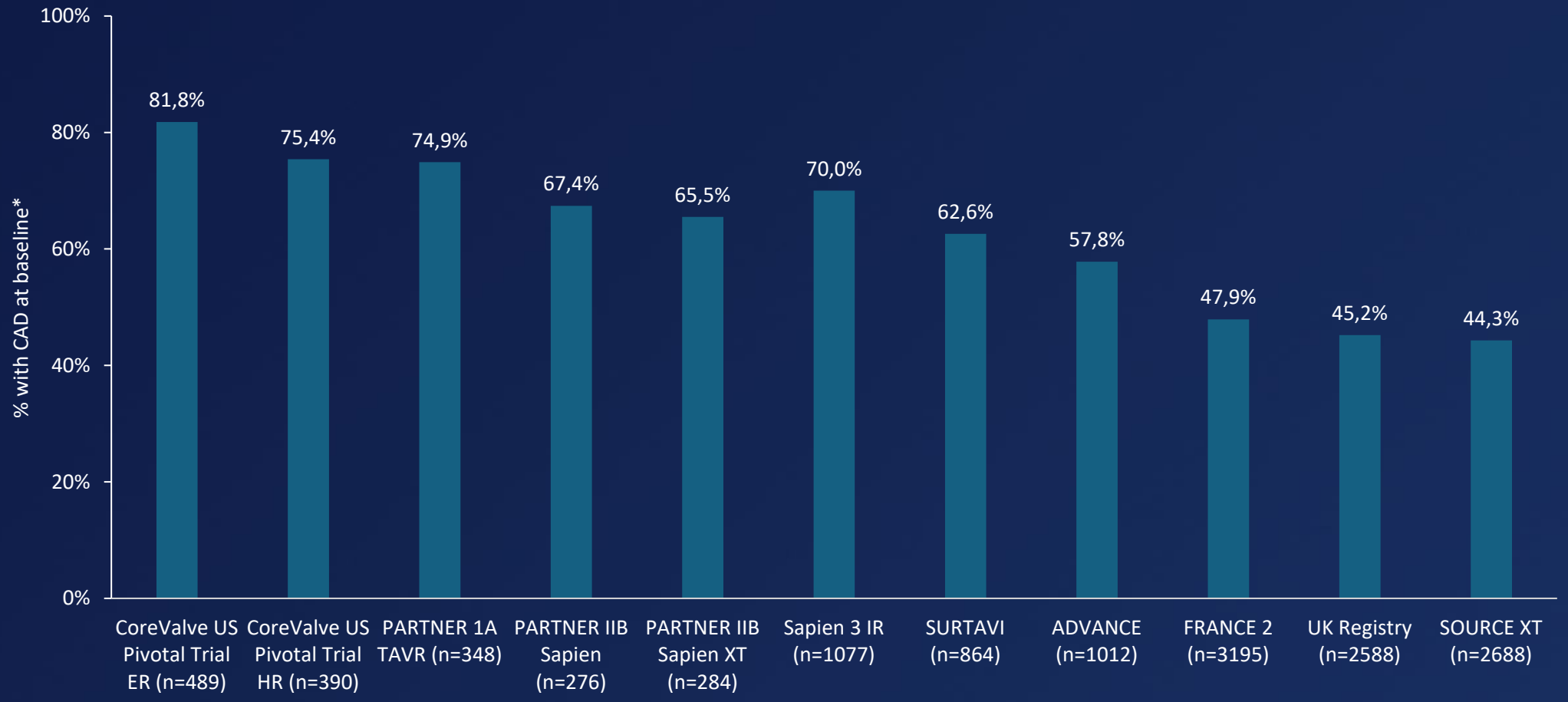
15’

My best strategy in TAVI with CAD: When to treat

Flavio L. Ribichini
Universidad de Verona
Italia

Coronary Artery Disease: Prevalence in TAVI Patients

- Coronary artery disease is highly prevalent in the TAVR population, possibly affecting up to 80% of the cohort



References from left to right: 1. Popma JJ, et al. J Am Coll Cardiol 2014;63:1972-1981. 2. Adams, et al., *N Engl J Med* 2014; 370: 1790-8; 3. Smith GR, et al. NEJM 2011;364:2187-98. 4&5. Webb, et. al. JACC Cardiovasc Interv 2015;8:1797-806; 6. Thourani VH, et al. Lancet 2016; 387:2218-25. 7. Reardon MJ, et al. NEJM 2017;376:1321-31. 8. Bosmans J, et al. JACC 2015;66:209-17. 9. Gilard M, et al. NEJM 2012;366:1705-15. 10. . Snow TM, et al. Int J Cardiol 2015;199:253-60; 11. Schymik G, et al. European experience with the second-generation Edwards SAPIEN XT transcatheter heart valve in patients with severe aortic stenosis: 1-year outcomes from the SOURCE XT Registry JACC Cardiovasc Interv 2015;8:657-69.

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MEXICO CITY

ESC European Society of Cardiology
European Heart Journal (2017) 00, 1–53
doi:10.1093/eurheartj/ehx391

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

ESC European Society of Cardiology
European Heart Journal (2021) 00, 1–72
doi:10.1093/eurheartj/ehab395

2021 ESC/EACTS Guidelines for the management of valvular heart disease

These are all «C» LOE

Indications for myocardial revascularization		
CABG is recommended in patients with a primary indication for aortic/mitral valve surgery and coronary artery diameter stenosis ≥70%.[e]	I	C
CABG should be considered in patients with a primary indication for aortic/mitral valve surgery and coronary artery diameter stenosis ≥50–70%.	IIa	C
PCI should be considered in patients with a primary indication to undergo TAVI and coronary artery diameter stenosis >70% in proximal segments.	IIa	C
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.	IIa	C

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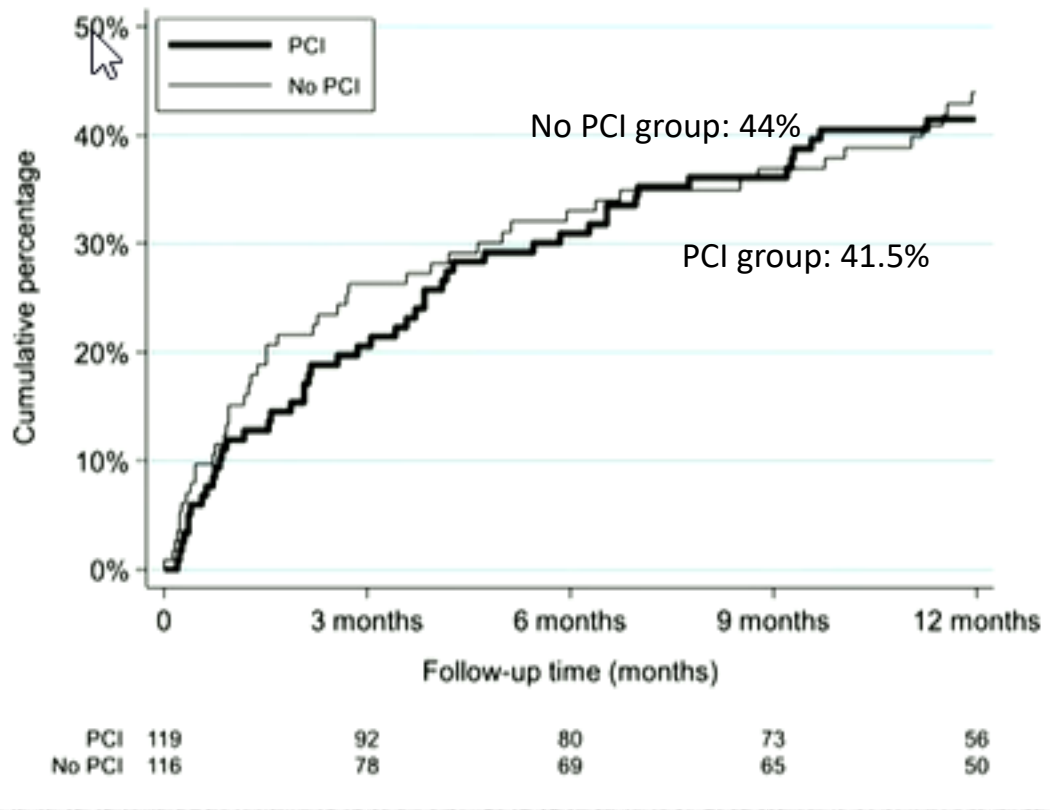
ACTIVATION:
PCI versus no PCI in patients with AS & CAD undergoing TAVI

Primary Endpoint:
Comparable rates of death & cardiac rehospitalization at 1 year

Limitation:
RCT prematurely stopped due to slow recruitment



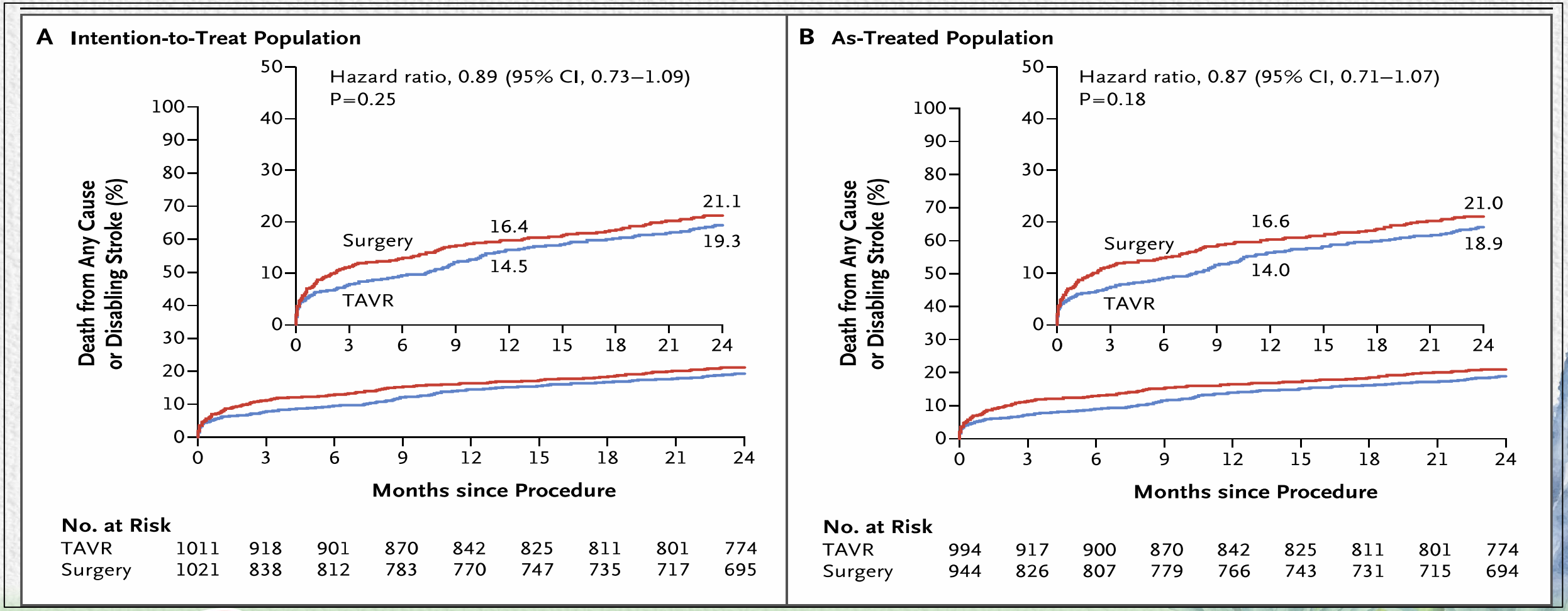
	PCI	No PCI	Total
N of patients	119	116	235
Age (years)	83.6±5.0	84.3±5.0	83.9±5.0
Males (%)	58	65	61
STS-PROM	6.7±6.0	6.8±6.0	6.8±7.7
Number of vessels treated			
1	85 (71.4%)		
2	29 (24.4)		
≥3	3 (2.5%)		

Higher bleeding in PCI vs no PCI group (44.5% vs 28.4%, p=0.02)

Redwood S. Presented at: PCR Valves 2020. November 22, 2020

PARTNER 2 Trial: intermediate risk patients

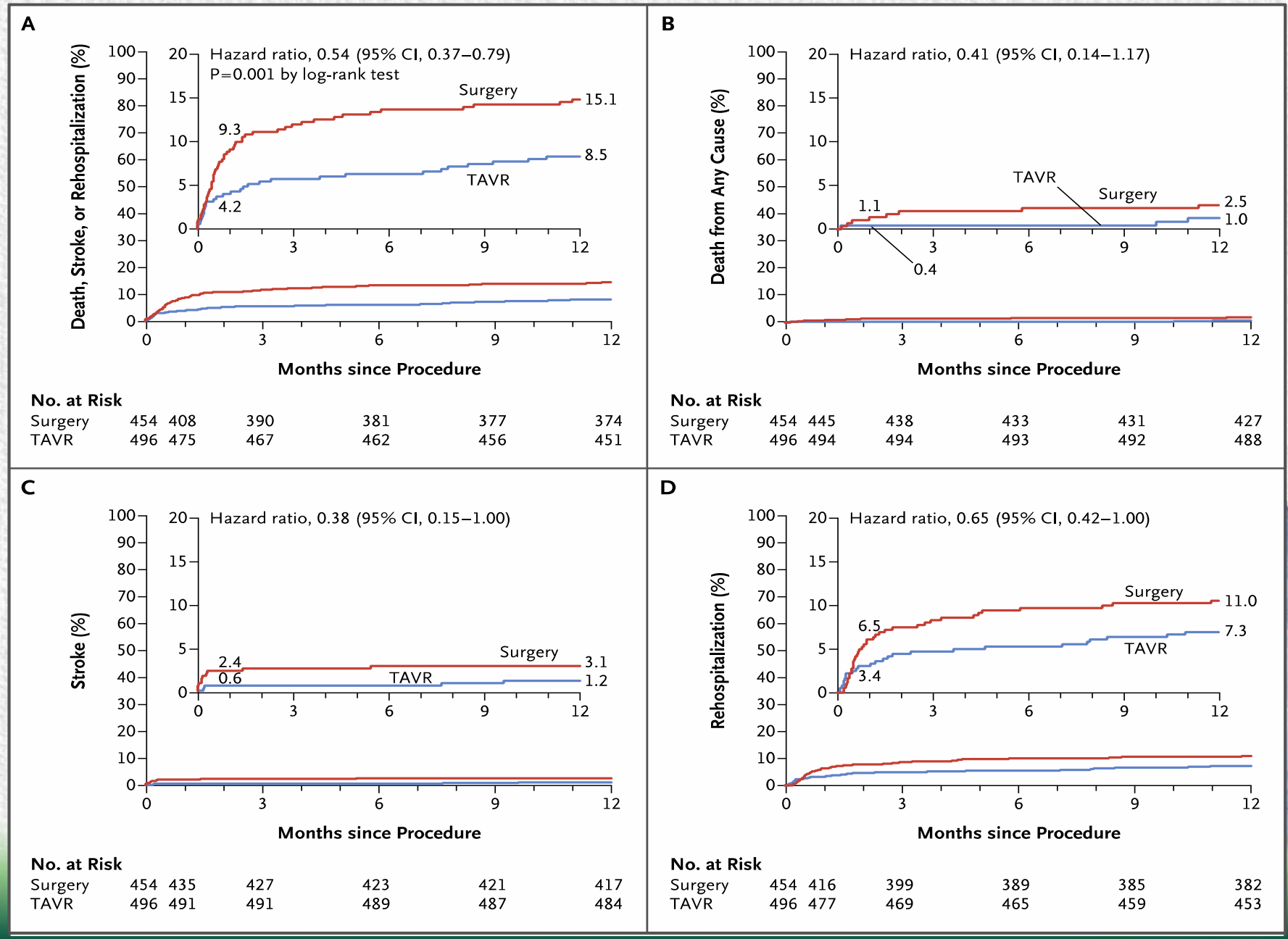
TAVI 30 days death+ stroke= 4%



PARTNER 3 Trial: low risk patients (NEJM 2017)

TAVI
One month

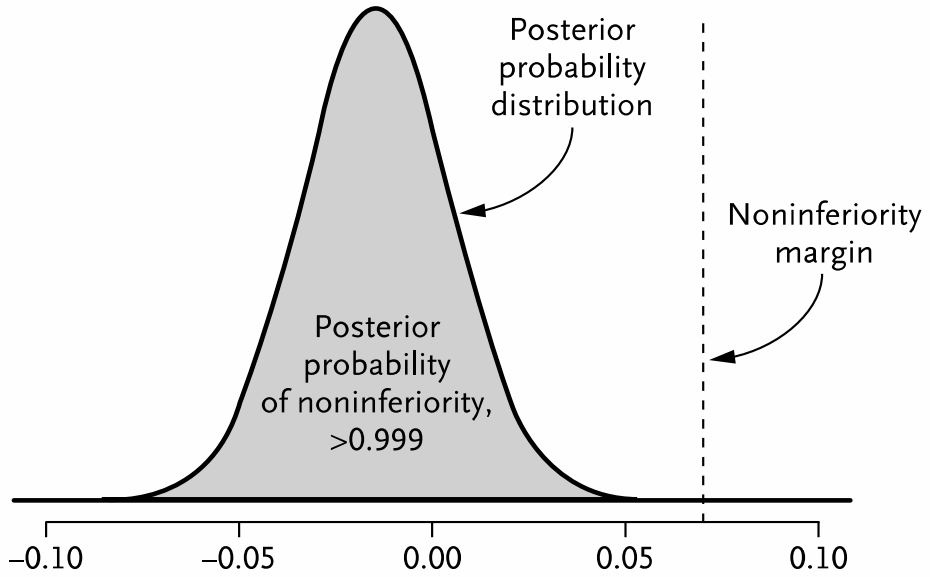
Death 0.4%
Stroke 0.6%



SURTAVI: intermediate risk patients

TAVI 30 days death+ stroke= 3%

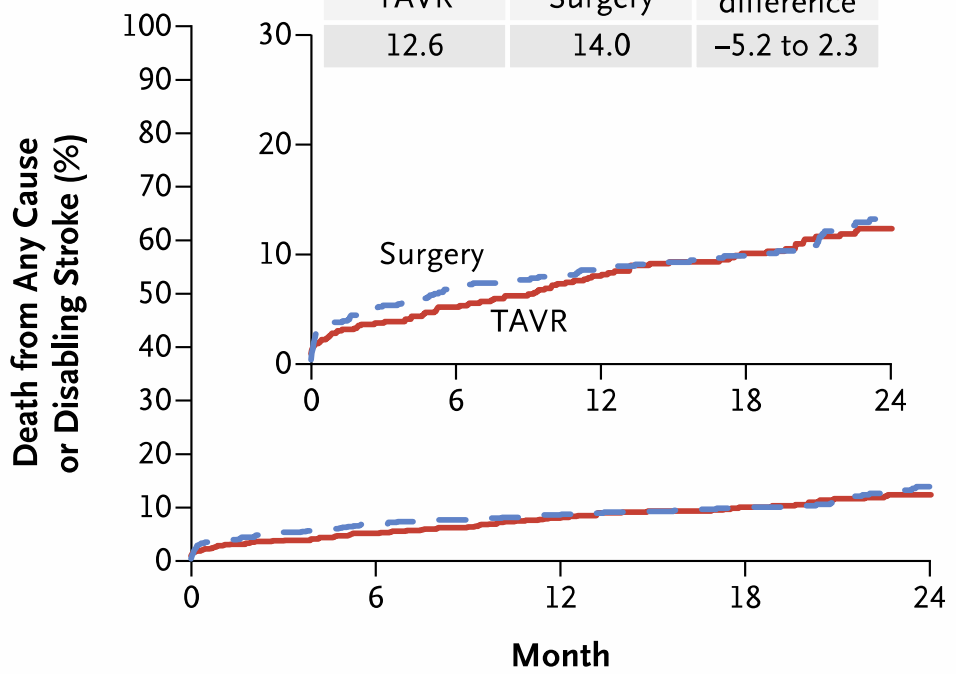
A Noninferiority Margin of TAVR



TAVR Posterior Median	Surgery Posterior Median	Difference Posterior Median
	% (95% CI)	
12.6 (10.2 to 15.3)	14.0 (11.4 to 17.0)	–1.4 (–5.2 to 2.3)

B Primary Outcome

24-Mo Rate (%)		
TAVR	Surgery	95% CI for difference
12.6	14.0	–5.2 to 2.3

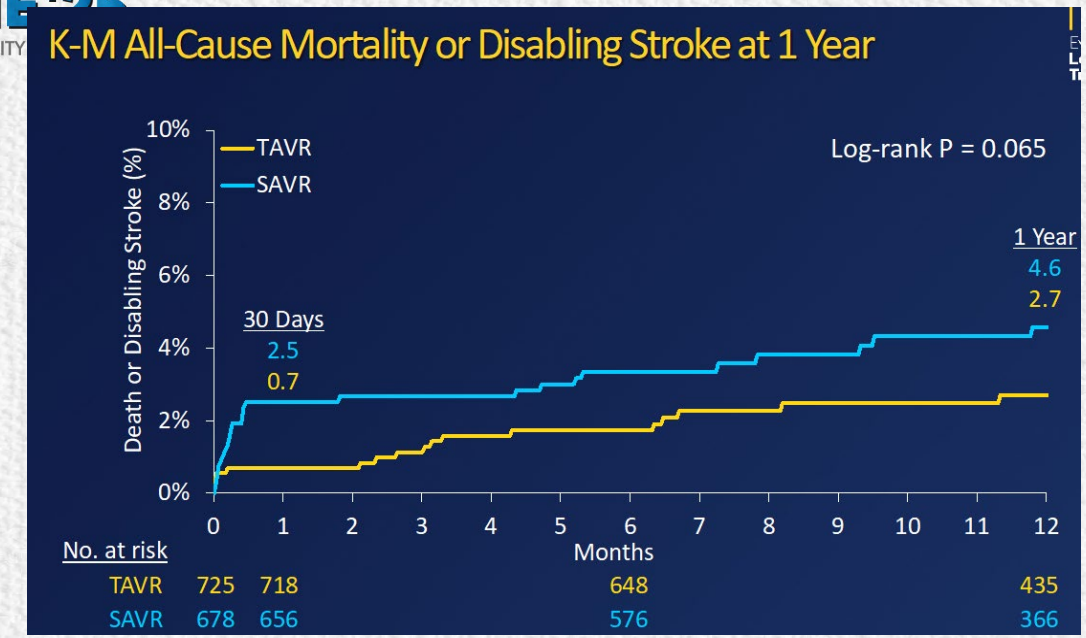


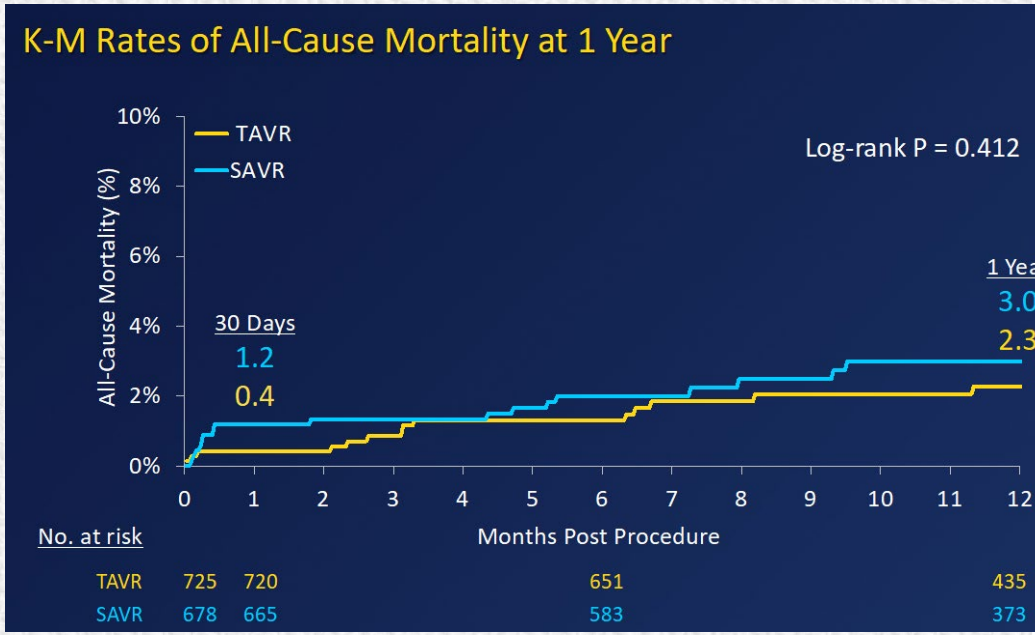
No. at Risk					
TAVR	864	755	612	456	272
Surgery	796	674	555	407	241

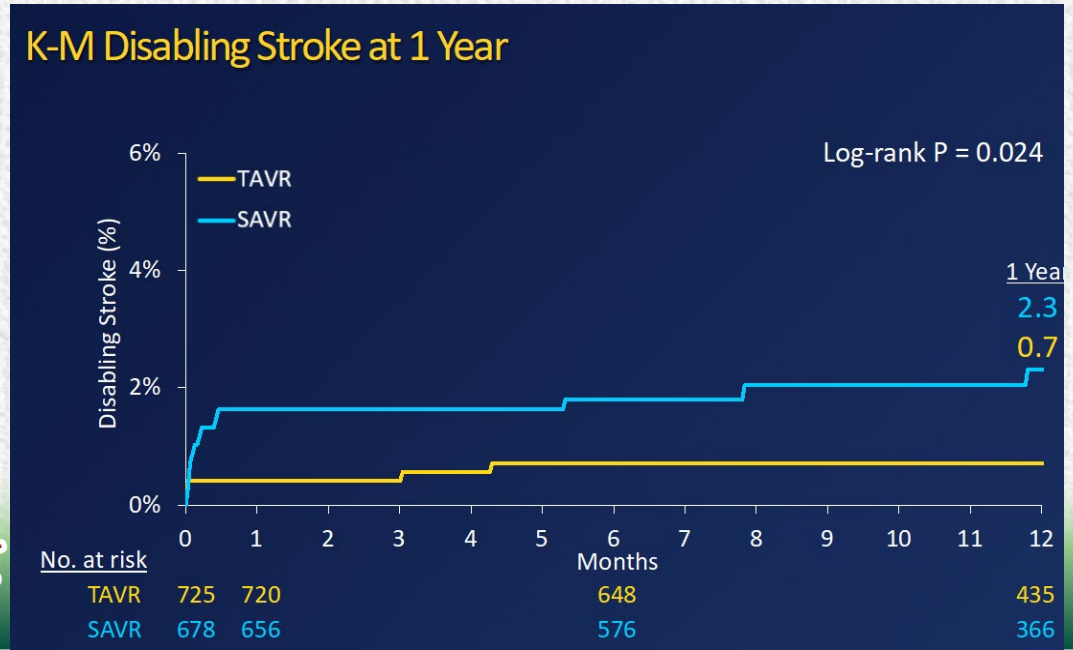
Evolut low risk trial (NEJM 2017)

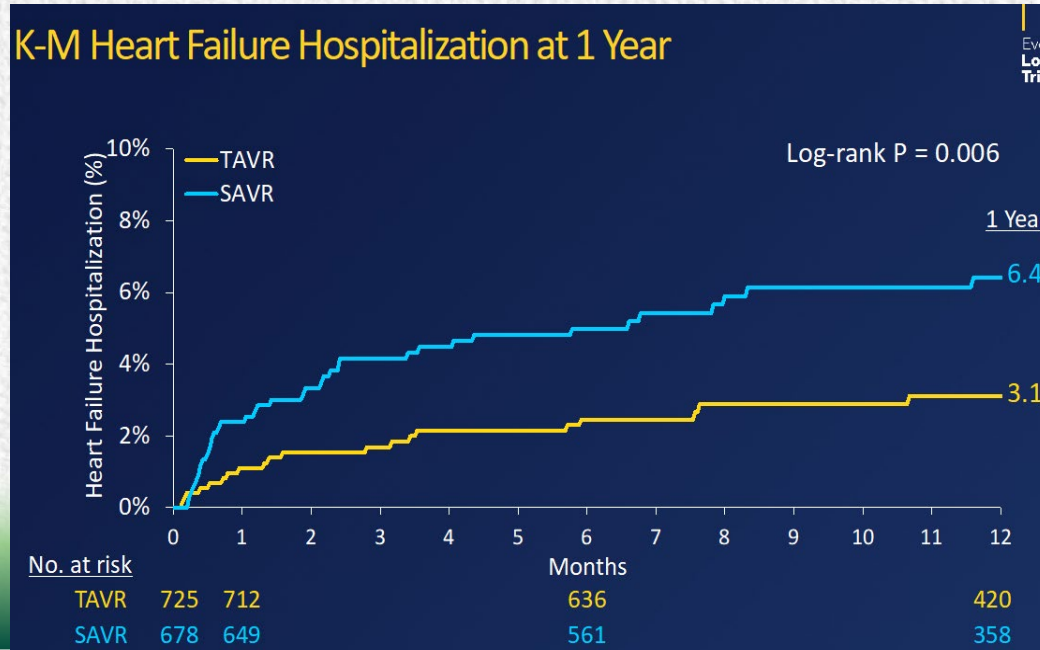
TAVI
One month

Death 0.4%
Stroke 0.3%









CAD Treatment Timing

TAVR vs SAVR in Intermediate-risk Patients

- The CoreValve™ SURTAVI trial was a randomized trial of TAVR vs. SAVR in intermediate surgical risk patients.[1]
- A sub-analysis on TAVR+PCI (concurrent and staged) vs. SAVR+CABG found comparable results between the two groups. However, patients with TAVR + PCI had shorter procedure time, hospital stay, ICU stay, and less AKI.

As-Treated Procedural and 30-Day Outcomes

	Revascularization		
% or mean ± SD	TAVR + PCI	SAVR + CABG	
	N=128	N=176	P
Index procedure time, min	53 ± 35	249 ± 71	<0.01
Length of index hospital stay, days	7 ± 5	11 ± 8	<0.01
Length of index ICU stay, hours	52 ± 46	78 ± 84	<0.01
All-cause mortality or disabling stroke*	**6.3**	4.0	0.37
All-cause mortality*	**4.7**	2.3	0.25
Disabling stroke*	**2.3**	2.3	0.96
Acute kidney injury*	7.8	19.9	<0.01

TAVI alone 3%

[1]Sondergaard et al., presented at TCT 2017. CoreValve is a trademark of Medtronic.

SOLA SOCI MEXIC

Procedural Characteristics and Late Outcomes of Percutaneous Coronary Intervention in the Workup Pre-TAVR

Laurent Faroux, MD,[a] Francis… …unoz-Garcia, MD,[c] Luis Nombela-Franco, MD,[d] Quentin Fischer, MD,[e] Pierre … Gabriela Veiga, MD,[h] Enrique Gutiérrez, MD,[i] Victoria Vilalta, MD,[j] Alberto … Lluis Asmarats, MD,[m] Henrique B. Ribeiro, MD,[n] Anthony Matta, MD,[b] Antonio… …nijo, MD,[d] Marina Urena, MD,[e] Damien Metz, MD,[f] Eduard Rodenas-Alesina, MD… …z, MD,[h] Eduard Fernandez-Nofrerias, MD,[j] Isaac Pascual, MD,[k] Pedro Per… …i, MD,[m] Diego Carter Campanha-Borges, MD,[n] David del Val, MD,[a] Thomas … MD[a]

30-d death & stroke na%

ORIGINAL ARTICLE

Surgical or Transcatheter Aortic-Valve Replacement in Intermediate-Risk Patients

M.J. Reardon, N.M. Va… …L. Søndergaard, M. Mumtaz, D.H. Adam… …netcuti, T. Gleason, J. Heiser, R. Lange, V… …a, M. Williams, S. Windecker, S.J. Yak… …Conte, E. Vang, H. Nguyen, Y. Chang… …A.P. Kappetein,

30-d death & stroke 3%

CCI Catheterization & Cardiovascular Interventions

VALVULAR AND STRUCTURAL HEART DISEASES

Impact of coronary artery disease and percutaneous coronary intervention in women undergoing transcatheter aortic valve replacement: From the WIN-TAVI registry

Paul Guedeney MD, Didier Tchétché MD, Anna Sonia Petronio MD, Juli… …a Sartori PhD, Thierry Lefèvre MD, Patrizia Presbitero MD, Piera Capranzano M…

30-d death & stroke 8%

Circulation

ORIGINAL RESEARCH ARTICLE

Comparison of a Complete Percutaneous Versus Surgical Approach to Aortic Valve Replacement and Revascularization in Patients at Intermediate Surgical Risk

Results From the Randomized SURTAVI Trial

30-d death & stroke 6.3%

SYSTEMATIC REVIEW AND META-ANALYSIS

American Heart Association | American Stroke Association

Transcatheter Aortic Valve Implantation With or Without Percutaneous Coronary Artery Revascula… : A Systematic Review and Meta-Analysis

Rafail A. Kotronias, MBChB, MSc; Chun Shing Kwok, MBBS, MSc; Sudhakar Geo… …MD, PhD; Peter F. Ludman, MD, FRCP, FESC; Jonathan N. Townend, MD, FRCP; Sagar N. Doshi, MB… …, MBChB, MD, FRCP; Philippe Généreux, MD; Howard C. Herrmann, MD, FACC, MSCAI; Mamas A. Ma… …ur, MD, PhD, FAHA

30-d death & stroke 9%

Impact of coronary artery disease and percutaneous coronary intervention on outcomes in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation

Peter Wenaweser[1¶], MD; Thomas Pilgrim… …MD; Stefan Stortecky[1], MD; Christoph Huber[2], MD; Ahmed A. Khat… …er[2], MD; Lutz Buellesfeld[1], MD; Steffen Gloekler[1], MD; Bernhard Meier… …D; Stephan Windecker[1], MD

30-d death & stroke 13%

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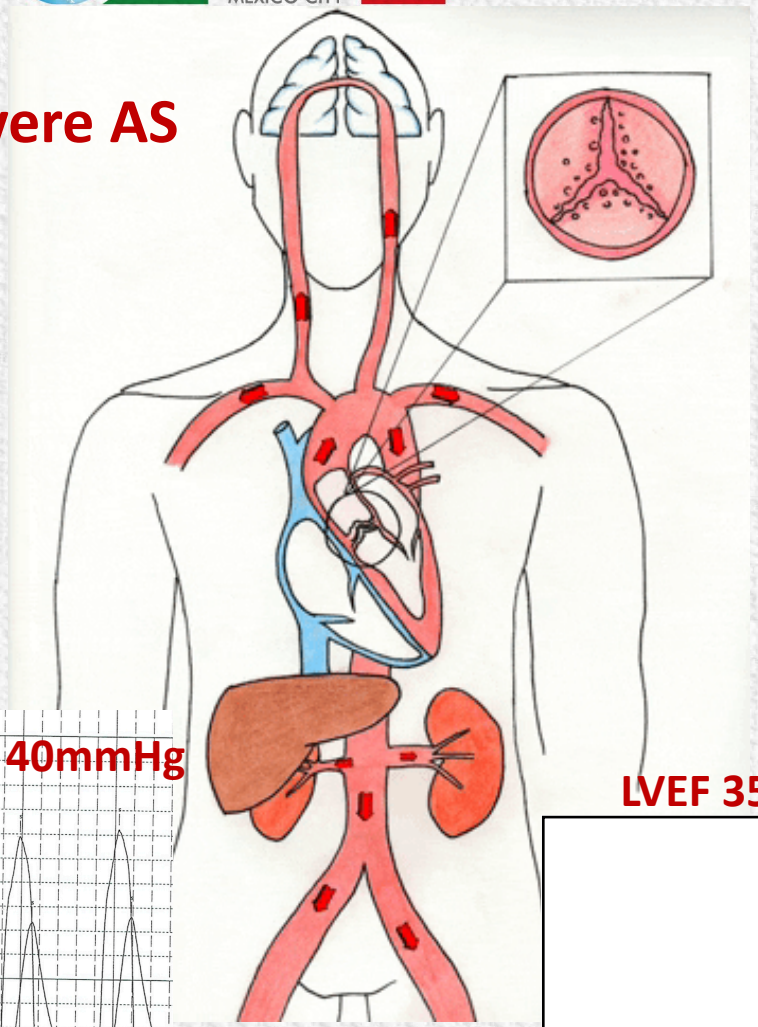
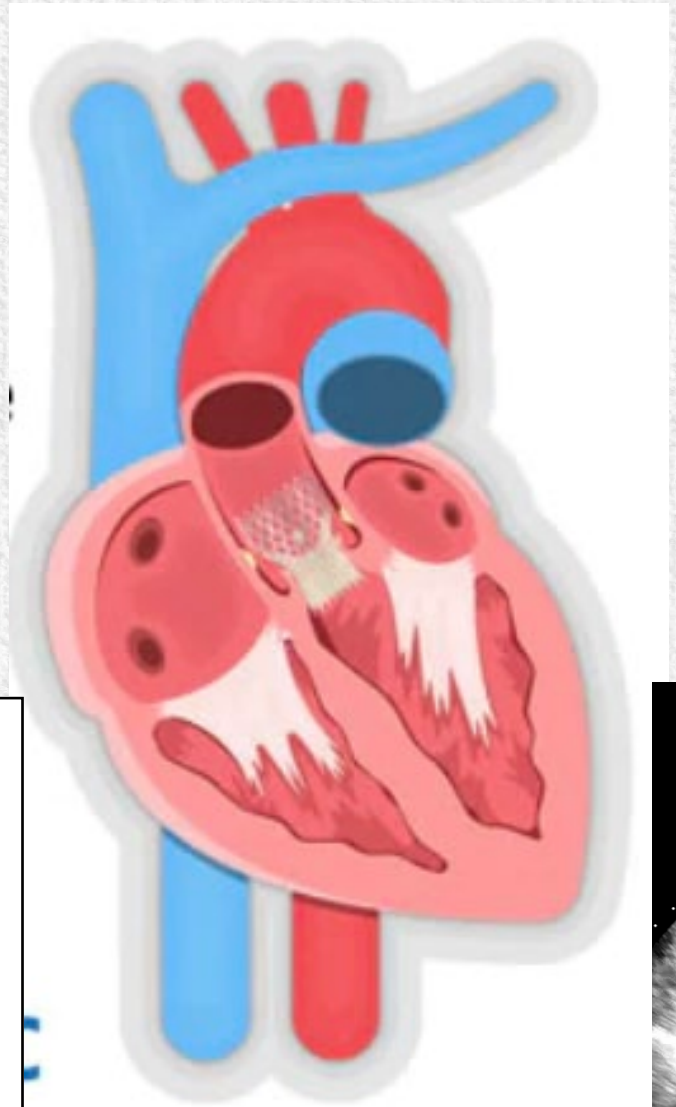
CI= 3.0 l/min/m²

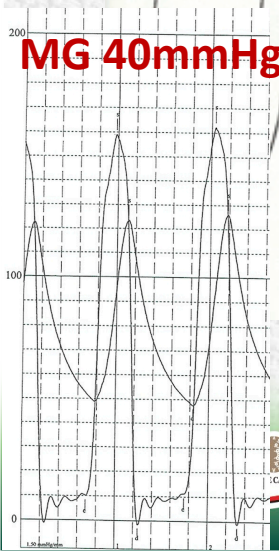
CI= 4.0 l/min/m²

Severe AS

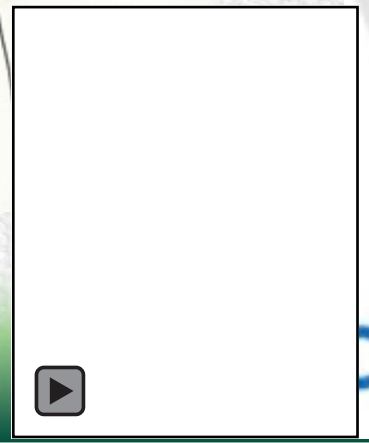




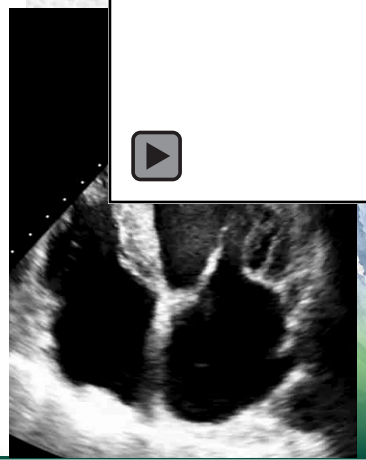
MG 40mmHg



LVEF 35%



LV



mmHg

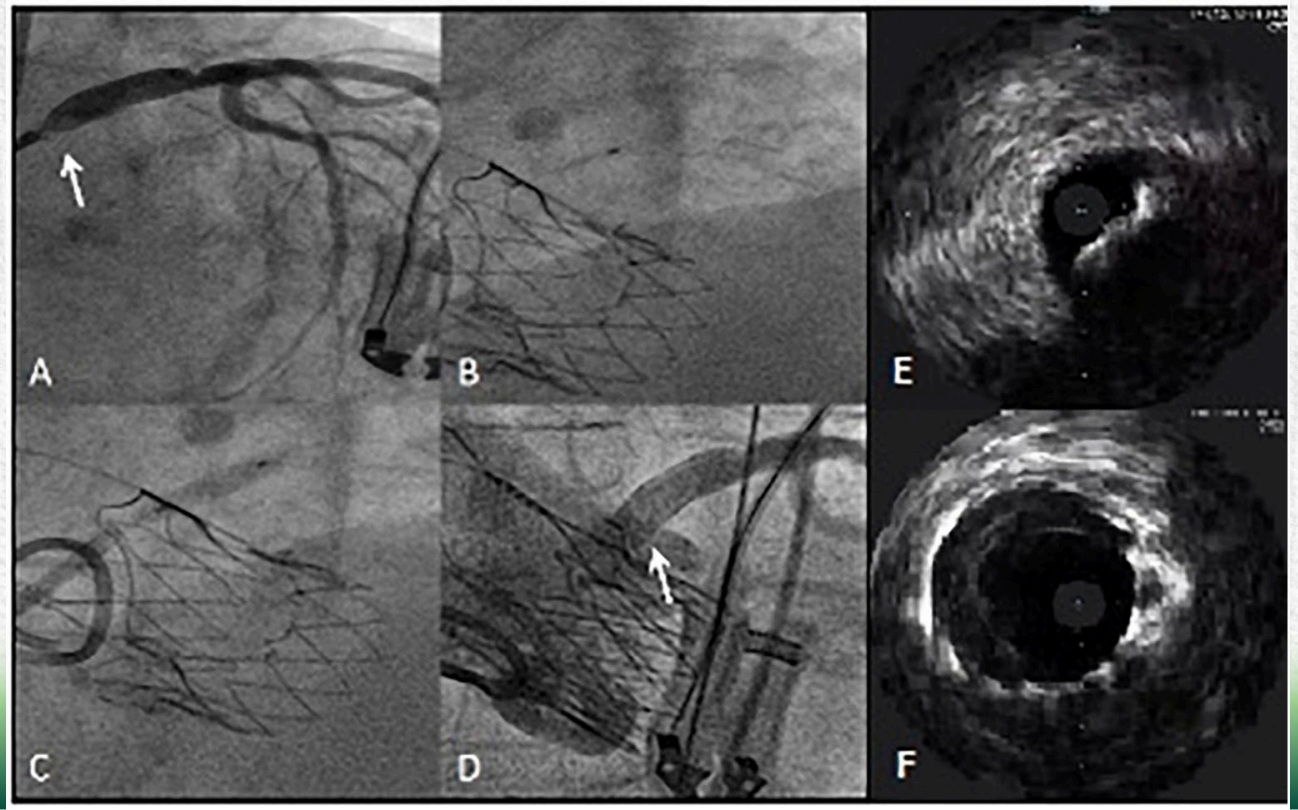
Contents lists available at ScienceDirect

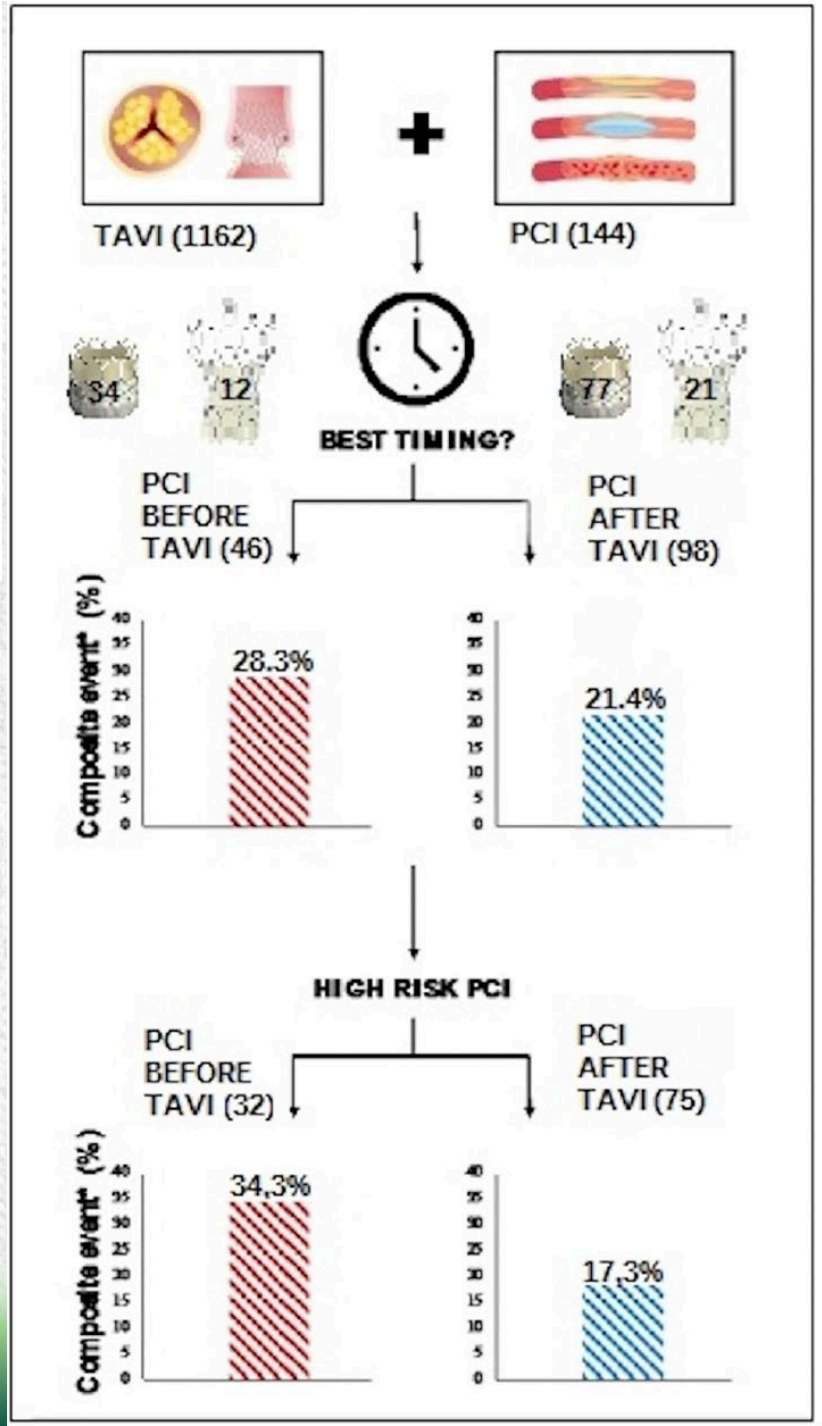
International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard

Optimal timing for percutaneous coronary intervention in patients undergoing transcatheter aortic valve implantation

Mattia Lunardi [a,1], Gabriele Venturi [a,1], Paolo Alberto Del Sole [a], Alessandro Ruzzarin [a], Andrea Mainardi [a], Michele Pighi [a], Gabriele Pesarini [a], Roberto Scarsini [a], Domenico Tavella [a], Leonardo Gottin [b], Flavio Luciano Ribichini [a,*]



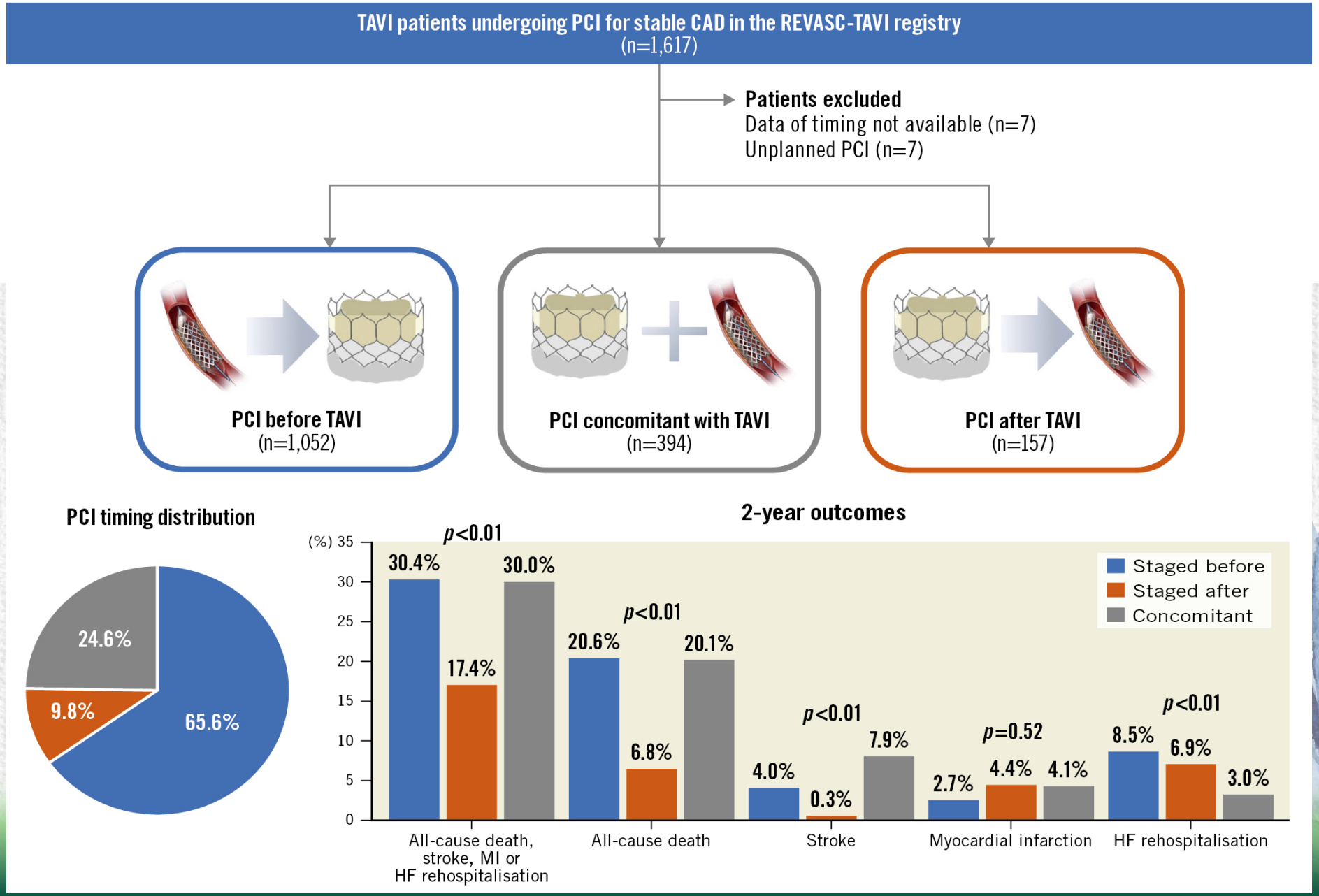


Procedural and in-hospital clinical events pre-TAVI PCI vs post-TAVI PCI. Verona Heart Valve Study (1262pt)

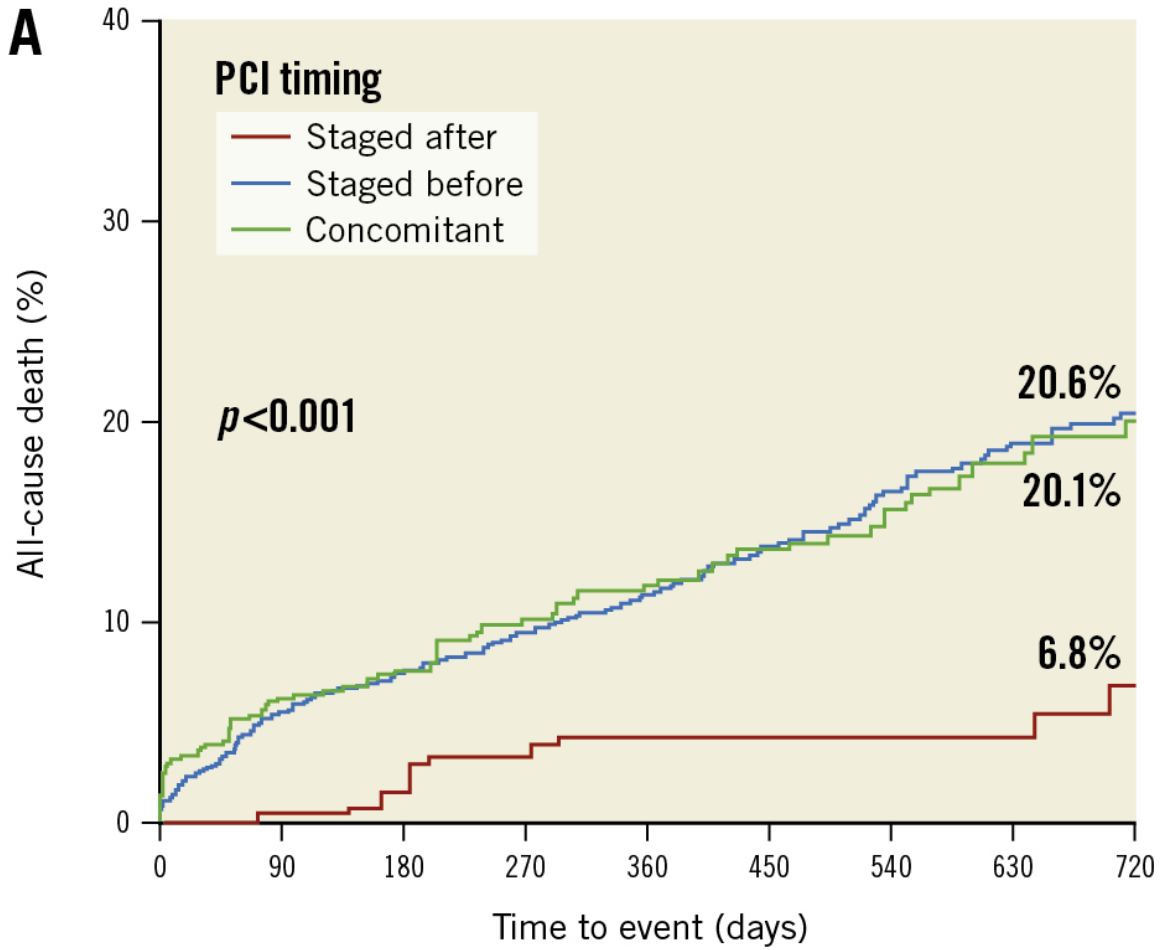
TAVI one month: death 2.1% stroke 0.9% (3%)

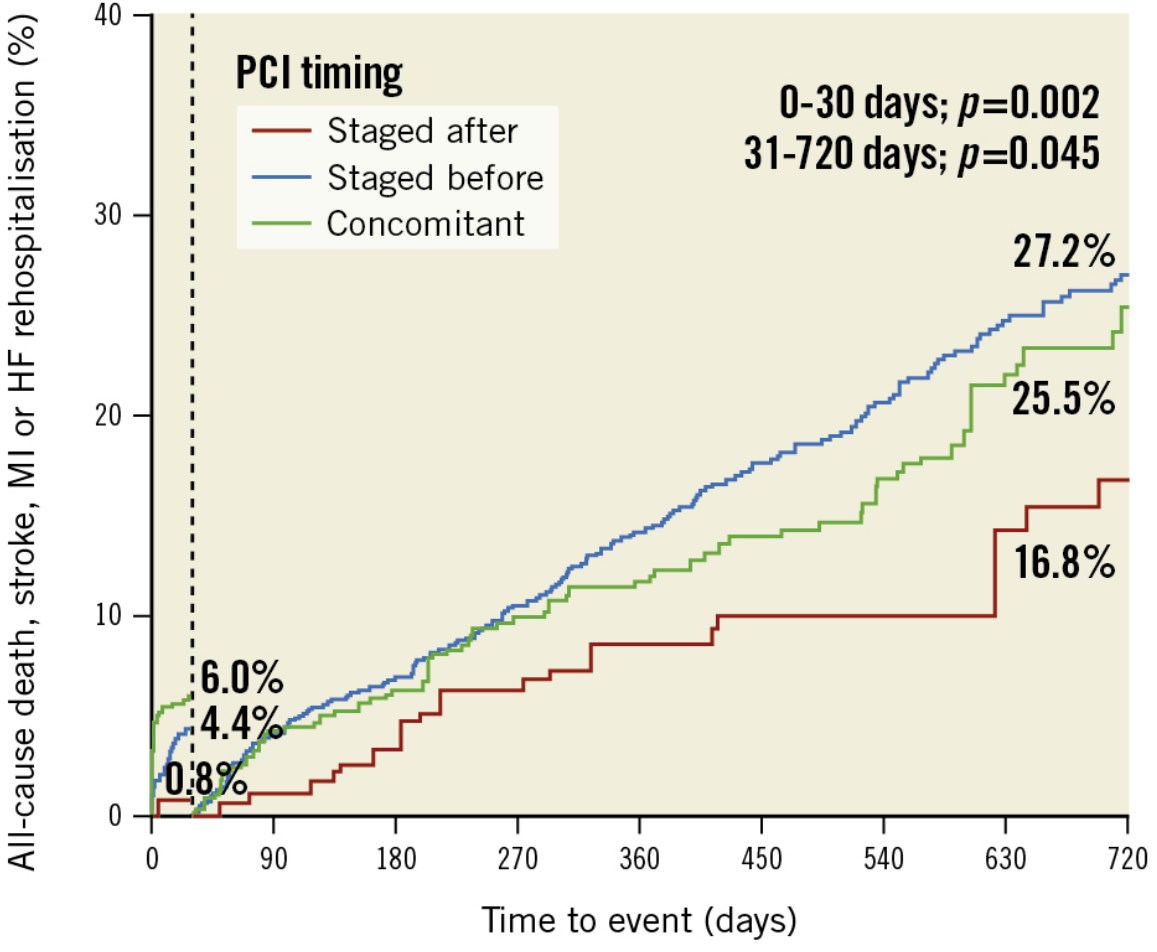
	PCI pre-TAVI (46)	PCI post-TAVI (98)	p.	High-risk PCI pre TAVI (32)	High-risk PCI post-TAVI (75)	p.
Procedural complications						
Procedural death	0 (0.0%)	0 (0.0%)	-	0 (0.0%)	0 (0.0%)	-
Arrhythmias	0 (0.0%)	2 (2.0%)	1.000	0 (0.0%)	2 (2.6%)	0.987
Periprocedural MI	0 (0.0%)	4 (4.1%)	0.126	0 (0.0%)	0 (0.0%)	-
Cardiogenic shock	1 (2.2%)	4 (4.1%)	0.889	1 (3.1%)	2 (2.6%)	0.977
In hospital events						
Stroke	**3 (6.5%)**	**0 (0.0%)**	**0.031**	**3 (9.3%)**	**0 (0.0%)**	**0.025**
AKI	7 (15.2%)	11 (11.2%)	0.590	7 (21.9%)	7 (9.3%)	0.115
Major VC	4 (8.6%)	5 (5.1%)	0.467	4 (12.5%)	3 (4.0%)	0.193
Major Bleeding	4 (8.6%)	4 (4.1%)	0.267	3 (9.3%)	3 (4.0%)	0.361
TLR or TVR	0 (0.0%)	0 (0.0%)	-	0 (0.0%)	0 (0.0%)	-
Cardiac death	**2 (4.4%)**	**0 (0.0%)**	**0.098**	**2 (6.2%)**	**0 (0.0%)**	**0.081**
In hospital complications	11 (23.9%)	13 (13.3%)	0.149	9 (28.1%)	9 (12.0)	0.051
Composite procedural and in hospital event	13 (28.3%)	21 (21.4%)	0.403	11 (34.4%)	13 (17.3%)	0.075

EuroIntervention 2023;19:589-599



All-cause death and MACEs according to PCI timing strategy in patients undergoing TAVI





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USZ Universitäts Spital Zürich

TAVI PCI
NCT04310046
=986

- Angiography-guided PCI Before TAVI
- Angiography -guided PCI After TAVI (1-45/d)

Ongoing

Primary Endpoint:
Composite of all-cause **death**, myocardial **infarction**, , major **bleeding** and need for target vessel **revasc**ularization or re-hospitalization at 12 months

UNIVERSITÀ di VERONA

FAITAVI
NCT03360591
n=320

- Angiography-guided PCI diameter stenosis of ≥ 50%
- Physiology-guided PCI if FFR ≤0.80

Presented PCR 25

Primary Endpoint:
Composite of all-cause **death**, myocardial **infarction**, **stroke**, major **bleeding** and need for target vessel **revasc**ularization at 12 months

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

PCI in Patients Undergoing Transcatheter Aortic-Valve Implantation

NOTION-3
NCT03058627
N=452

- Complete revasc with PCI
- Conservative management

Published

Primary Endpoint:
Composite of all-cause **mortality**, myocardial **infarction**, or urgent **revasc**ularization at 12 months

THE LANCET

TCW
NCT03424941
N=328

- FFR-guided PCI and TAVI
- CABG and SAVR

Published

Primary Endpoint:
Composite of all-cause **mortality**, myocardial **infarction**, disabling **stroke**, unscheduled clinically-driven target vessel **revasc**ularization, valve **re-intervention**, and life threatening or disabling **bleeding** at one year

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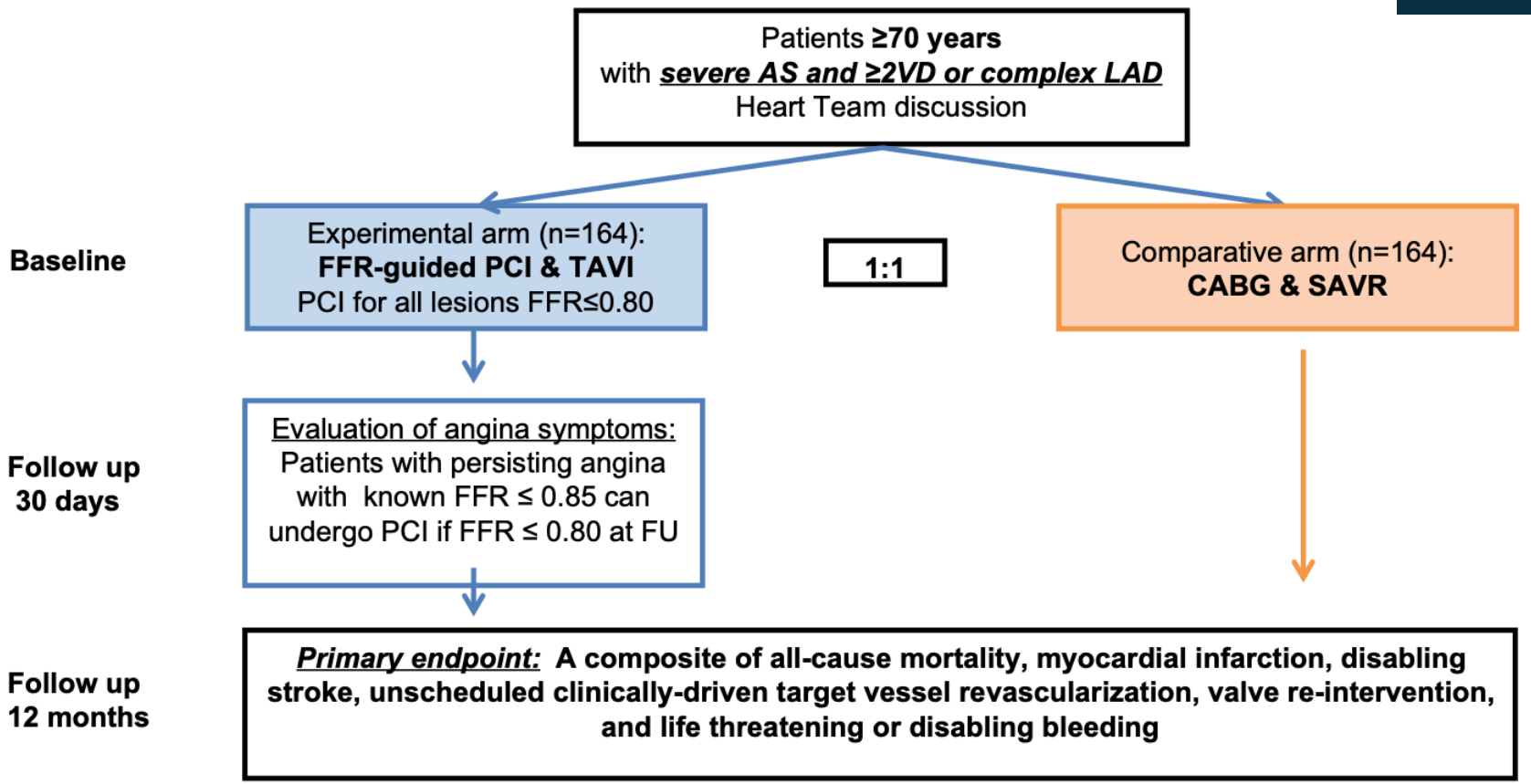
SOCIEDAD DE CARDIOLOGIA INTERVENCIONISTA DE MEXICO

TCW Trial Design

TCW
NCT03424941
N=328



TCW

Study outcomes and definitions

- ***Primary study endpoint:*** a patient-oriented composite of ***all-cause mortality, myocardial infarction, disabling stroke, unscheduled clinically-driven target vessel revascularization, valve reintervention*, and *life threatening or disabling bleeding*** at 1 year

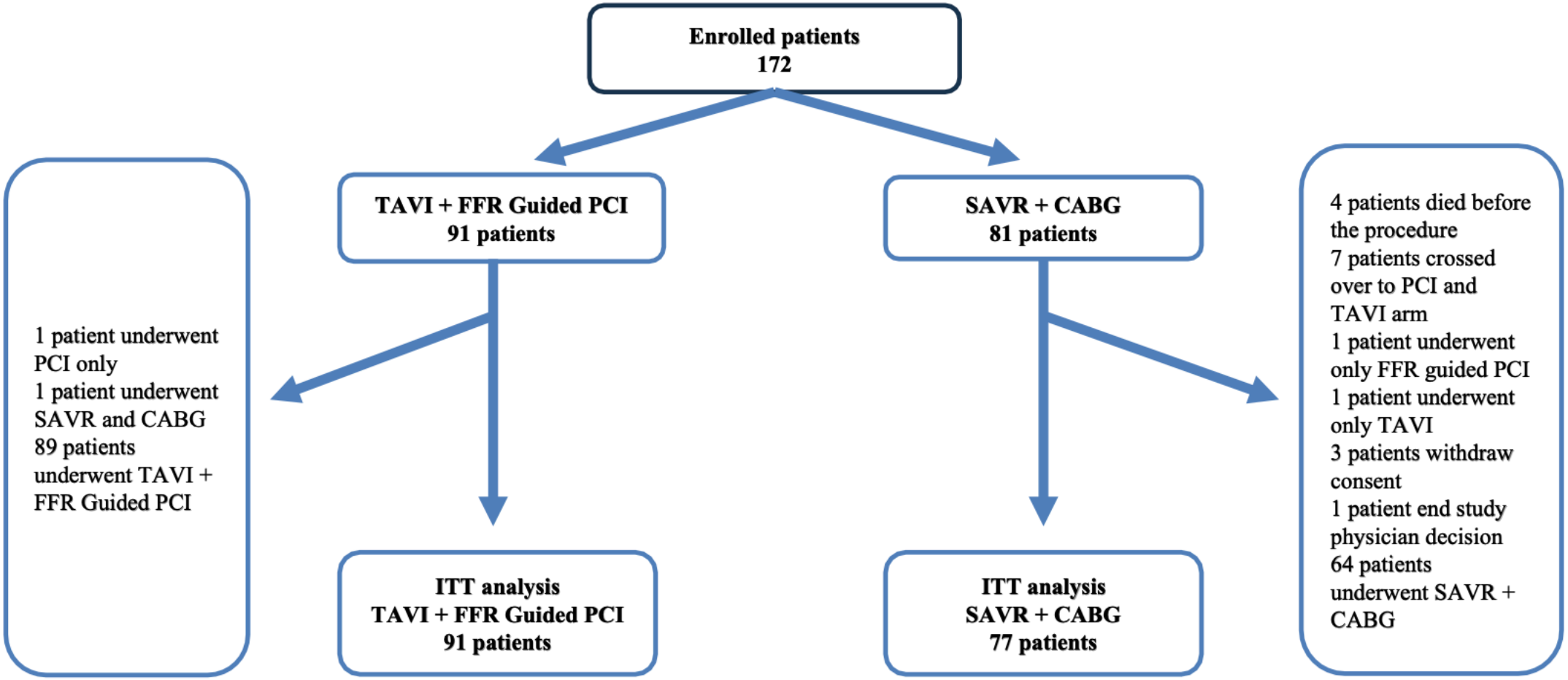
- ***Major secondary endpoints:***

  - ***MACE*** a composite of ***cardiovascular mortality, all stroke, myocardial infarction, unscheduled coronary or valve re-intervention*** at 1 year

  - ***All-cause mortality and all stroke*** at 30 days and at 1 year

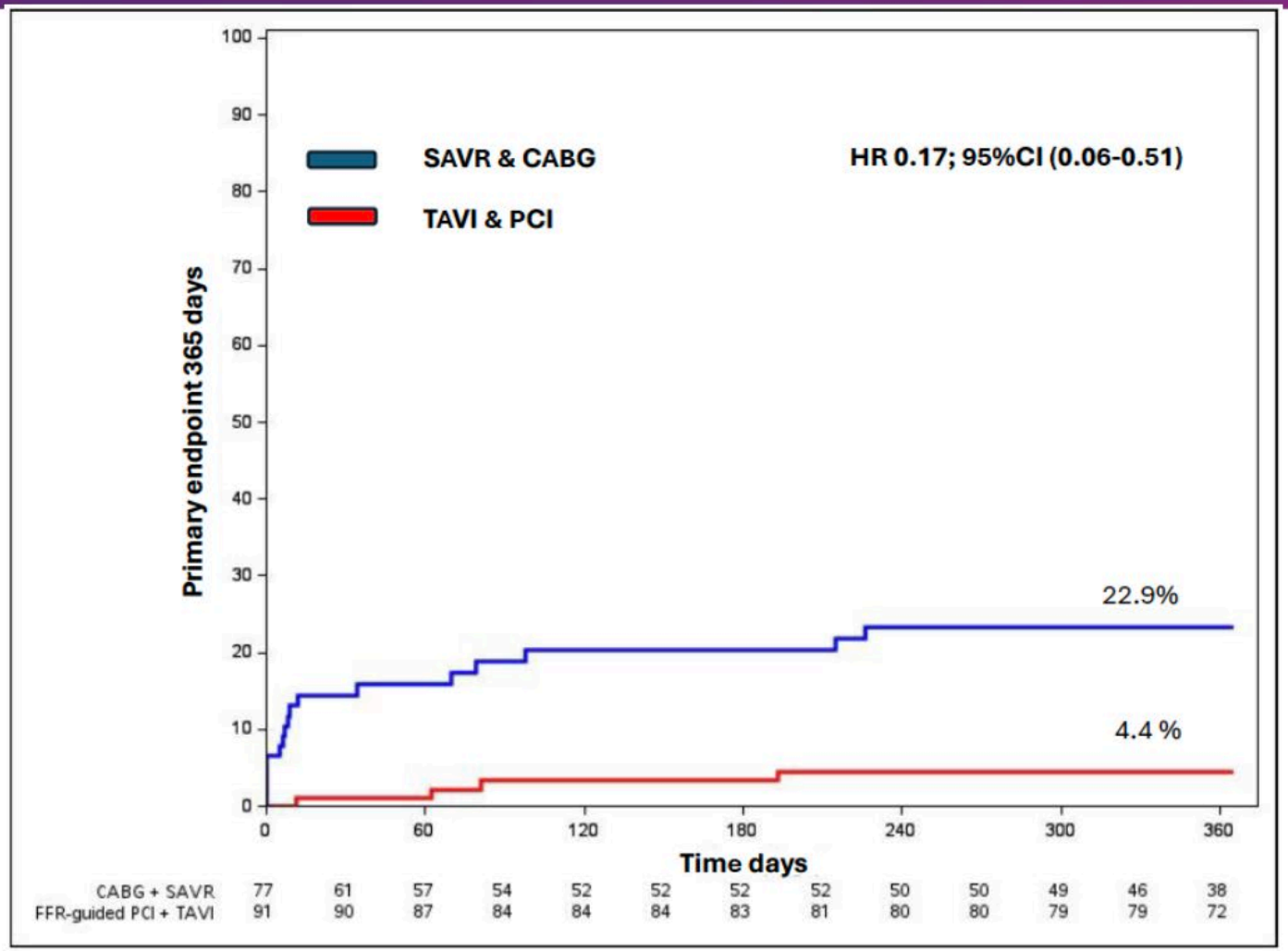
TCW

Patient Flow Chart



TCW

Primary Endpoint outcomes IT analysis



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

PCI in Patients Undergoing Transcatheter Aortic-Valve Implantation

J. Lønborg, R. Jabbari, M. Sabbah, K.T. Veien, M. Niemelä, P. Freeman, R. Linder, D. Ioanes, C.J. Terkelsen, O.A. Kajander, S. Koul, M. Savontaus, P. Karjalainen, A. Erglis, M. Minkkinen, R. Sørensen, H.-H. Tilsted, L. Holmvang, G. Bieliauskas, J. Ellert, J. Piuhola, A. Eftekhari, O. Angerås, A. Rück, E.H. Christiansen, T. Jørgensen, B.T. Özbek, C. Glinge, L. Søndergaard, O. De Backer, and T. Engstrøm, for the NOTION-3 Study Group*

NOTION-3
NCT03058627
N=452

TAVI candidates with at least 1CAD stenosis >90% or FFR <0.80 pre-TAVI

1:1 Randomization

PCI

Conservative Tx

Primary Endpoint:
Composite of all-cause **mortality**, myocardial **infarction**, or urgent **revasc**ularization at 24 months

Table 1. Characteristics of the Patients at Baseline.*

Characteristic	PCI (N = 227)	Conservative Treatment (N = 228)
Median age (IQR) — yr	82 (78–85)	81 (78–85)
Female sex — no. (%)	73 (32)	75 (33)
Median body-mass index (IQR)†	26 (24–29)	26 (24–29)
Median STS-PROM score (IQR) — %‡	3 (2–4)	3 (2–4)
New York Heart Association class — no. (%)		
I	21 (9)	23 (10)
II	101 (44)	110 (48)
III	103 (45)	89 (39)
IV	2 (1)	6 (3)
Median creatinine level (IQR) — μmol/liter§	89 (74–109)	87 (73–106)
Median aortic-valve area (IQR) — cm^2	1 (1–1)	1 (1–1)
Median peak aortic-valve gradient (IQR) — mm Hg	75 (64–90)	75 (66–90)
Median left ventricular ejection fraction (IQR) — %	60 (50–60)	60 (50–60)
Medical history — no. (%)		
History of PCI	28 (12)	37 (16)
History of myocardial infarction	14 (6)	24 (11)
History of CABG	7 (3)	10 (4)
Treatment of hypercholesterolemia	158 (70)	169 (74)
Diabetes mellitus	59 (26)	61 (27)
Treatment of hypertension	158 (70)	168 (74)
Current or former smoking	113 (50)	133 (58)
History of stroke or transient ischemic attack	48 (21)	47 (21)
Previous malignant disease	45 (20)	45 (20)
Chronic obstructive pulmonary disease	49 (22)	64 (28)
Atrial fibrillation	81 (36)	74 (32)
Peripheral artery disease	19 (8)	26 (11)

Table 2. Angiographic Findings and Characteristics of the PCI and TAVI Procedures.*

Variable	PCI (N=227)	Conservative Treatment (N=228)
Angiographic findings		
Median no. of physiologically significant lesions per patient (IQR)†	1 (1–2)	1 (1–2)
No. of lesions with fractional flow reserve ≤0.80	167	155
No. of lesions with diameter stenosis ≥90%	184	162
Median largest diameter stenosis (IQR) — %	90 (80–90)	90 (71–90)
Median SYNTAX score (IQR)‡	9 (6–14)	9 (5–14)
PCI procedure†		
Median no. of days from randomization to PCI (IQR)	9 (1–26)	—
Timing of PCI — no./total no. (%)		
Before TAVI	163/219 (74)	—
Concomitant with TAVI	37/219 (17)	—
After TAVI	19/219 (9)	—
Complete revascularization achieved — no./total no. (%)§	194/219 (89)	—
TAVI procedure		
Median no. of days from randomization to TAVI (IQR)	34 (7–62)	25 (2–54)
Balloon-expandable heart valve — no. (%)	90 (40)	95 (42)

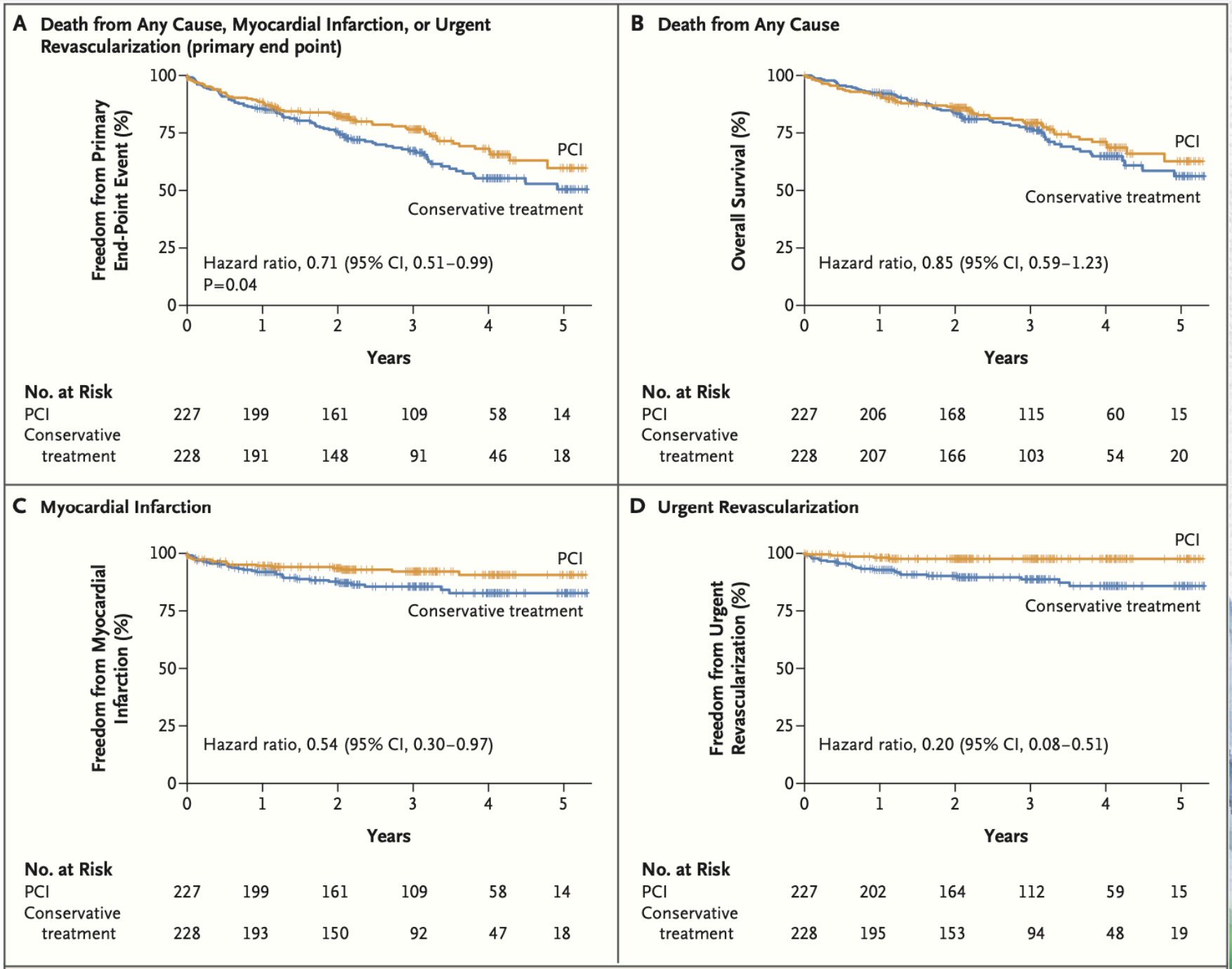
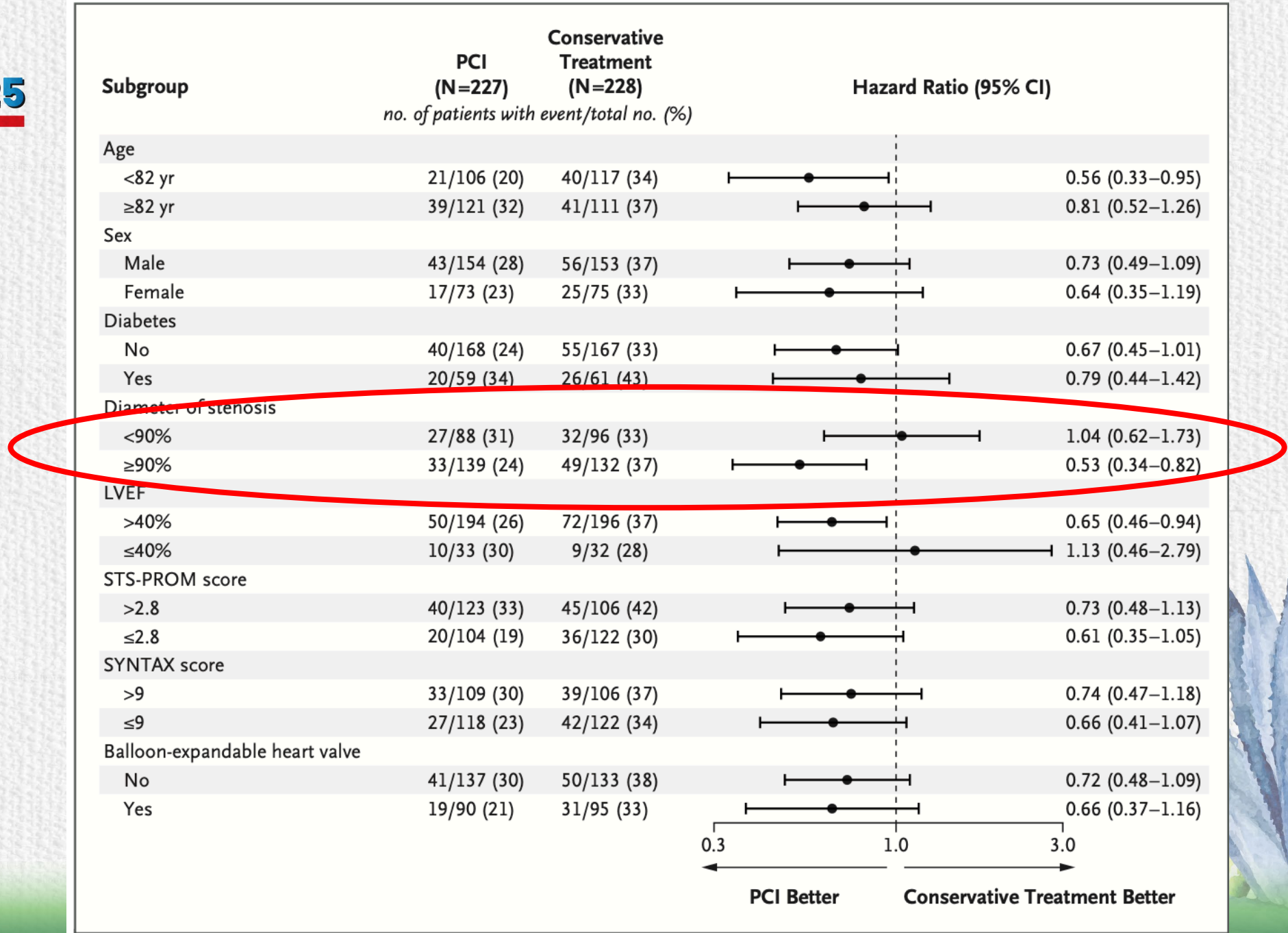


Figure 1. Primary End Point: Major Adverse Cardiac Events.



Subgroup	PCI (N=227)	Conservative Treatment (N=228)	Hazard Ratio (95% CI)
	no. of patients with event/total no. (%)		
Age			
<82 yr	21/106 (20)	40/117 (34)	0.56 (0.33–0.95)
≥82 yr	39/121 (32)	41/111 (37)	0.81 (0.52–1.26)
Sex			
Male	43/154 (28)	56/153 (37)	0.73 (0.49–1.09)
Female	17/73 (23)	25/75 (33)	0.64 (0.35–1.19)
Diabetes			
No	40/168 (24)	55/167 (33)	0.67 (0.45–1.01)
Yes	20/59 (34)	26/61 (43)	0.79 (0.44–1.42)
Diameter of stenosis			
<90%	27/88 (31)	32/96 (33)	1.04 (0.62–1.73)
≥90%	33/139 (24)	49/132 (37)	0.53 (0.34–0.82)
LVEF			
>40%	50/194 (26)	72/196 (37)	0.65 (0.46–0.94)
≤40%	10/33 (30)	9/32 (28)	1.13 (0.46–2.79)
STS-PROM score			
>2.8	40/123 (33)	45/106 (42)	0.73 (0.48–1.13)
≤2.8	20/104 (19)	36/122 (30)	0.61 (0.35–1.05)
SYNTAX score			
>9	33/109 (30)	39/106 (37)	0.74 (0.47–1.18)
≤9	27/118 (23)	42/122 (34)	0.66 (0.41–1.07)
Balloon-expandable heart valve			
No	41/137 (30)	50/133 (38)	0.72 (0.48–1.09)
Yes	19/90 (21)	31/95 (33)	0.66 (0.37–1.16)

Figure 2. Subgroup Analysis of the Primary End Point.

FAITAVI: Functional Assessment In TAVI

Eurointervention 2024;20:504-10

Study design: multicentre, prospective, randomized, open-label, superiority trial with blinded adjudication of clinical events

Study population: 320 patients

Randomization: 1:1 to FFR-guided versus angio-guided PCI before or after TAVI
Left Main lesions (>50-<90%) included. ACS and EF<35% excluded

Primary endpoint: 12-month MACCE, a composite of all-cause death, MI, ischemia-driven TVR, stroke, or major bleeding (BARC ≥3)

Interventional strategy: In the FFR-guided arm, lesions with FFR ≤0.80 were treated, those >0.85 were deferred, and borderline lesions (FFR 0.81–0.85) were re-assessed after TAVI
In the angio-guided arm, all lesions ≥50% in vessels >2.5 mm were treated

FAITAVI: Functional Assessment In TAVI

Eurointervention 2024;20:504-10

TAVI candidates as per Heart Team indication (inclusion/exclusion criteria satisfied)
Signed informed consent
Enrolment period Nov 2017-June 2023

↓

320 patients enrolled and randomized 1:1

↓ ↓

Angio-guided PCI (156)

↓

Angio-guided PCI if %DS ≥ 50 (before or after TAVI)

TAVI

FFR-guided PCI (164)

↓

FFR-guided PCI if FFR ≤0.80 (before or after TAVI)

Immediate outcome in the cathlab

Primary endpoint at 12 months (97%)

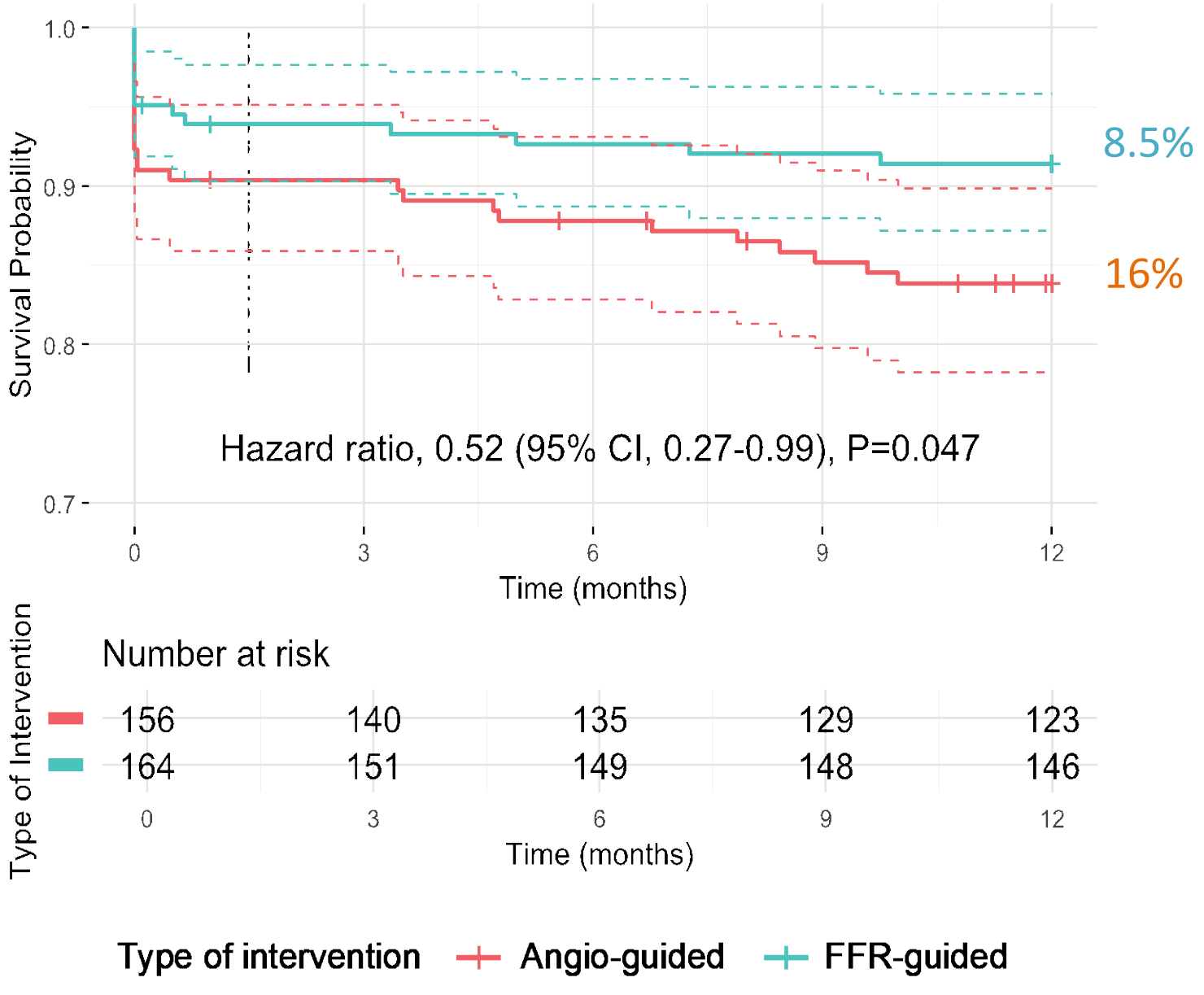
(NCT03360591)

Eurointervention 2024;20:504-10

Study cohort

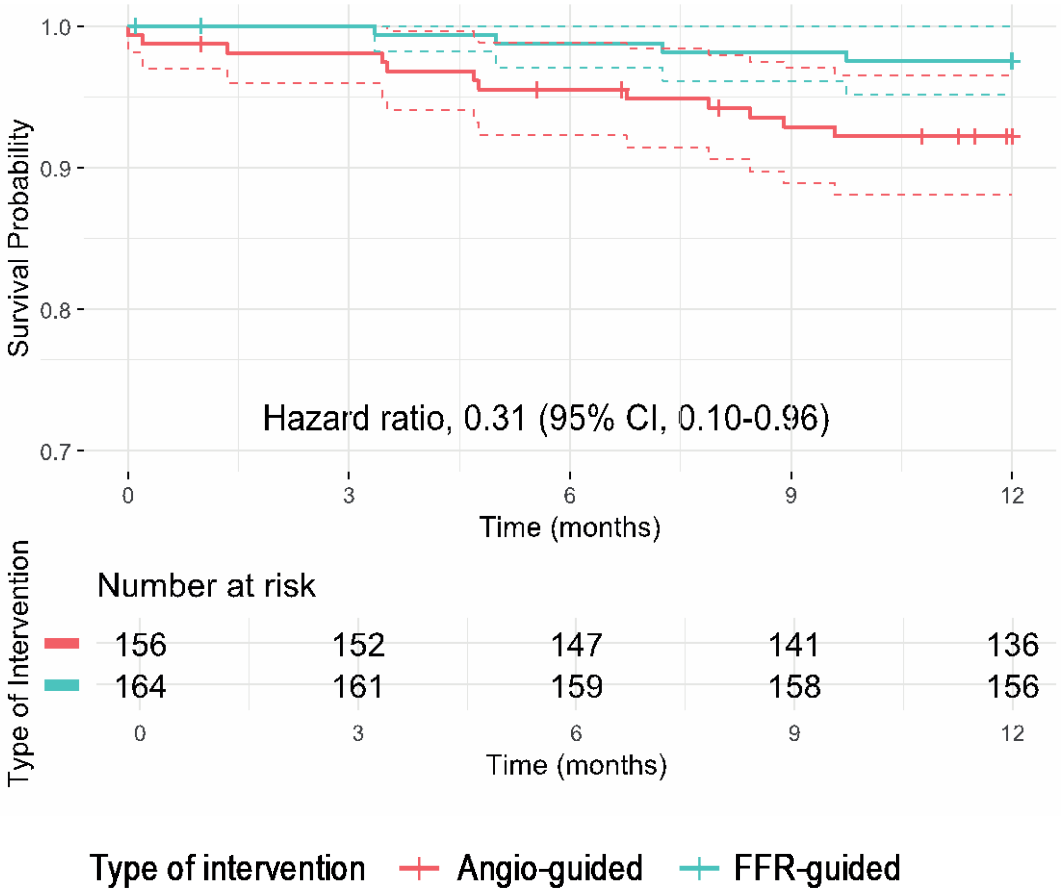
Characteristics of the study cohort at baseline		
Characteristic	**FFR-guided PCI (n=164)**	**Angiography-guided PCI (n=156)**
Age - year	**87 (83-90)**	**86 (82-89)**
Female sex - %	**41**	**44**
STS-PROM score - %	**3 (2-4)**	**4 (2-5)**
Left ventricular ejection fraction (IQR) - %	58 (53-64)	59 (55-64)
Median aortic valve area (IQR) cm2	0.7 (0.6-0.9)	0.7 (0.6-0.9)
Median mean aortic valve gradient (IQR) - mmHg	46 (40-53)	43 (38-52)
History of PCI - %	14	17
History of myocardial infarction - %	13	11
Diabetes mellitus - %	34	38
Chronic kidney disease	26	29
Atrial fibrillation	29	28
Peripheral artery disease	25	26
Median SYNTAX score (IQR)†	7 (5-11)	7 (5-11)
Median diameter stenosis (IQR) - %	55 (46-63)	56 (48-63)
Median FFR (IQR) before TAVI	0.80 (0.74-0.87)	-

Primary endpoint



Secondary and safety endpoints

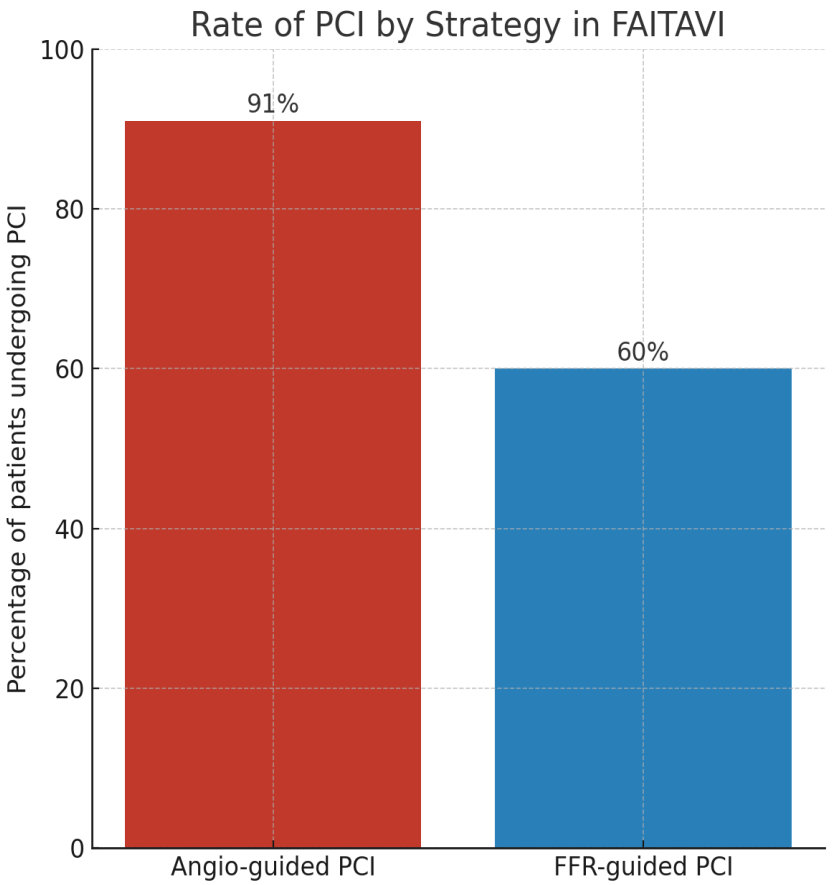
All cause death

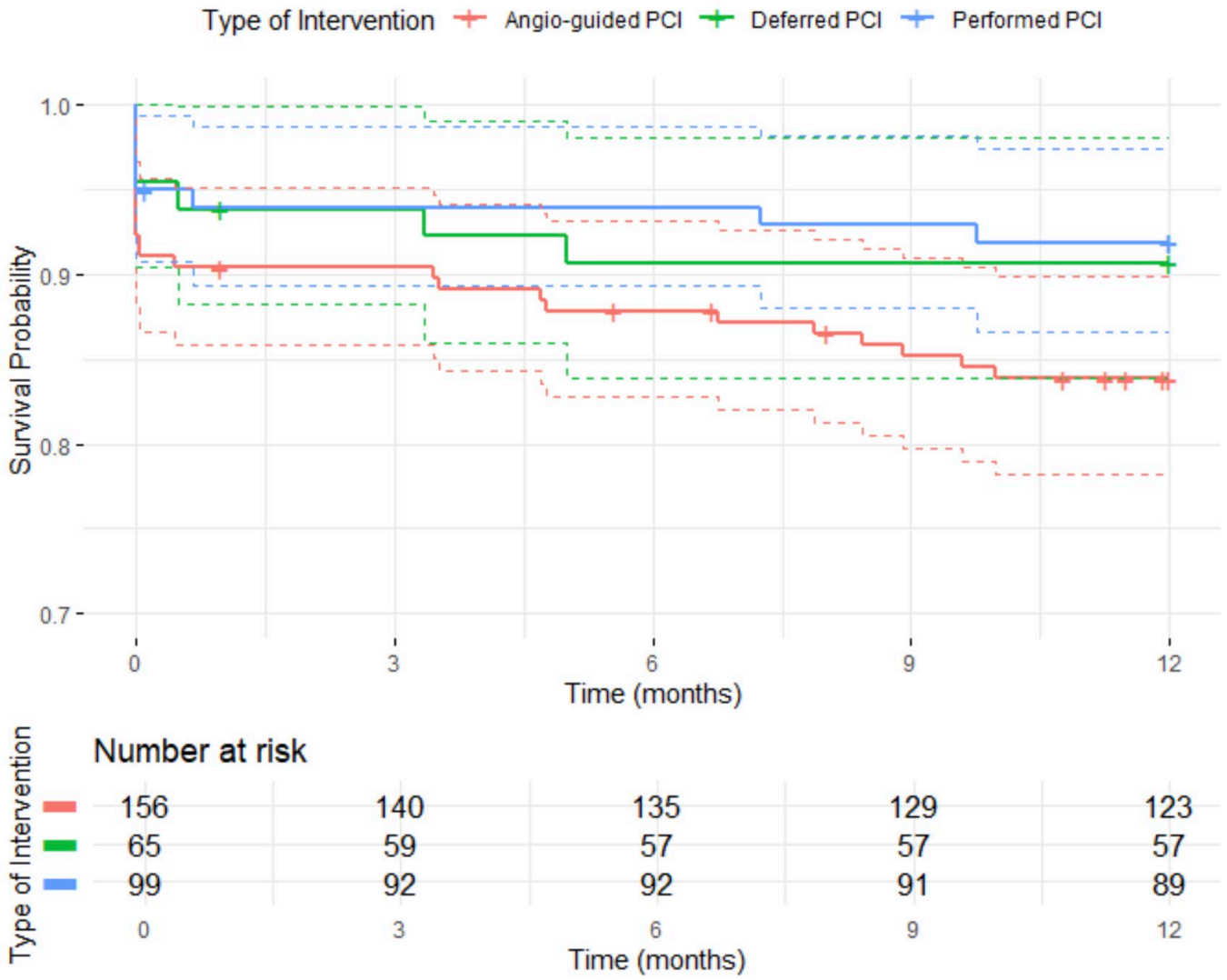


Secondary endpoints	FFR-guided	Angio-guided	HR (95% CI)
Death from any cause	4 (2.4)	12 (7.7)	0.31 (0.10-0.96)
Death from cardiovascular causes	0 (0)	3 (1.9)	
Myocardial infarction	1 (0.6)	2 (1.2)	0.47 (0.04-5.23)
Ischemia driven revascularization	0 (0)	3 (1.9)	
Stroke	1 (0.6)	4 (2.5)	0.24 (0.03-2.11)

Safety endpoints	FFR-guided	Angio-guided	HR (95% CI)
Major bleeding	8 (4.9)	10 (6.4)	0.75 (0.30-1.91)
Acute kidney failure	5 (3.0)	5 (3.2)	0.95 (0.26-3.48)
Periprocedural myocardial infarction	1 (0.6)	2 (1.2)	0.47 (0.02-4.98)
Vascular complications	13 (7.9)	9 (5.7)	1.41 (0.59-3.50)

Deferred vs treated coronary lesions





PCI before TAVI? or TAVI before PCI?

Driving considerations:

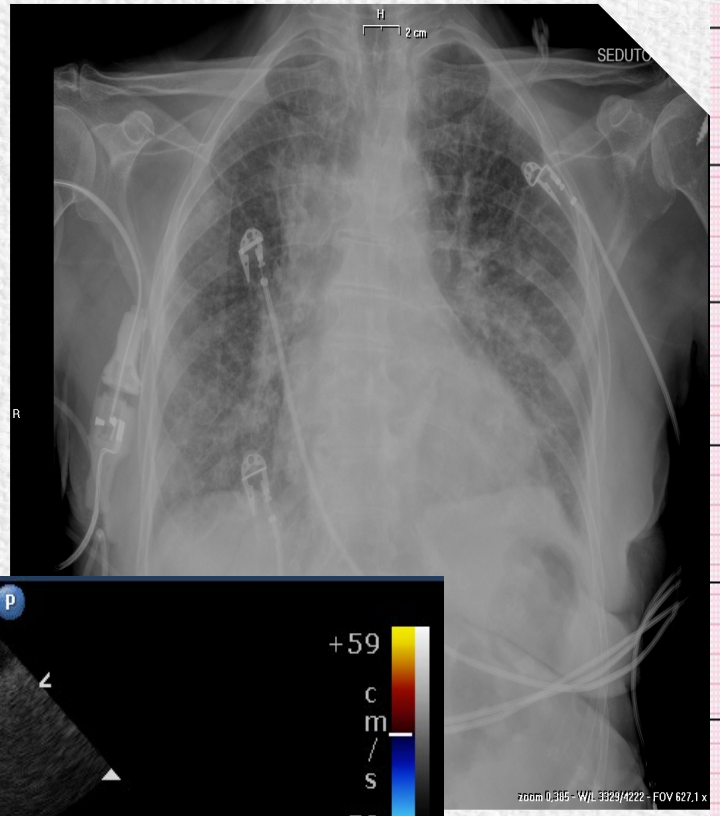
1. Most patients came to our observation because of AS, not CAD
2. Most AS patients with CAD have no angina…
3. Detection of inducible ischemia in AS is not standardized
4. Any complication of PCI could be better tollerated without AS
5. Organ perfusion is better after removal of AS

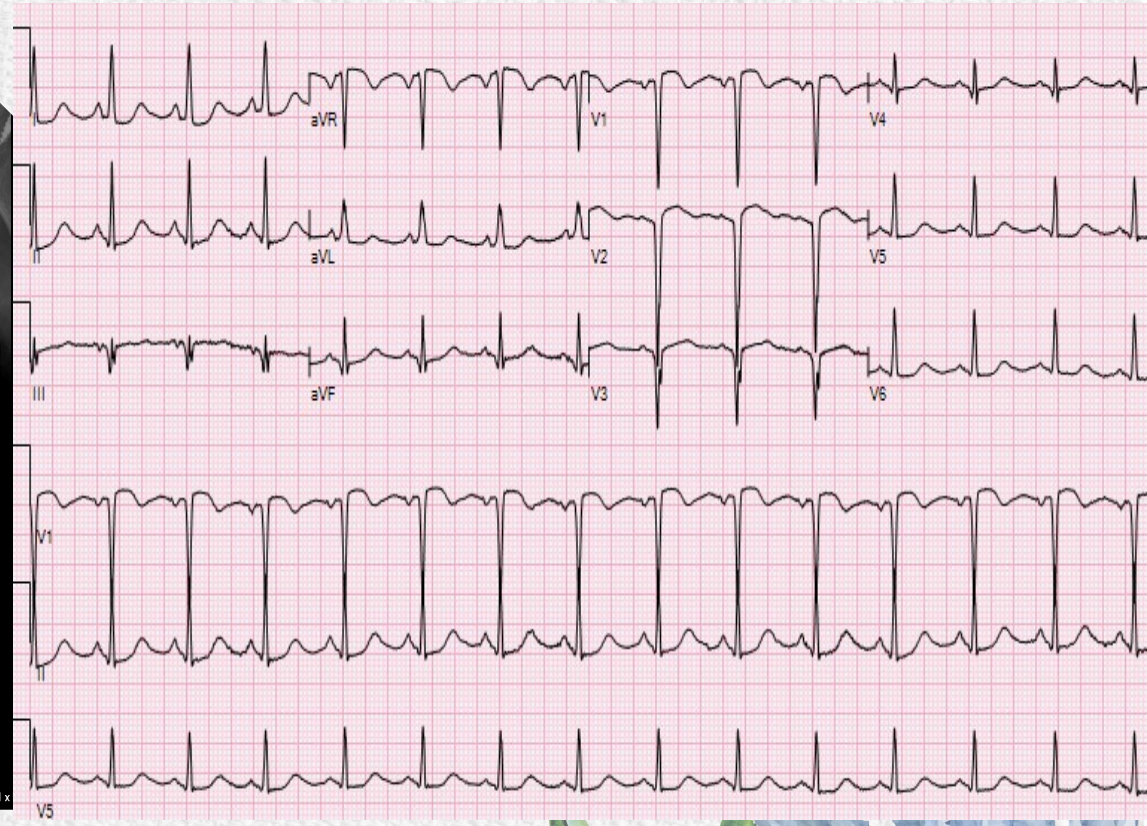
Available evidence released after the latest GL:

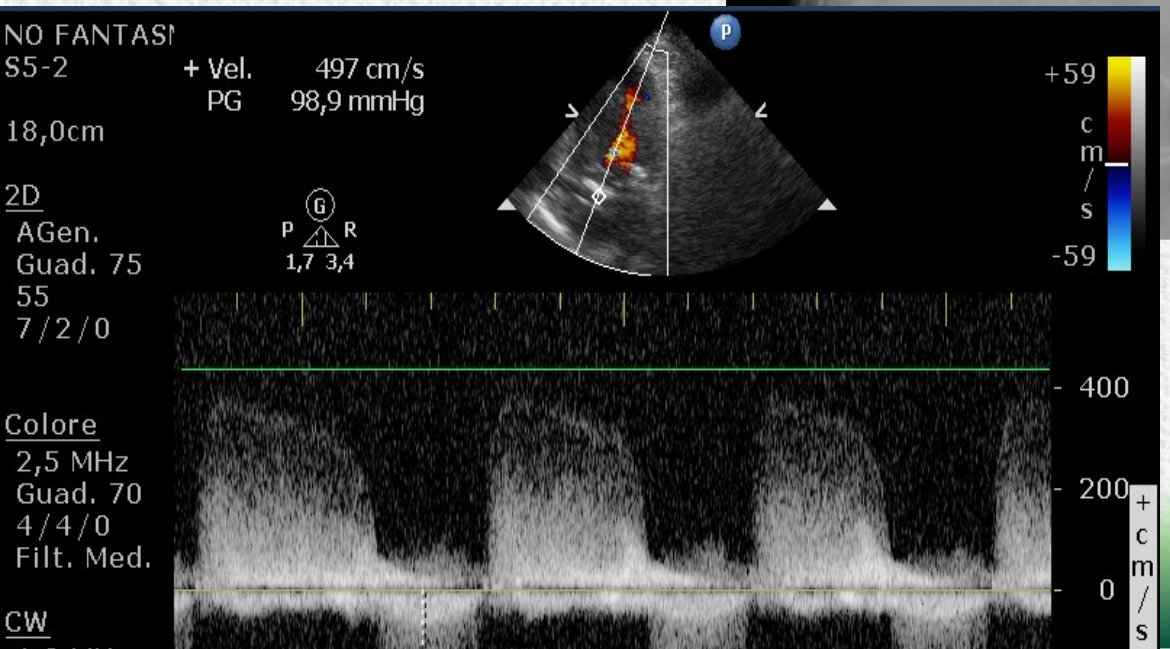
- **ACTIVATION:** PCI vs medical therapy: only higher bleeding with PCI
- **TCW:** TAVI and PCI better than SAVR and CABG
- **NOTION-3:** PCI of lesions >90% better than medical therapy.
  PCI of lessions <90% same as medical therapy
- **FAITAVI:** FFR-guided PCI better than angio-guided PCI

Case 1: ACS and AVS

- 83 yo female
- Known severe AVS symptomatic for angina, refused any intervention
- Diagnosis of anterior STEMI with heart failure



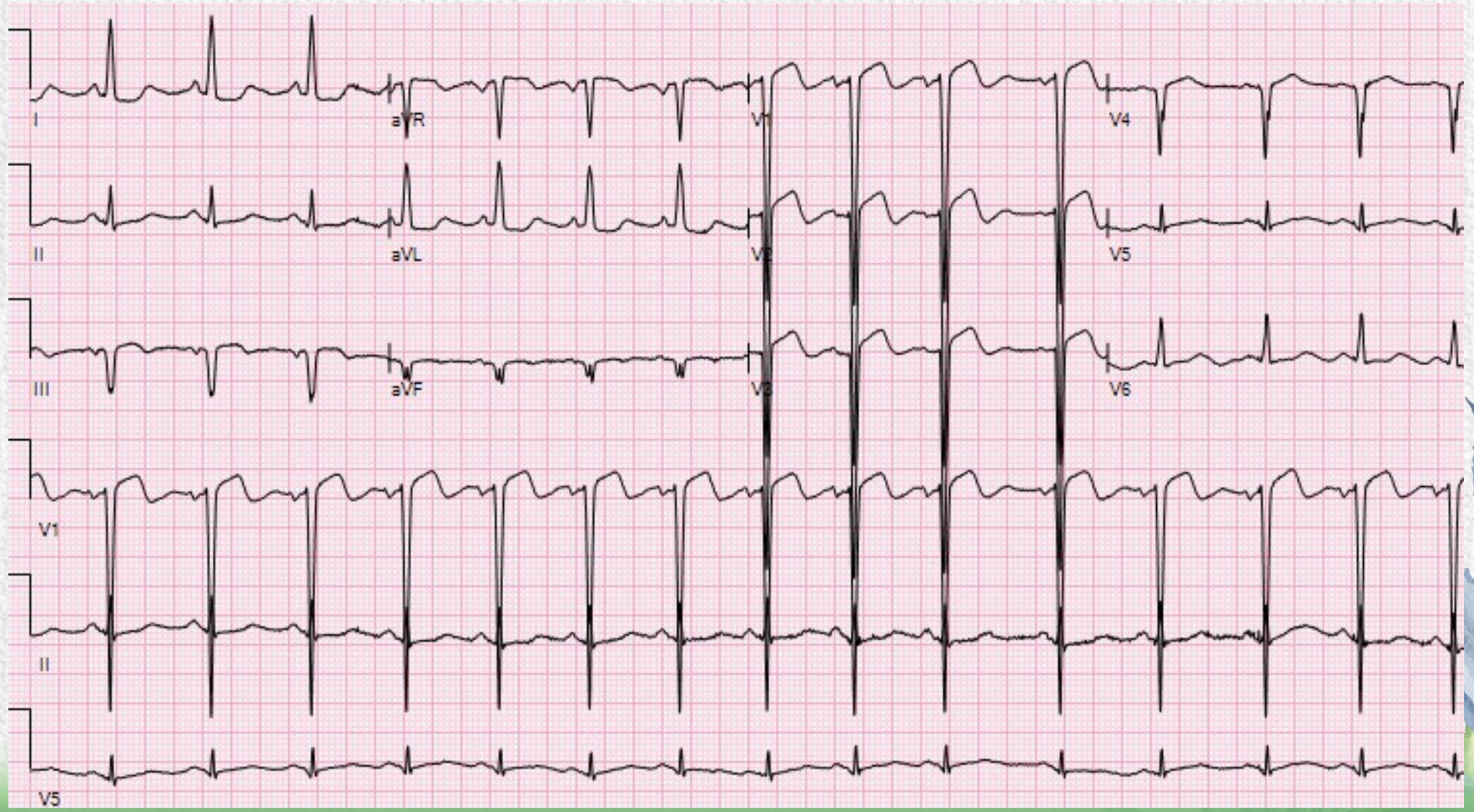




Due to the lack of angina and the acute renal insufficiency she was managed medically with diuretics, inotropes, DAPT and non invasive ventilation with c-pap

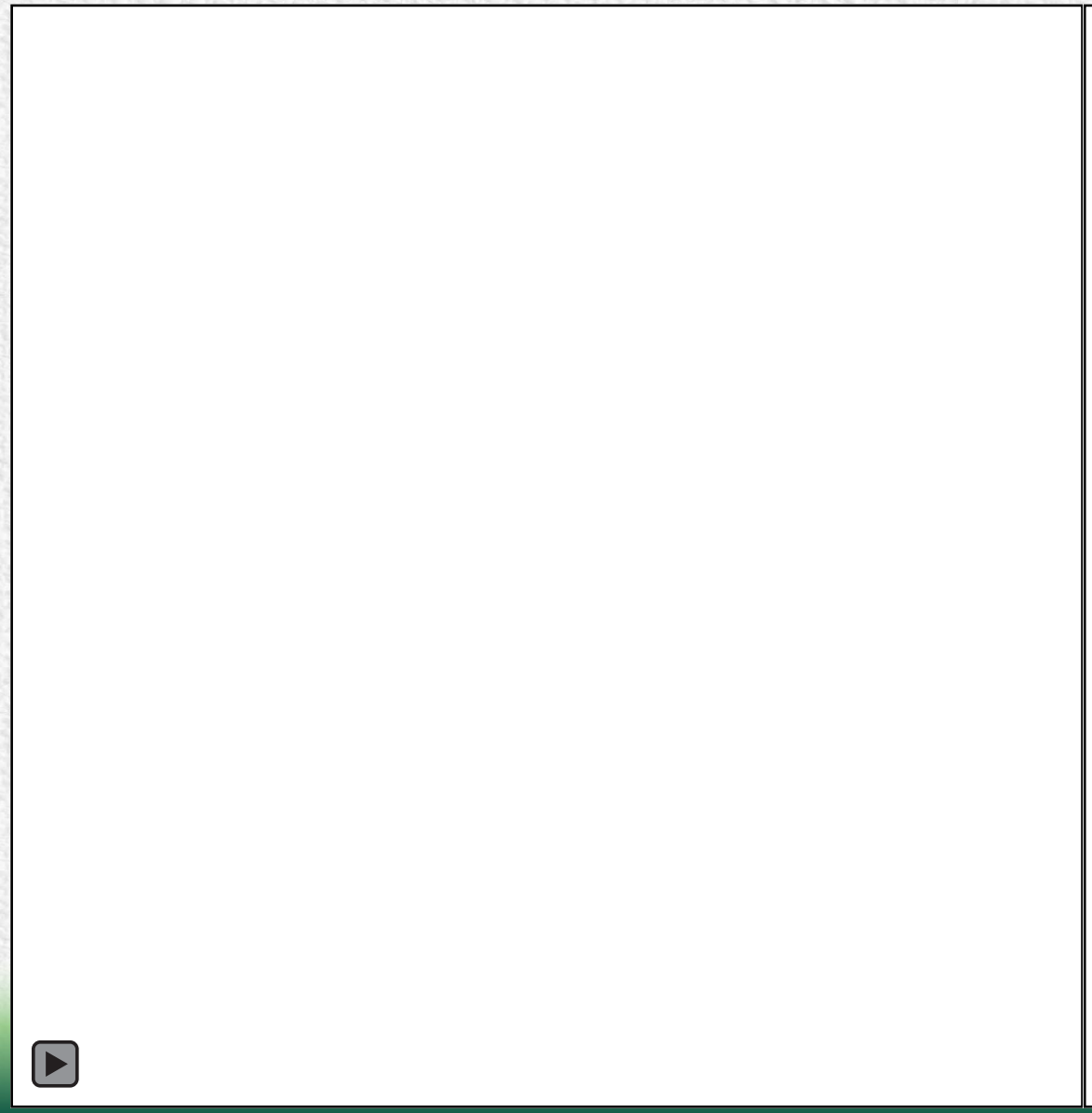
48h after admission recurrence of chest pain and hemodynamic shock

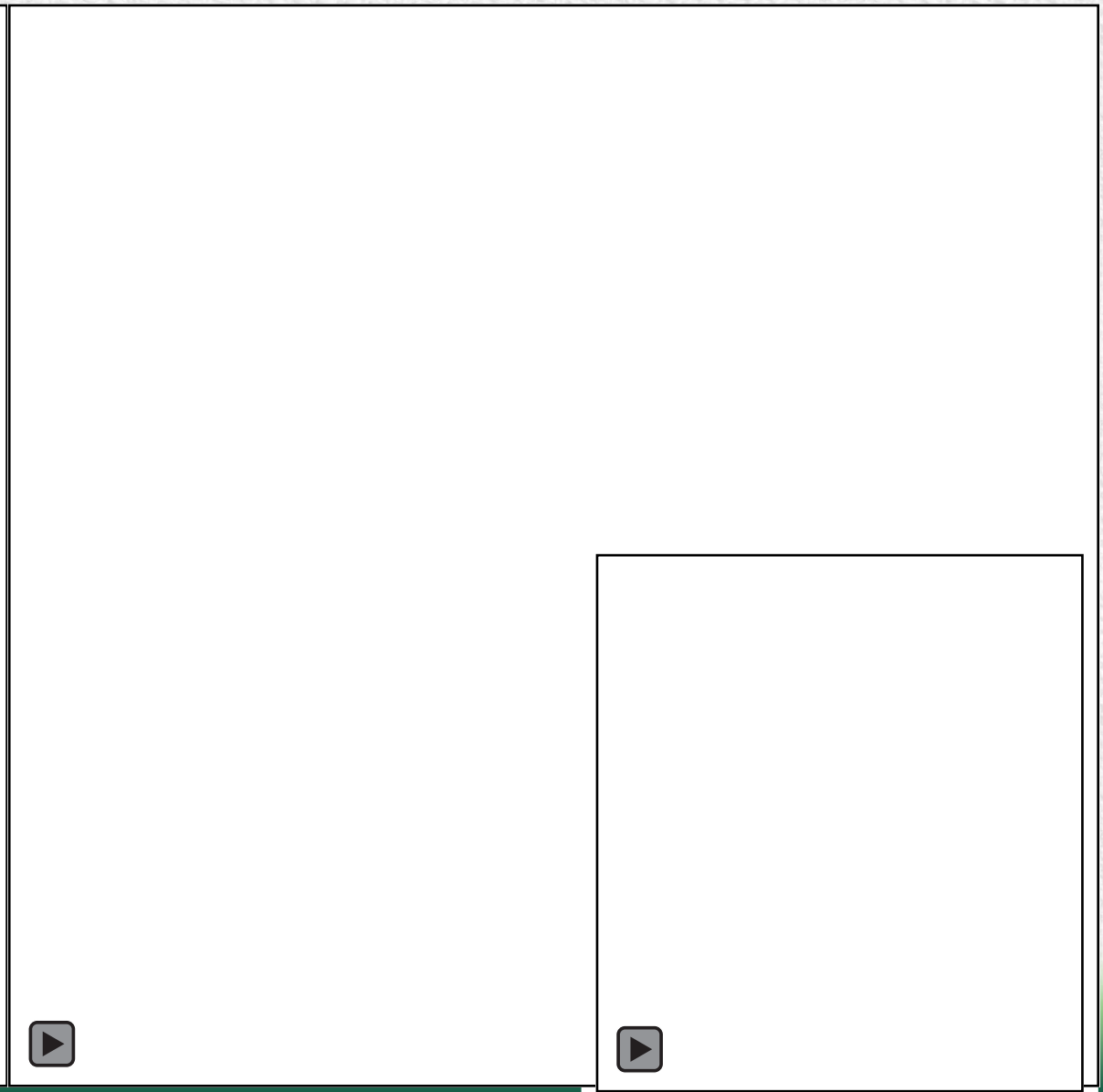
Emergency angiography

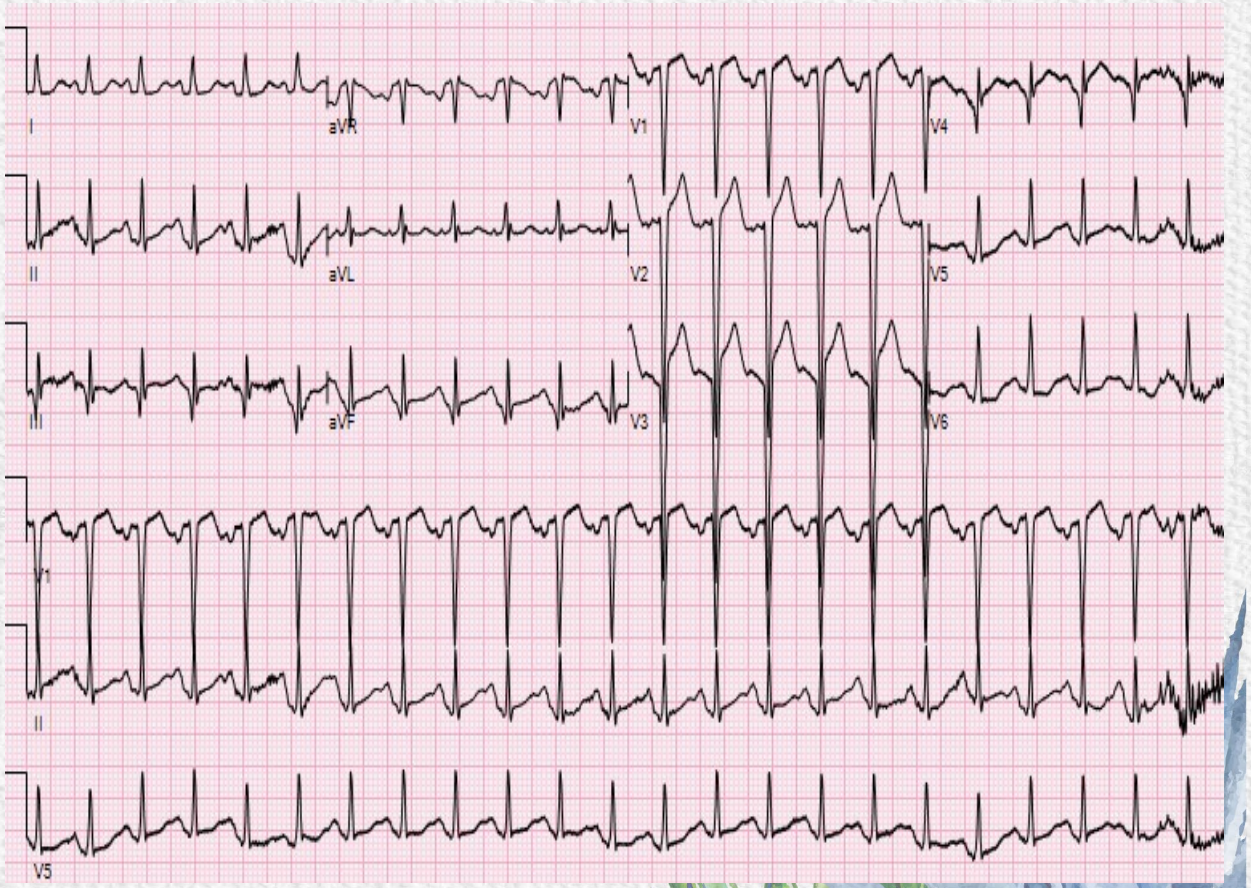


ECG 30/05/2020

Ostial LM stenting

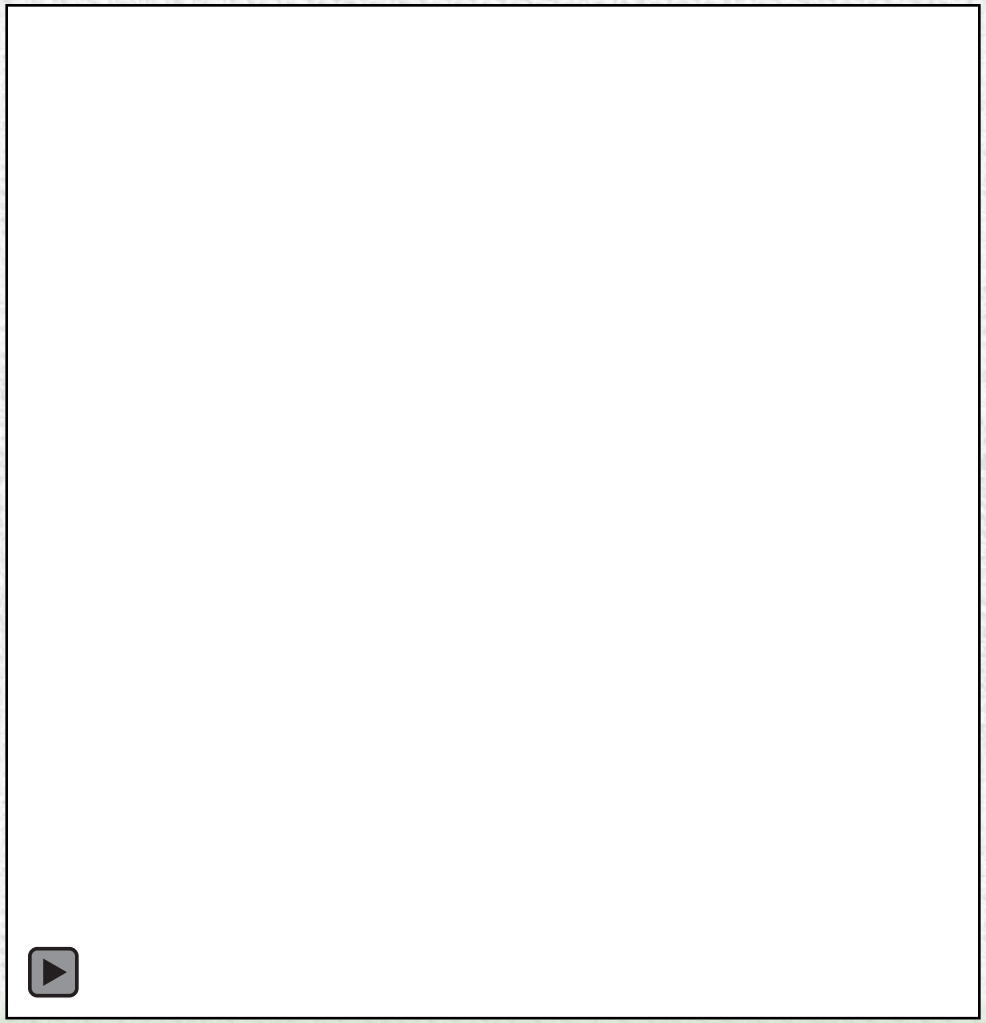


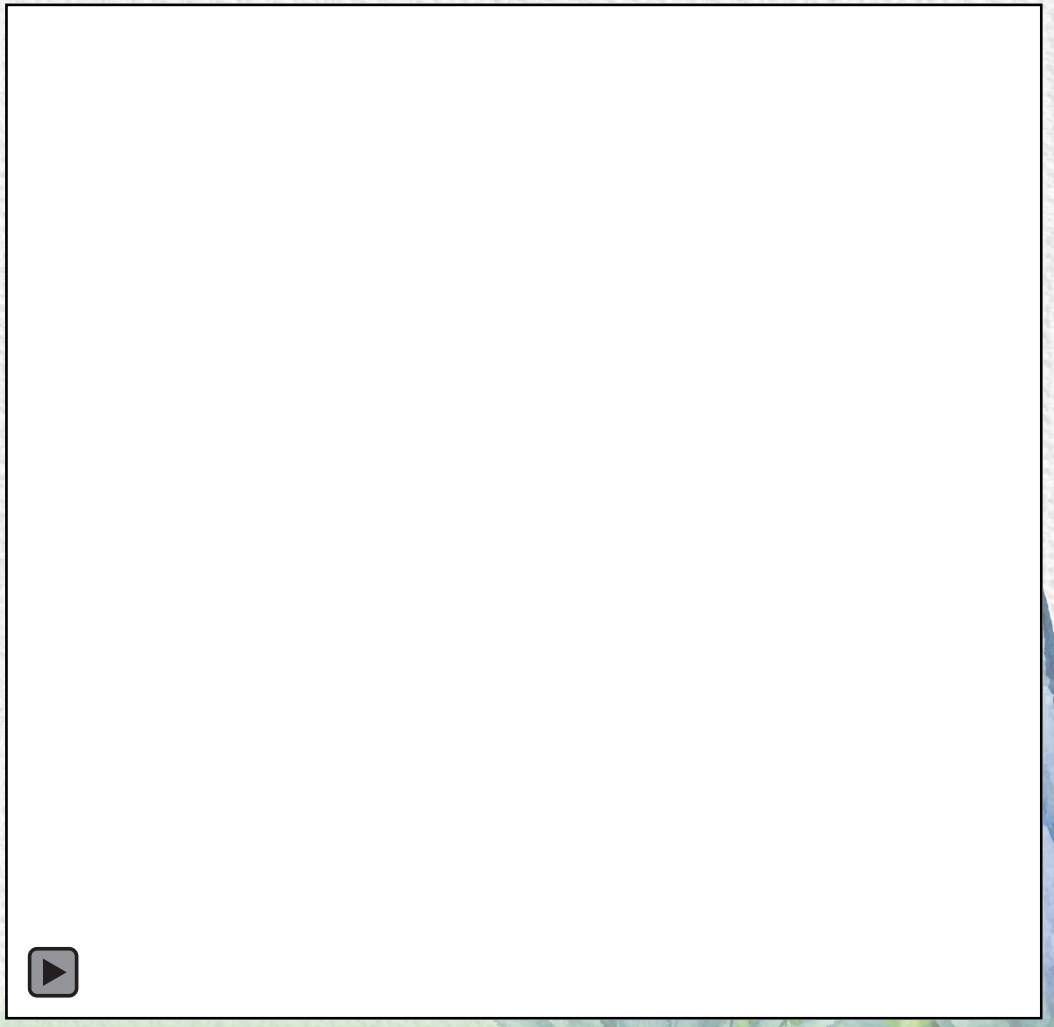




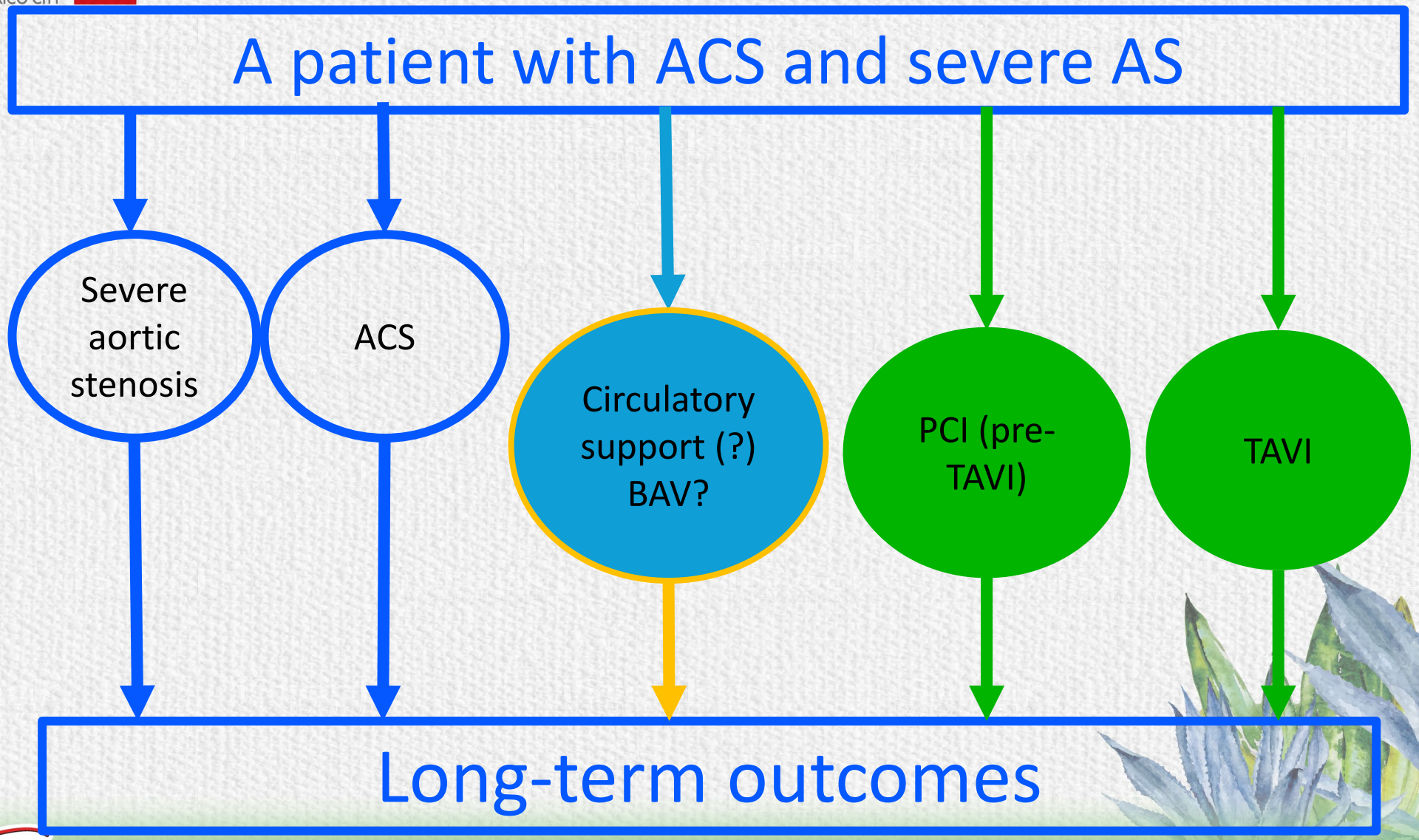
ECG post-PCI
31/05/2020

Staged TAVI procedure: 23mm Sapien Ultra valve





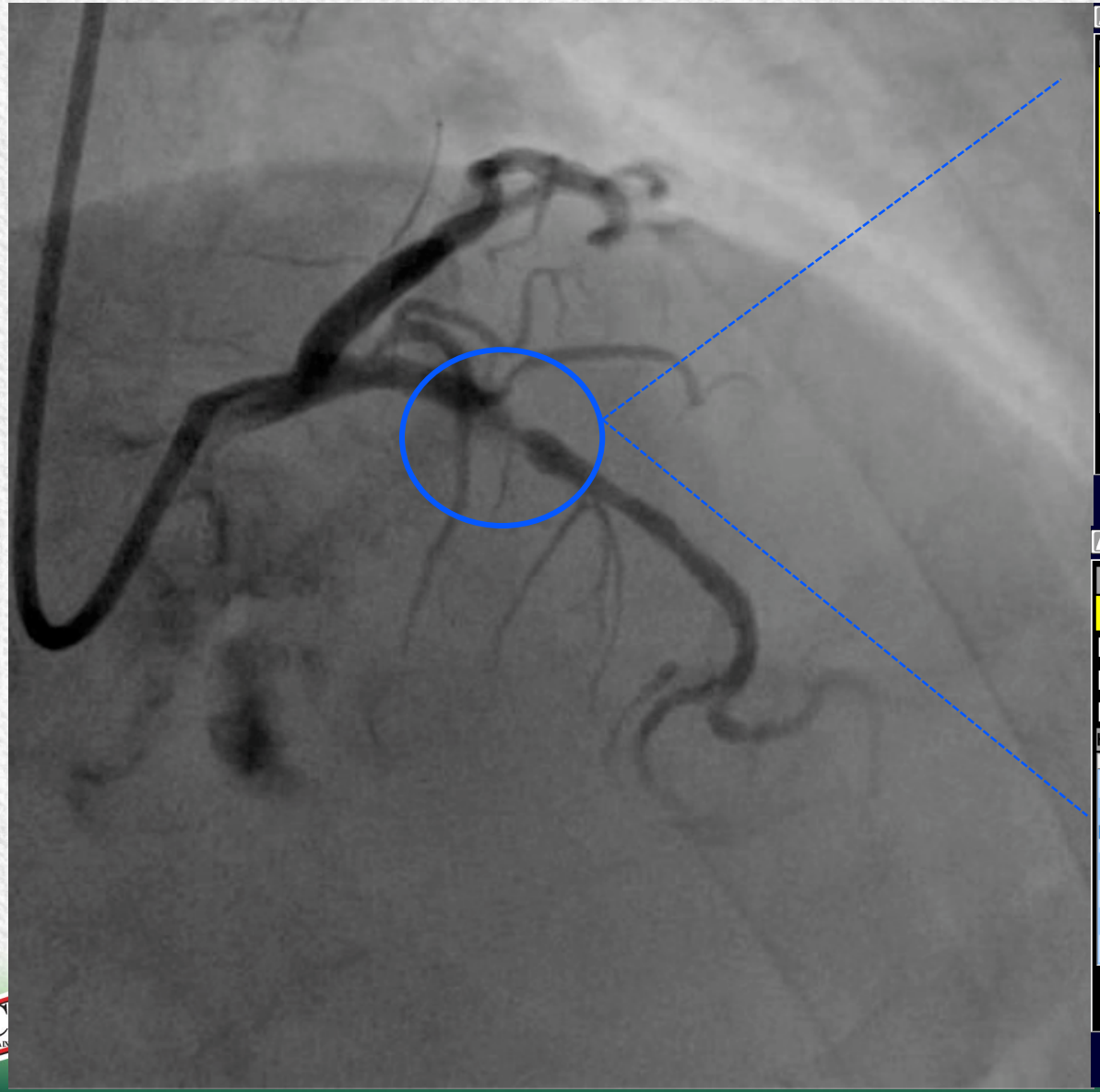
Timing of PCI: clinical & procedural factors

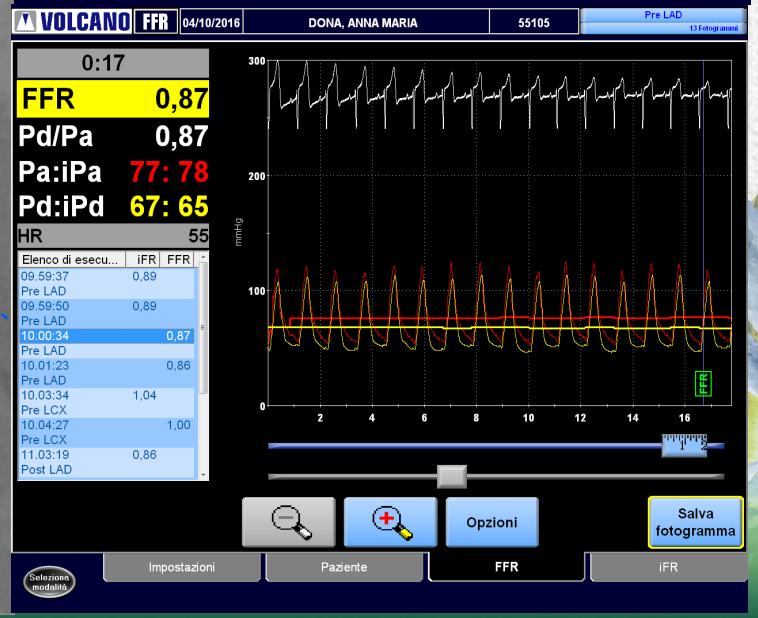


Case 2: AVS with asymptomatic and low-risk CAD

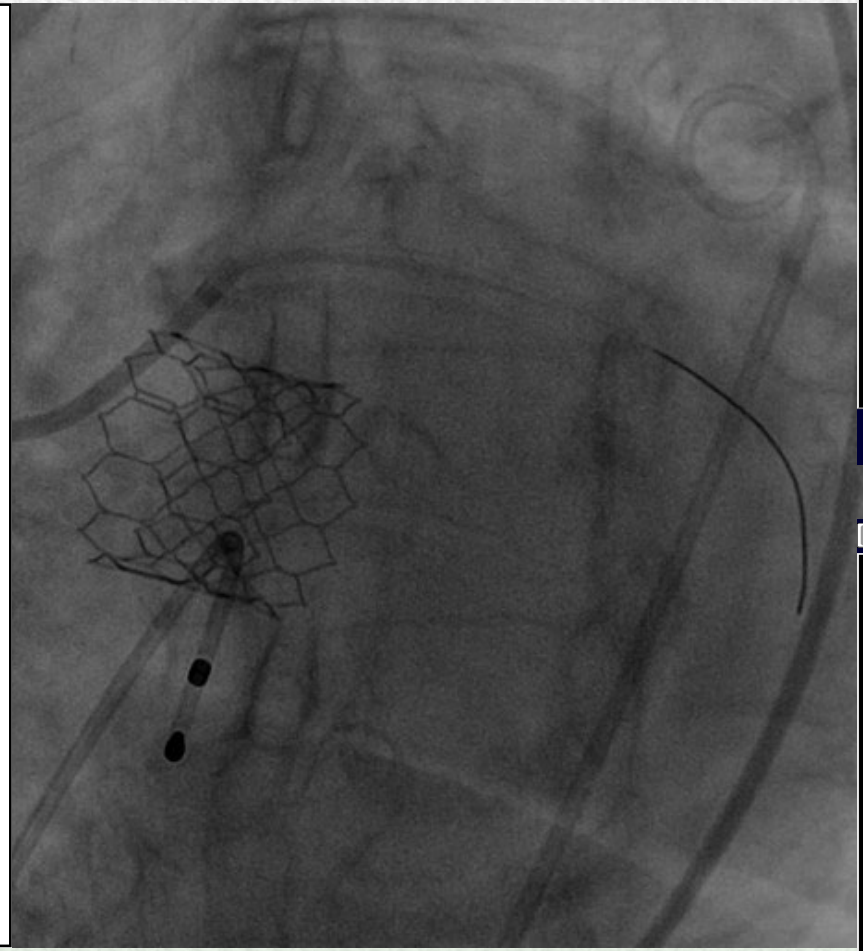
- Female, 80 years old
- Hypertension, Dyslipidemia
- Severe aortic stenosis (MG= 55mmHg)
- Normal LV EF (60%)
- GFR 35ml/min
- Symptomatic for NHYA class II, never had chest pain

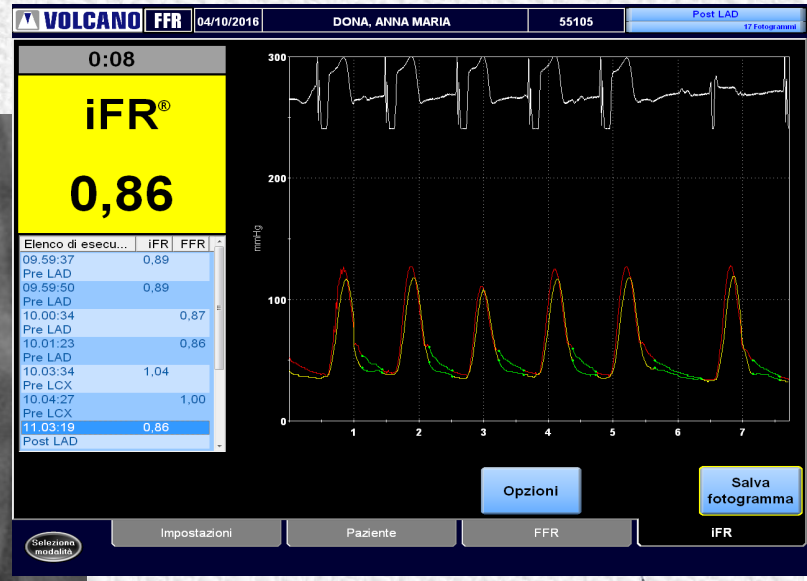
Coronary physiology pre-TAVI

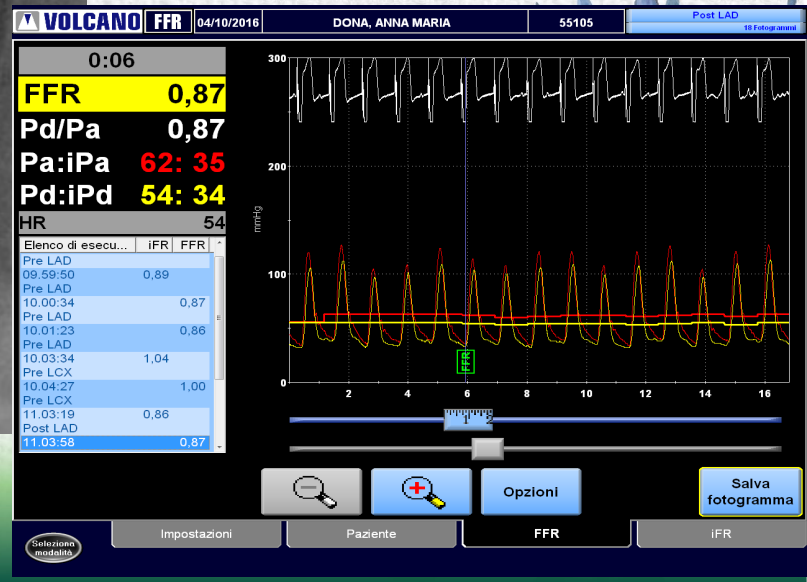




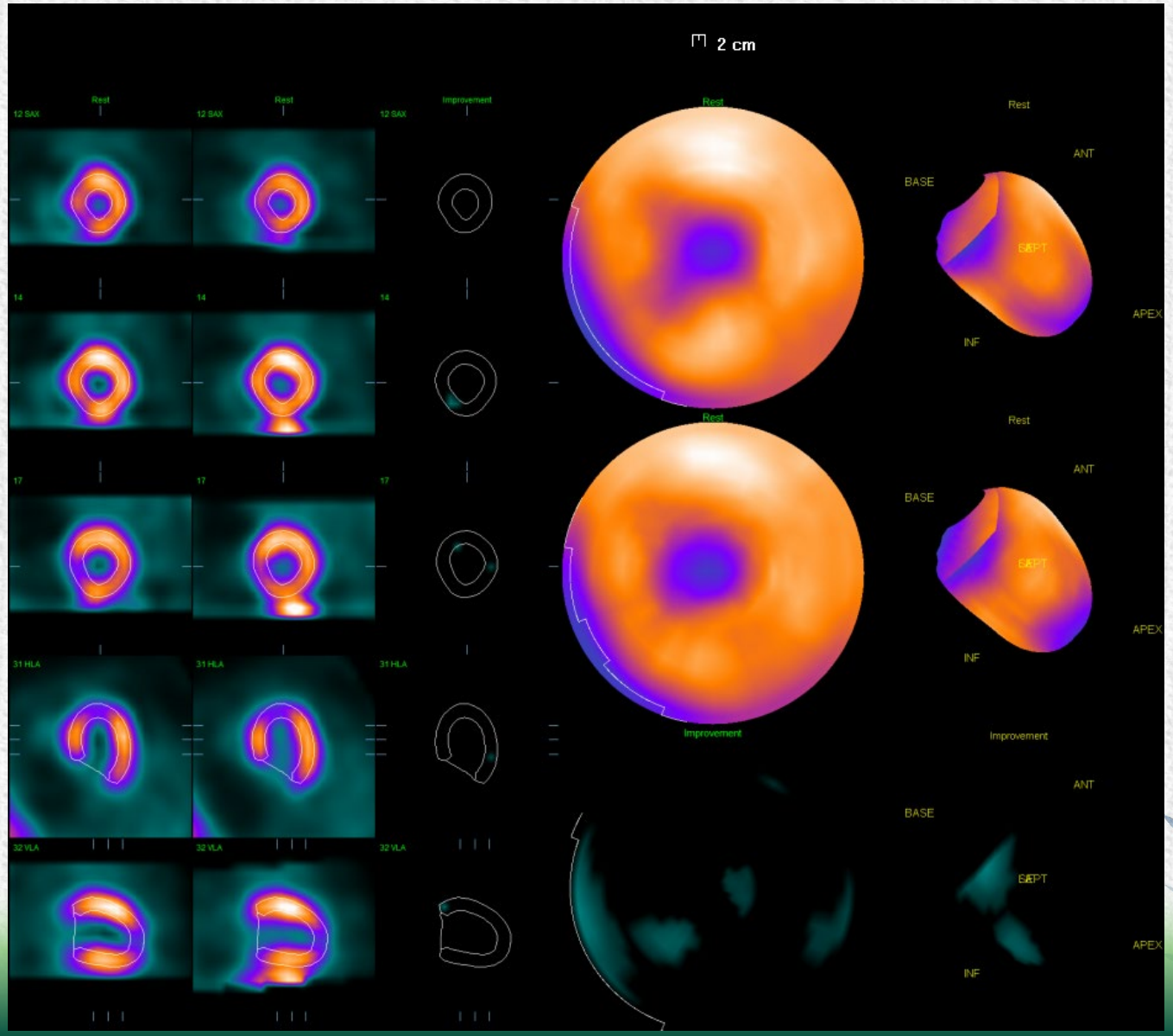
Coronary physiology post-TAVI







Adenosine SPECT at 3 months after TAVI



Uneventful 7-year follow-up

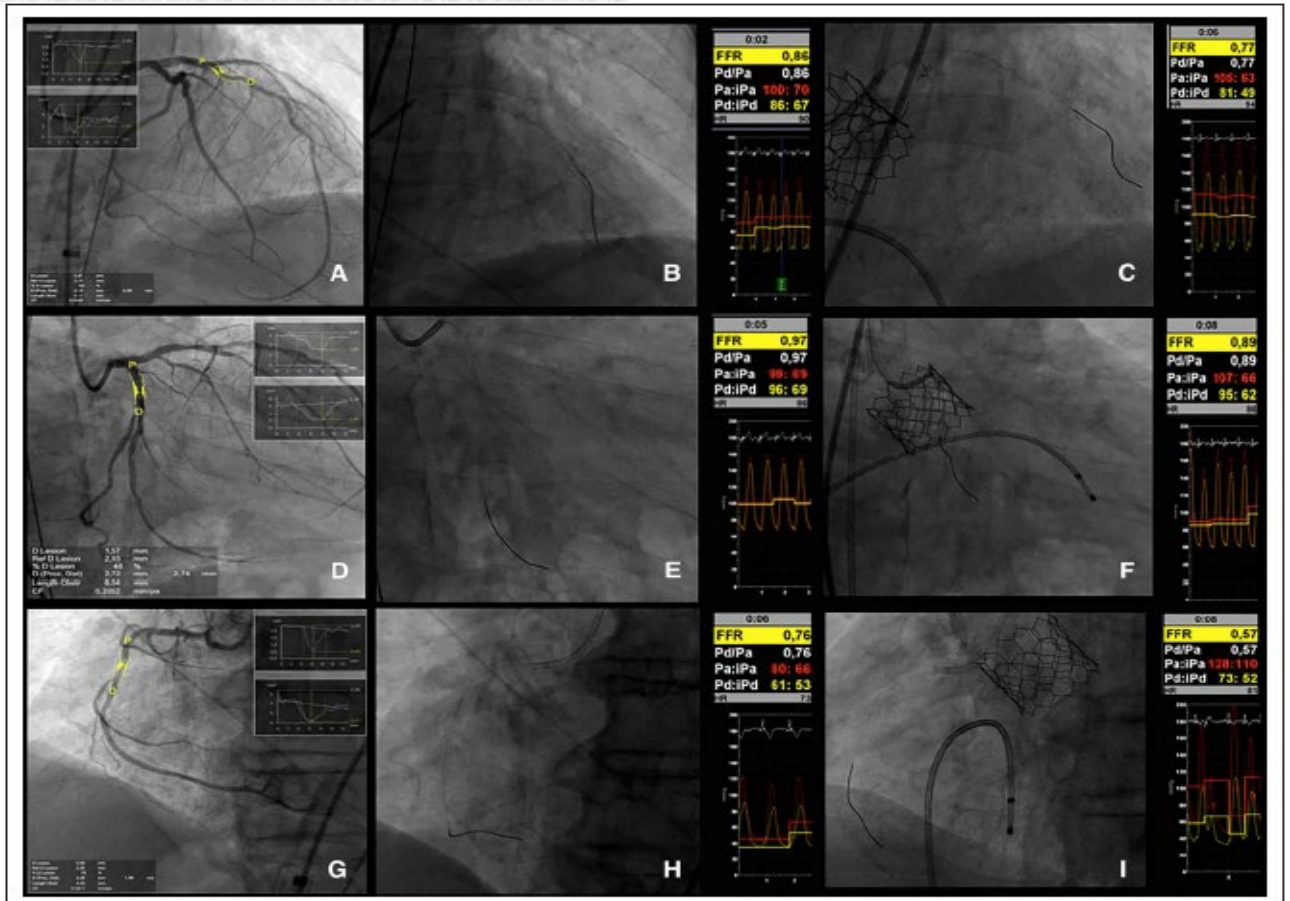
SOLACI SOCIME'25
MEXICO CITY

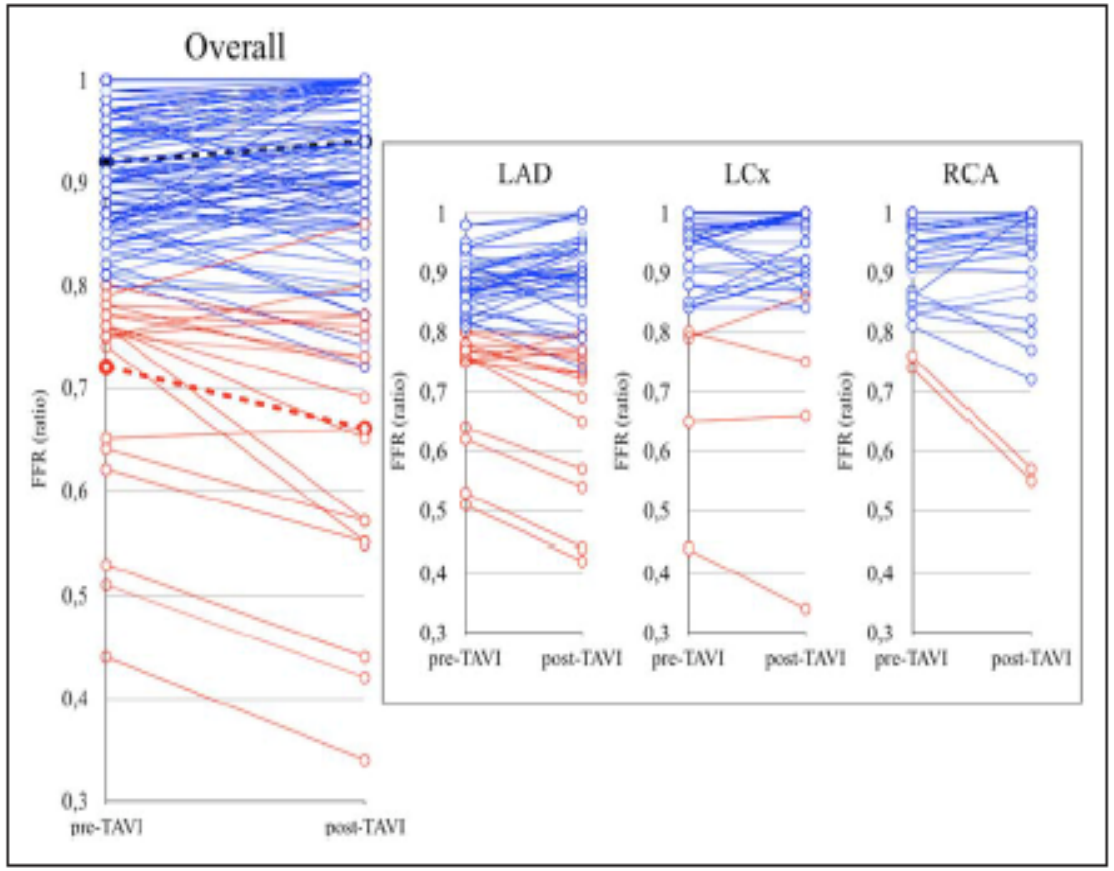
Coronary Physiologic Assessment and Imaging

Functional Assessment of Coronary Artery Disease in Patients Undergoing Transcatheter Aortic Valve Implantation

Influence of Pressure Overload on the Evaluation of Lesions Severity

Gabriele Pesarini, MD; Roberto Scarsini, MD; Carlo Zivelonghi, MD; Anna Piccoli, MD; Alessia Gambaro, MD; Leonardo Gottin, MD; Andrea Rossi, MD; Valeria Ferrero, MD; Corrado Vassanelli, MD; Flavio Ribichini, MD





SOLACI SOCIME'25 MEXICO CITY

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International Journal of Cardiology

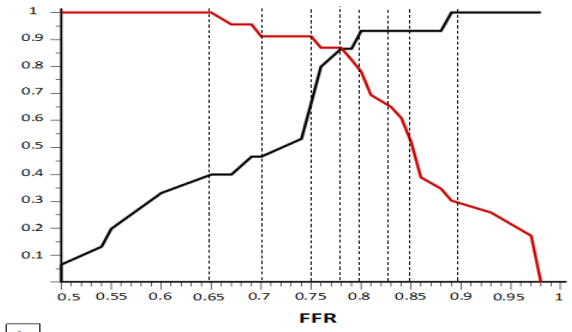
journal homepage: www.elsevier.com/locate/ijcard

Short communication

Correlation between intracoronary physiology and myocardial perfusion imaging in patients with severe aortic stenosis

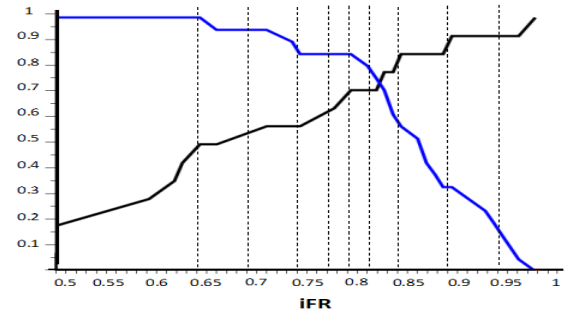
Roberto Scarsini [a,b], Rosaria Cantone [a], Gabriele Venturi [a], Giovanni Luigi De Maria [b], Andrea Variola [a,c], Paolo Braggio [c], Mattia Lunardi [a], Gabriele Pesarini [a], Marco Ferdeghini [c], Anna Piccoli [b,e], Mauro Feola [d], Rajesh K. Kharbanda [b], Adrian P. Banning [b], Flavio Ribichini [a,*]

a



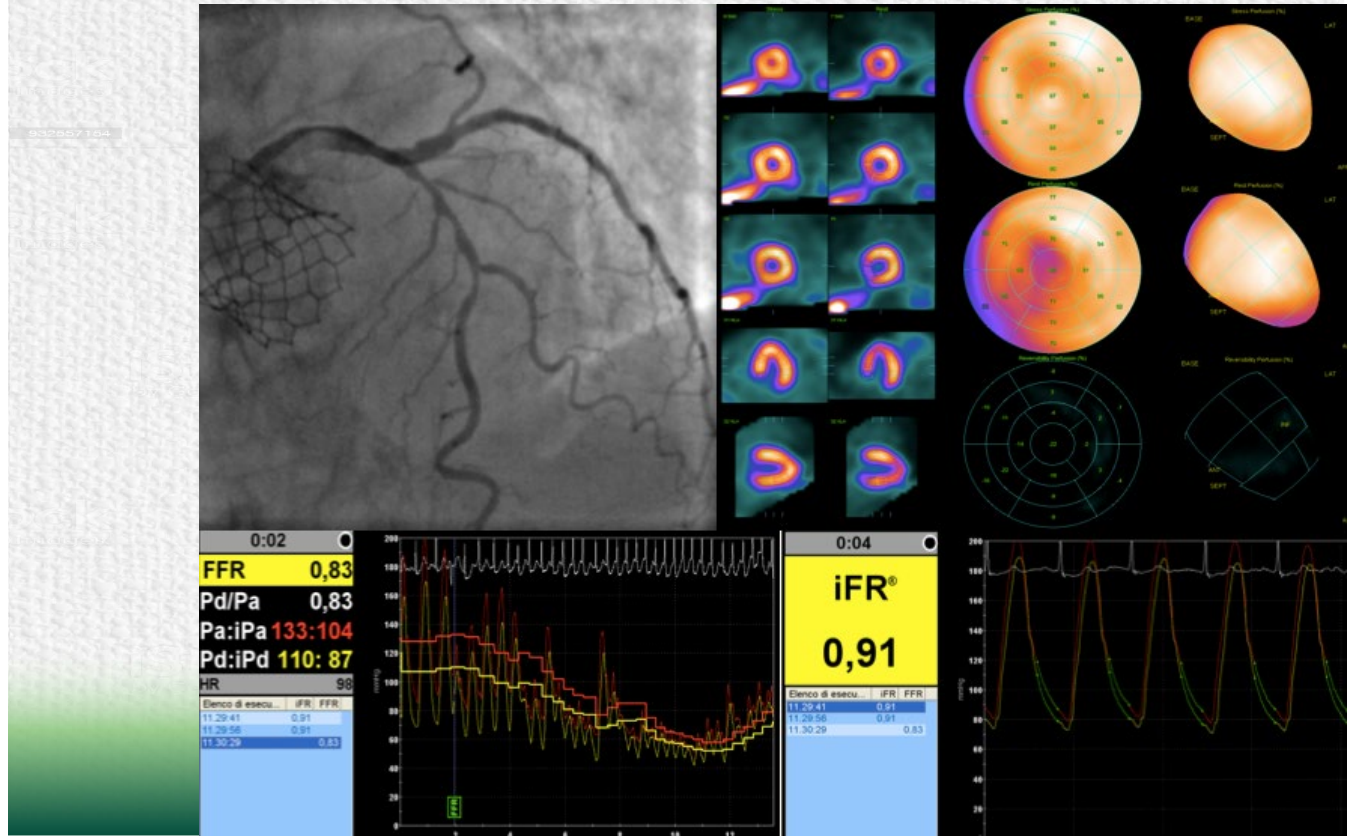
FFR cut-off	Accuracy	Sensitivity	Specificity
0.65	78%	40%	100%
0.70	78%	53%	92%
0.75	83%	67%	92%
0.78*	88%	87%	88%
0.80	85%	93%	81%
0.83**	78%	93%	69
0.85	68%	93%	54%
0.90	54%	100%	27%

b

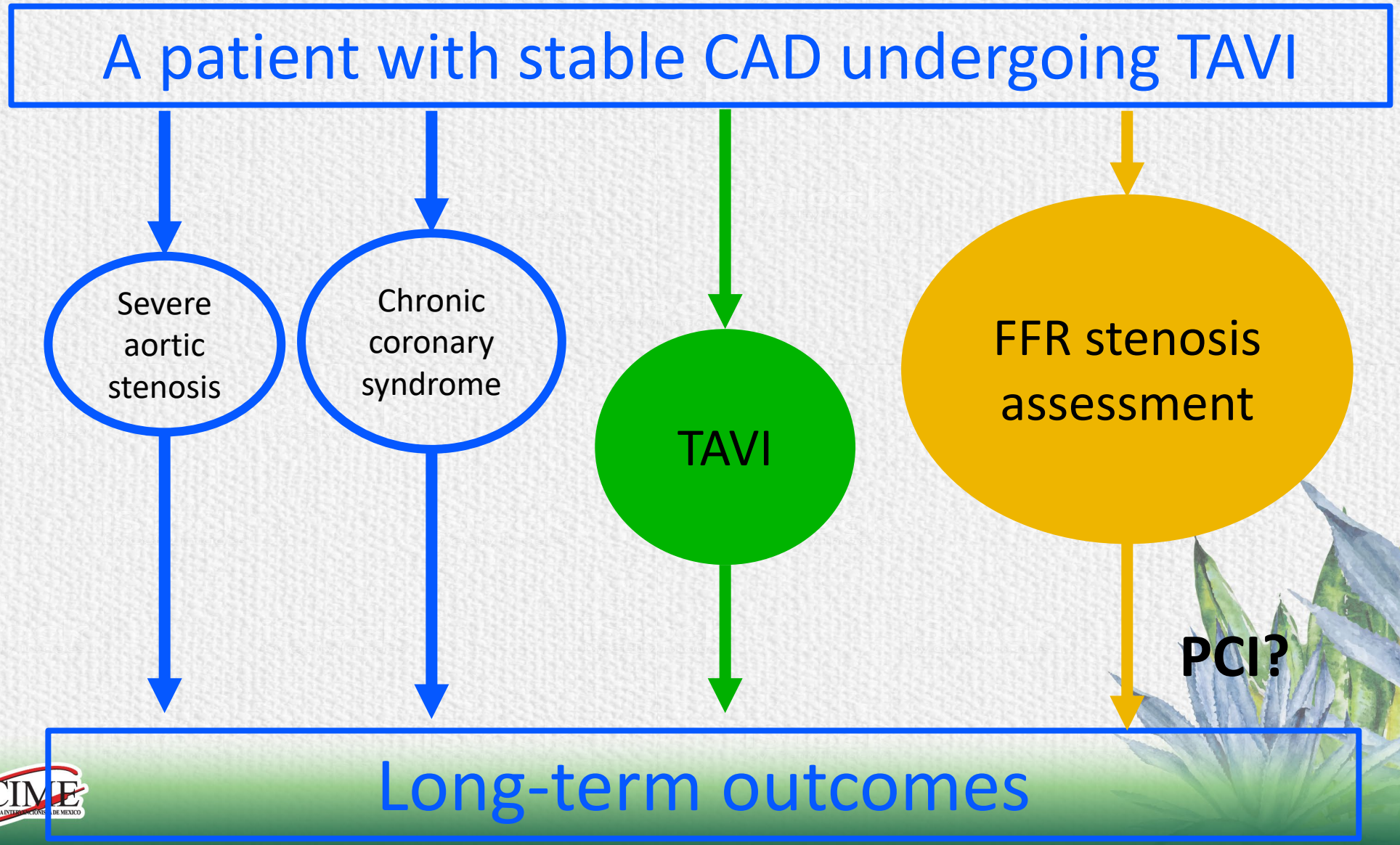


iFR cut-off	Accuracy	Sensitivity	Specificity
0.65	78%	47%	96%
0.70	80%	60%	92%
0.75	78%	60%	88%
0.78*	80%	73%	85%
0.80	78%	73%	81%
0.82***	73%	80%	69%
0.85	68%	87%	58%
0.89	59%	93%	38%
0.95	49%	100%	19%

*Cut-off identified by ROC derived Youden index
** prespecified FFR cut-off<0.83
***prespecified iFR cut-off<0.82



Timing of PCI: clinical & procedural factors

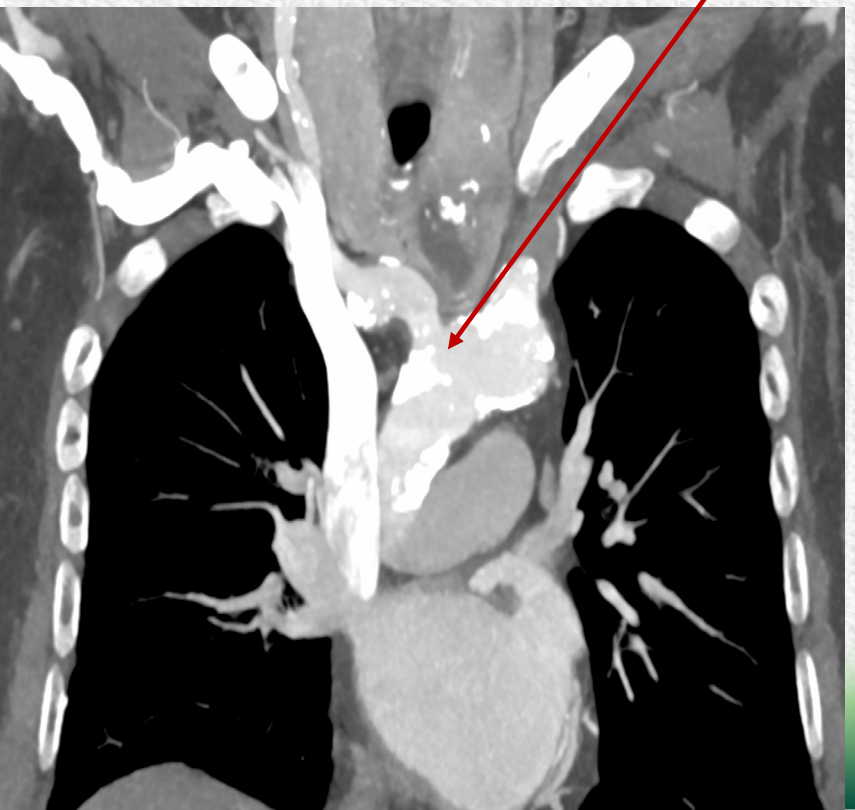


Case 3: AVS with symptomatic and high-risk CAD

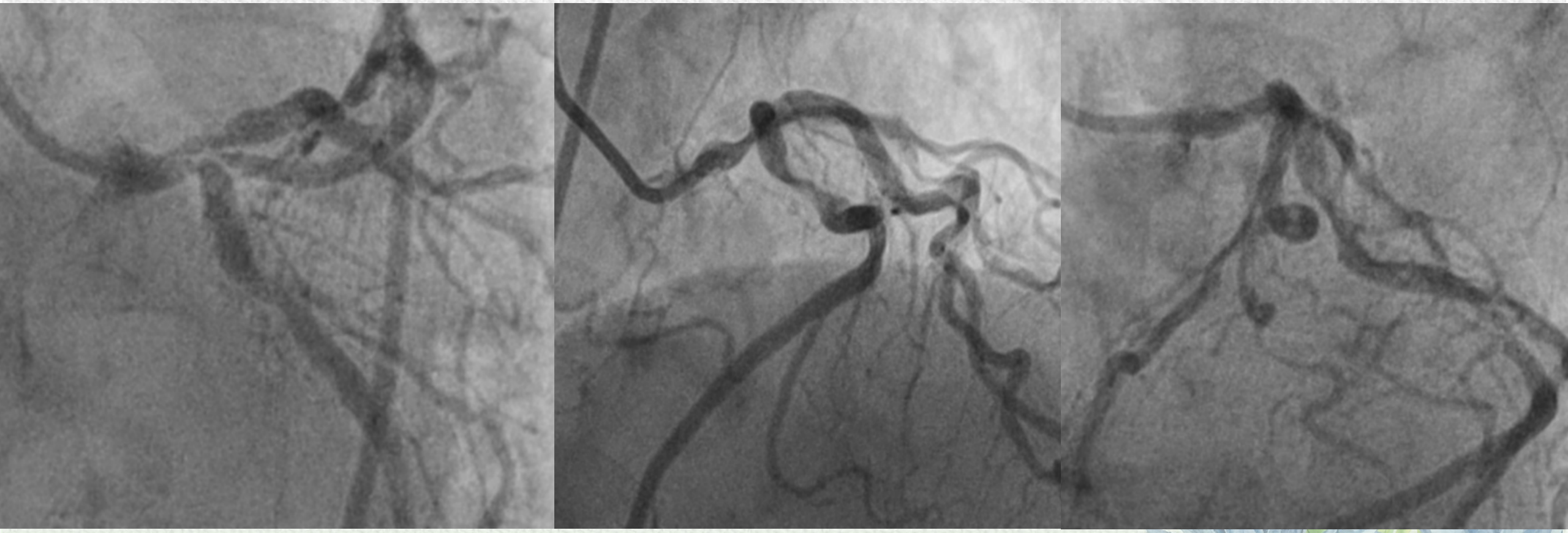
Porcelain aorta and total occlusion of the left CCA and subclavian / left vertebral artery and massive coronary calcification

- A 76 years old male
- Impaired LV function (EF 40%) and renal GFR (40ml/min)
- Previous bilateral CEA with total occlusion of the left CEA

Severe AVS symptomatic for angina (CCS class II and worsening to class III + NYHA class II

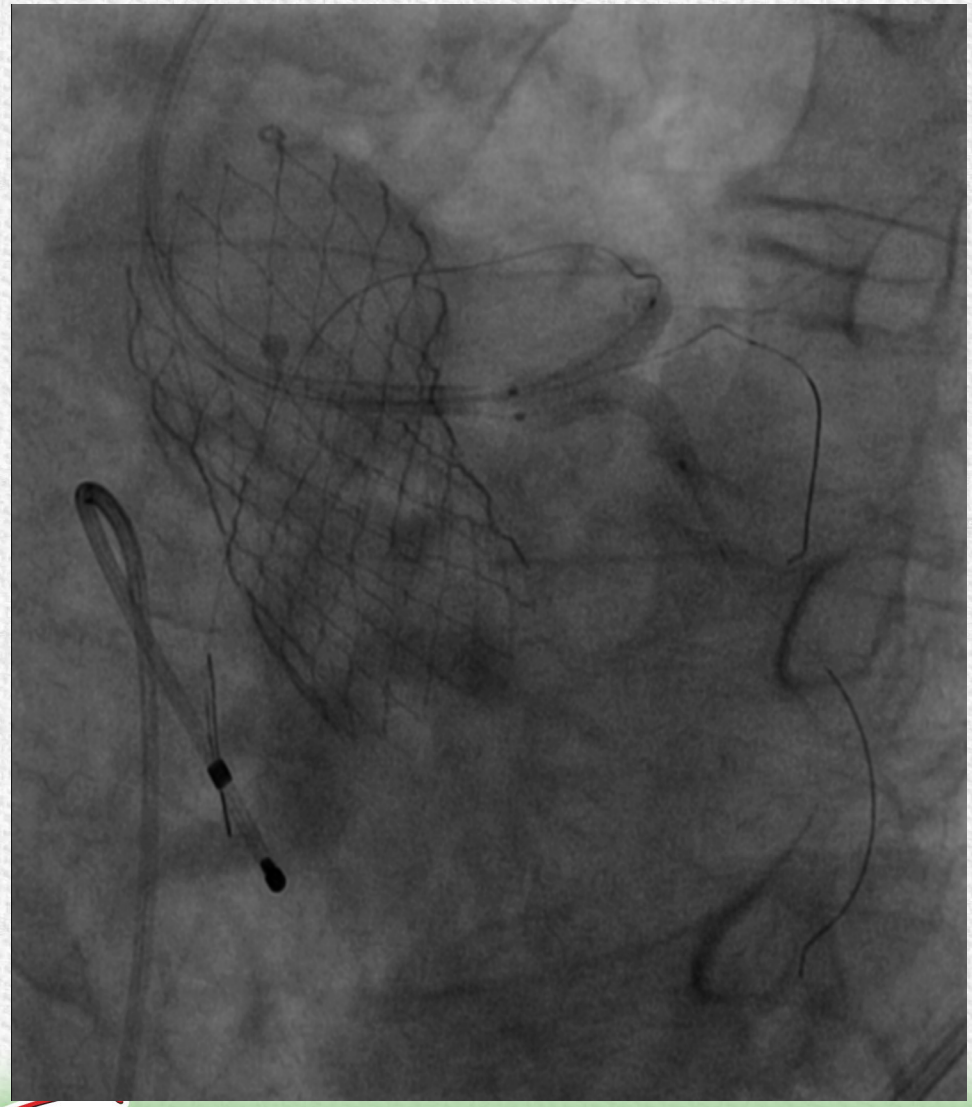


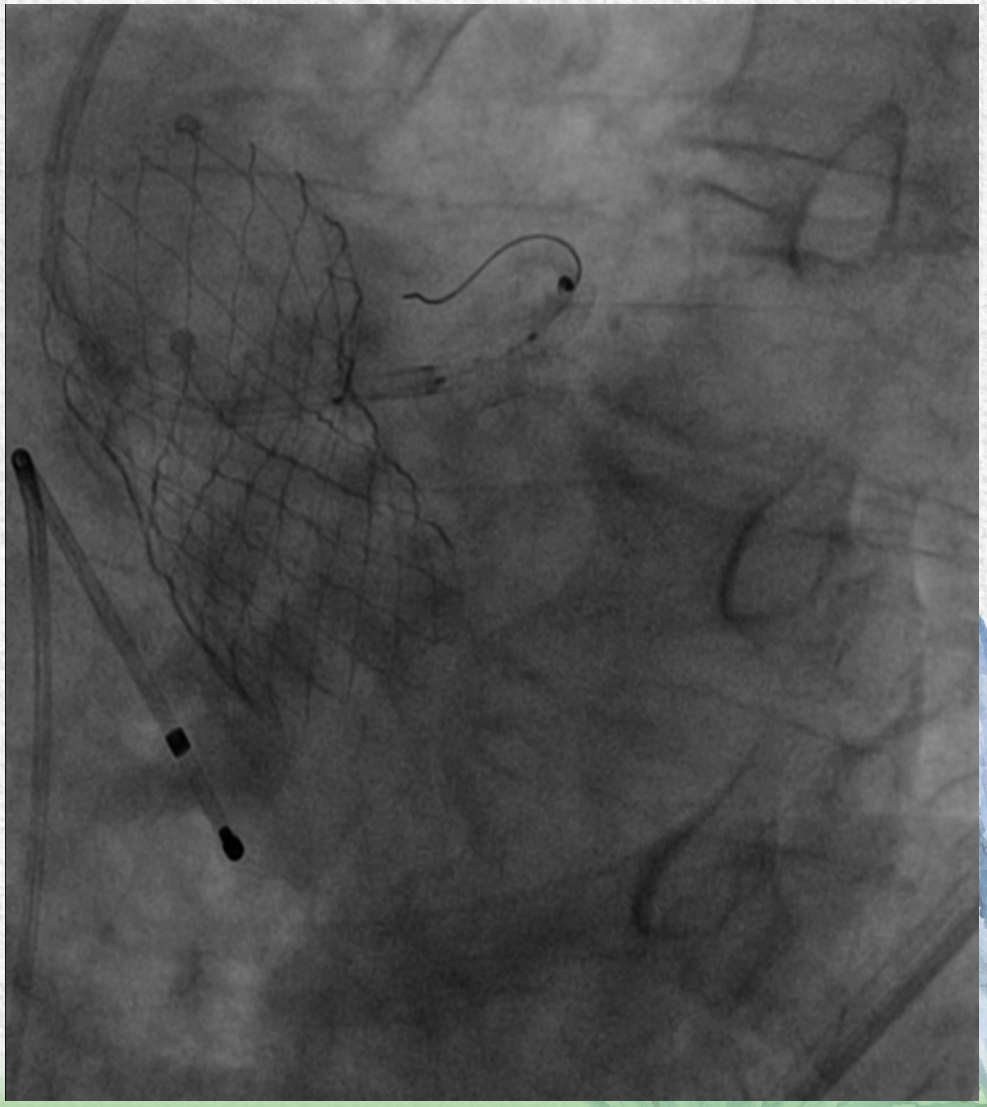
Coronary angiogram

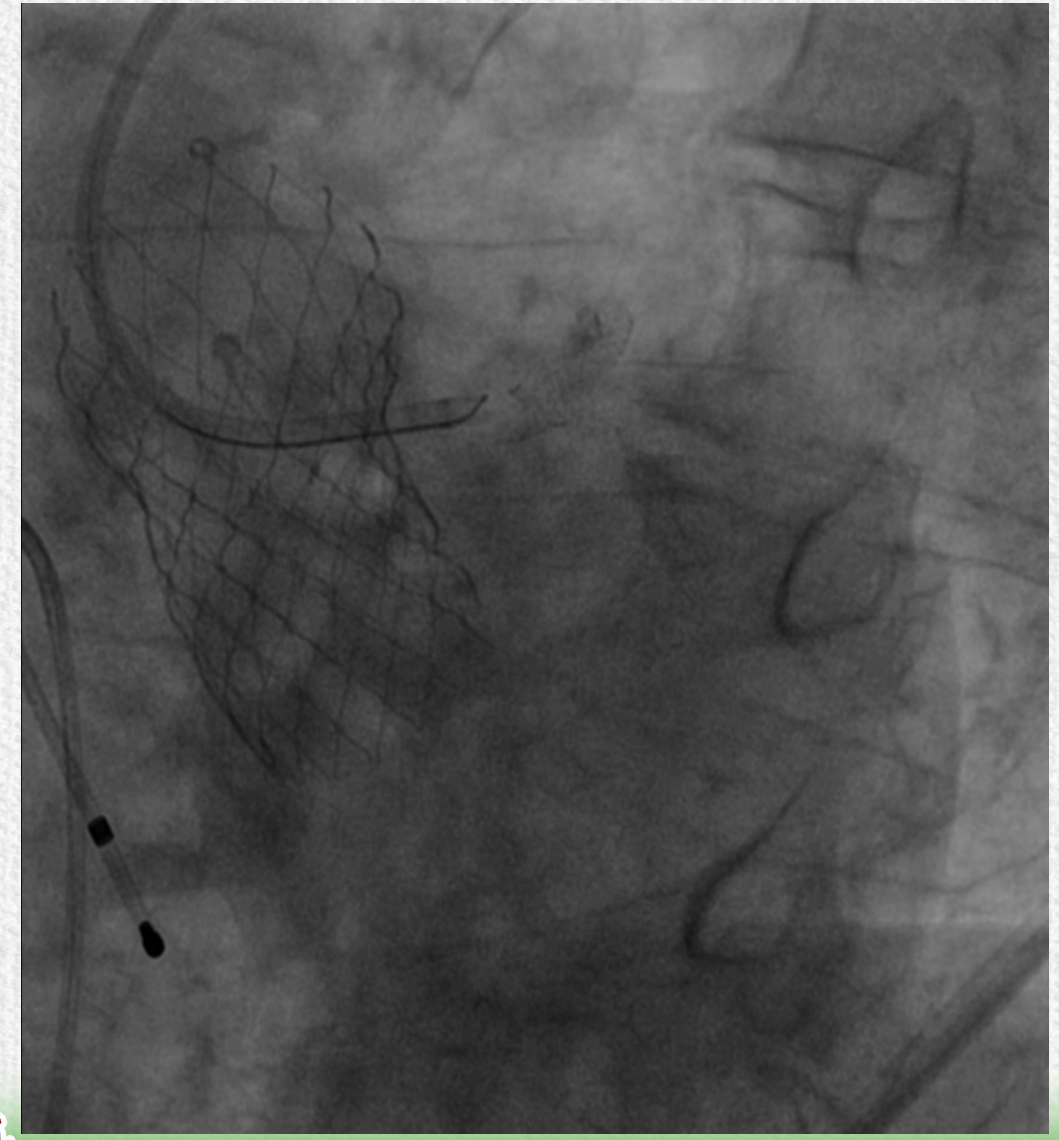


Trans-femoral catheter valve Implantation

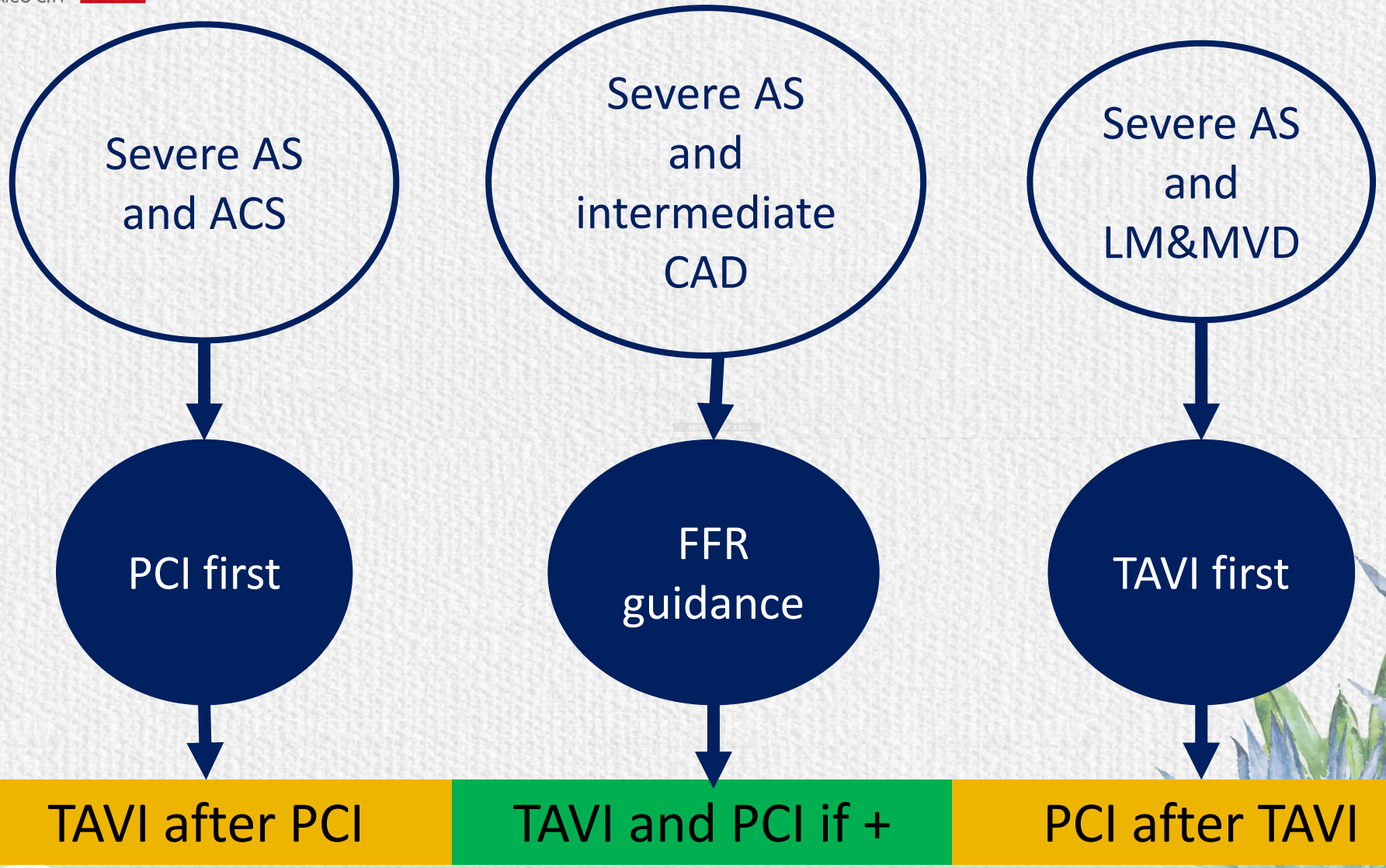
and then, the left main







Conclusions



PCI in TAVI patients:
Before, after or never…

Stable CAD in AS should follow the same recommendations as stable CAD based on ISCHEMIA and FAME… after removing the stenotic valve:

1 : Improve cardiac output first by removing the aortic stenosis

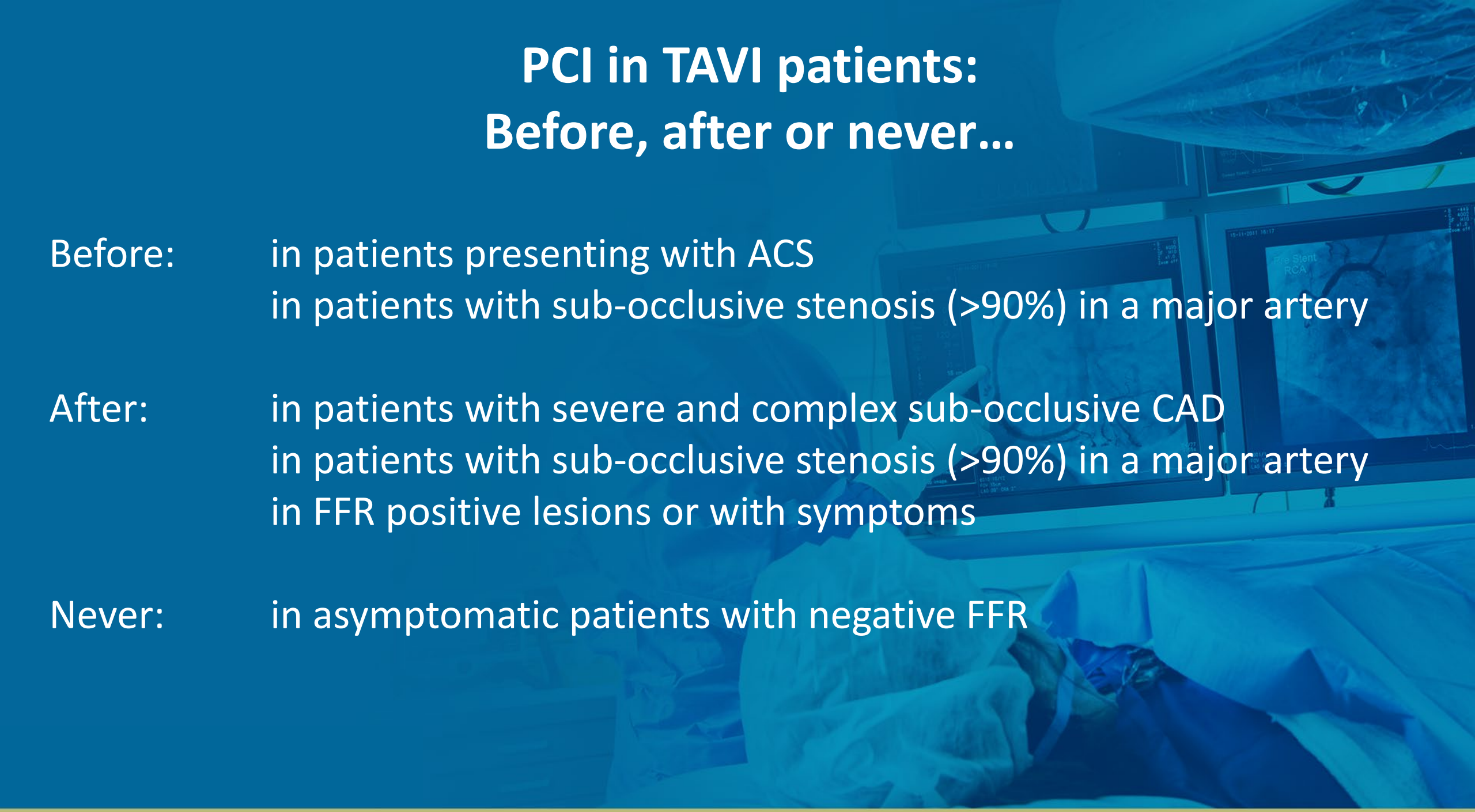
2 : Define significant coronary lesions with physiology after valve replacement

3: Limit contrast, use IVI

4: In calcified CAD use appropriate devices and IVI

5: Apply HBR concepts

PCI in TAVI patients:
Before, after or never…



Before:	in patients presenting with ACS
	in patients with sub-occlusive stenosis (>90%) in a major artery
After:	in patients with severe and complex sub-occlusive CAD
	in patients with sub-occlusive stenosis (>90%) in a major artery
	in FFR positive lesions or with symptoms
Never:	in asymptomatic patients with negative FFR

Gracias