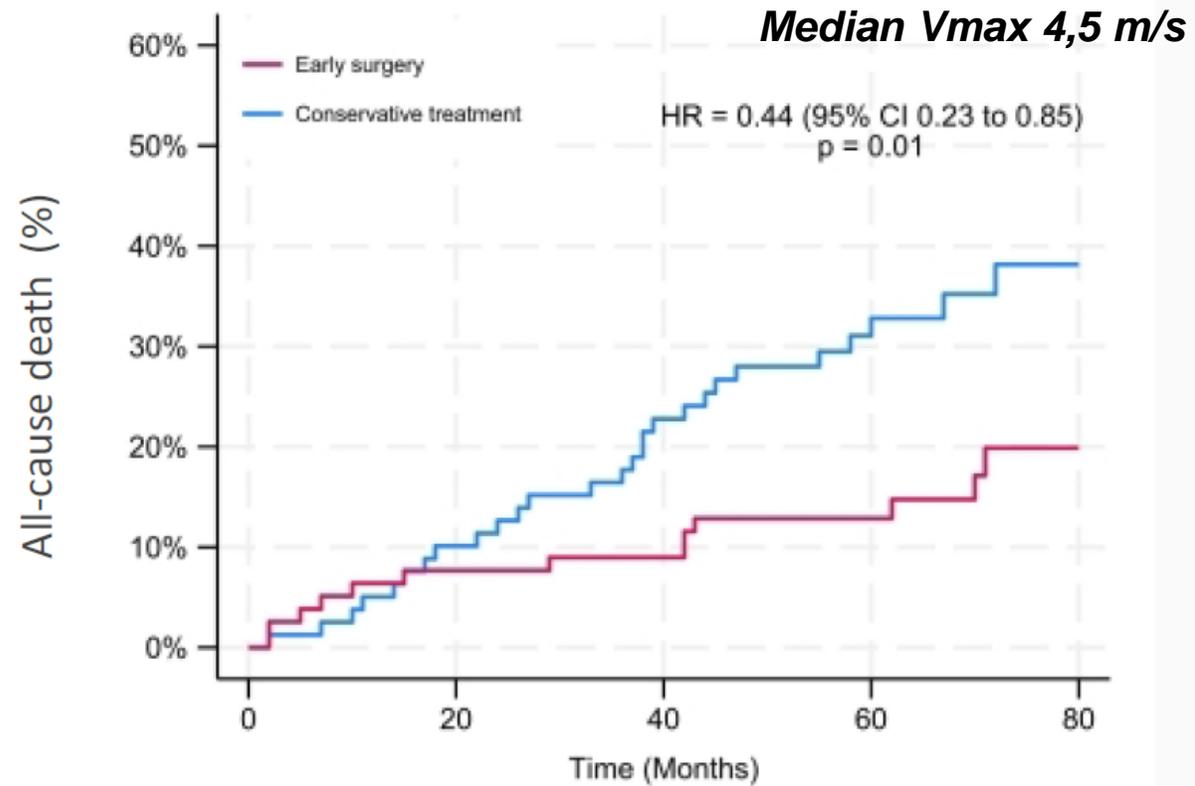
# RCTs in patients with asymptomatic severe aortic stenosis

**RECOVERY**  
145 patients, mean age 64 years



Kang et al. *N Engl J Med* 2020;382:111-9.

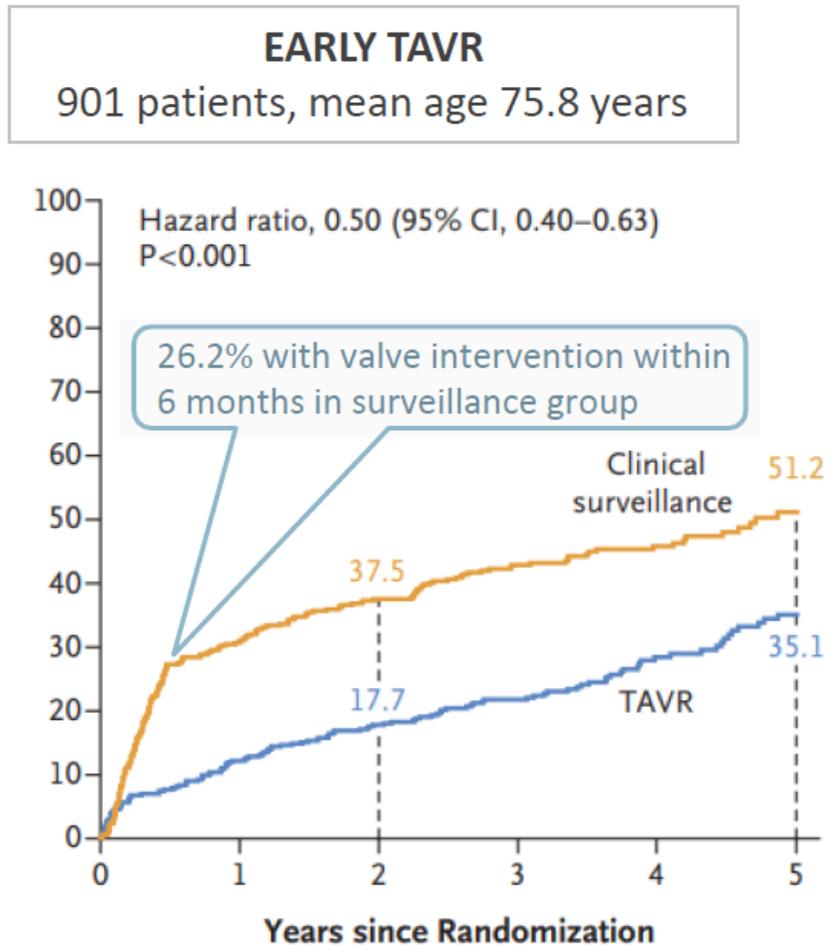
**AVATAR long-term follow-up**  
157 patients, mean age 67 years



Banovic et al. *EJH* 2024;45:4526:4535.

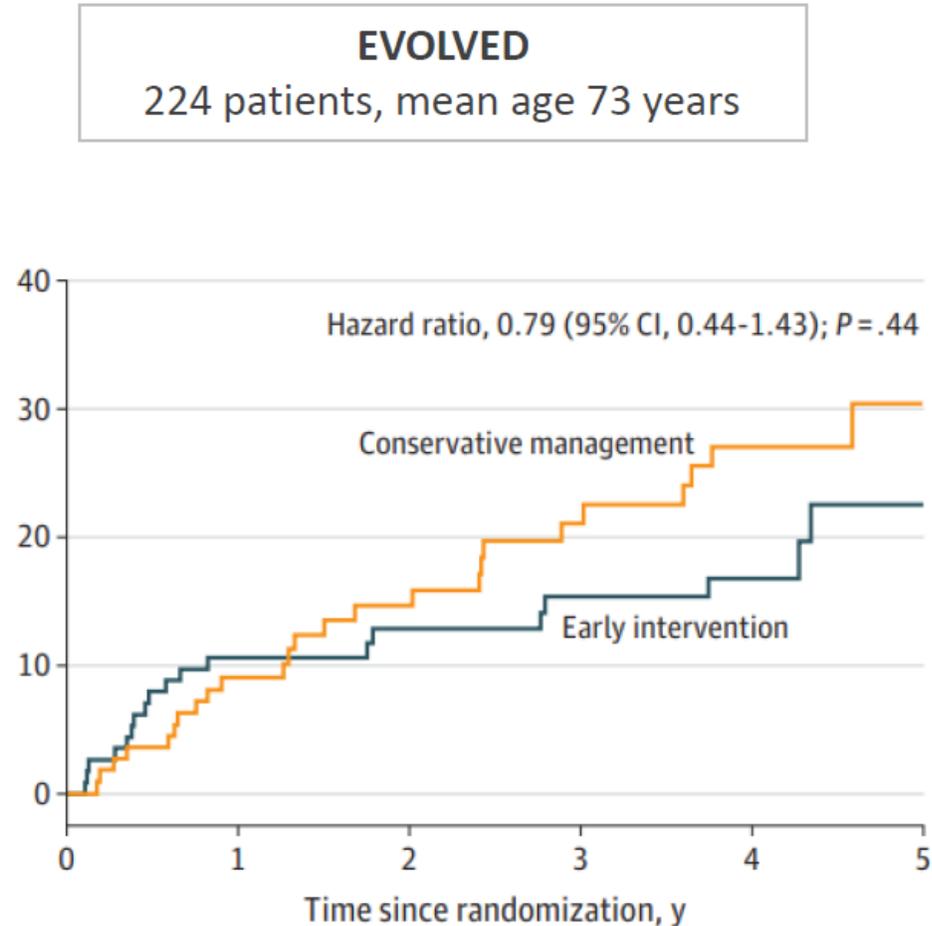
# RCTs in patients with asymptomatic severe aortic stenosis

Death, Stroke, or Unplanned Hospitalization for Cardiovascular Causes (%)



*Généreux et al. N Engl J Med 2025;392:217-27*

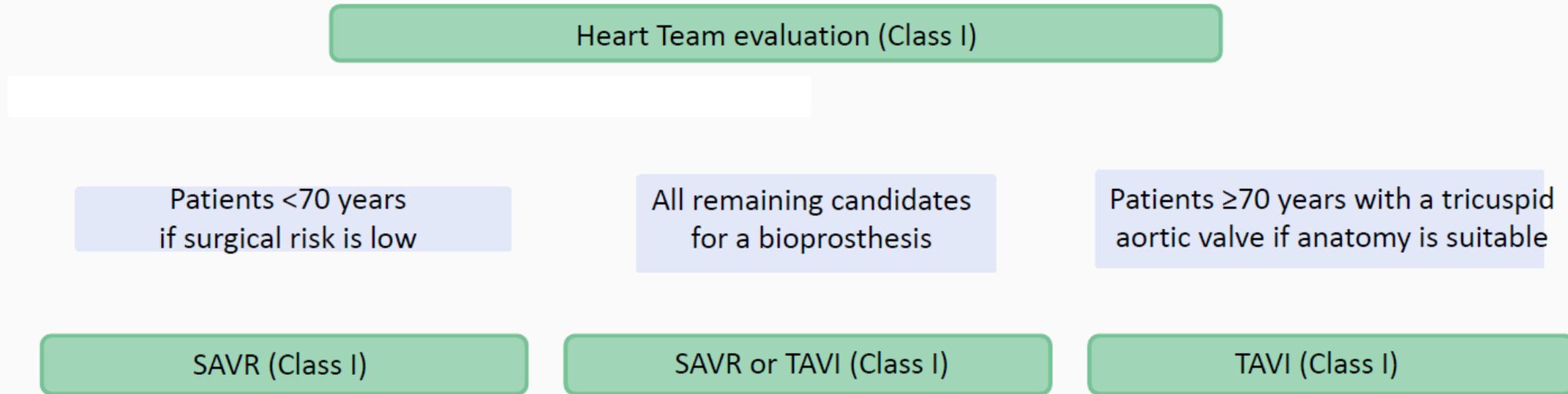
All-cause death or unplanned aortic stenosis-related hospitalization (%)



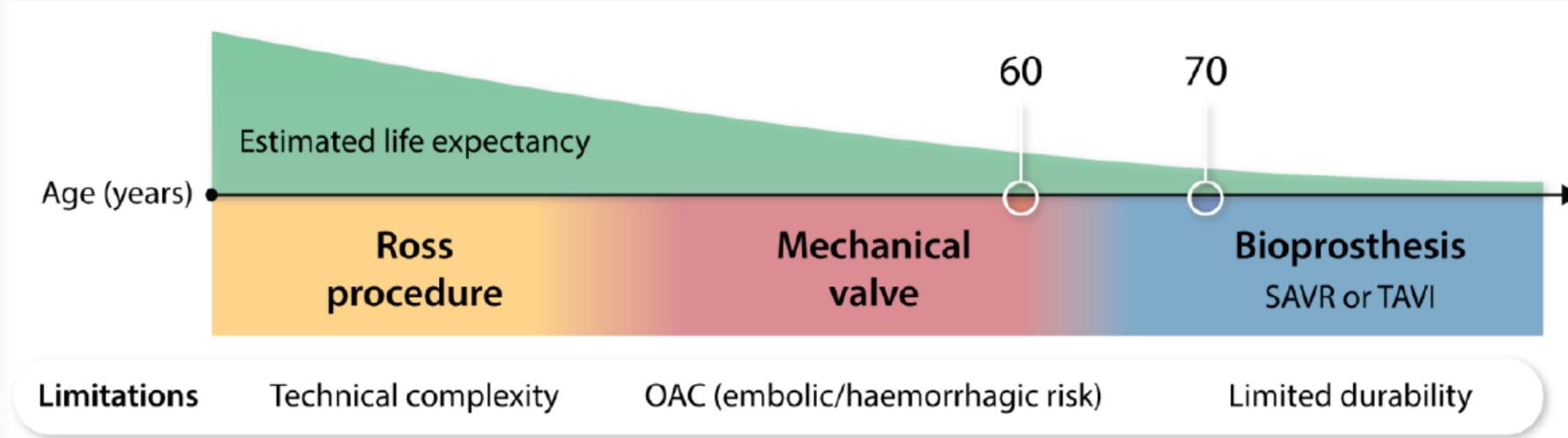
*Loganathan et al. JAMA 2025;333(3):213-221*

# Mode of intervention in patients with severe aortic stenosis

Recommendations	Class	Level
irrespective of surgical risk score TAVI is recommended in patients $\geq 70$ years of age with tricuspid AV stenosis, if the anatomy is suitable.	I	A Revised
SAVR is recommended in patients $< 70$ years of age, if the surgical risk is low.	I	B Revised
SAVR or TAVI are recommended for all remaining candidates for an aortic BHV according to Heart Team assessment.	I	B Revised



# Mode of intervention in patients with severe aortic stenosis



Recommendations	Class	Level
It is recommended that AV interventions are performed in Heart Valve Centres that report their local expertise and outcome data, have on-site interventional cardiology and cardiac surgical programmes, and a structured collaborative Heart Team.	I	C
It is recommended that the mode of intervention is based on Heart Team assessment of individual clinical, anatomical, and procedural characteristics, <b>incorporating lifetime management considerations and estimated life expectancy</b> .	I	C <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Revised</span>

# Kombinovaná aortální vada

Recommendations	Class <sup>a</sup>	Level <sup>b</sup>
Intervention is recommended in symptomatic patients with mixed moderate AV stenosis <sup>c</sup> and moderate regurgitation, and a mean gradient $\geq 40$ mmHg or $V_{\max} \geq 4.0$ m/s. <sup>790–793</sup>	<b>I</b>	<b>B</b>
Intervention is recommended in asymptomatic patients with mixed moderate AV stenosis <sup>c</sup> and moderate regurgitation with $V_{\max} \geq 4.0$ m/s, and LVEF $< 50\%$ not attributable to other cardiac disease. <sup>791</sup>	<b>I</b>	<b>C</b>

Často chybí dilatace LK!

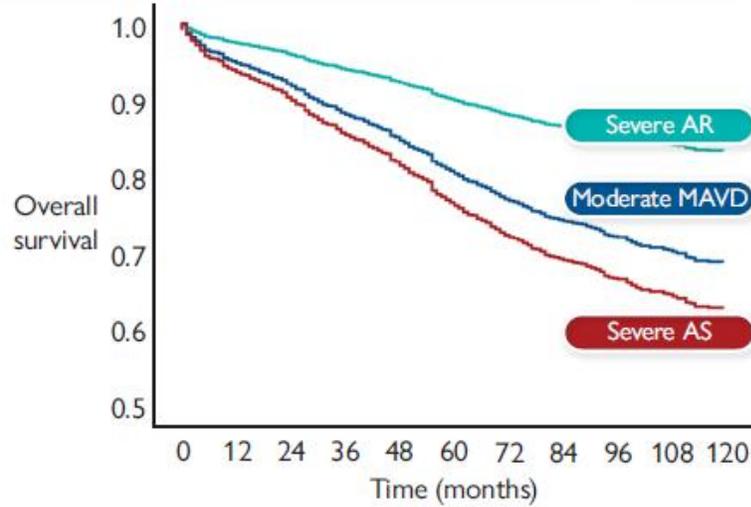
Table 12). Patients presenting with mixed AV disease, but with gradients below thresholds for intervention, should undergo careful multimodality diagnostics including assessment of cardiac damage to inform individual treatment strategies. Global longitudinal strain and natriuretic peptides have shown incremental prognostic value beyond symptom status and single lesion severity in patients with preserved LVEF.<sup>762,794–796</sup>

V max 3,0-3,9 m/s  
MPG 20-40 mmHg

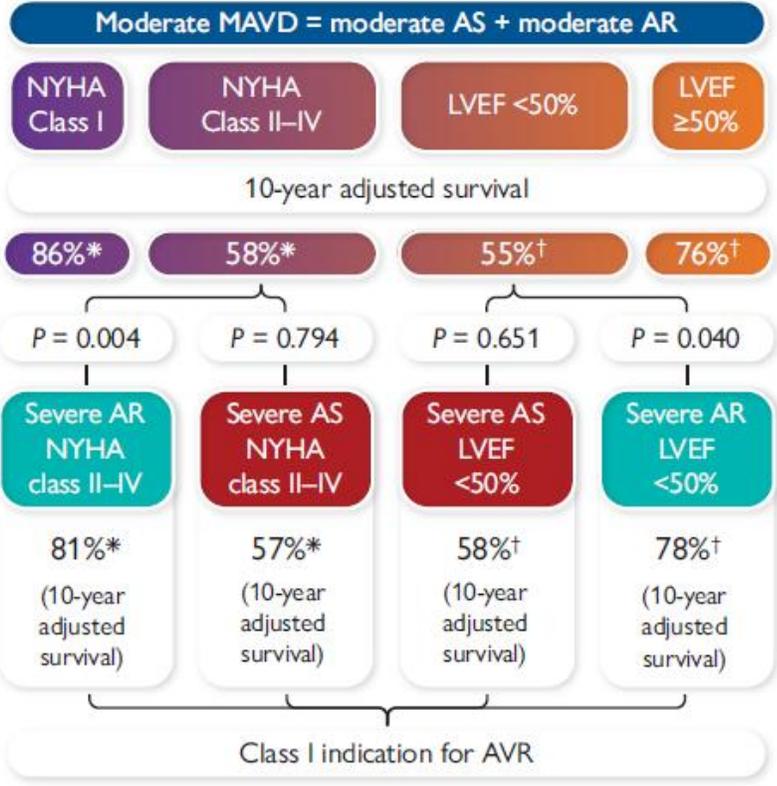
**Moderate MAVD** (Reference)

**Severe AR** Adjusted HR<sup>^</sup> 0.484 (95% CI 0.283–0.826) P = 0.008

**Severe AS** Adjusted HR<sup>^</sup> 1.243 (95% CI 0.976–1.583) P = 0.078



<b>Moderate MAVD</b>	527	478	446	414	364	306	254	200	161	140	102
<b>Severe AR</b>	413	379	361	339	314	284	231	190	165	145	128
<b>Severe AS</b>	986	882	833	772	729	665	617	563	484	425	370



<sup>^</sup>10-years overall survival adjusted for age, sex, creatinine, CAD, DM, HLP, AH, AF, BAV, AVR as a time-dependent covariate, NYHA class II–IV, LVEF <50%, LVM index, LAVI >34 mL/m<sup>2</sup>, and TAPSE <17 mm

\*10-years overall survival adjusted for age, sex, creatinine, CAD, DM, HLP, AH, AF, BAV, AVR as a time-dependent covariate, LVEF <50%, LVM index, LAVI >34 mL/m<sup>2</sup>, and TAPSE <17 mm

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Lopez Santi P, et al. *European Heart Journal*.

# Hlavní změny

- V narůstající míře se uplatňuje **multimodální zobrazení (CT)** v posouzení Ao vady i koronárního řečiště - ↓ SKG, LF LG AoS a v posouzení dysfunkce chlopní náhrady
- **AoS se sníženou EF a nízkým gradientem:**  
Přítomnost kontraktilní rezervy neovlivňuje indikaci (↑ role CT/AVC).
- **Asymptomatická významná AoS s vysokým gradientem:**  
Má být zvážena SAVR/TAVR jako alternativní postup, je-li riziko výkonu nízké.
- **Kombinovaná aortální vada:**  
Indikace k AVR i když AoS i AoR jsou středně významné, je-li symptomatická nebo je EF LK < 50 %
  - při  $V_{max} \geq 4$  m/s a/nebo středním gradientu  $\geq 40$  mmHg
  - případně i při nižších gradientech dle individuálního posouzení
- **TAVR > 70 let**







# Souhrn dat studie RECOVERY

Helvetica Now Display

Metrika	Včasná operace (AVR)	Konzervativní postup
N / Doba sledování	145 / 10 let	145 / 10 let
Operační mortalita	0 %	0 %
Primární cílový bod	2,7 %	23,6 %
Hospitalizace (SS)	0 %	19,4 %
<b>Celková mortalita</b>	<b>15,1 %</b>	<b>31,9 %</b>

# RECOVERY: 10-leté sledování

	Časná operace	Standardní indikace
N / Doba sledování	145 / 10 let	145 / 10 let
Operační mortalita	0 %	0 %
Primární cílový bod	2,7 %	23,6 %
Hospitalizace (SS)	0 %	19,4 %
<b>Celková mortalita</b>	<b>15,1 %</b>	<b>31,9 %</b>

# Low flow low gradient AoS

## Indications for intervention in symptomatic severe aortic stenosis—Section 8.4.1

Intervention is recommended in symptomatic patients with severe low-flow ( $SV_i \leq 35 \text{ mL/m}^2$ ), low-gradient ( $<40 \text{ mmHg}$ ) AS with reduced LVEF ( $<50\%$ ), and evidence of flow (contractile) reserve.

**I**

**B**

Intervention is recommended in symptomatic patients with low-flow ( $SV_i \leq 35 \text{ mL/m}^2$ ), low-gradient ( $<40 \text{ mmHg}$ ) AS with reduced LVEF ( $<50\%$ ) after careful confirmation that AS is severe.

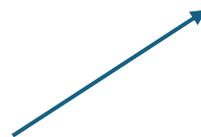
**I**

**B**

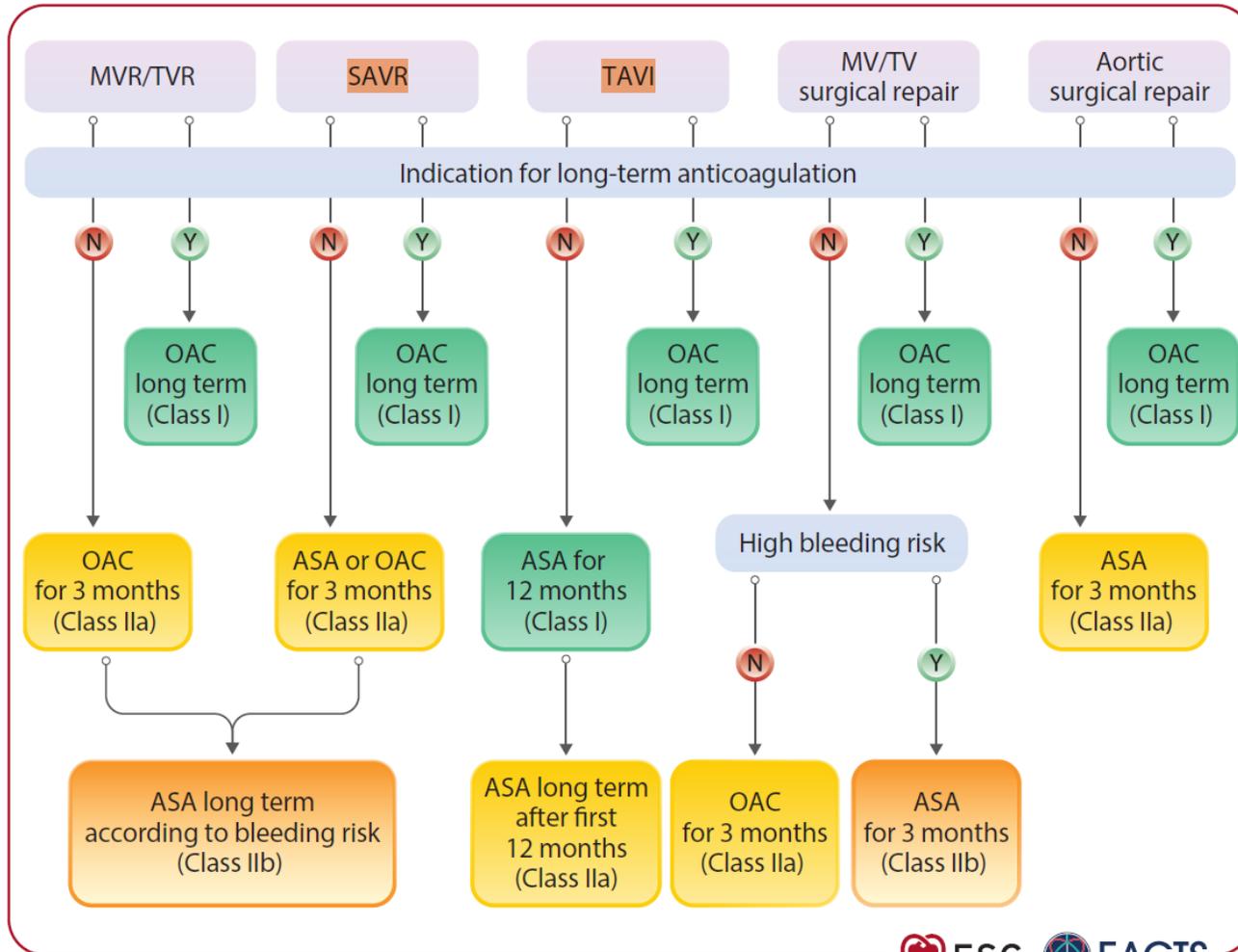
Intervention should be considered in symptomatic patients with low-flow, low-gradient severe aortic stenosis and reduced ejection fraction **without flow (contractile) reserve**, particularly when CCT calcium scoring confirms severe aortic stenosis.

**IIa**

**C**



# Antitrombotická léčba po SAVR a TAVR



## Transcatheter aortic valve implantation without indication for oral anticoagulation

Low-dose ASA (75–100 mg/day) is recommended for 12 months after TAVI in patients without indication for OAC. <sup>869,880–883</sup>

I	A
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Long-term (after the first 12 months) low-dose ASA (75–100 mg/day) should be considered after TAVI in patients without clear indication for OAC.

IIa	C
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DAPT is not recommended to prevent thrombosis after TAVI, unless there is a clear indication. <sup>881</sup>

III	B
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Routine use of OAC is not recommended after TAVI in patients without baseline indication. <sup>869,880</sup>

III	A
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# Globální longitudinální strain (GLS)

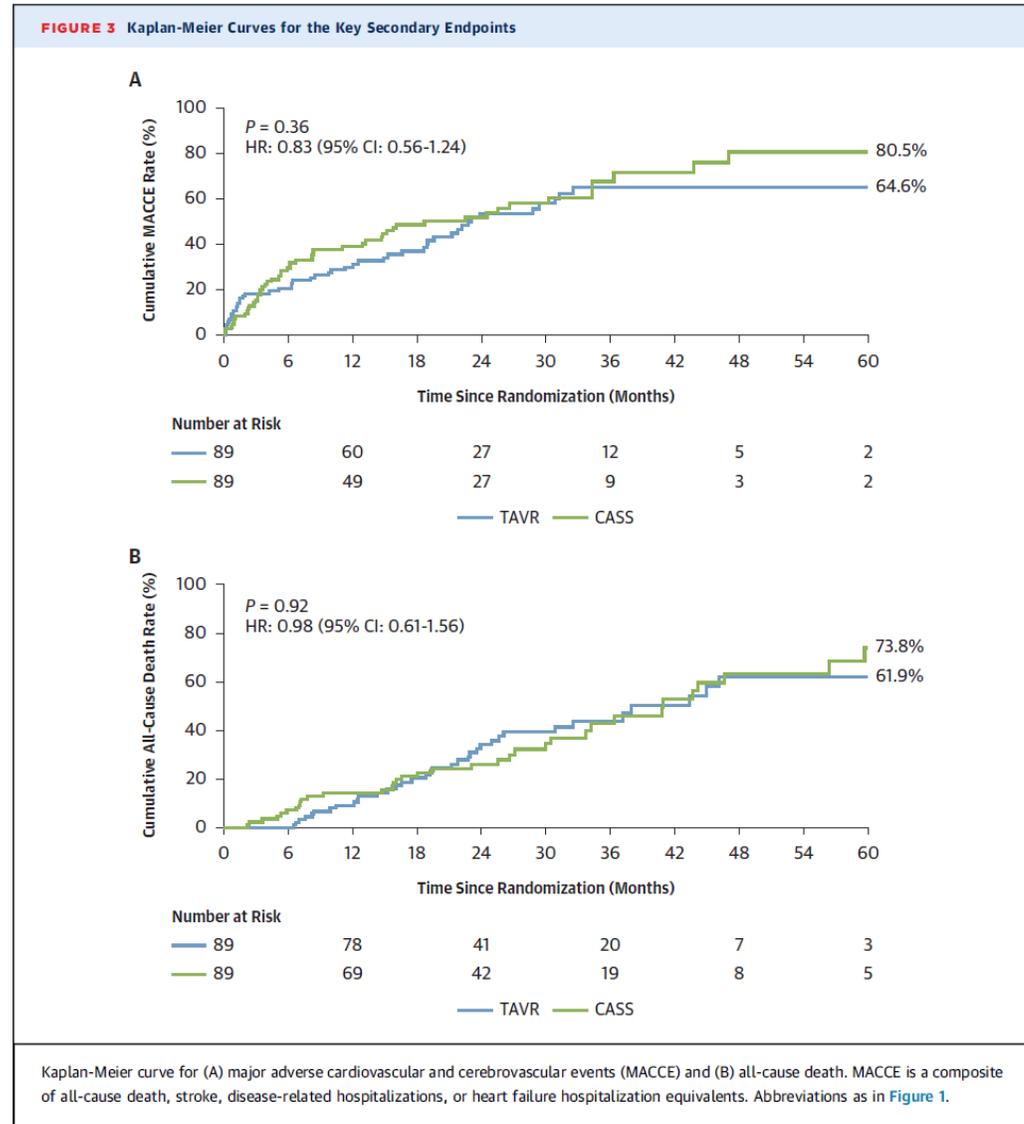
Assessment of GLS can be useful for risk stratification<sup>310</sup> and evaluation of extravalvular cardiac damage.<sup>311,312</sup> It provides additional information regarding LV function and a threshold of  $-15\%$  may contribute to identifying patients with severe asymptomatic AS at increased risk of clinical deterioration or premature mortality.<sup>59</sup>

# Střední aortální stenóza s HFrEF

## UNLOAD TAVR

N = 178  
Prům. věk 77 let  
55,6 % NYHA III-IV  
Medián sledování 23 M

38 pac. (43 % konz. skupiny)  
konverze k TAVI  
-35 pro progresi do významné AoS  
-2 pro opakované dekompenzace



# Střední AoS - probíhající studie

Evolut EXPAND TAVR II Pivotal Trial

*Medtronic*

N = 750

Ukončení 2026 (→ 2034)

PROGRESS

*Edwards Lifesciences*

N = 2250

Ukončení 2029 (→ 2037)