Recommandations ESC 2017 valvulopathies

A. Darif

Sténose Aortique

2017 ESC/EACTS Valvular Heart Disease GL

AORTIC STENOSIS

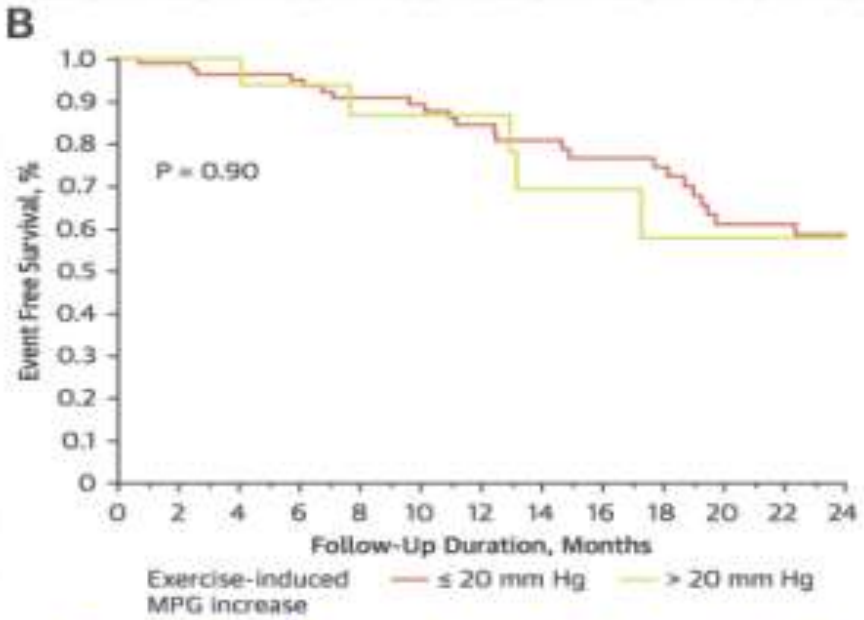
Indications for surgery in asymptomatic aortic stenosis

2012	2017
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

2017 New recommendation
New IIa C recommendation: Severe pulmonary hypertension (systolic pulmonary artery pressure at rest >60 mmHg confirmed by invasive measurement) without other explanation.

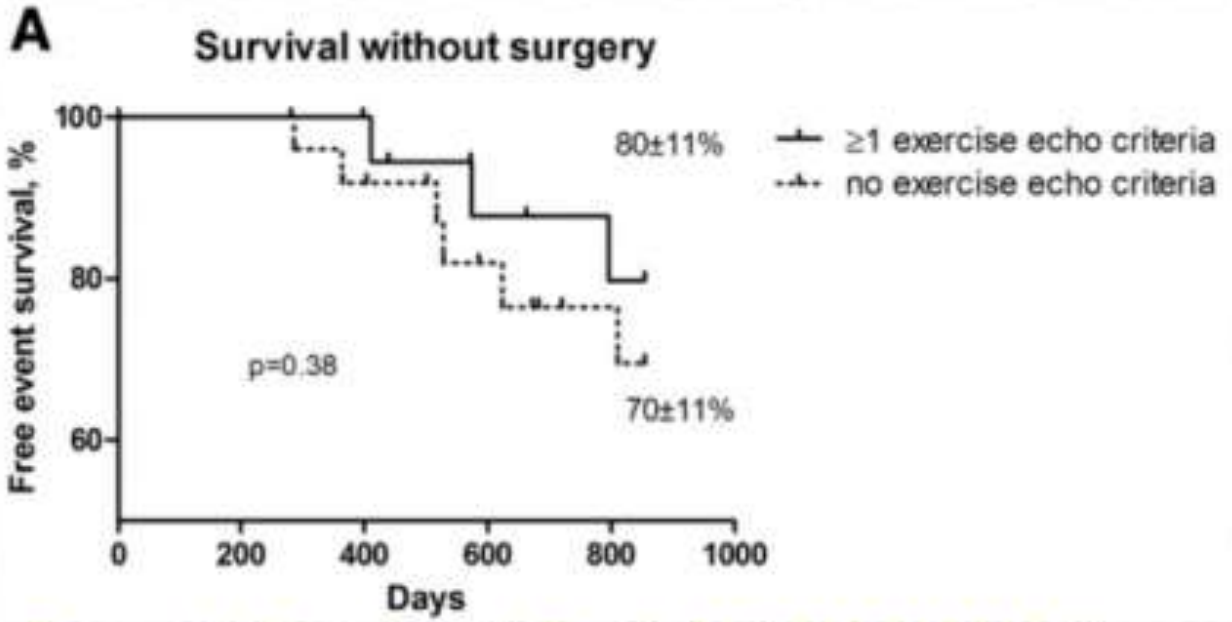
EXERCISE ECHOCARDIOGRAPHY IN ASYMPT. AS

112 pts., mean FU 14 months
30 events, 25 AVR, no deaths



Goublaire C et al JACC-Img 2017;epub

51 pts., mean FU 21 months
20 events, all AVR, no deaths

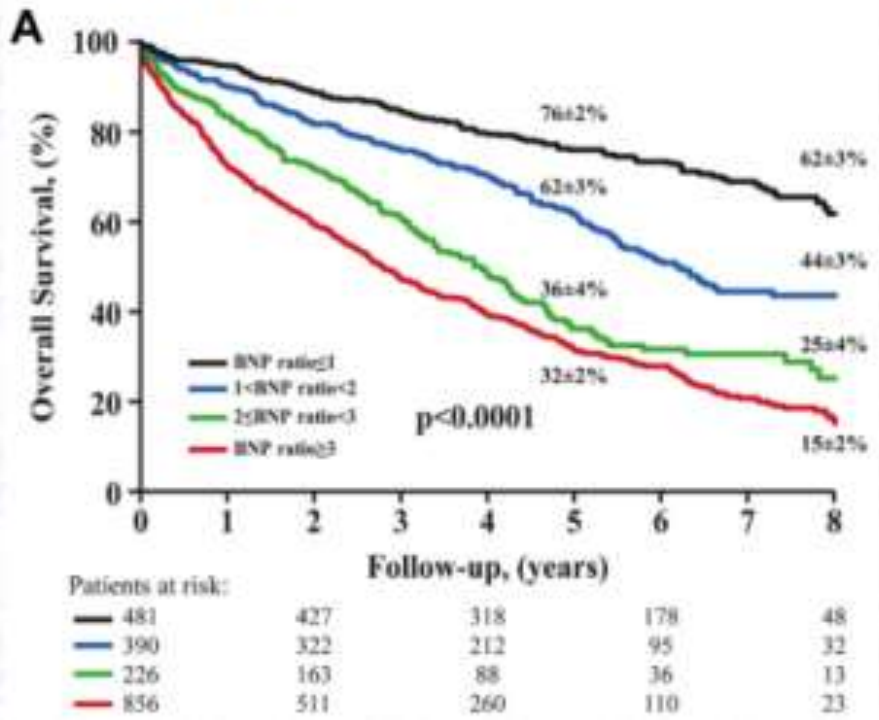


Domanski O et al Int J Cardiol 2017;227:908-914

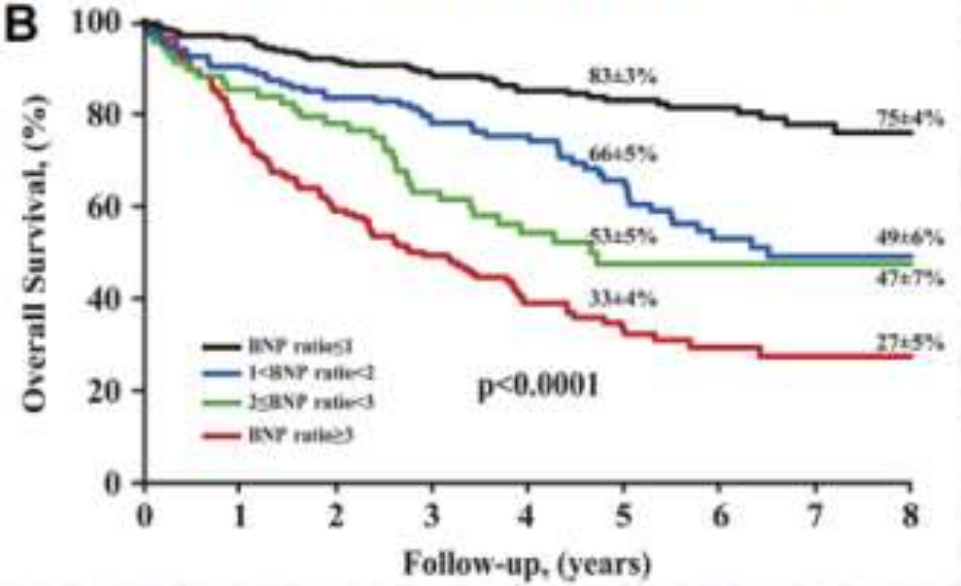
B-TYPE NATRIURETIC PEPTICDE IN AORTIC STENOSIS

1953 pts. with at least mod. AS 40% asymptomatic

ALL PATIENTS



ASYMPTOMATIC PATIENTS



Clavel A et al J Am Coll Cardiol 2014;63:2016-25

PULMONARY HYPERTENSION IN AORTIC STENOSIS

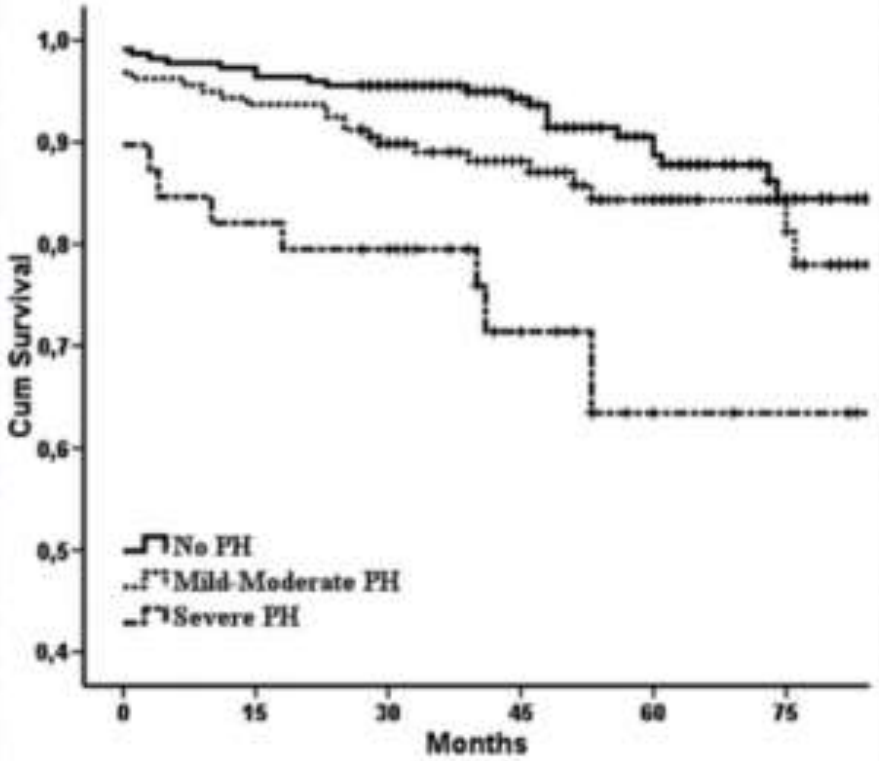


Fig. 1. Kaplan–Meier survival curve according to preoperative PH grade.

Miceli A et al Int J Cardiol 2013;168:3556– 9 40

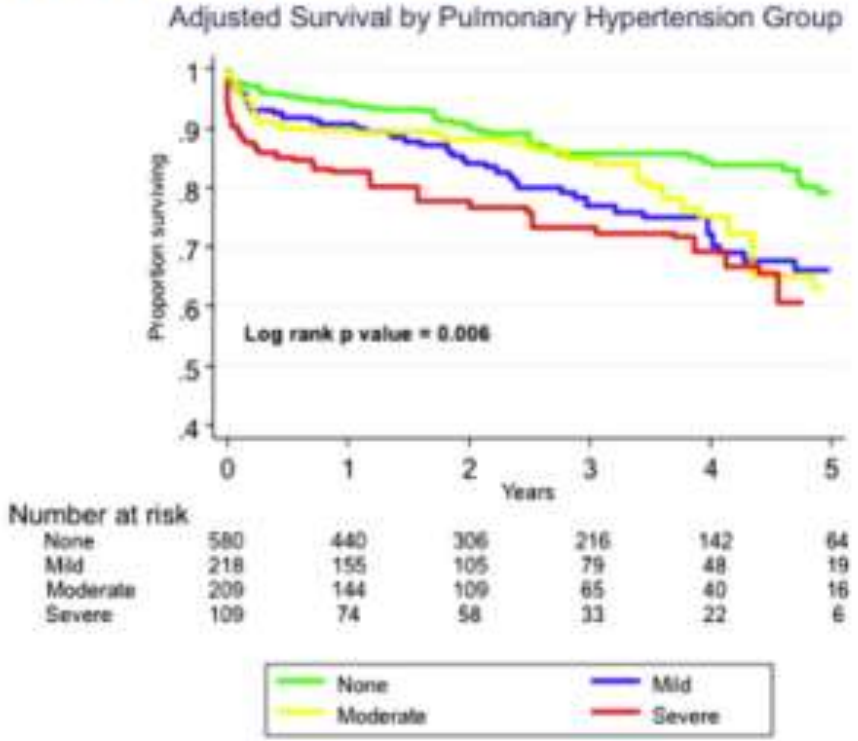
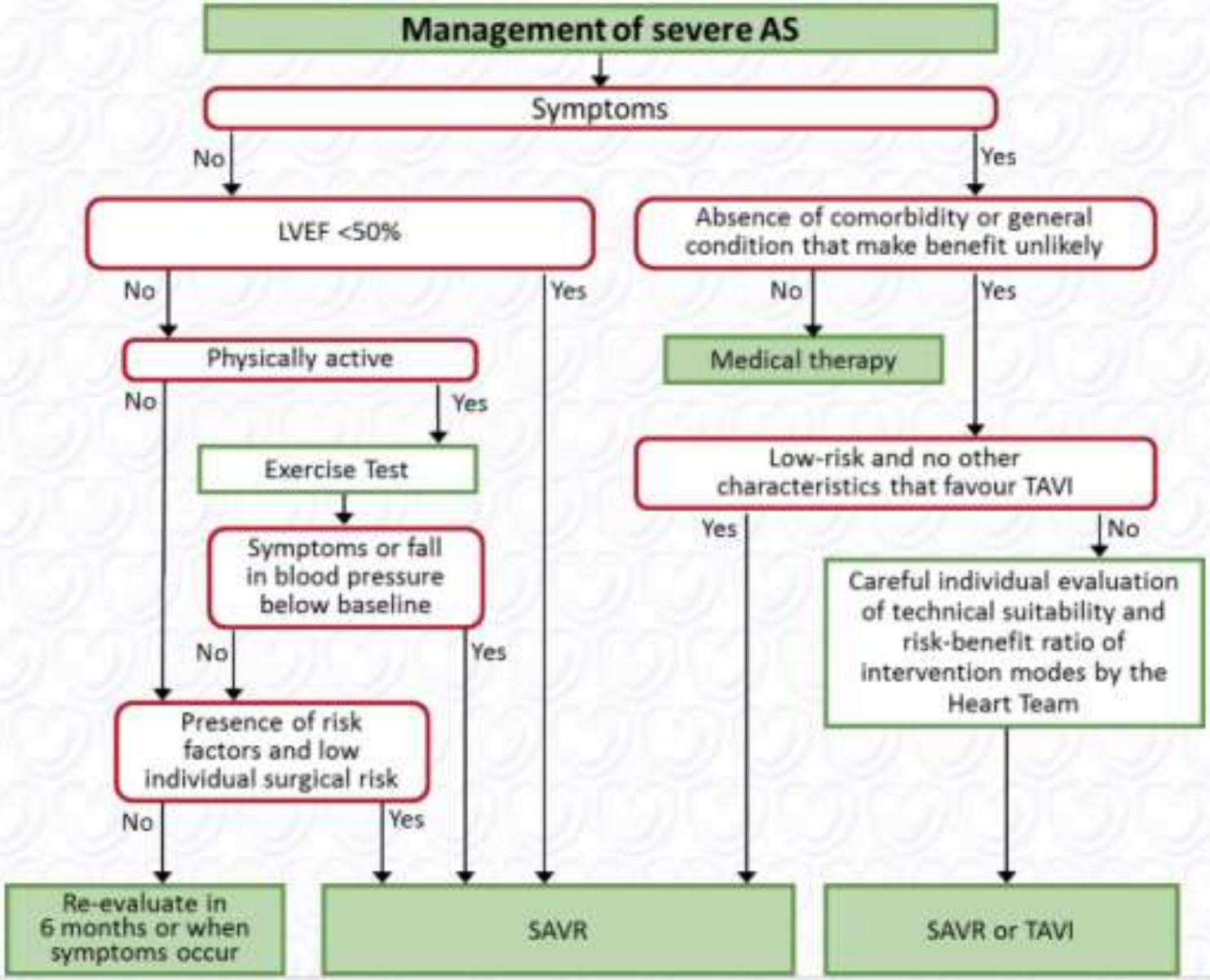


Figure 1. Kaplan-Meier curves for risk-adjusted survival of patients after AVR based on preoperative PH.

Zlotnick DM et al Am J Cardiol 2013;112:1635–

2017 ESC/EACTS Valvular Heart Disease GL
AORTIC STENOSIS

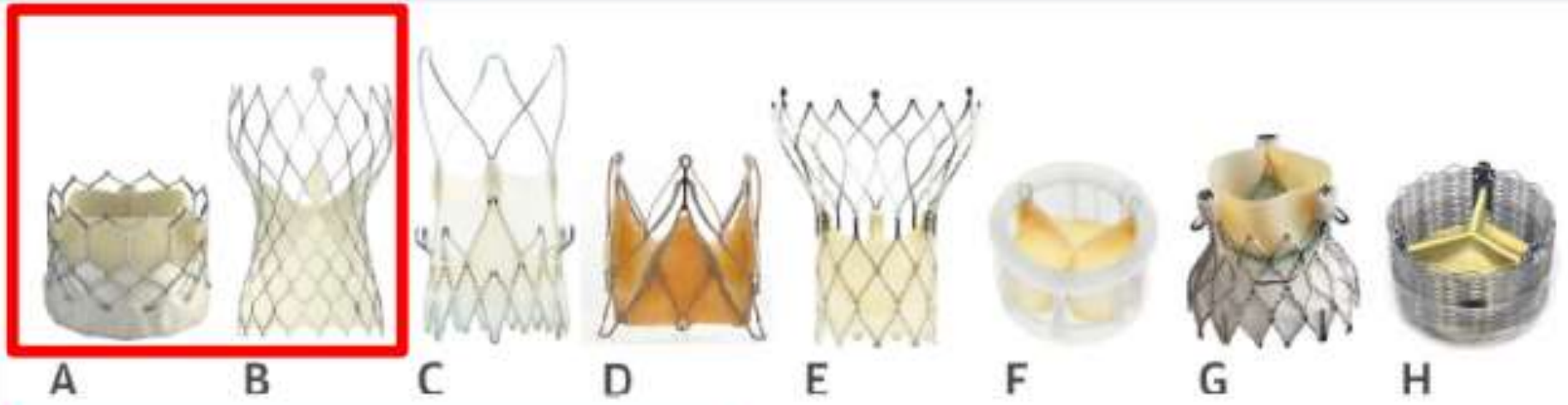
Changes in recommendations	
2012	**2017**
Indications for intervention in symptomatic aortic stenosis	
IIb C Intervention may be considered in symptomatic patients with low-flow, low-gradient aortic stenosis and reduced ejection fraction without flow (contractile) reserve.	**IIa C** Intervention should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



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

2017 ESC/EACTS Valvular Heart Disease GL
AORTIC STENOSIS: TAVI vs. SAVR

FIGURE 3 Overview of TAVR Systems

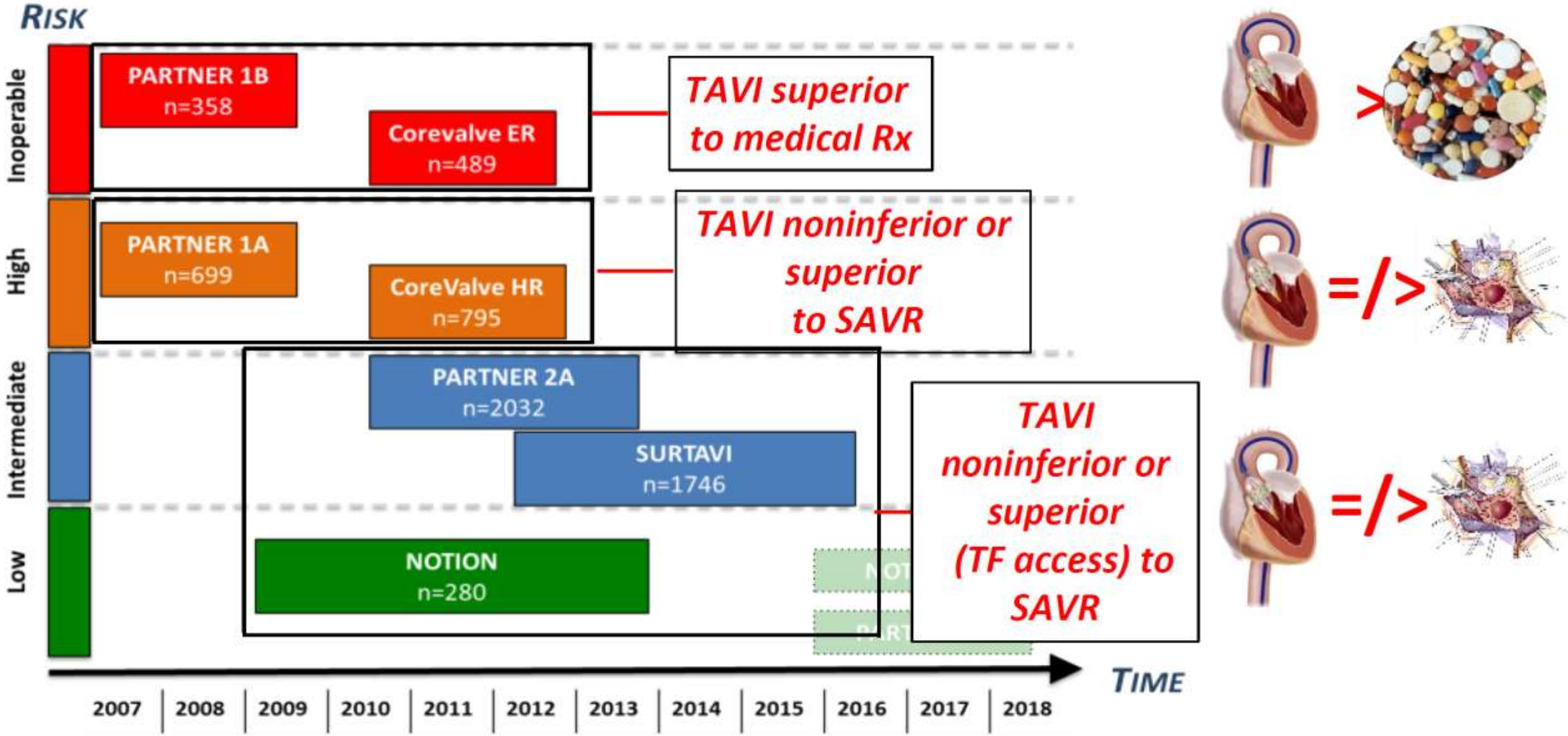


ems are commercially available in Europe **(A–H)**, whereas 2 TAVR systems are
d States **(A, B)**. **(A)** Edwards Lifesciences Sapien 3 Valve (Edwards Lifesciences,
, Minneapolis, Minnesota); **(C)** Symetis Acurate *neo* Valve (Symetis, Ecublens
Corporation, Irvine, California); **(E)** St. Jude Medical Portico Valve (St. Jude
irect Flow Medical, Inc., Santa Rosa, California); **(G)** Medtronic Engager Valve
Lotus Valve (Boston Scientific, Marlborough, Massachusetts).

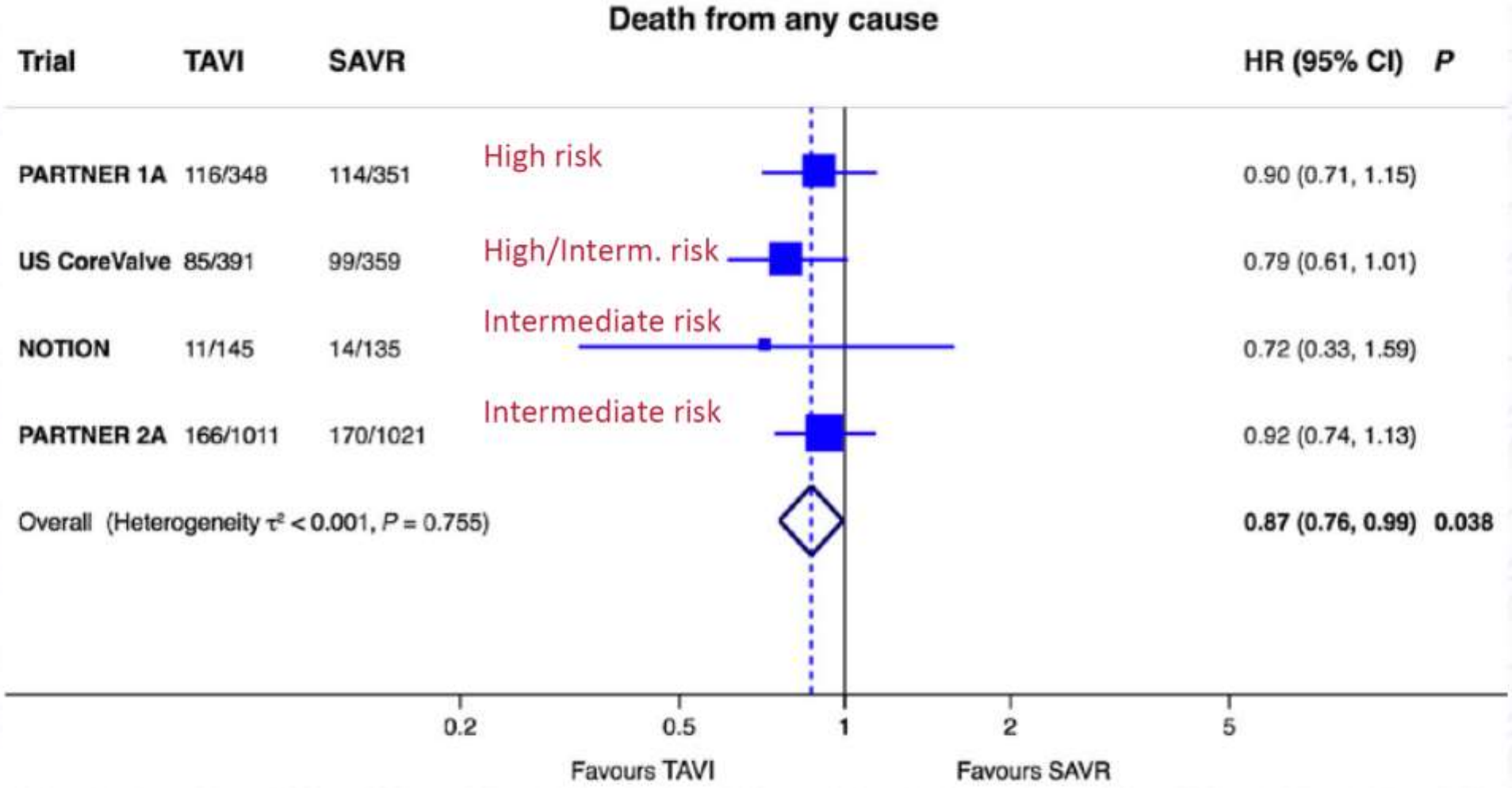
5 randomized trials
1 meta-analysis
Large registries

Vahl T et al J Am Coll Cardiol 2016;67:1472-87

PERFORMANCE OF TAVI ACROSS RISK CATEGORIES

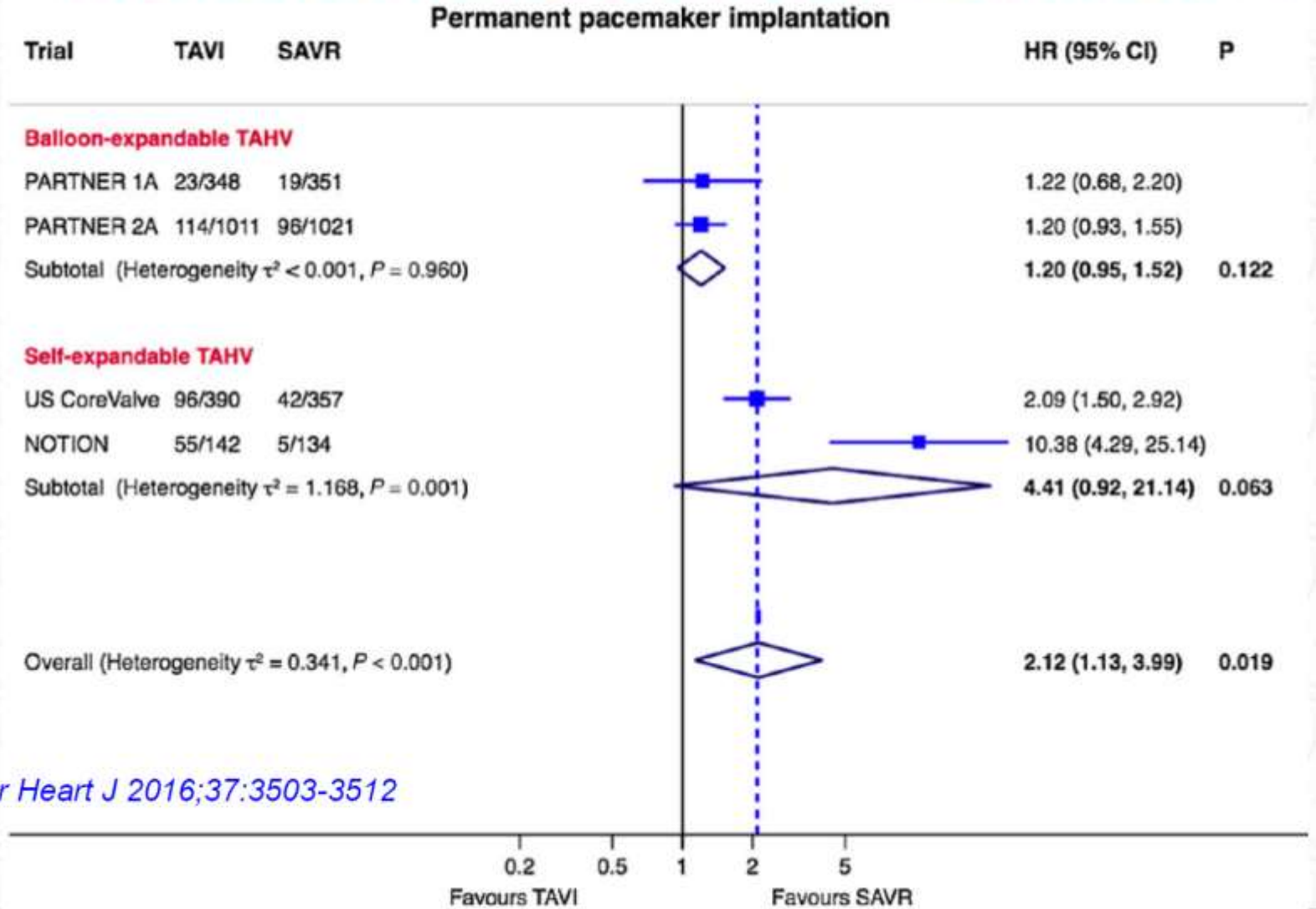


2017 ESC/EACTS Valvular Heart Disease GL
AORTIC STENOSIS: TAVI vs. SAVR



Siontis GCM et al Eur Heart J 2016;37:3503-3512

2017 ESC/EACTS Valvular Heart Disease GL
AORTIC STENOSIS: TAVI vs. SAVR

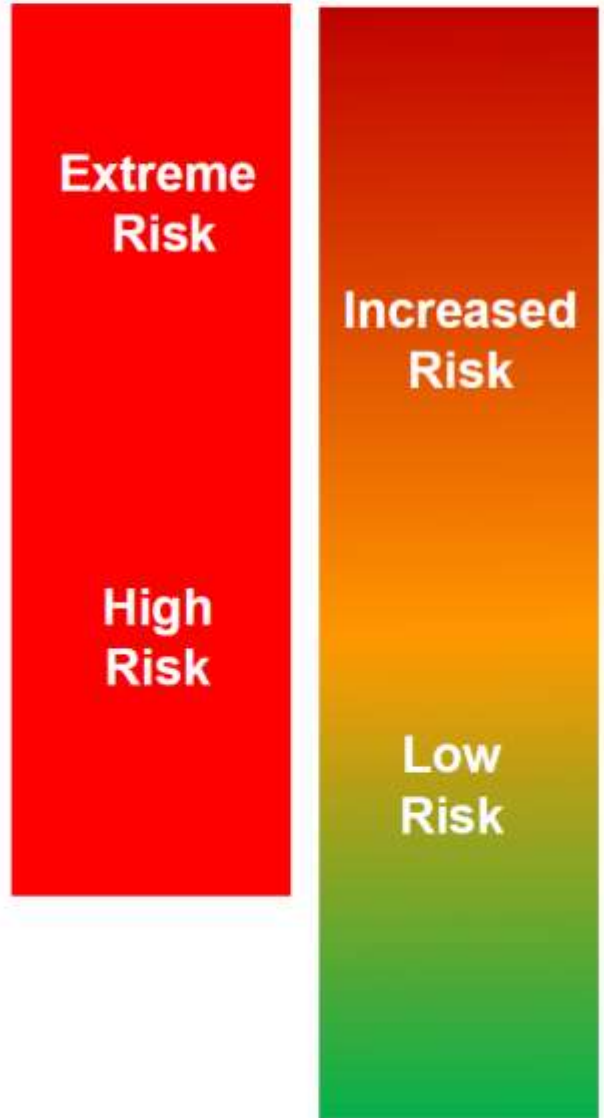


Siontis GCM et al Eur Heart J 2016;37:3503-3512

CHOICE OF INTERVENTION

2012

Recommendations	Class	Level
TAVI is indicated in patients with severe symptomatic AS who are not suitable for AVR as assessed by a 'heart team' and who are likely to gain improvement in their quality of life and to have a life expectancy of more than 1 year after consideration of their comorbidities	I	B
TAVI should be considered in high-risk patients with severe symptomatic AS who may still be suitable for surgery, but in whom TAVI is favoured by a 'heart team' based on the individual risk profile and anatomic suitability	IIa	B



2017

Recommendations	Class	Level
TAVI is recommended in patients who are not suitable for SAVR as assessed by the Heart Team	I	B
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 with TAVI being favoured in elderly patients suitable for transfemoral access	I	B
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

Insuffisance Aortique

What is new in the 2017 Valvular Heart Disease Guidelines?

2017 New recommendations

Indications for surgery in severe aortic regurgitation and aortic root disease

New I C recommendations:

- ** Patients with pliable non-calcified tricuspid or bicuspid valves who have a type I (enlargement of the aortic root with normal cusp motion) or type II (cusp prolapse) mechanism of AR.*
- Aortic valve repair, using the reimplantation or remodelling with aortic annuloplasty technique, is recommended in young patients with aortic root dilationand tricuspid aortic valves, when performed by experienced surgeons.

New IIa C recommendation:

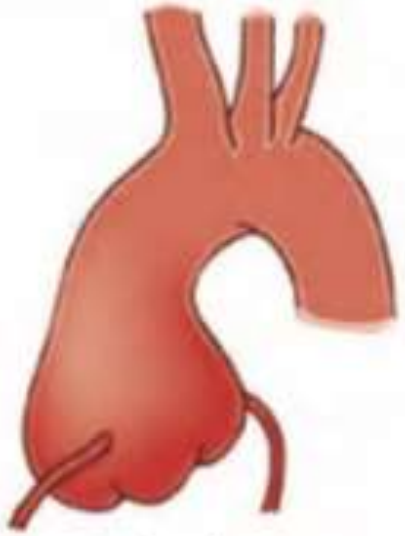
Surgery should be considered in patients who have aortic root disease with maximal ascending aortic diameter: ≥45 mmin patients with a *TGFBR1* or*TGFBR2* mutation (including Loeys-Dietz syndrome)*.

* *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.*

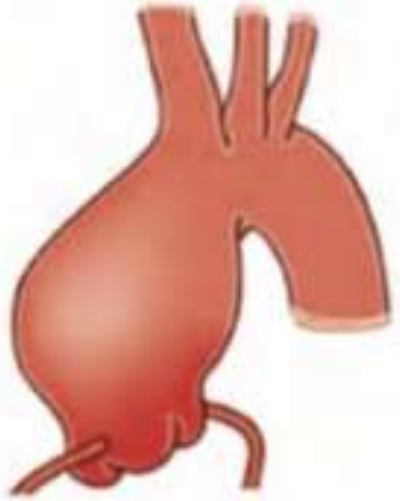
AORTIC REGURGITATION

EVALUATION

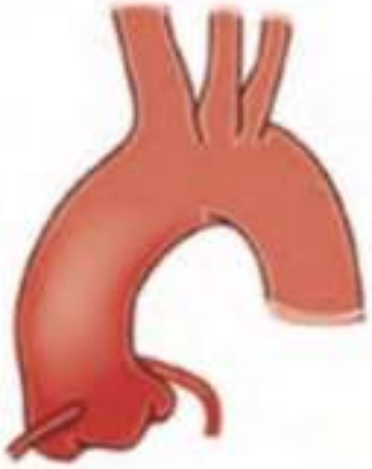
Phenotypes of the aortic root and ascending aorta



Aortic root aneurysm
Sinuses of valsalva ≥45 mm



Tubular ascending aorta aneurysm
Sinuses of valsalva ≤40 mm

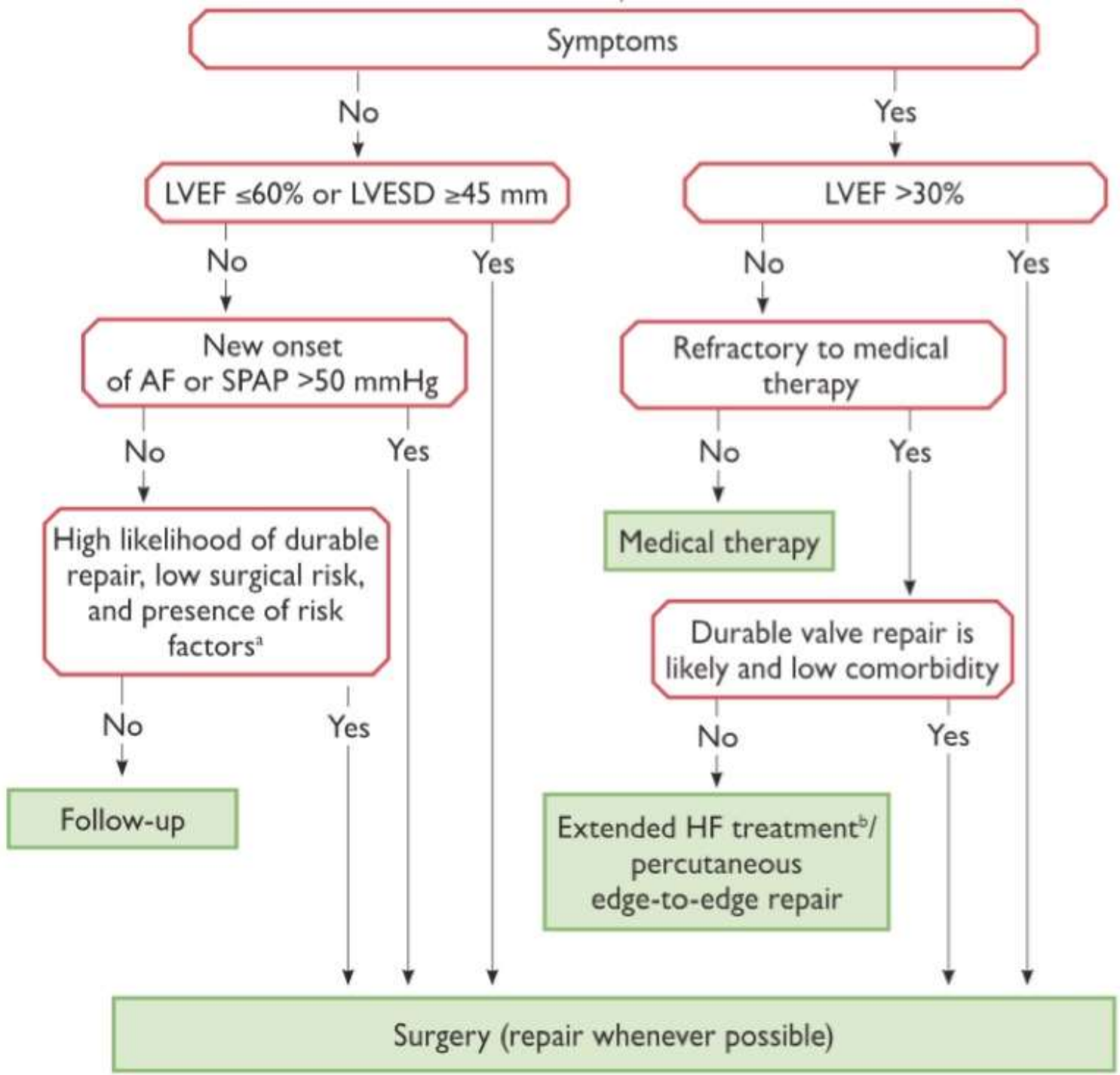


Isolated AR
All diameters <40 mm

Insuffisance Mitrale

What is new in the 2017 Valvular Heart Disease Guidelines?

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


Symptoms
No
Yes
LVEF ≤60% or LVESD ≥45 mm
LVEF >30%
No
Yes
No
Yes
New onset of AF or SPAP >50 mmHg
Refractory to medical therapy
No
Yes
No
Yes
High likelihood of durable repair, low surgical risk, and presence of risk factors[a]
Medical therapy
Durable valve repair is likely and low comorbidity
No
Yes
No
Yes
Follow-up
Extended HF treatment[b]/ percutaneous edge-to-edge repair
Surgery (repair whenever possible)

What is new in the 2017 Valvular Heart Disease Guidelines?

Changes in recommendations	
2012	**2017**
Indications for mitral valve intervention in secondary mitral regurgitation	
IIa C Surgery should be considered in patients with moderate secondary mitral regurgitation undergoing CABG	Taken out

What is new in the 2017 Valvular Heart Disease Guidelines?

Changes in recommendations	
2012	**2017**
Indications for mitral valve intervention in secondary mitral regurgitation *(continued)*	
	Additional statement: The lower thresholds defining severe MR compared to primary MR are based on their association with prognosis. However, it is unclear if prognosis is independently affected by MR compared to LV dysfunction. For isolated mitral valve treatment in secondary MR, thresholds of severity of MR for intervention still need to be validated in clinical trials. So far, no survival benefit has been confirmed for reduction of secondary MR.

Echocardiographic criteria for the definition of severe valve regurgitation: an integrative approach *(continued)*

(Adapted from Lancellotti et al.)

	Mitral regurgitation	
Quantitative	**Primary**	**Secondary**
EROA (mm^2)	≥40	≥20
Regurgitant volume (mL/beat)	≥60	≥30
+ enlargement of cardiac chambers/vessels	LV, LA	

What is new in the 2017 Valvular Heart Disease Guidelines?

Changes in recommendations	
2012	**2017**
Indications for mitral valve intervention in secondary mitral regurgitation	
IIa C **Surgery** should be considered in patients with moderate secondary mitral regurgitation undergoing CABG	Taken out
IIb 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).	**IIb C (modified)** 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.

What is new in the 2017 Valvular Heart Disease Guidelines?

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.

The current landscape of TMVR

six devices currently actively involved in clinical trials

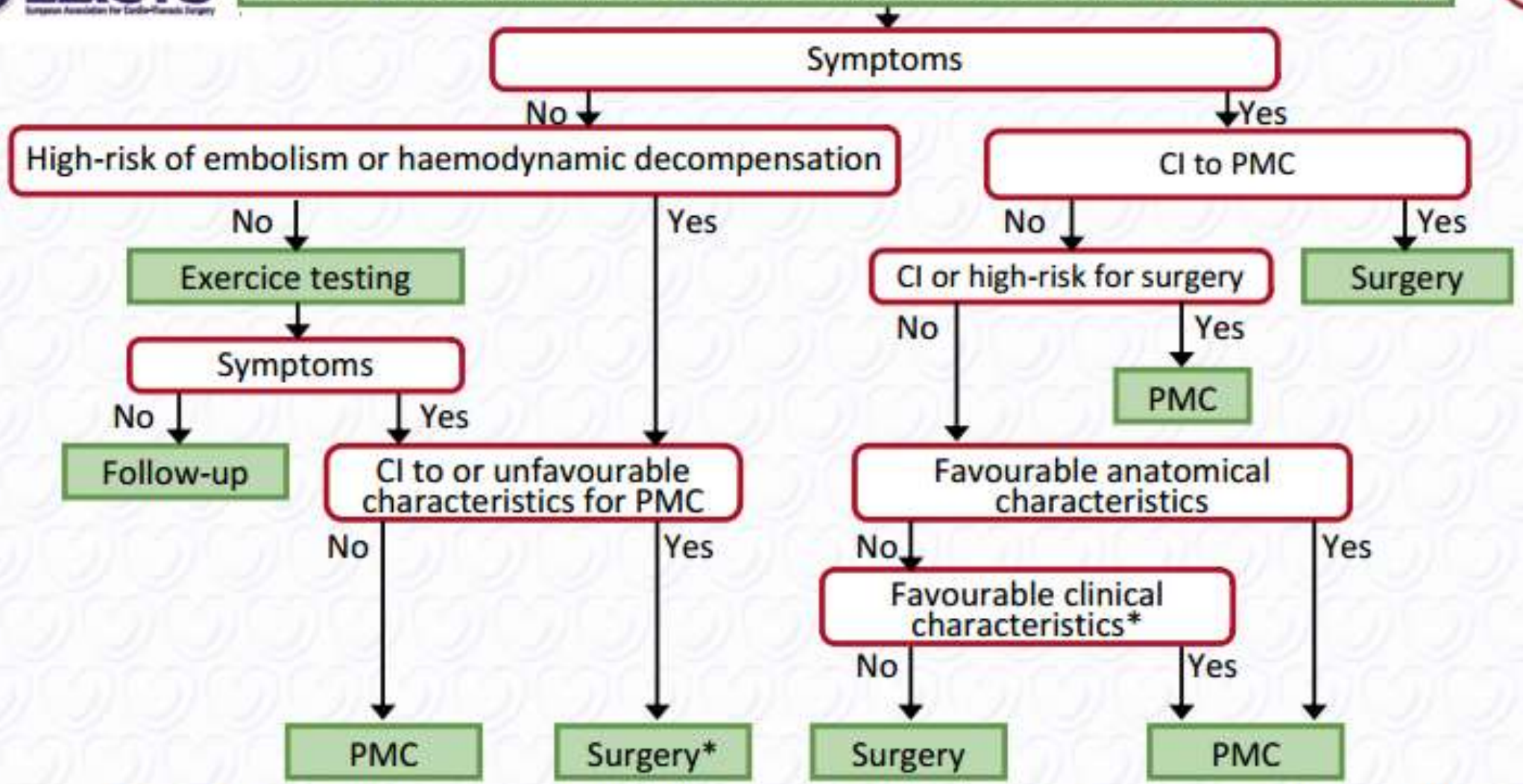
Company	Neovasc Inc, Richmond, BC	Edwards Lifesciences, Irvine, CA	Tendyne Holding Inc, Roseville, MN	Medtronic, Minneapolis, MN	HighLife SAS, Paris, France	Caisson Interventional, Maple Grove, MN
Valve Name	**Tiara**	**CardiAQ**	**Tendyne**	**Intrepid**	**HighLife**	**Caisson**
Device Image						
Description	- Self-expanding prosthesis - bovine pericardium	- Self-expanding prosthesis - bovine pericardium	- Self-expanding prosthesis - porcine pericardium	- Self-expanding prosthesis - bovine pericardium	- Self-expanding prosthesis - bovine pericardium	- Self-expanding prosthesis - porcine pericardium
Access	TA	TA/TF	TA	TA	TA (valve) and TF (ring)	TF
Specific characteristics	- D shape inner design - Ridge fixation	- TF - Leaflet and radial force fixation	- tethered			- Two component - Proprietary coil-added
Status*	• About 19 patients	• About 13 patients	• About 30			

Challenges for TMVR:

- **Safe anchorage in mitral anulus**
- **Avoid LVOT obstruction**
- **Mostly transapical access**

Kuwata & Maisano
Eur Heart J. 2017;38(9):622-624

Management of clinically significant mitral stenosis (MVA <1.5 cm²)



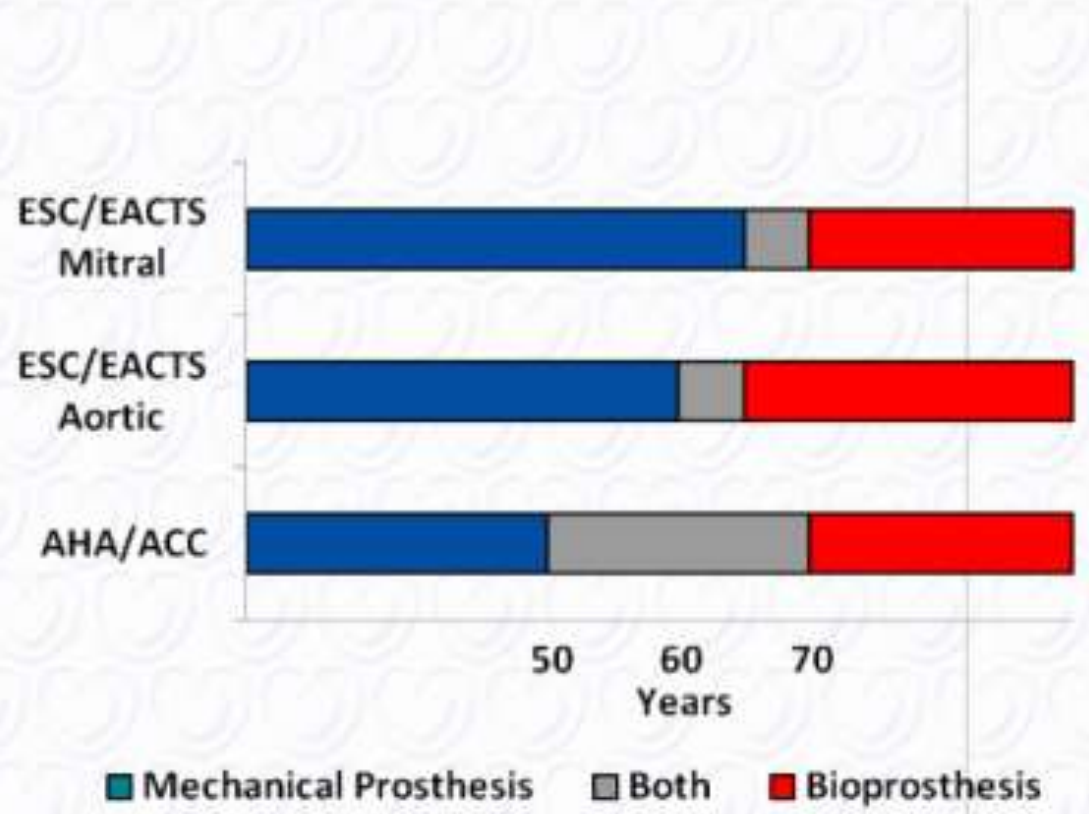
See table of recommendations

**If symptoms occur for a low level of exercise and operative risk is low*

Choix de prothèse

Age thresholds and choice of the type of prosthesis

IIa	B-NR	An aortic or mitral mechanical prosthesis is reasonable for patients less than 50 years of age who do not have a contraindication to anticoagulation (141,149,151,155-157).	MODIFIED: LOE updated from B to B-NR. The age limit for mechanical prosthesis was lowered from 60 to 50 years of age.
See Online Data Supplement 20 (Updated From 2014 VHD Guideline)			
IIa	B-NR	For patients between 50 and 70 years of age, it is reasonable to individualize the choice of either a mechanical or bioprosthetic valve prosthesis on the basis of individual patient factors and preferences, after full discussion of the trade-offs involved (141-145,157-160).	MODIFIED: Uncertainty exists about the optimum type of prosthesis (mechanical or bioprosthetic) for patients 50 to 70 years of age. There are conflicting data on survival benefit of mechanical versus bioprosthetic valves in this age group, with equivalent stroke and
See Online Data Supplement 20 (Updated From 2014 VHD Guideline)			
IIa	B	A bioprosthesis is reasonable for patients more than 70 years of age (163-166).	2014 recommendation remains current.



(Nishimura et al. J Am Coll Cardiol 2017;70:252-89)

Traitement anticoagulant

Indications for antithrombotic therapy for mechanical prostheses

Recommendations	Class	Level	
Mechanical prosthesis			
Oral anticoagulation using a VKA is recommended lifelong for all patients.	I	B	
Bridging using therapeutic doses of UFH or LMWH is recommended when VKA treatment should be interrupted.	I	C	
The addition of low-dose aspirin (75-100 mg/day) to VKA should be considered after thromboembolism despite an adequate INR.	IIa	C	
The addition of low-dose aspirin (75-100 mg/day) to VKA may be considered in the case of concomitant atherosclerotic disease.	IIb	C	New
INR self-management is recommended provided appropriate training and quality control are performed.	I	B	New

Indications for antithrombotic therapy for mechanical prostheses *(continued)*

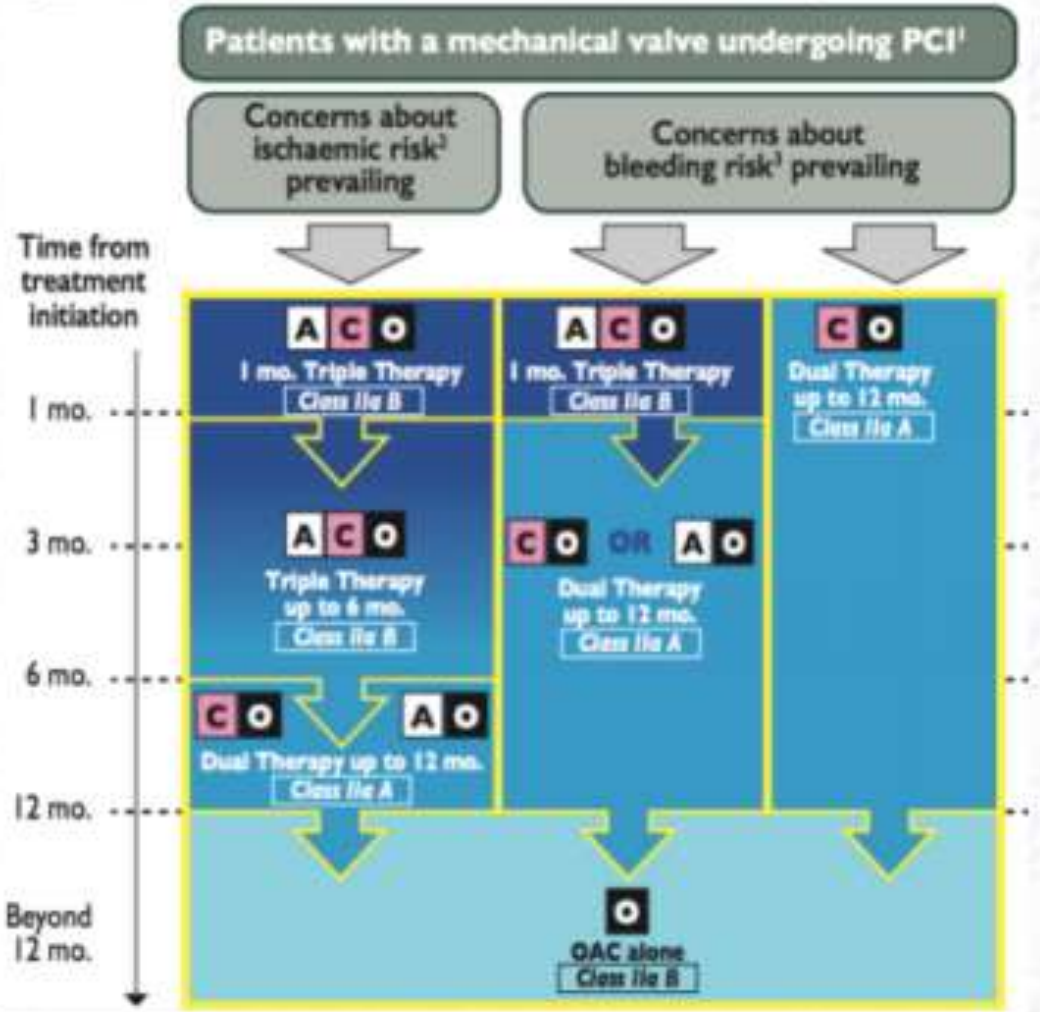
Recommendations	Class	Level	
Mechanical prosthesis			
In patients treated with coronary stent implantation, triple therapy with aspirin (75-100 mg/day), clopidogrel (75 mg/day), and VKA should be considered for 1 month, irrespective of the type of stent used and the clinical presentation (i.e. ACS or stable CAD).	IIa	B	New
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	B	New

Indications for antithrombotic therapy for mechanical prostheses *(continued)*

Recommendations	Class	Level	
Mechanical prosthesis *(continued)*			
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.	IIa	A	New
In patients who have undergone PCI, discontinuation of antiplatelet treatment should be considered at 12 months.	IIa	B	New
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	B	New
The use of NOACs is contra-indicated.	III	B	New

Antithrombotic therapy in patients with mechanical valve prosthesis undergoing PCI

(Adapted from the 2017 ESC Focused Update on Dual Antiplatelet Therapy)



A = Aspirin

C = Clopidogrel

O = Oral anticoagulation **with VKA**

Indications for antithrombotic therapy for bioprostheses *(continued)*

Recommendations	Class	Level	
Bioprostheses *(continued)*			
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.	IIa	C	New
Single antiplatelet therapy may be considered after TAVI in the case of high bleeding risk.	IIb	C	New
Oral anticoagulation may be considered for the first 3 months after surgical implantation of an aortic bioprosthesis.	IIb	C	

INR cibles

Prosthesis thrombogenicity	Patient-related riskfactors[a]	
	None	≥1 risk factor
Low[b]	2.5	3.0
Medium[c]	3.0	3.5
High[d]	3.5	4.0

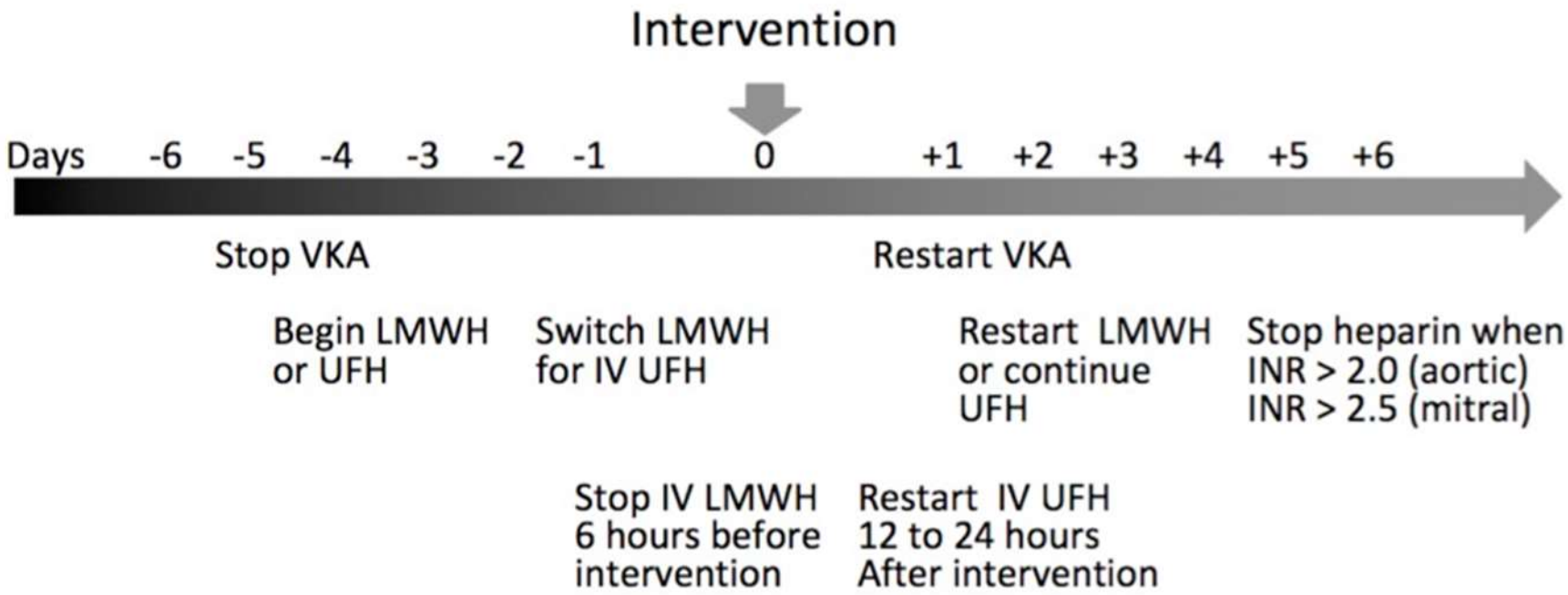
[a] *Mitral or tricuspid valve replacement, previous thromboembolism, atrial fibrillation, mitral stenosis of any degree, LVEF <35%*

[b] *Carbomedics, Medtronic Hall, ATS, Medtronic Open-Pivot, St. Jude Medical, On-X, Sorin Bicarbon*

[c] *Other bileaflet valves with insufficient data*

[d] *Lillehei-Kaster, Omniscience, Starr-Edwards (ball-cage), Björk-Shiley and other tilting-disc valves*

Schéma de bridge



Dysfonction de prothèse

Management of prosthetic valve dysfunction *(continued)*

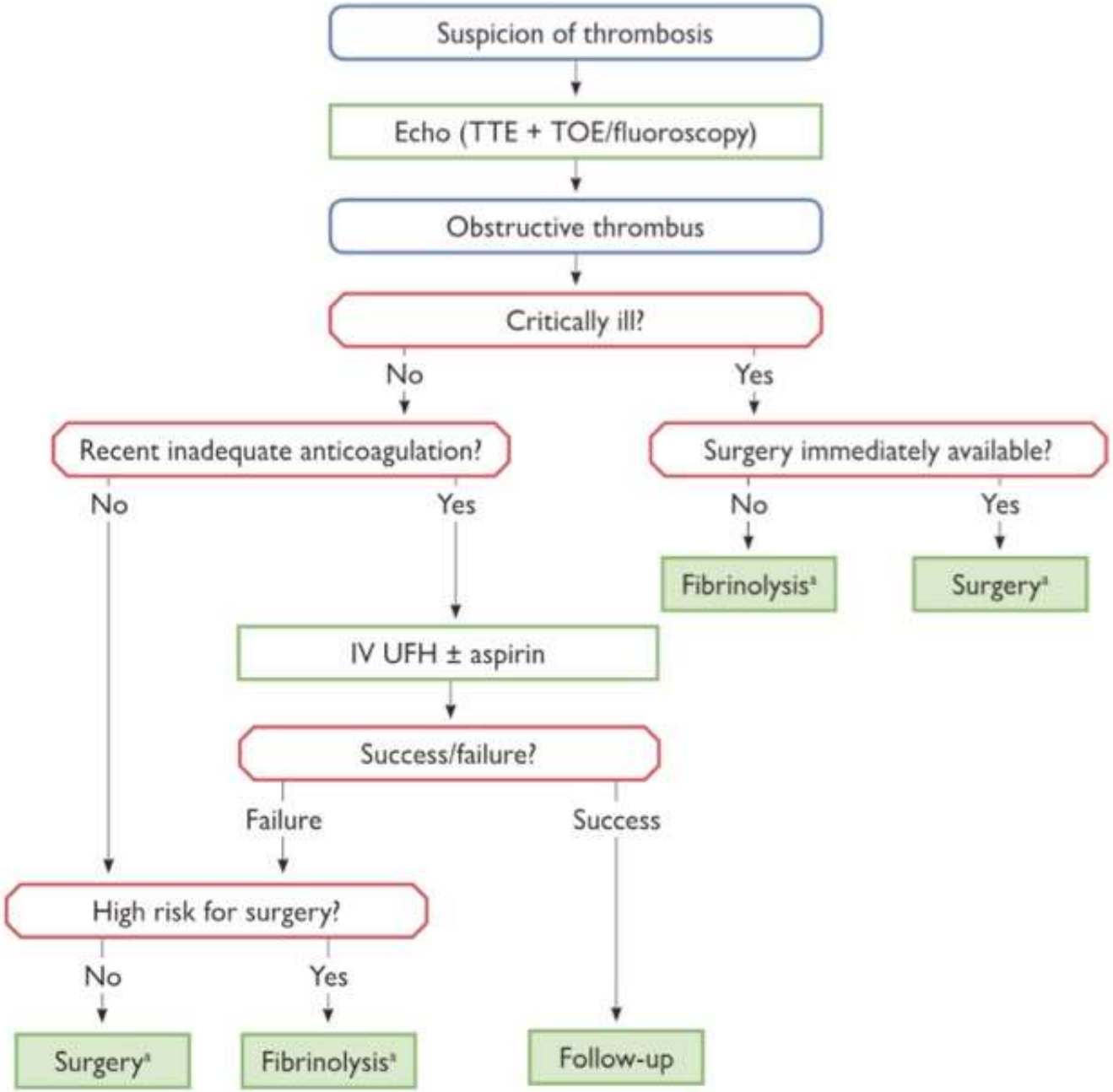
Recommendations	Class	Level	
Bioprosthetic thrombosis			
Anticoagulation using a VKA and/or UFH is recommended in bioprosthetic valve thrombosis before considering reintervention.	I	C	New
Haemolysis and paravalvular leak			
Reoperation is recommended if paravalvular leak is related to endocarditis or causes haemolysis requiring repeated blood transfusions or leading to severe symptoms.	I	C	
Transcatheter closure may be considered for paravalvular leaks with clinically significant regurgitation in surgical high-risk patients (Heart Team decision).	IIb	C	New

Management of prosthetic valve dysfunction *(continued)*

Recommendations	Class	Level
Bioprosthetic failure		
Reoperation is recommended in symptomatic patients with a significant increase in transprosthetic gradient (after exclusion of valve thrombosis) or severe regurgitation.	I	C
Reoperation should be considered in asymptomatic patients with significant prosthetic dysfunction, if reoperation is at low-risk.	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.	IIa	C

New

Thrombose obstructive



Thrombose non obstructive