Aortální chlopeň

Nová doporučení pro diagnostiku a léčbu chlopenních vad 2017

KATEŘINA LINHARTOVÁ

KARDIOCHIRURGICKÉ ODDĚLENÍ FAKULTNÍ NEMOCNICE V PLZNI

2017 ESC/EACTS Guidelines for the management of valvular heart disease

The Task Force for the Management of Valvular Heart Disease of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

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Co je nového?

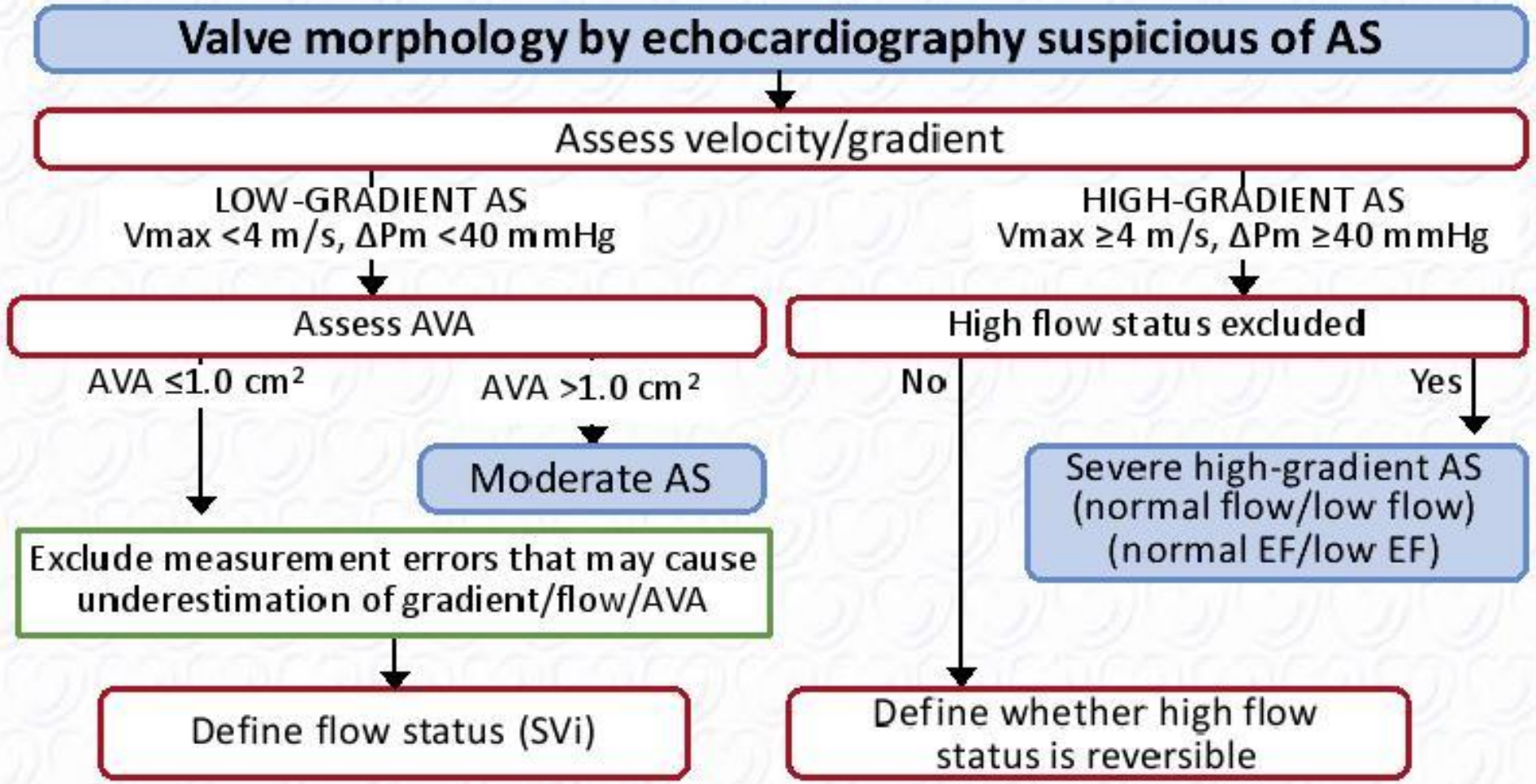
- Aortální stenóza
  - Diagnostika low flow low gradient AS
  - Indikace k intervenci
    - Biomarkery v rizikové stratifikaci
  - Posun v indikaci TAVI, vs. SAVR
- Aortální regurgitace – záchovné operace
  genetická dg.

Kardiotým
Centra chlopenních vad

Nová struktura

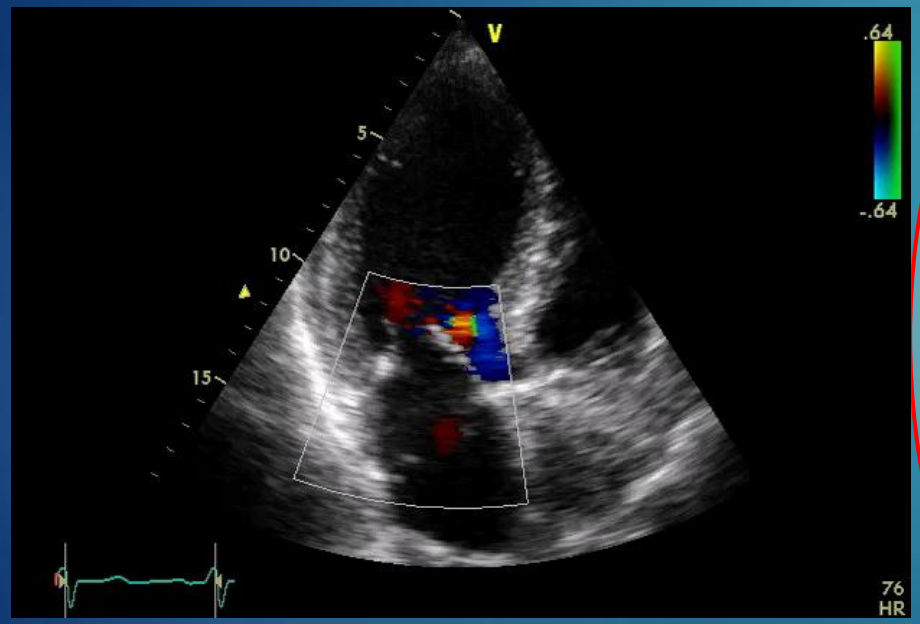
- Klíčové body
- Mezery v důkazech

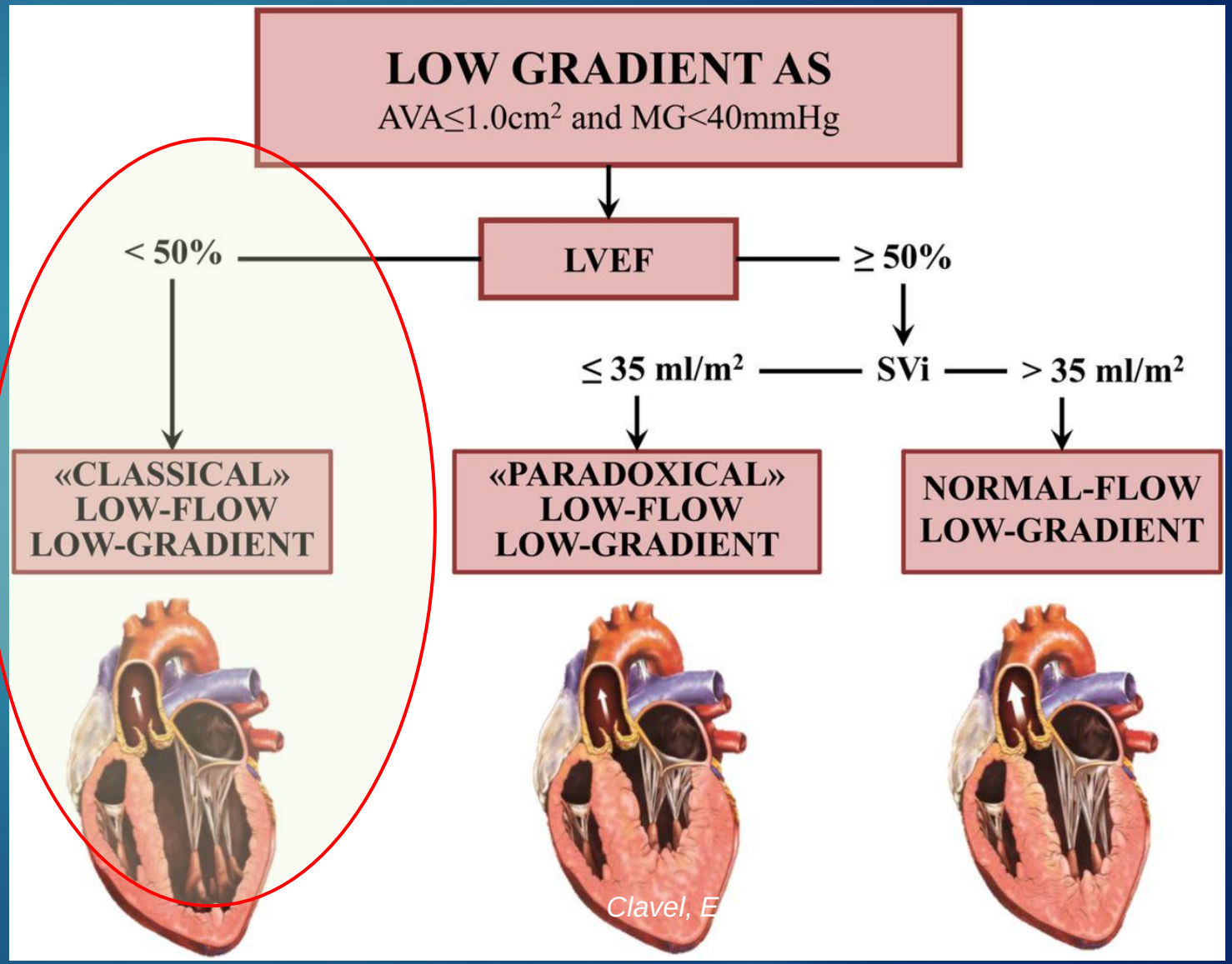
Stepwise integrated approach for the assessment of aortic stenosis severity *(Modified from Baumgartner et al.)*



2017 ESC/EACTS Guidelines for the Management of Valvular Heart Disease
(European Heart Journal 2017 - doi:10.1093/eurheartj/ehx391)

Symptomatická LF-LG AS s nízkou EF

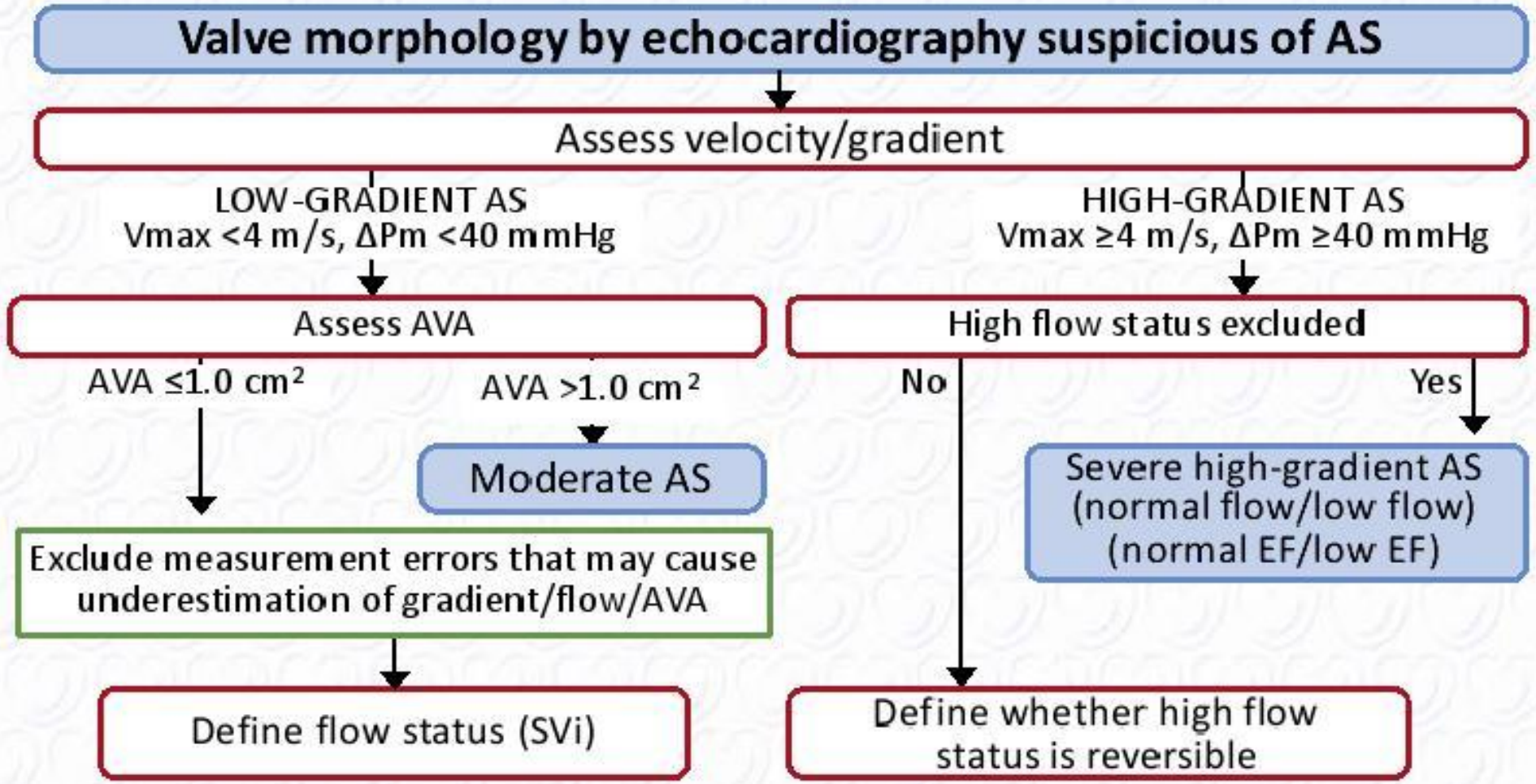




Symptomatická LF-LG AS s nízkou EF bez kontraktilní rezervy

Changes in recommendations	
2012	**2017**
Indications for intervention in symptomatic aortic stenosis	
IIb C Intervention may be considered in symptomatic patients with low-flow, low-gradient aortic stenosis and reduced ejection fraction without flow (contractile) reserve.	**IIa C** Intervention should be considered in symptomatic patients with low-flow, low-gradient aortic stenosis and reduced ejection fraction without flow (contractile) reserve, particularly when CT calcium scoring confirms severe aortic stenosis.

Stepwise integrated approach for the assessment of aortic stenosis severity *(Modified from Baumgartner et al.)*



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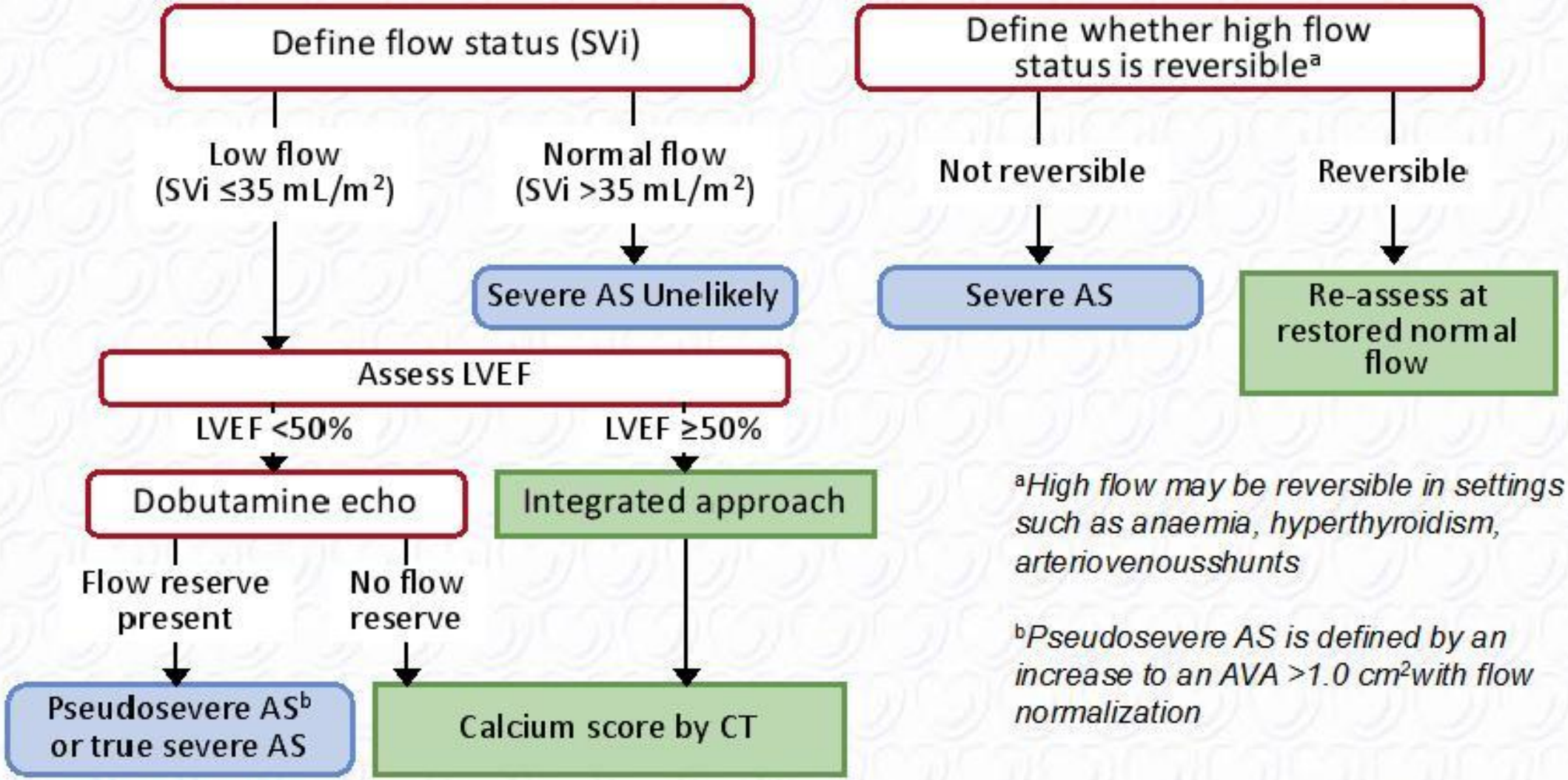
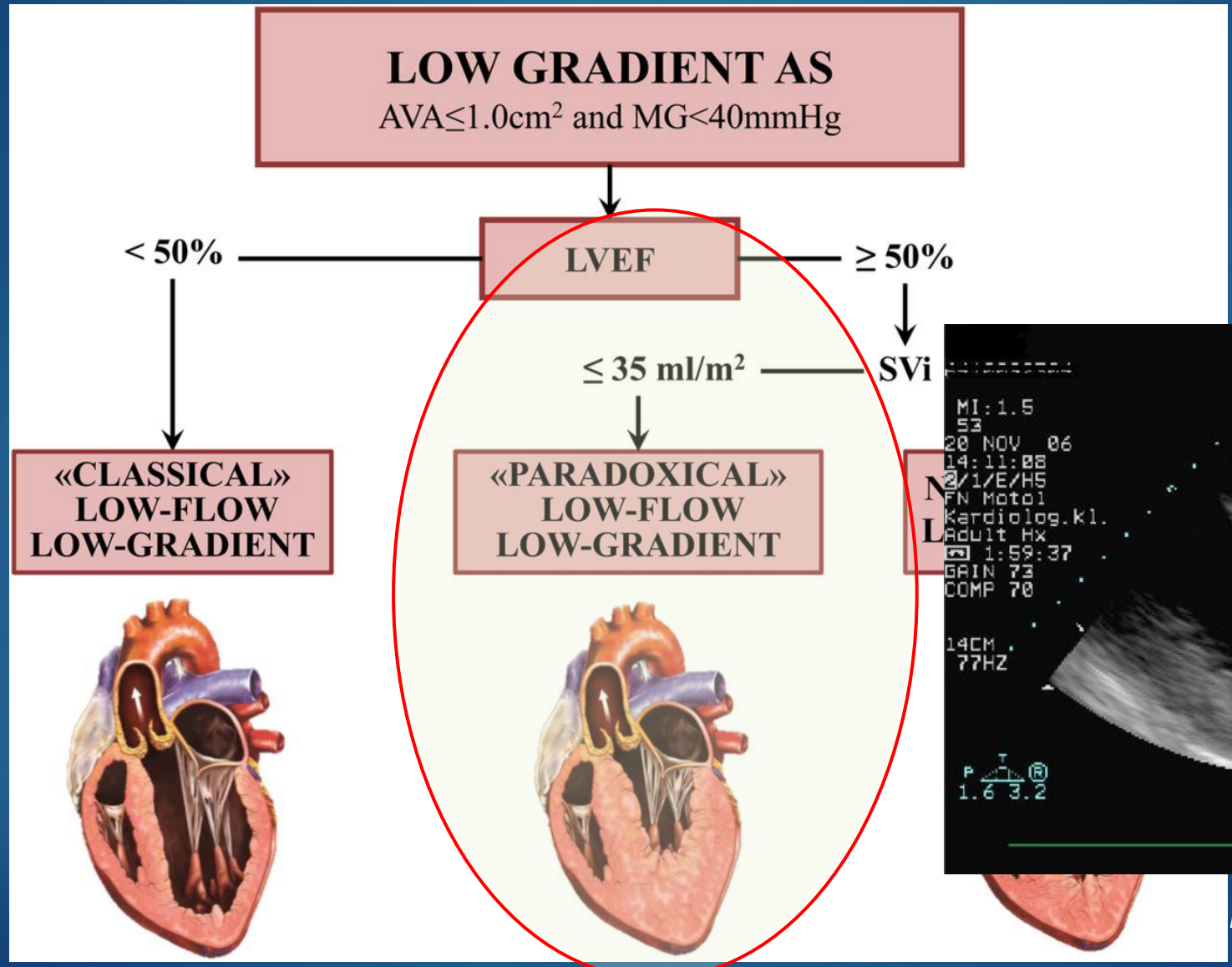
Stepwise integrated approach for the assessment of aortic stenosis severity (continued) - *(Modified from Baumgartner et al.)*

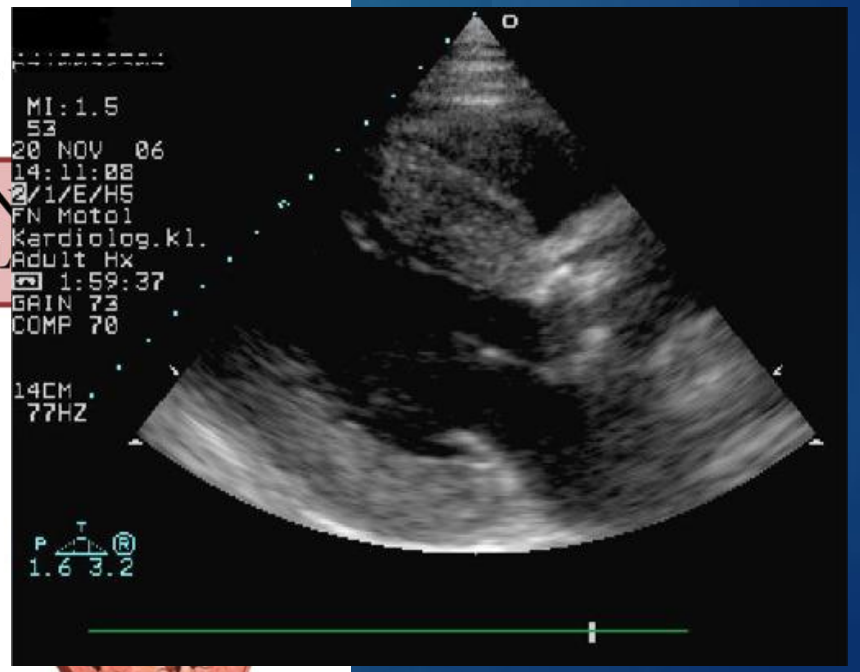


[a] *High flow may be reversible in settings such as anaemia, hyperthyroidism, arteriovenousshunts*

[b] *Pseudosevere AS is defined by an increase to an AVA >1.0 cm² with flow normalization*

„Paradoxní“ LF-LG AS

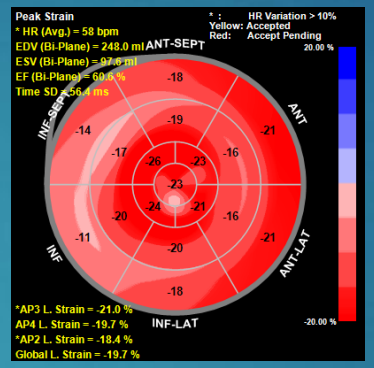




EHJ online 2016

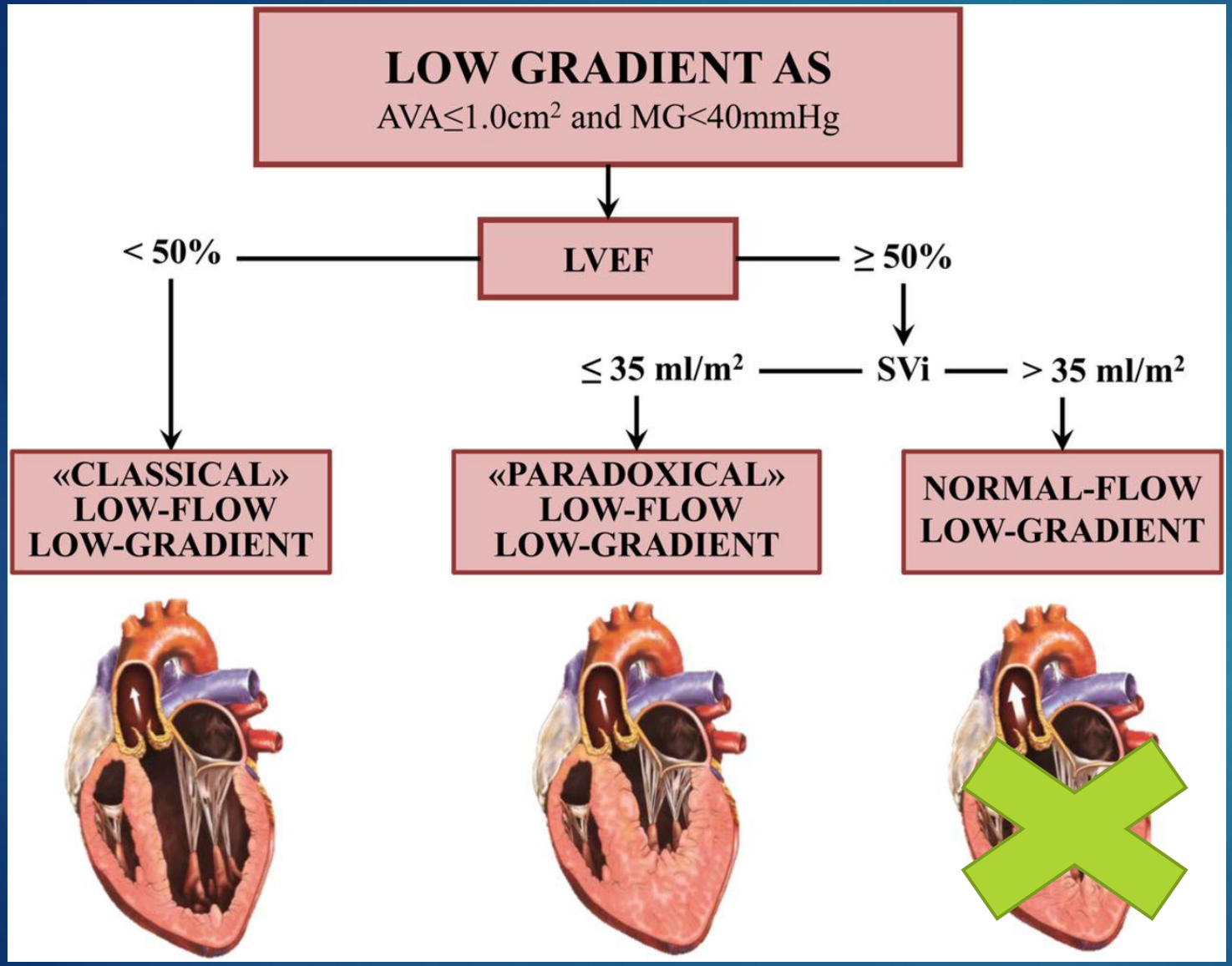
Kritéria zvyšující pravděpodobnost těžké AS s AVA < 1,0 při stř. grad. < 40 mm Hg a zachované EF

- Klinická kritéria
  - Typické symptomy, pro které není jiné vysvětlení
  - Starší nemocní (> 70 let)
- Zobrazovací metody – kvalitativní data
  - Hypertrofie LK (je třeba posoudit anamnézu) HT
  - Omezená longitudinální funkce LK, pro níž není jiné vysvětlení.
- Zobrazovací metody – kvantitativní data
  - Středni gradient 30–40 mm Hg
  - AVA ≤ 0,8 cm2
  - Nízký tepový objem (SVI < 35 ml/m2) potvrzený jinými metodami než doppler (LVOT pomocí 3D TEE, MSCT; CMR; invazivně)



- • Kalciové skóre měřené pomoci MSCT
  - Těžká AS velmi pravděpodobná: muži ≥ 3 000; ženy ≥ 1 600
  - Těžká AS pravděpodobná : muži ≥ 2 000; ženy ≥ 1 200
  - Těžká AS nepravděpodobná : muži < 1 600; ženy < 800

LF LG AS s normálním průtokem



Low gradient AS se zachovanou EF

heterogenní populace zahrnující pacienty s významnou i středně významnou AS

- chyby v měření, nekonzistence měření AVA a gradientů jsou hlavními zdroji špatné klasifikace (nadhodnocení AS)

?

Clavel, EHJ online 2016

Indikace k intervenci symptomatické AS

Recommendations	Class	Level
a) Symptomatic aortic stenosis		
Intervention is indicated in symptomatic patients with severe, high-gradient aortic stenosis (mean gradient ≥40 mmHg or peak velocity ≥4.0 m/s).	I	B
Intervention is indicated in symptomatic patients with severe low-flow, low-gradient (<40 mmHg) aortic stenosis with reduced ejection fraction, and evidence of flow (contractile) reserve excluding pseudo-severe aortic stenosis.	I	C
Intervention should be considered in symptomatic patients with low flow, low-gradient (<40 mmHg) aortic stenosis with normal ejection fraction after careful confirmation of severe aortic stenosis.	IIa	C
Intervention should be considered in symptomatic patients with low-flow, low-gradient aortic stenosis and reduced ejection fraction without flow (contractile) reserve, particularly when CT calcium scoring confirms severe aortic stenosis.	IIa	C
Intervention should not be performed in patients with severe comorbidities when the intervention is unlikely to improve quality of life or survival.	III	C

Indikace k operaci asymptomatické AS

Recommendations	Class	Level
SAVR should be considered in asymptomatic patients with severe aortic stenosis and abnormal exercise test showing fall in blood pressure below baseline.	IIa	C
SAVR should be considered in asymptomatic patients with normal ejection fraction and none of the above-mentioned exercise test abnormalities if the surgical risk is low and one of the following findings is present: – very severe aortic stenosis defined by a V_{max}>5.5 m/s, – severe valve calcification and a rate of V_{max} progression ≥0.3m/s/year, – markedly elevated BNP levels (>threefold age- and sex-corrected normalrange) confirmed by repeated measurements without other explanations, – severe pulmonary hypertension (systolic pulmonary artery pressure at rest >60 mmHg confirmed by invasive measurement) without other explanation.	IIa	C

Indikace k operaci -asymptomatická AS

Changes in recommendations	
2012	**2017**
Indications for surgery in asymptomatic aortic stenosis	
IIb C Markedly elevated BNP levels.	**IIa C** Markedly elevated BNP levels (>threefold age- and sex-corrected normal range) confirmed by repeated measurements without other explanations.
IIb C Increase of mean pressure gradient with exercise by >20 mmHg.	Taken out
IIb C Excessive LV hypertrophy in the absence of hypertension.	Taken out

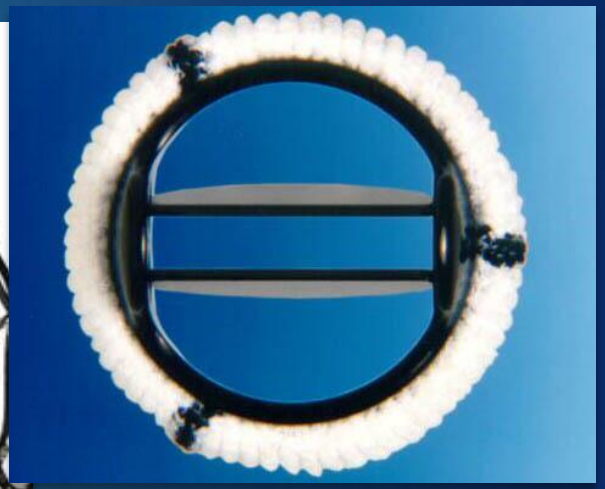
New IIa C recommendation:
Severe pulmonary hypertension (systolic pulmonary artery pressure at rest >60 mmHg confirmed by invasive measurement) without other explanation.

Goublaire C et al. JACC 2017, Domanski O et al. Int. J Cardiol, 2017 excercise) Clavel A et. al. JACC 2014 (BNP)

Typ intervence symptomatické AS

- Individuální posouzení technických aspektů, rizika/přínosu ….**I C**
- SAVR pro pacienty s nízkým operačním rizikem

  EuroSCORE II < 4 % nebo logistické EuroSCORE I < 10 % bez dalších RF jako vetchost nemocného, porcelánová aorta, následky ozáření hrudníku). **I B**
- TAVI, kde SAVR dle rozhodnutí kardiotýmu není vhodná. **I B**
- TAVI n. SAVR - dle kardiotýmu pro pt s vysokým operačním rizikem. TAVI preferenčně u starších, kde vhodný transfemorální přistup. **I B**



Parametry, které je třeba zvažovat při rozhodování mezi operaci a TAVI - klinické

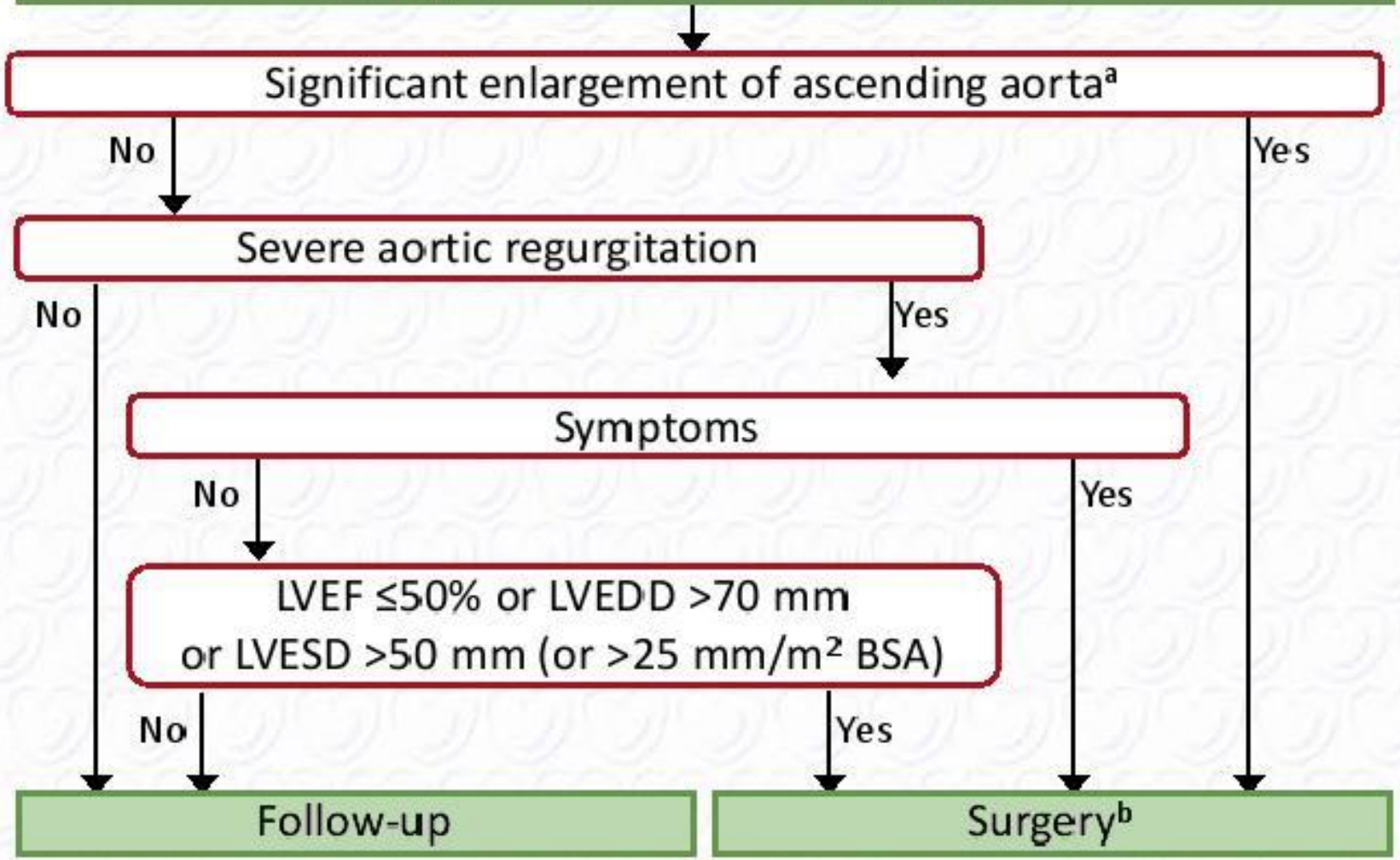
	Favours TAVI	Favours SAVR
Clinical characteristics		
STS/EuroSCORE II <4% (logistic EuroSCORE I<10%)		+
STS/EuroSCORE II ≥4% (logistic EuroSCORE I ≥10%)	+	
Presence of severe comorbidity (not adequately reflected by scores)	+	
Age <75 years		+
Age ≥75 years	+	
Previous cardiac surgery	+	
Frailty	+	
Restricted mobility and conditions that may affect the rehabilitation process after the procedure	+	
Suspicion of endocarditis		+

	Favours TAVI	Favours SAVR
Anatomical and technical aspects *(continued)*		
Sequelae of chest radiation	+	
Porcelain aorta	+	
Presence of intact coronary bypass grafts at risk when sternotomy is performed	+	
Expected patient–prosthesis mismatch	+	
Severe chest deformation or scoliosis	+	
Short distance between coronary ostia and aortic valve annulus		+
Favourable access for transfemoral TAVI	+	
Unfavourable access (any) for TAVI		+

	Favours TAVI	Favours SAVR
Anatomical and technical aspects *(continued)*		
Size of aortic valve annulus out of range for TAVI		+
Aortic root morphology unfavourable for TAVI		+
Valve morphology (bicuspid, degree of calcification, calcification pattern) unfavourable for TAVI		+
Presence of thrombi in aorta or LV		+
Size of aortic valve annulus out of range for TAVI		+
Aortic root morphology unfavourable for TAVI		+
Valve morphology (bicuspid, degree of calcification, calcification pattern) unfavourable for TAVI		+
Presence of thrombi in aorta or LV		+

	Favours TAVI	Favours SAVR
Cardiac conditions in addition to aortic stenosis that require consideration for concomitant intervention *(continued)*		
Severe primary mitral valve disease, which could be treated surgically		+
Severe tricuspid valve disease		+
Aneurysm of the ascending aorta		+
Septal hypertrophy requiring myectomy		+
Severe CAD requiring revascularization by CABG		+

Management of aortic regurgitation



[a] *See table of recommendations for definitions of aortic diameter*

[b] *Surgery should also be considered if significant changes in LV and aortic size occur during FU (see table)*

AR, dilatace kořene a ascendentní aorty

2017 New recommendations
Indications for surgery in severe aortic regurgitation and aortic root disease
New I C recommendations: Heart Team discussion is recommended in selected patients in whom aortic valve repair may be a feasible alternative to valve replacement. • Aortic valve repair, using the reimplantation or remodelling with aortic annuloplasty technique, is recommended in young patients with aortic root dilation and tricuspid aortic valves, when performed by experienced surgeons.
New IIa C recommendation: Surgery should be considered in patients who have aortic root disease with maximal ascending aortic diameter: ≥45 mmin patients with a *TGFBR1* or*TGFBR2* mutation (including Loeys-Dietz syndrome)*.
* *A lower threshold of 40 mm may be considered in women with low BSA, in patients with a TGFBR2 mutation, or in patients with severe extra-aortic features.*

Indikace k operaci AR

Recommendations	Class	Level
A. Severe aortic regurgitation		
Surgery is indicated in symptomatic patients.	I	B
Surgery is indicated in asymptomatic patients with resting LVEF ≤50%.	I	B
Surgery is indicated in patients undergoing CABG or surgery of the ascending aorta or of another valve.	I	C
Heart Team discussion is recommended in selected patients* in whom aortic valve repair may be a feasible alternative to valve replacement.	I	C
Surgery should be considered in asymptomatic patients with resting ejection fraction >50% with severe LV dilatation: LVEDD >70 mm, or LVESD>50 mm (or LVESD >25 mm/m² BSA in patients with small body size).	IIa	B

Indikace k operaci kořene a tubulární části ascendentní aorty

Recommendations	Class	Level
B. Aortic root or tubular ascending aorta aneurysm (irrespective of the severity of aortic regurgitation)		
Surgery should be considered in patients who have aortic root disease with maximal ascending aortic diameter: • ≥45 mm in the presence of Marfan syndrome and additional risk factors[a], or patients with a *TGFBR1* or *TGFBR2* mutation (including Loeys-Dietz syndrome)[b]. • ≥50 mm in the presence of a bicuspid valve with additional risk factors[a] or coarctation. • ≥55 mm for all other patients.	IIa	C
When surgery is primarily indicated for the aortic valve, replacement of the aortic root or tubular ascending aorta should be considered when ≥45 mm, particularly in the presence of a bicuspid valve.	IIa	C
Surgery is indicated in patients with Marfan syndrome, who have aortic root disease with a maximal ascending aortic diameter ≥50 mm.	I	C

AS, AR – klíčové body

- Aortální stenóza
  - Diagnostika AS echokardiografie + klinický obraz
    - Komplement – zátěž, CT kalciové skore, biomarkery
  - Riziková stratifikace
  - Posun v indikaci TAVI, vs. SAVR
- Aortální regurgitace
  - Záchovné operace
  - Dilatace aorty - Přesná dg. vyvolávající patologie včetně genetického vyšetření.

AS, AR – kde chybí důkazy

- Časné markery dysfunkce LK a jejich vliv na prognózu –AS, AR
- Medikamentózní léčba, riziková stratifikace a progrese dilatace aorty u BAV
- Identifikace pacientů LG AS, kteří by mohli profitovat z výkonu
- Identifikace asymptomatických pacientů s AS, kteří by mohli profitovat z časné operace
- Málo dat o dlouhodobé trvanlivosti TAVI
- Kriteria rozhodování mezi TAVI a SAVR, TAVI u pacientů s
- nízkým rizikem??
- Upřesnění kriterií, kdy už TAVI neprovádět

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Document Revie... [1] (EACTS Review Coordina... le Barbato (Italy), Héctor Bu... Martin Czerny (Germany), Victo... (France), Oliver Gaemperl... lichael Haude ...

Doporučení pro... | Guidelines

Doporučení ESC pro léčbu chlopenních vad, 2017.

Souhrn vypracovaný Českou kardiologickou společností

(2017 ESC/EACTS Guidelines for the management of valvular heart disease: Summary prepared by the Czech Society of Cardiology)

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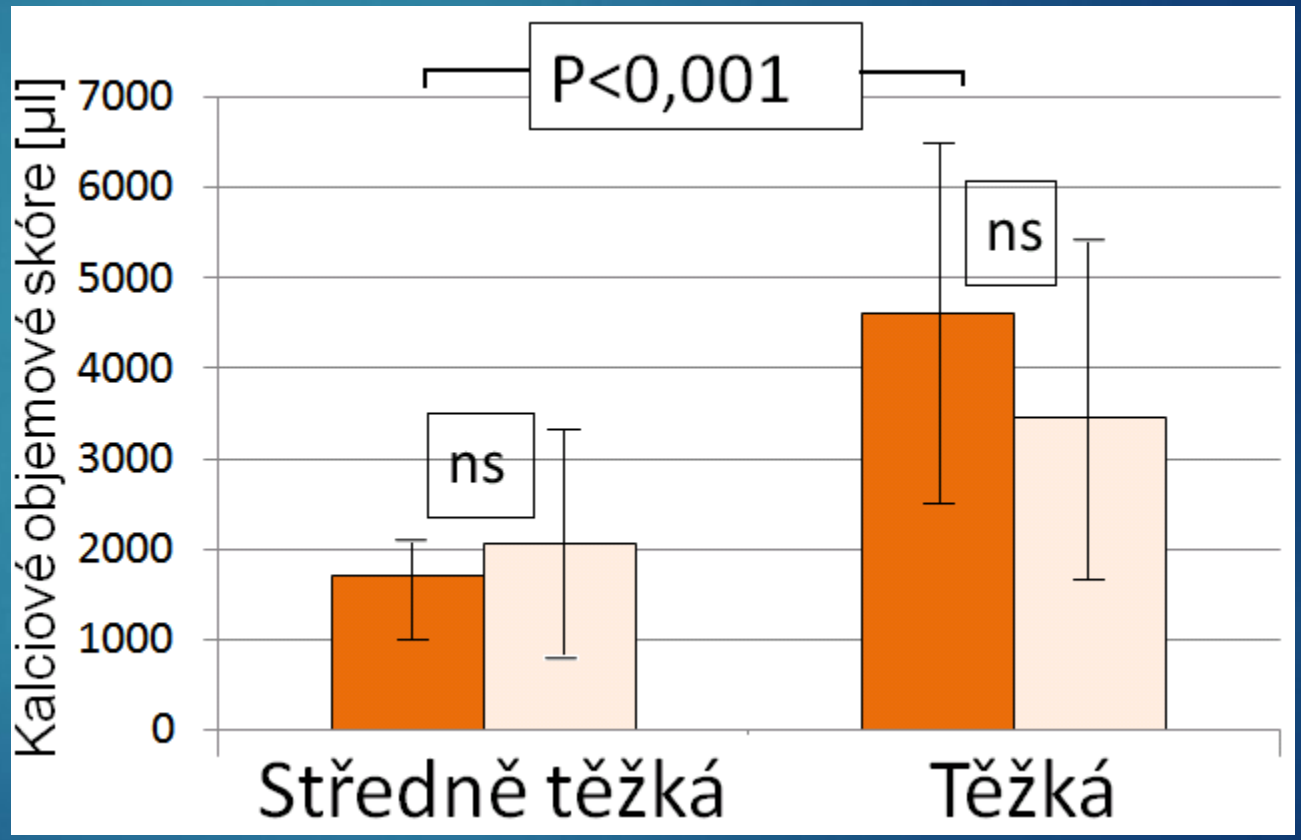
Kalciové skóre vs. transaortální gradient

r=0,53

Bikuspidální

Trikuspidální



n=37 stř. grad 30-50 mm >50 mmHg

Ferda J, Linhartová K, Kreuzberg B. Eur J Radiol 2008;68:471-5