ESC European Society of Cardiology
European Heart Journal (2017) 38, 2739–2786
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ESC/EACTS GUIDELINES

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)

Pour les cardiologues interventionnels

F Casassus

Clinique St Augustin, Bordeaux

On a tous quelque chose de …

Conflit d'intérêt

- Aucun

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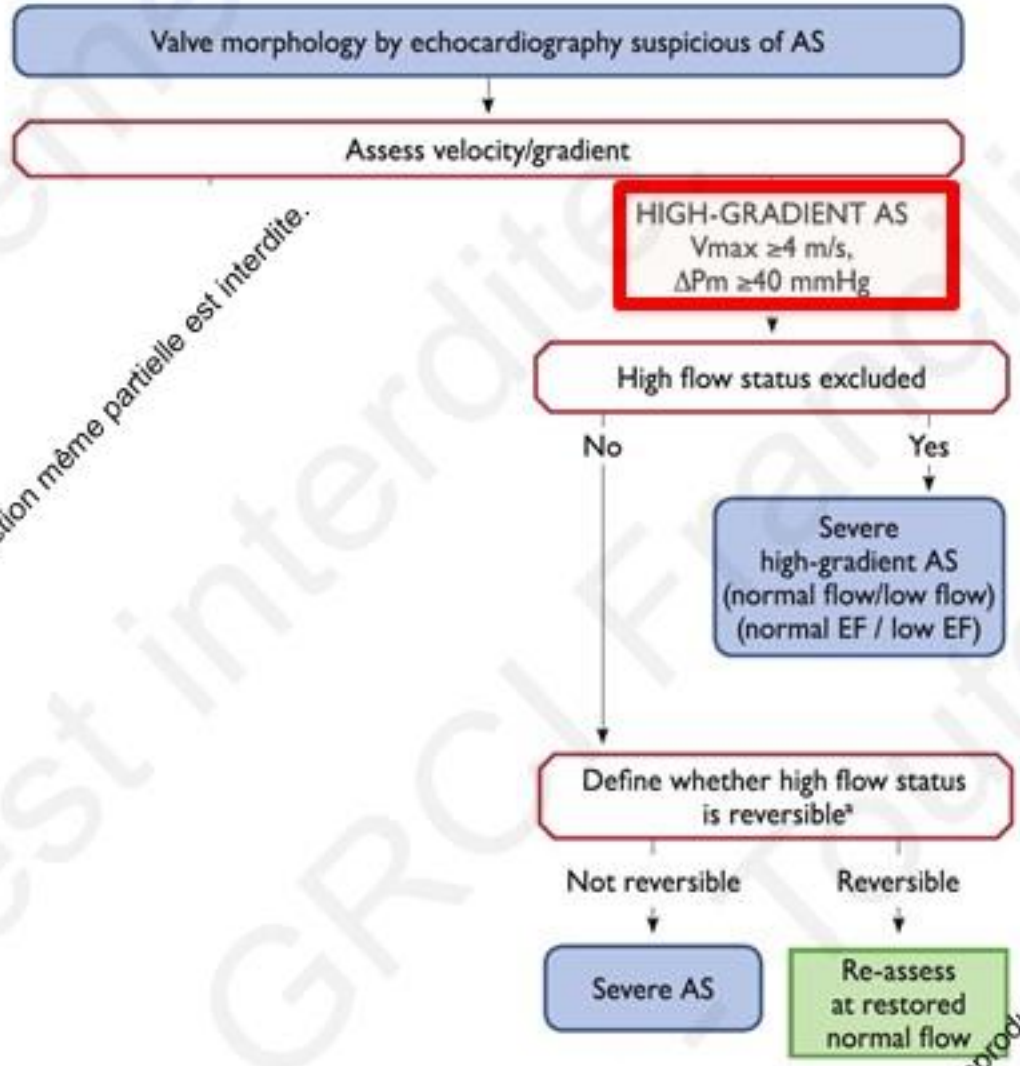
- Dernière Reco en 2012
- 53 pages concentrées
- Présentation simplifiée
- Version smartphone

Heart team à l'honneur

Requirements
Multidisciplinary teams with competencies in valve replacement, aortic root surgery, mitral, tricuspid and aortic valve repair, as well as transcatheter aortic and mitral valve techniques including reoperations and reinterventions. The Heart Teams must meet on a regular basis and work with standard operating procedures.
Imaging, including 3D and stress echocardiographic techniques, perioperative TOE, cardiac CT, MRI, and positron emission tomography-CT.
Regular consultation with community, other hospitals, and extracardiac departments, and between non-invasive cardiologists and surgeons and interventional cardiologists.
Back-up services including other cardiologists, cardiac surgeons, intensive care and other medical specialties.
Data review: • Robust internal audit processes including mortality and complications, repair rates, durability of repair, and reoperation rate with a minimum of 1-year follow-up. • Results available for review internally and externally. • Participation in national or European quality databases.

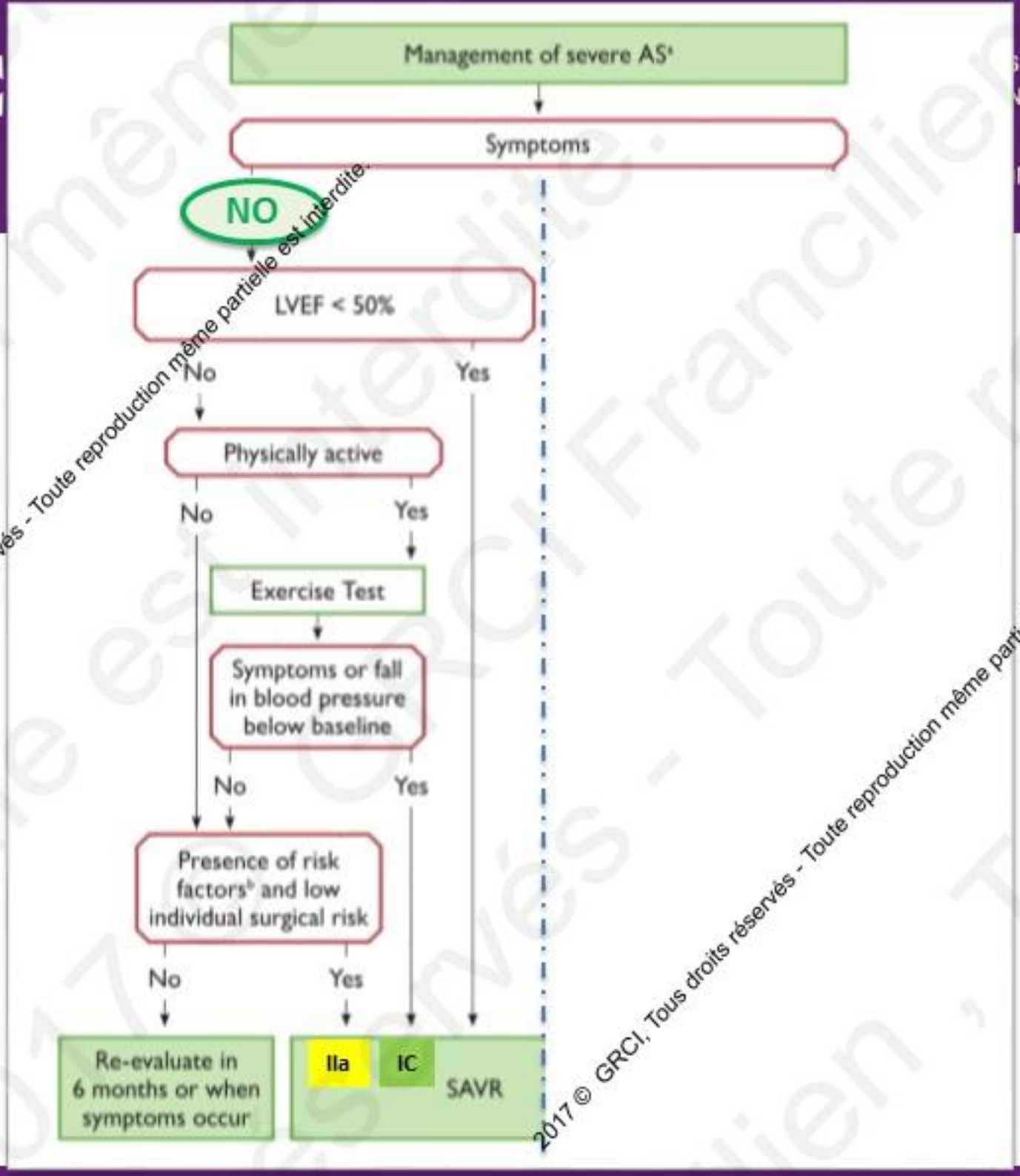


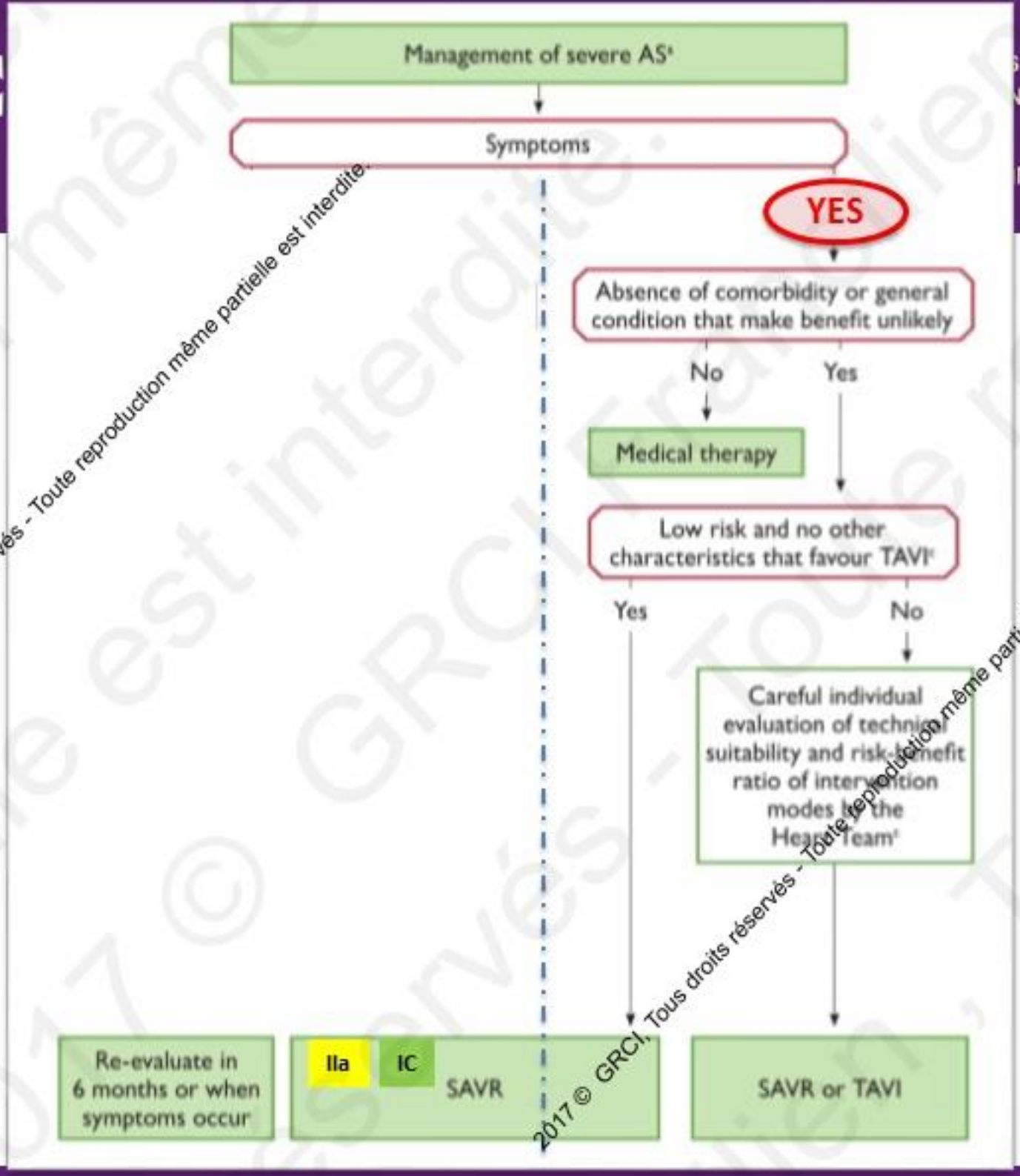
Changes in recommendations	
2012	**2017**
Indications for intervention in symptomatic aortic stenosis	
IIb C Intervention may be considered in symptomatic patients with low-flow, low-gradient aortic stenosis and reduced ejection fraction without flow (contractile) reserve.	**IIa C** Intervention should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

Evaluer ...rt-Team

	Favours TAVI	Favours SAVR
Anatomical and technical aspects		
Favourable access for transfemoral TAVI	+	
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		
Severe CAD requiring revascularization by CABG		+
Severe primary mitral valve disease, which could be treated surgically		+
Severe tricuspid valve disease		+
Aneurysm of the ascending aorta		+
Septal hypertrophy requiring myectomy		+



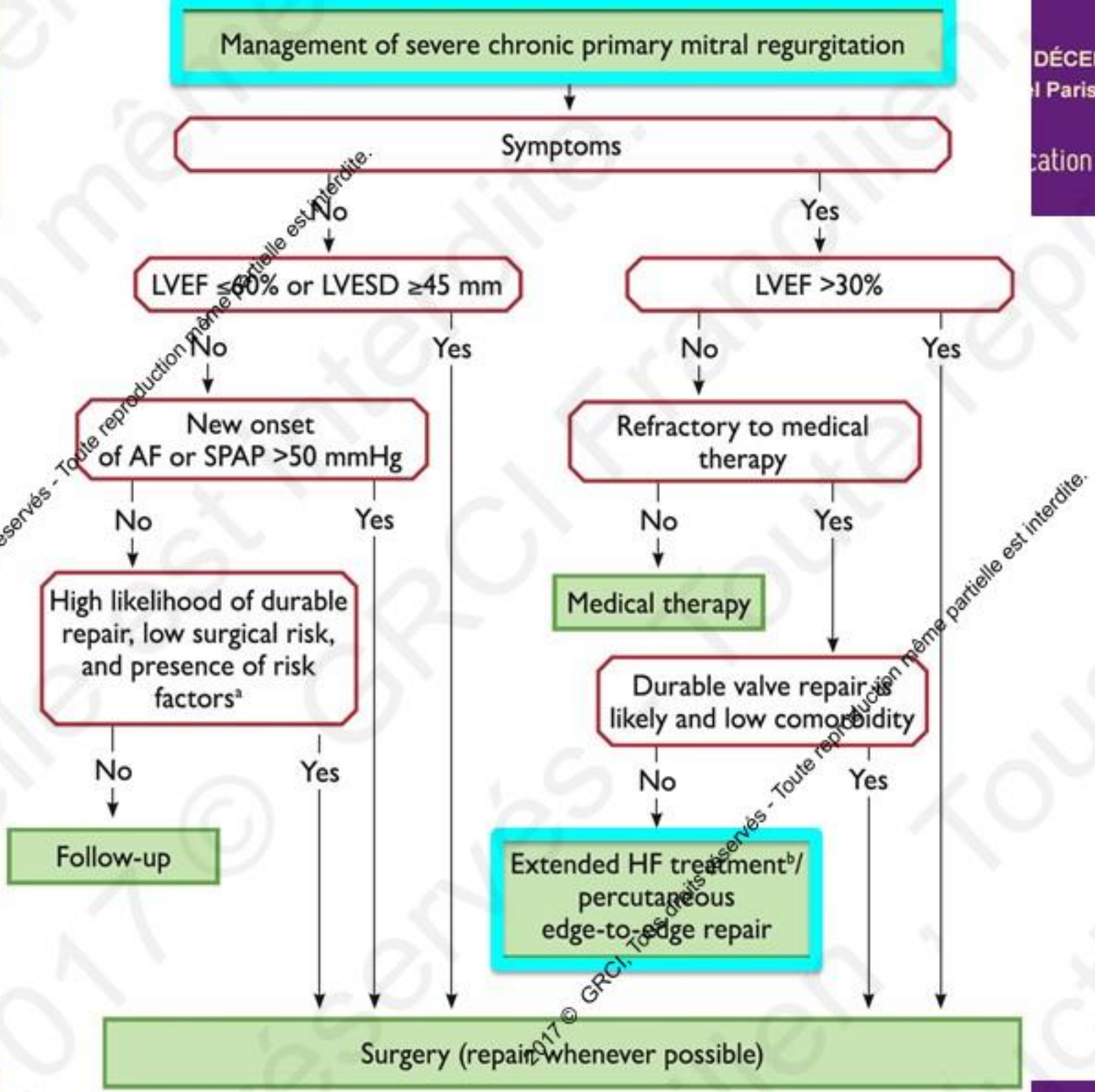


Changes in recommendations	
2012	**2017**
Choice of intervention in symptomatic aortic stenosis	
Recommendations for the use of TAVI *(Tables on "Contra-indications for TAVI" and Table on "Recommendations for the use of TAVI").*	**Replaced by recommendations for the choice of intervention.** *See Section b in Table "Indications for intervention in aortic stenosis and recommendations for the choice of intervention" (Section 5.2), and Table "Aspects to be considered by the heart team for the decision between SAVR and TAVI in patients at increased surgical risk".*

b) Choice of intervention in symptomatic aortic stenosis		
Aortic valve interventions should only be performed in centres with both departments of cardiology and cardiac surgery on-site, and with structured collaboration between the two, including a Heart Team (heart valve centres).	I	C

Recommendations	Class	Level
The choice for intervention must be based on careful individual evaluation of technical suitability and weighing of risks and benefits of each modality (aspects to be considered are listed in the according table). In addition, the local expertise and outcomes data for the given intervention must be taken into account.	I	C
SAVR is recommended in patients at low surgical risk (STS or EuroSCORE II <4% or logistic EuroSCORE I <10% and no other risk factors not included in these scores, such as frailty, porcelain aorta, sequelae of chest radiation).	I	B
TAVI is recommended in patients who are not suitable for SAVR as assessed by the Heart Team.	I	B

Recommendations	Class	Level
In patients who are at increased surgical risk (STS or EuroSCORE II ≥4% or logistic EuroSCORE I ≥10% or other risk factors not included in these scores such as frailty, porcelain aorta, sequelae of chest radiation), the decision between SAVR and TAVI should be made by the Heart Team according to the individual patient characteristics (see according table), with TAVI being favoured in elderly patients suitable for transfemoral access.		B
Balloon aortic valvotomy may be considered as a bridge to SAVR or TAVI in haemodynamically unstable patients or in patients with symptomatic severe aortic stenosis who require urgent major non-cardiac surgery.	IIb	C



EACTS

Indications for intervention in severe primary mitral regurgitation *(continued)*

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Recommendations	Class	Level
Mitral valve replacement may be considered in symptomatic patients with severe LV dysfunction (LVEF <30% and/or LVESD >55 mm) refractory to medical therapy when likelihood of successful repair is low and comorbidity low.	IIb	C
Percutaneous edge-to-edge procedure may be considered in patients with symptomatic severe primary mitral regurgitation who fulfil the echocardiographic criteria of eligibility and are judged inoperable or at high surgical risk by the Heart Team, avoiding futility.	IIb	C

Changes in recommendations	
2012	**2017**
Indications for mitral valve intervention in secondary mitral regurgitation *(continued)*	
	IIb C (modified) *(continued)* When revascularization is not indicated and surgical risk is not low, a percutaneous edge-to-edge procedure may be considered in patients with severe secondary mitral regurgitation and LVEF >30%, who remain symptomatic despite optimal medical management (including CRT if indicated) and who have a suitable valve morphology by echocardiography, avoiding futility.

Changes in recommendations	
2012	**2017**
Indications for mitral valve intervention in secondary mitral regurgitation *(continued)*	
	IIb C (modified) *(continued)* In patients with severe secondary mitral regurgitation and LVEF <30% who remain symptomatic despite optimal medical management (including CRT if indicated) and who have no option for revascularization, the Heart Team may consider percutaneous edge-to-edge procedure or valve surgery after careful evaluation for ventricular assist device or heart transplant according to individual patient characteristics.

Insuffisance aortique

- Pas de grande modification
- Qd possible: annuloplastie valvulaire aortique
- Pas de place pour TAVI

Recommendations	Class	Level
3. Aortic root or tubular ascending aorta aneurysm (irrespective of the severity of aortic regurgitation) *(continued)*		
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

Rétrécissement Mitral

EAC

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Contra-indications
Mitral valve area >1.5 cm² *
Left atrial thrombus
More than mild mitral regurgitation
Severe or bi-commissural calcification
Absence of commissural fusion
Severe concomitant aortic valve disease, or severe combined tricuspid stenosis and regurgitation requiring surgery
Concomitant CAD requiring bypass surgery

characteristics*

No

Yes

PMC

Surgery*

Surgery

PMC

Dysfonction prothèse

2017 New recommendations (continued)

Management of prosthetic valve dysfunction
New recommendations:

I C
Anticoagulation using a VKA and/or UFH is recommended in bioprosthetic valve thrombosis before considering reintervention.

I C
Reoperation is recommended if paravalvular leak is related to endocarditis or causes haemolysis requiring repeated blood transfusions or leading to severe symptoms.

IIb C
Transcatheter closure may be considered for paravalvular leaks with clinically significant regurgitation in surgical high-risk patients (Heart Team decision).

IIa C
Transcatheter valve-in-valve implantation in aortic position should be considered by the Heart Team depending on the risk of reoperation and the type and size of prosthesis.

2017 New recommendations

IIa B

- In patients treated with coronary stent implantation, triple therapy with aspirin (75-100 mg/day), clopidogrel (75 mg/day), and VKA should be considered for 1 month, irrespective of the type of stent used and the clinical presentation (i.e. ACS or stable CAD).
- Triple therapy comprising aspirin (75-100 mg/day), clopidogrel (75 mg/day), and VKA for longer than 1 month and up to 6 months should be considered in patients with high ischaemic risk due to ACS or other anatomical/procedural characteristics that outweigh the bleeding risk.

IIa A

- Dual therapy comprising VKA and clopidogrel (75 mg/day) should be considered as an alternative to 1-month triple antithrombotic therapy in patients in whom the bleeding risk outweighs the ischaemic risk.

2017 New recommendations

IIa B

- In patients who have undergone PCI, discontinuation of antiplatelet treatment should be considered at 12 months.
- In patients requiring aspirin and/or clopidogrel in addition to VKA, the dose intensity of VKA should be carefully regulated with a target INR in the lower part of the recommended target range and a time in therapeutic range >65–70%.

IIa C

- Dual antiplatelet therapy should be considered for the first 3–6 months after TAVI, followed by lifelong single antiplatelet therapy in patients who do not need oral anticoagulation for other reasons.

IIb C

- Single antiplatelet therapy may be considered after TAVI in the case of high bleeding risk.

III B

- The use of NOACs is contraindicated in mechanical valves

✓AOD possible dans FA + valvulopathie (sauf RM et valve méca): IIa

Take Home messages

Pour le cardiologue interventionnel
Pas de grands changements sur

- Insuffisance mitrale I^{aire} ou II^{aire}: mitraclip
- Rétrécissement mitral: Valvuloplastie mitrale
- Tricuspide / Insuffisance aortique: TTT chirurgical

Importance du Heart Team

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GRCI 2017

6 AU 8 DÉCEMBRE 2017
Novotel Paris Tour Eiffel

GRCI 2017 France

6 AU 8 DÉCEMBRE 2017
Novotel Paris Tour Eiffel

Passion Communication Education

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RAo Asymptomatique

C) Asymptomatic patients with severe aortic stenosis (refers only to patients eligible for surgical valve replacement)		
SAVR is indicated in asymptomatic patients with severe aortic stenosis and systolic LV dysfunction (LVEF <50%) not due to another cause.	I	C
SAVR is indicated in asymptomatic patients with severe aortic stenosis and an abnormal exercise test showing symptoms on exercise clearly related to aortic stenosis.	I	C
SAVR should be considered in asymptomatic patients with severe aortic stenosis and an abnormal exercise test showing a decrease 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 ≥0.3 m/s/year • Markedly elevated BNP levels (>threefold age- and sex-corrected normal range) 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

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

Recommendations	Class	Level
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
b) Choice of intervention in symptomatic aortic stenosis		
Aortic valve interventions should only be performed in centres with both departments of cardiology and cardiac surgery on-site, and with structured collaboration between the two, including a Heart Team (heart valve centres).	I	C

Insuffisance Mitrale

Changes in recommendations	
2012	**2017**
Indications for intervention in asymptomatic severe primary mitral regurgitation	
IIb C Surgery may be considered in asymptomatic patients with preserved LV function, high likelihood of durable repair, low surgical risk, and: • Left atrial dilatation (volume index ≥60 mL/m² BSA) and sinus rhythm.	**IIa C (modified!)** Surgery should be considered in asymptomatic patients with preserved LVEF (>60%) and LVESD 40–44 mm when a durable repair is likely, surgical risk is low, the repair is performed in heart valve centres, and the following finding is present: presence of significant LA dilatation (volume index ≥60 mL/m² BSA) in sinus rhythm.
Pulmonary hypertension on exercise (SPAP ≥60 mmHg at exercise).	**Taken out**

EACTS

Indications for intervention in severe primary mitral regurgitation

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Recommendations	Class	Level
Mitral valve repair should be the preferred technique when the results are expected to be durable.	I	C
Surgery is indicated in symptomatic patients with LVEF >30%.	I	B
Surgery is indicated in asymptomatic patients with LV dysfunction (LVESD ≥45 mm* and/or LVEF ≤60%).	I	B
Surgery should be considered in asymptomatic patients with preserved LV function (LVESD <45 mm and LVEF >60%) and atrial fibrillation secondary to mitral regurgitation or pulmonary hypertension (systolic pulmonary pressure at rest >50 mmHg**).	IIa	B

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Indications for intervention in severe primary mitral regurgitation *(continued)*

Recommendations	Class	Level
Surgery should be considered in asymptomatic patients with preserved LVEF (>60%) and LVESD 40–44 mm* when a durable repair is likely, surgical risk is low, the repair is performed in heart valve centres, and at least one of the following findings is present: - flail leaflet or, - presence of significant LA dilatation (volume index ≥60 mL/m² BSA) in sinus rhythm.	IIa	C
Mitral valve repair should be considered in symptomatic patients with severe LV dysfunction (LVEF <30% and/or LVESD >55 mm) refractory to medical therapy when likelihood of successful repair is high and comorbidity low.	IIa	C

EACTS

Indications for mitral valve intervention in chronic secondary mitral regurgitation

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Recommendations	Class	Level
Surgery is indicated in patients with severe secondary mitral regurgitation undergoing CABG and LVEF >30%.	I	C
Surgery should be considered in symptomatic patients with severe secondary mitral regurgitation, LVEF <30% but with an option for revascularization, and evidence of myocardial viability.	IIa	C
When revascularization is not indicated, surgery may be considered in patients with severe secondary mitral regurgitation and LVEF >30%, who remain symptomatic despite optimal medical management (including CRT if indicated) and have a low surgical risk.	IIb	C

EACTS

Indications for mitral valve intervention in chronic secondary mitral regurgitation *(continued)*

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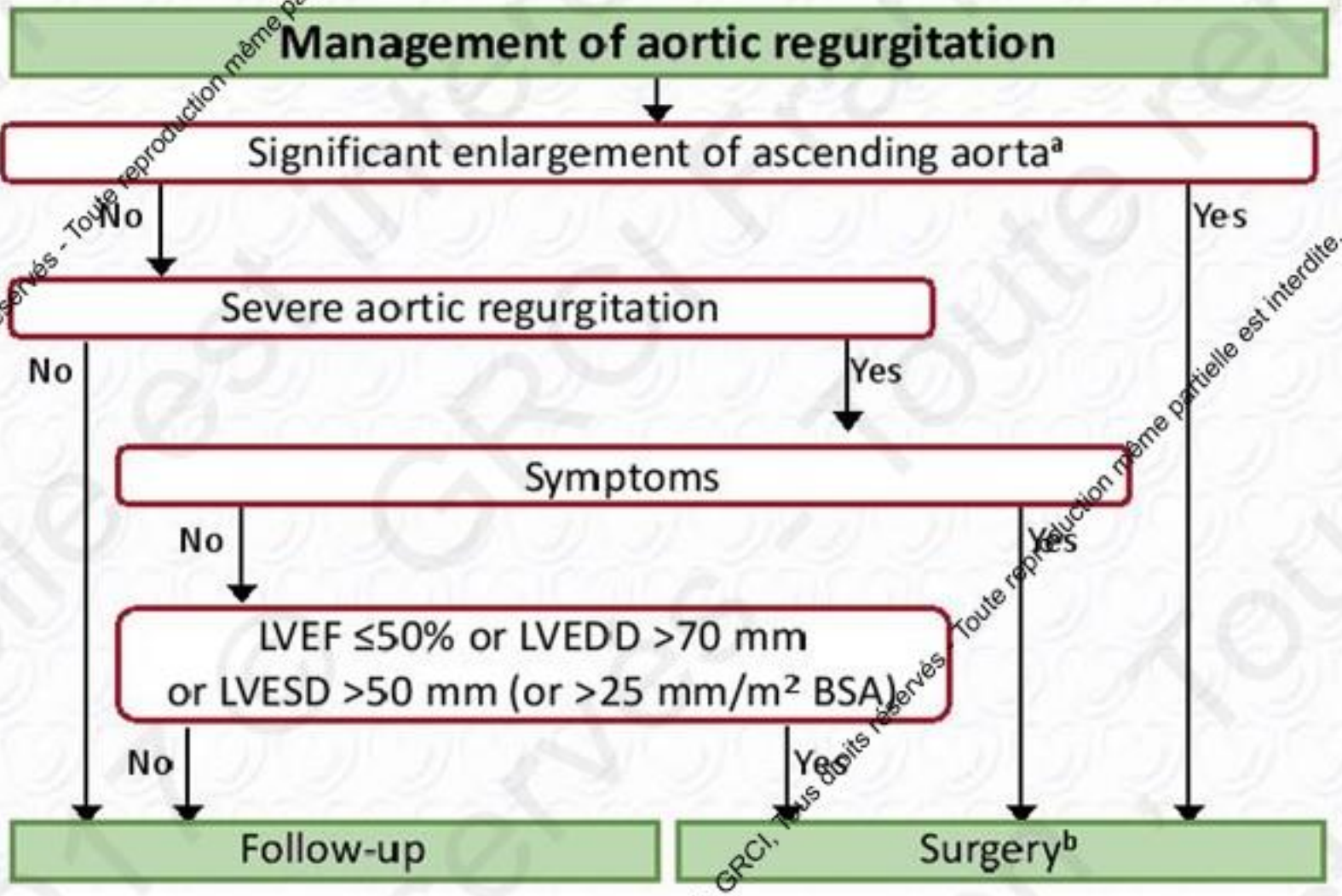
Recommendations	Class	Level
When revascularization is not indicated and surgical risk is not low, a percutaneous edge-to-edge procedure may be considered in patients with severe secondary mitral regurgitation and LVEF >30% who remain symptomatic despite optimal medical management (including CRT if indicated) and who have a suitable valve morphology by echocardiography, avoiding futility.	IIb	C
In patients with severe secondary mitral regurgitation and LVEF <30% who remain symptomatic despite optimal medical management (including CRT if indicated) and who have no option for revascularization, the Heart Team may consider percutaneous edge-to-edge procedure or valve surgery after careful evaluation for ventricular assist device or heart transplant according to individual patient characteristics.	IIb	C



2017 New recommendations

Management of CAD in patients with VHD

New IIa C recommendations:

- CT angiography should be considered as an alternative to coronary angiography before valve surgery in patients with severe VHD and low probability of CAD, or in whom conventional coronary angiography is technically not feasible or associated with a high risk.
- PCI should be considered in patients with a primary indication to undergo TAVI and coronary artery diameter stenosis >70% in proximal segments.
- PCI should be considered in patients with a primary indication to undergo transcatheter mitral valve interventions and coronary artery diameter stenosis >70% in proximal segments.

Management of atrial fibrillation in VHD

New additional recommendations:

See new Table *"Management of atrial fibrillation in patients with VHD"* Section 3.7.2.