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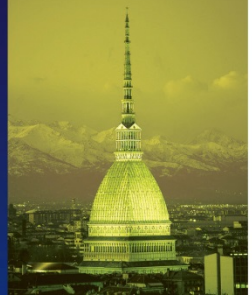

UNIVERSITÁ DEGLI STUDI DI TORINO

AZIENDA OSPEDALIERO - UNIVERSITARIA
Città della Salute e della Scienza di Torino

MANAGEMENT OF CAD IN PATIENTS UNDERGOING TAVI:

LOOK AT THE ANATOMICAL BURDEN !

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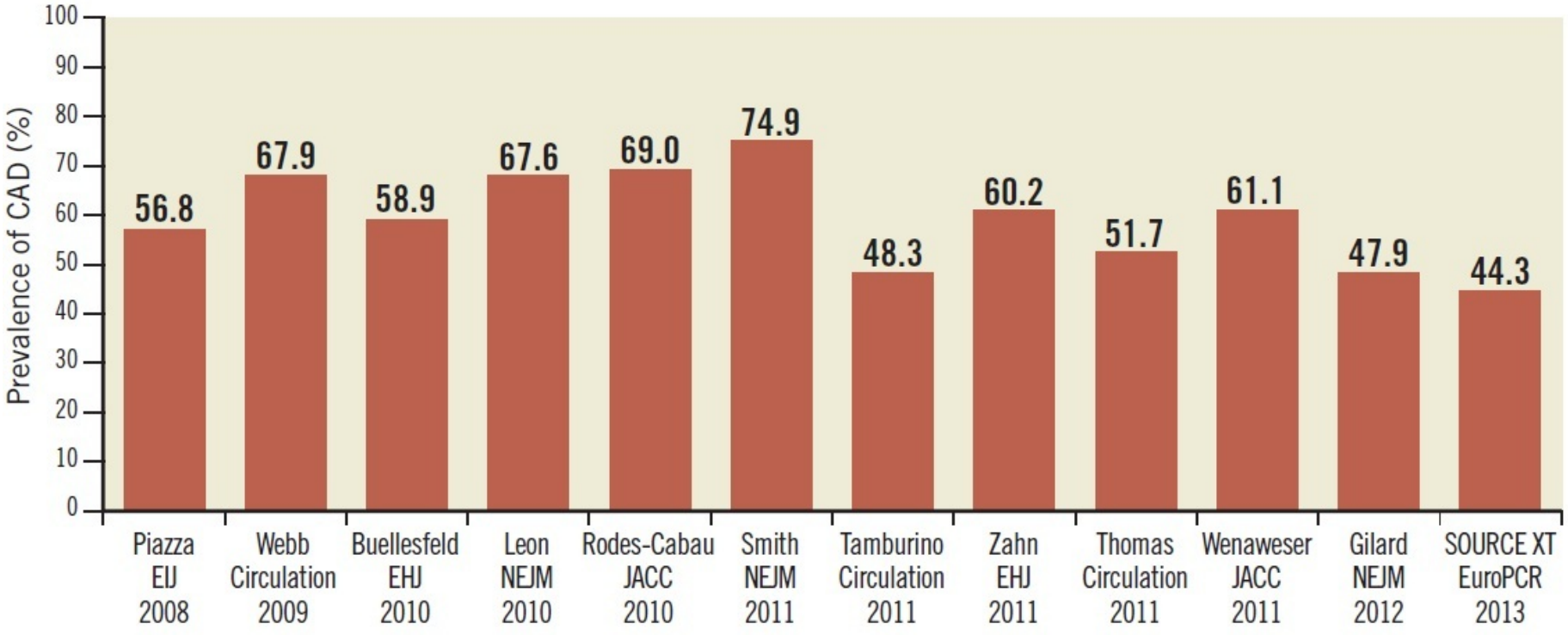
Receipt of grants/research support:

- Boston Scientific

Receipt of honoraria or consultation fees:

- B.Braun, Biosensors, Boston Scientific

Prevalence of Coronary Artery Disease Among Patients Undergoing TAVI



> 50-YEAR EXPERIENCE... THE SURGEONS' APPROACH

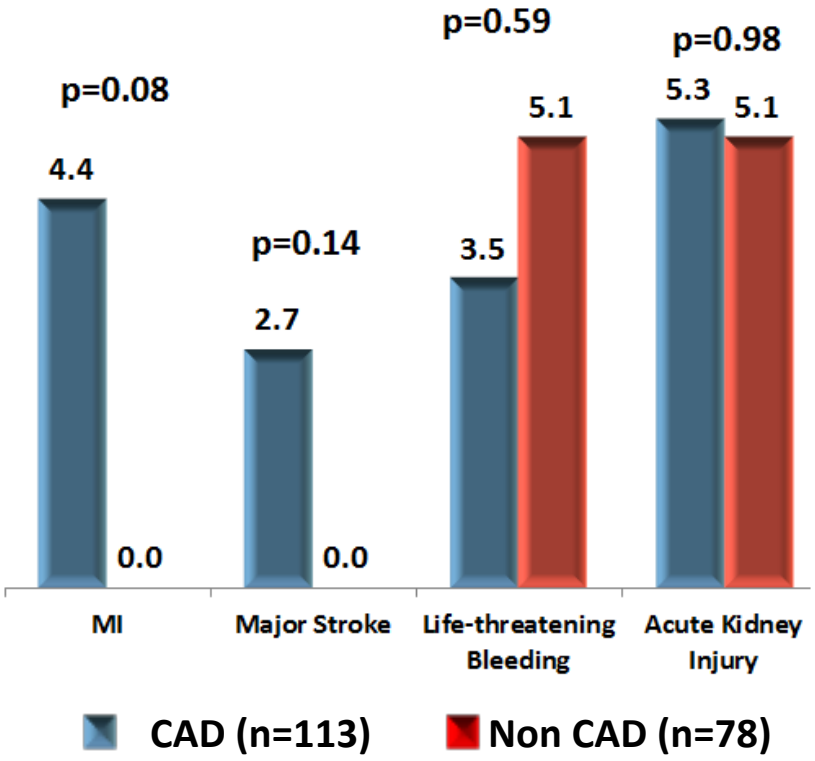
ESC Guidelines on Myocardial Revascularization 2018

Recommendations	Class[a]	
Primary valve intervention and coronary revascularization		
CABG is recommended in p… primary indication for … surgery and cor… …meter stenosis …	I	C
C… …e considered in patients …mary indication for aortic/mitral …e surgery and coronary artery diameter stenosis of 50–70%.	IIa	C

Anatomical Assessment !

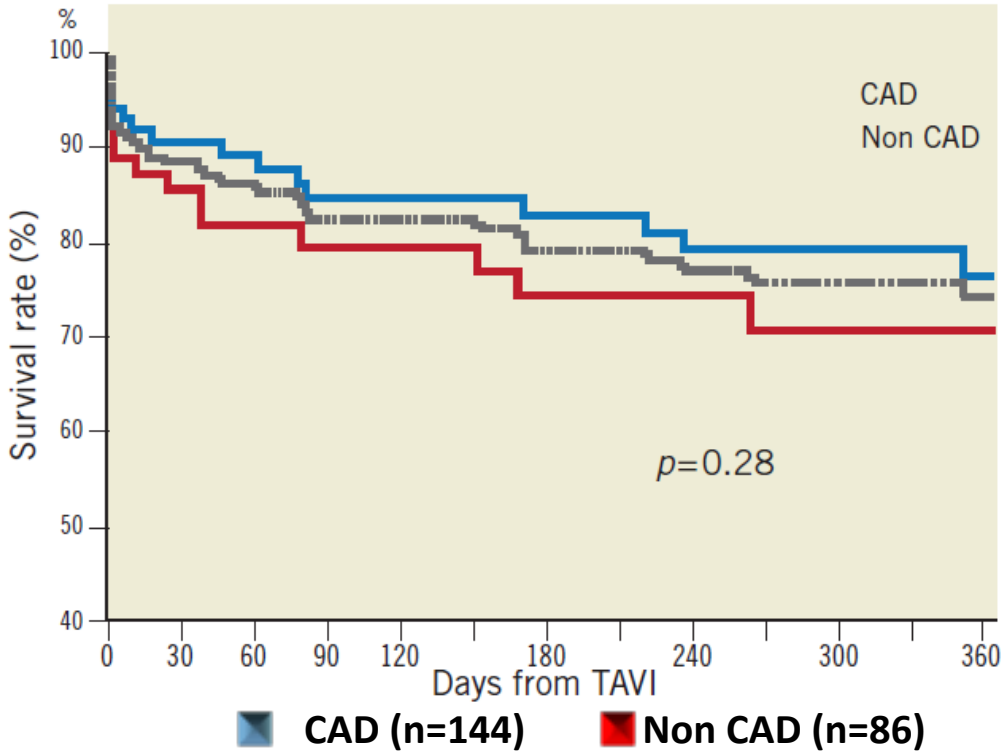
Impact of Coronary Artery Disease On Clinical Outcomes after TAVI

	CAD	No CAD	p
Age	80.3±6.3	80.8±7.8	0.39
Male	50.4	30.8	0.01
EuroSCORE	23.2±14.1	18.8±11.8	0.09



Gasparetto V et al. CCI 2013;81:376-83

	CAD	No CAD	p
Age	81±8.8	83±7	0.04
Male	68.8	31.2	<0.0001
EuroSCORE	31±18	24±12	0.002



Gautier M et al. EuroIntervention 2011;7:549-555

Prognostic Value of Coronary Artery Disease Among Patients undergoing TAVI

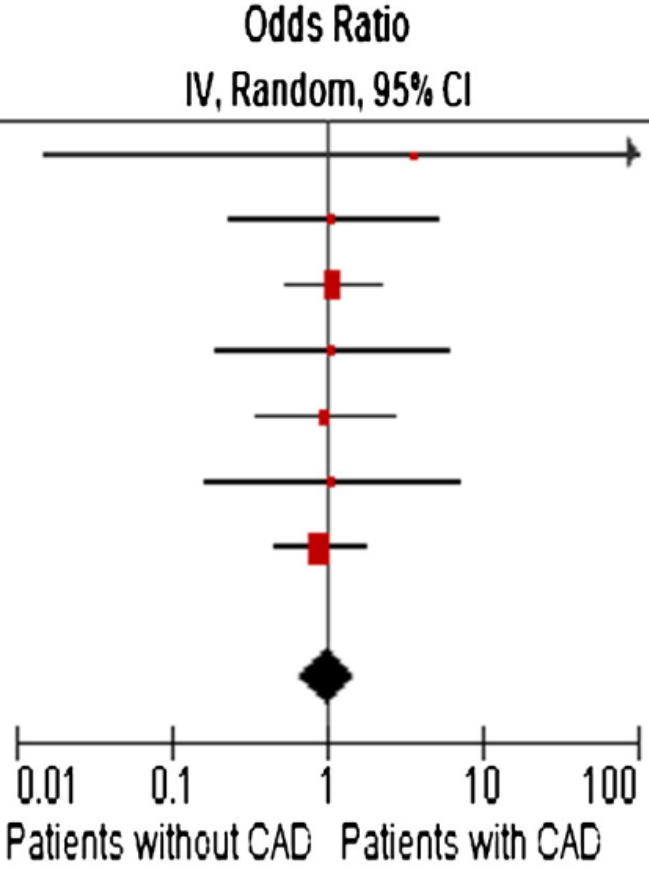
N=2,472

Prevalence of CAD 52% (42-65)

Study or Subgroup	log[Odds Ratio]	SE	Weight	Odds Ratio IV, Random, 95% CI
Dewey, 10	1.3	2.8	0.5%	3.67 [0.02, 887.05]
Gasparetto, 11	0.08	0.79	6.8%	1.08 [0.23, 5.10]
Moat, 11	0.09	0.37	31.0%	1.09 [0.53, 2.26]
Presbitero, 12	0.08	0.88	5.5%	1.08 [0.19, 6.08]
Schnabel, 12	-0.02	0.53	15.1%	0.98 [0.35, 2.77]
Torino, 12	0.08	0.97	4.5%	1.08 [0.16, 7.25]
Ussia, 12	-0.11	0.34	36.7%	0.90 [0.46, 1.74]
Total (95% CI)			**100.0%**	**1.00 [0.67, 1.50]**

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.41$, df = 6 (P = 1.00); $I^2 = 0\%$

Test for overall effect: Z = 0.02 (P = 0.98)



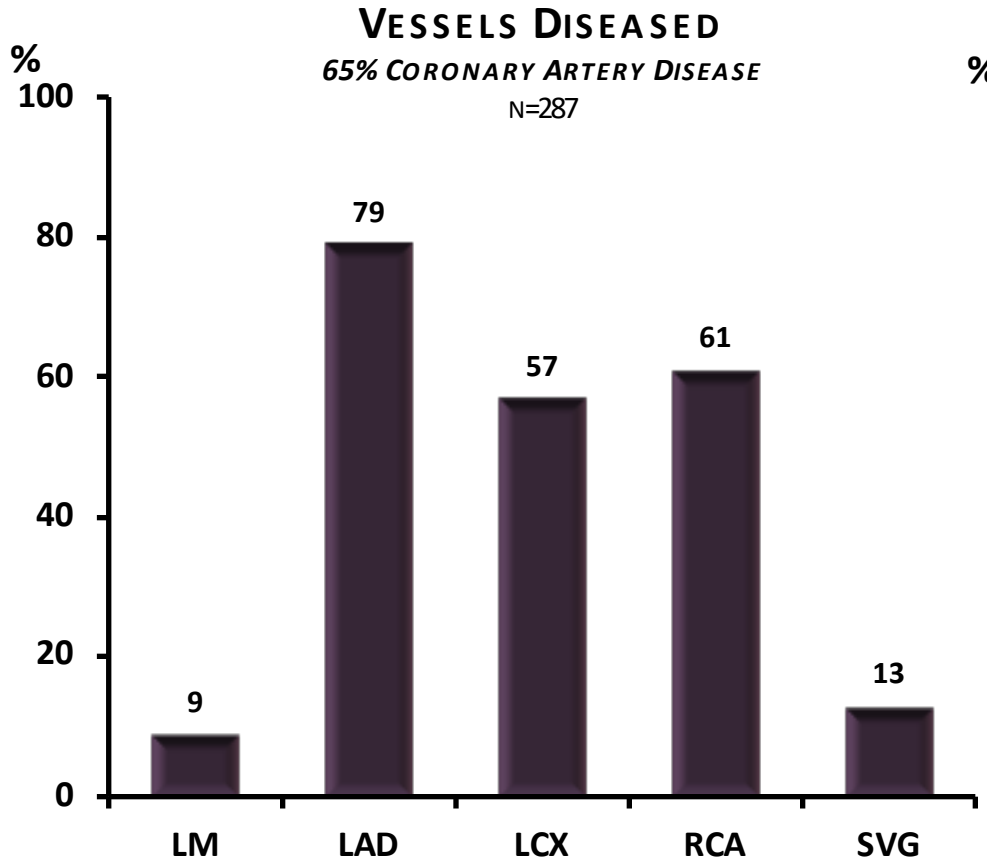
D'Ascenzo F et al *Int J Cardiol* 2013

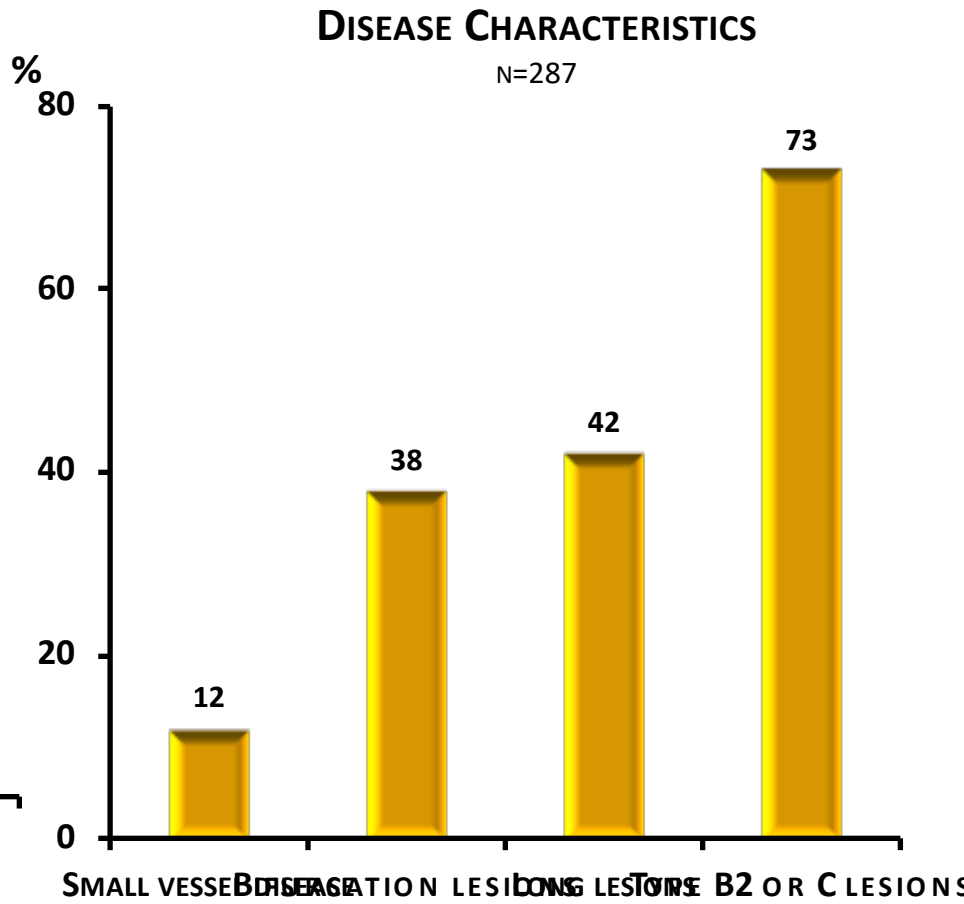
Coronary Artery Disease Severity Among Patients undergoing TAVI

Stefanini G et al. *Eur Heart J* 2014;35:2530-40

N=445, mean age 82.5±5.8, 44% male gender

Baseline Coronary Artery Disease Severity

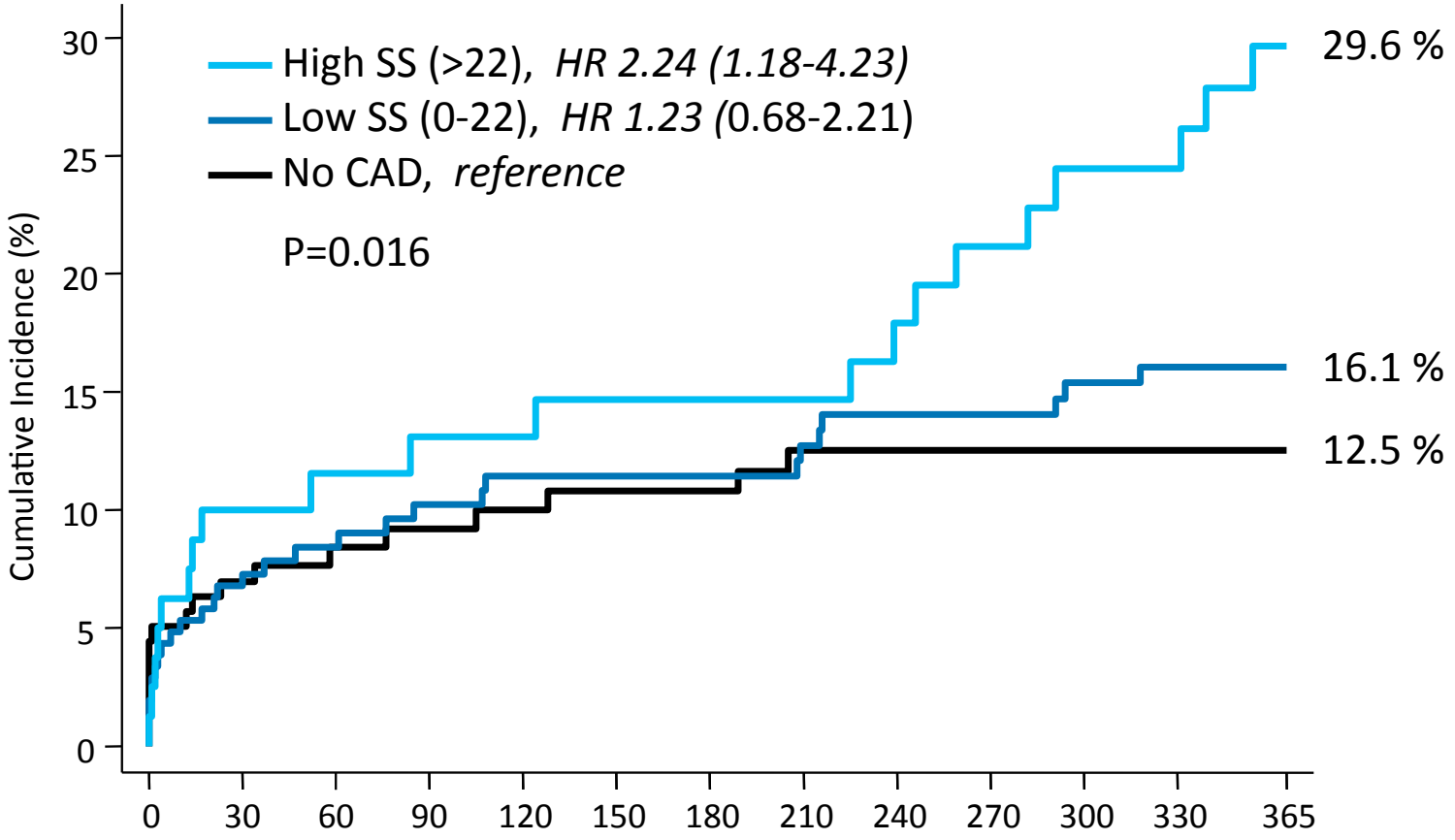




IMPACT OF CAD COMPLEXITY ON OUTCOMES

Stefanini G et al. *Eur Heart J* 2014;35:2530-40

Primary EP: CV Death, MI or Stroke @ 1 Year



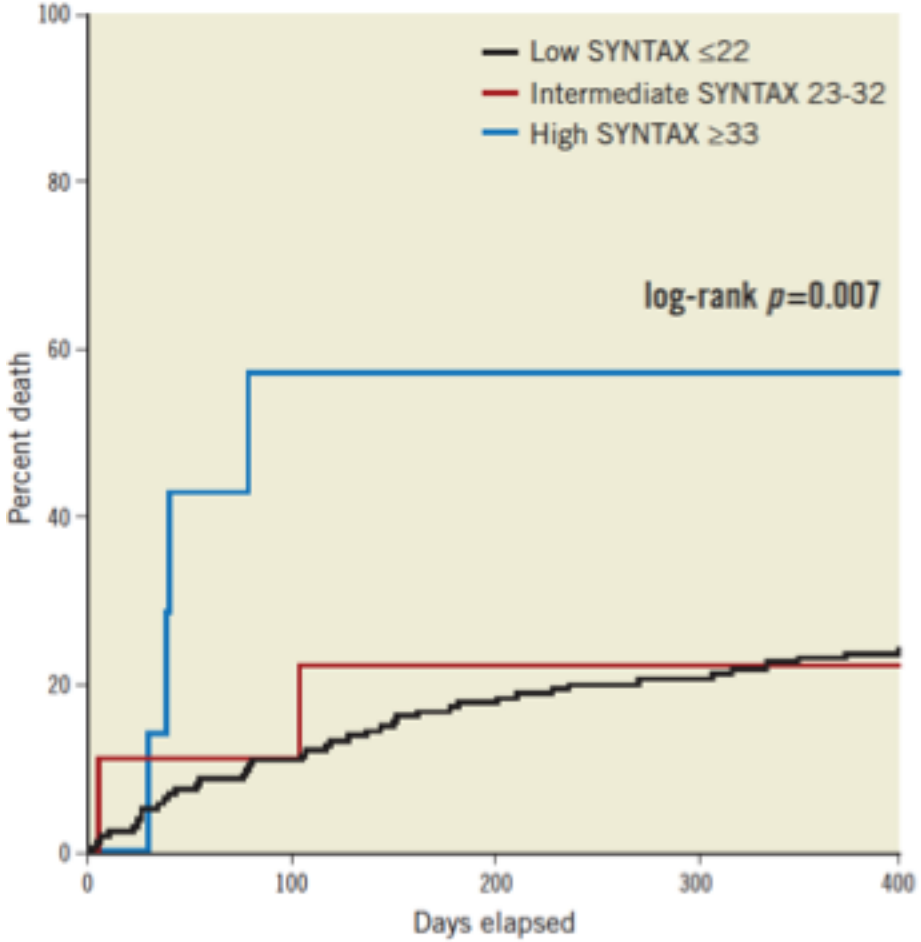
Number at risk													
High SS (>22)	80	71	57	55	55	53	53	53	51	48	45	44	40
Low SS (0-22)	207	188	155	149	146	146	141	134	131	130	126	123	122
No CAD	158	145	120	114	112	111	107	100	99	99	98	97	93

IMPACT OF CAD COMPLEXITY ON MORTALITY

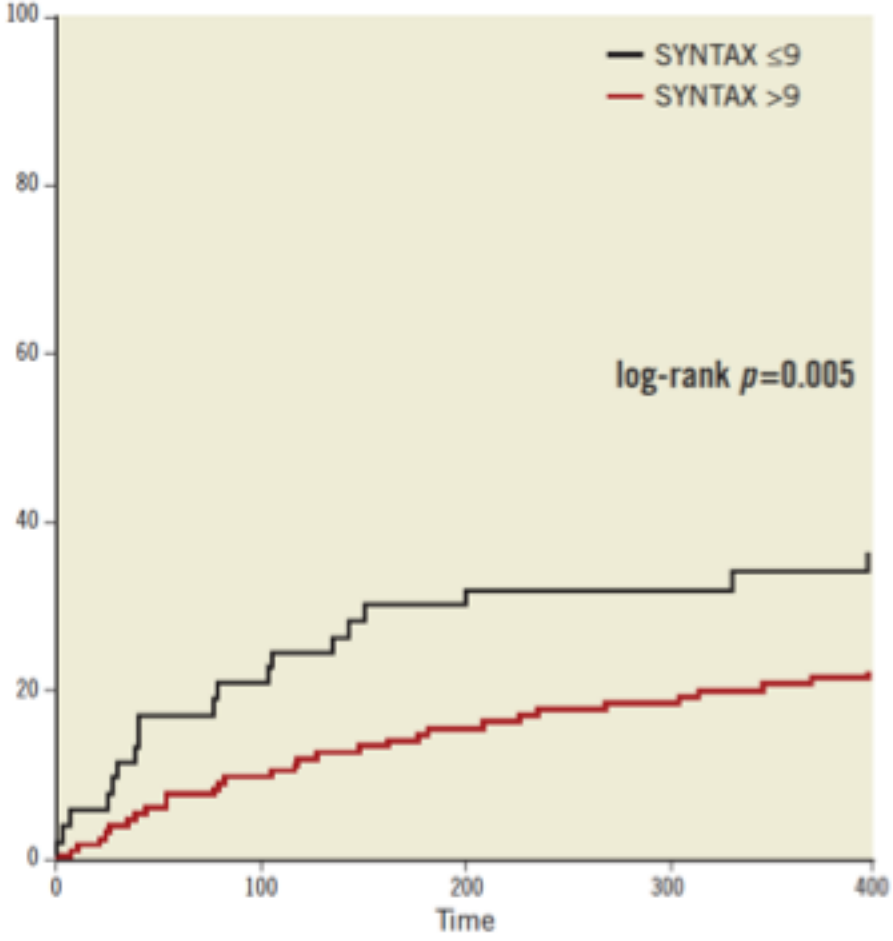
Khawaja M et al. *EuroIntervention* 2015; 11:450-55

271 consecutive patients with severe AS undergoing TAVI with the Edward Sapien/XT

SYNTAX-Score Terciles



SYNTAX-Score >9

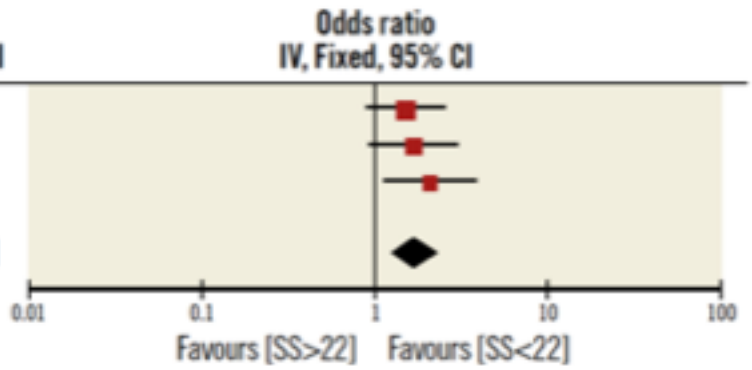


Impact of CAD Complexity on Mortality: Meta-analysis of Observational Studies

D'Ascenzo F et al. *EuroIntervention* 2018; online ahead of print

Study or subgroup	log[Odds Ratio]	SE	Weight	Odds ratio IV, Fixed, 95% CI
Shamekhi et al, 2017	0.4055	0.2606	40.3%	1.50 [0.90, 2.50]
Stefanini et al, 2014	0.5188	0.2963	31.1%	1.68 [0.94, 3.00]
Witberg et al, 2017	0.7372	0.3093	28.6%	2.09 [1.14, 3.83]
Total (95% CI)			**100.0%**	**1.71 [1.24, 2.36]**

Heterogeneity: $Chi^2=0.68$, df=2 ($p=0.71$); $I^2=0\%$
Test for overall effect: Z=3.24 ($p=0.001$)

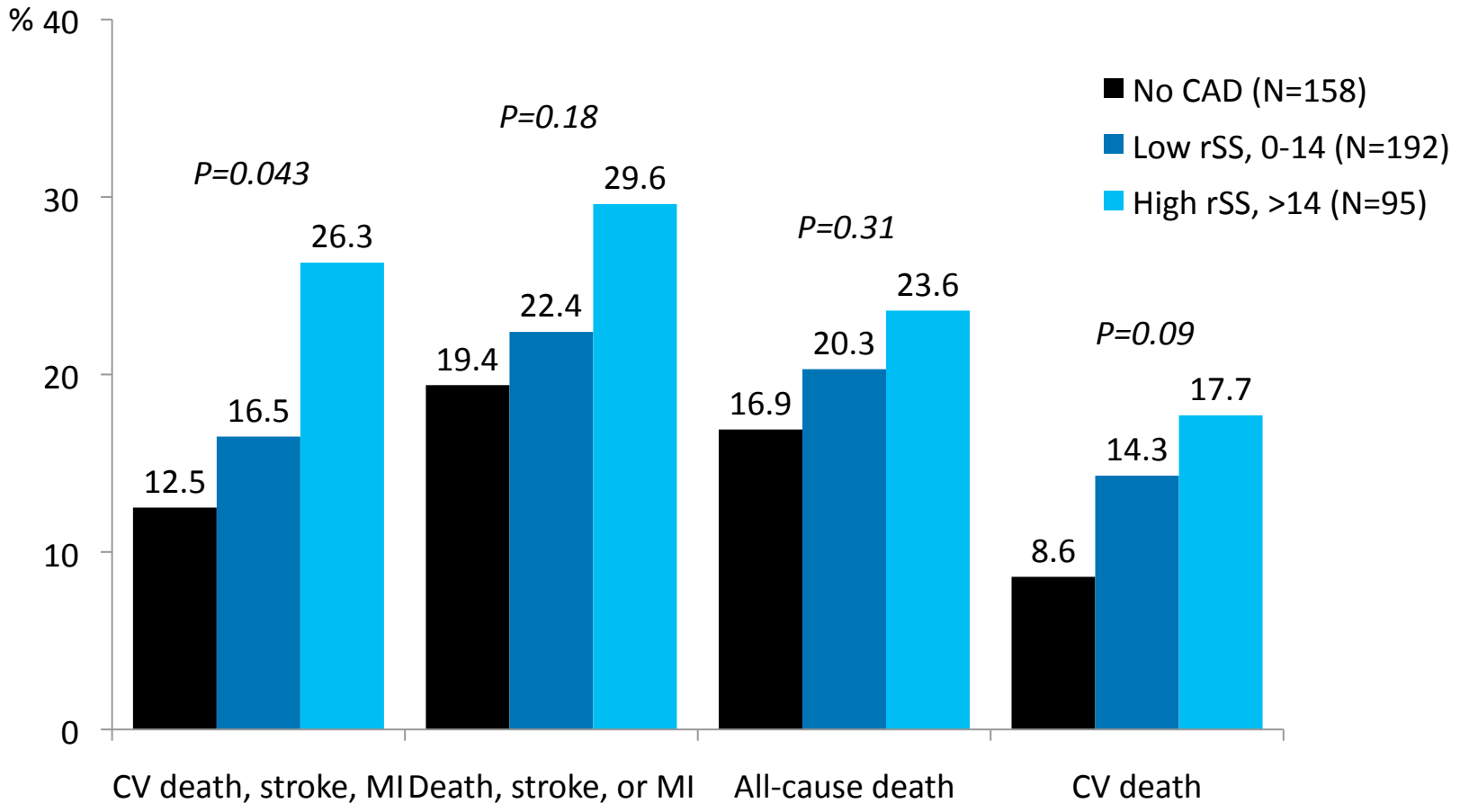


Patients with SS>22 present higher risk of mortality

IMPACT OF CAD COMPLEXITY ON OUTCOMES

Stefanini G et al. *Eur Heart J* 2014;35:2530-40

1-Year Clinical Outcomes According to Residual Syntax-Score



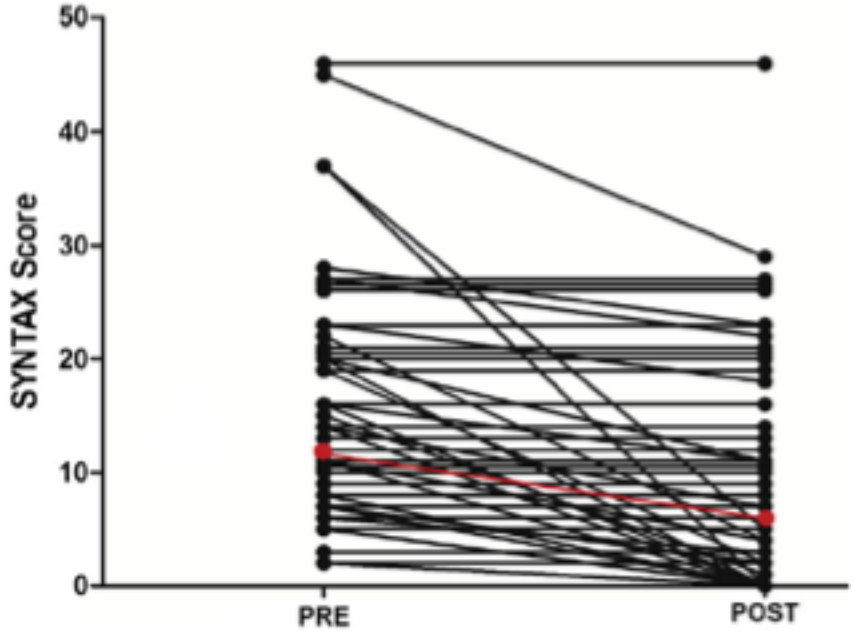
SELECTIVE ANGIO-GUIDED REVASCULARIZATION

Van Mieghem N et al. *JACC Intv* 2013; 6:867-75

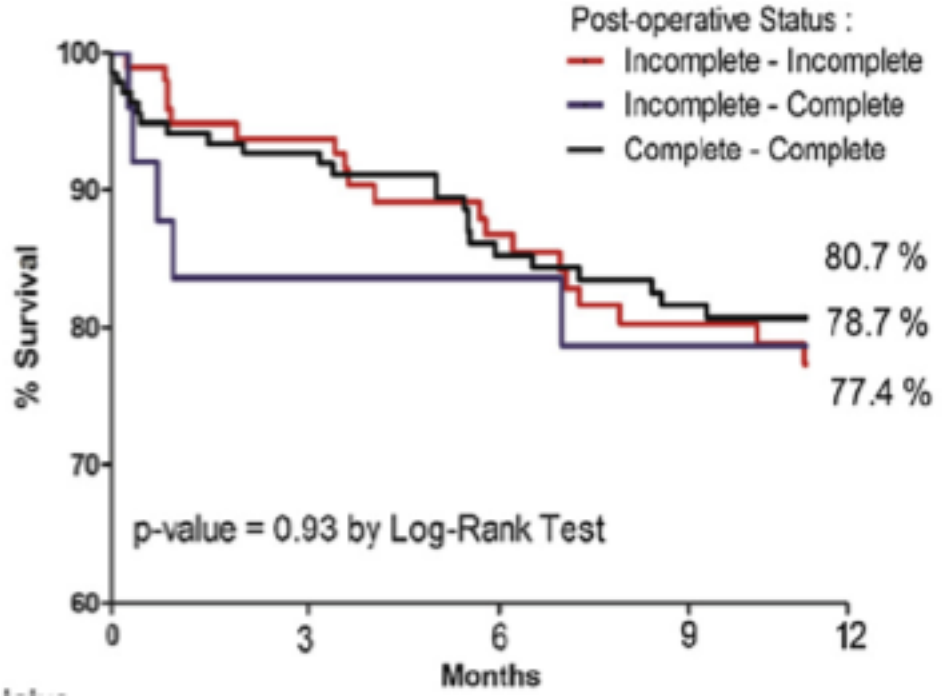
263 consecutive patients with AS undergoing TAVI at 1 center between 2005 and 2012

Reduction in SYNTAX Score

Mean Residual SS = 9



Survival By Revasc Status



SHALL WE RELY ON FFR ?

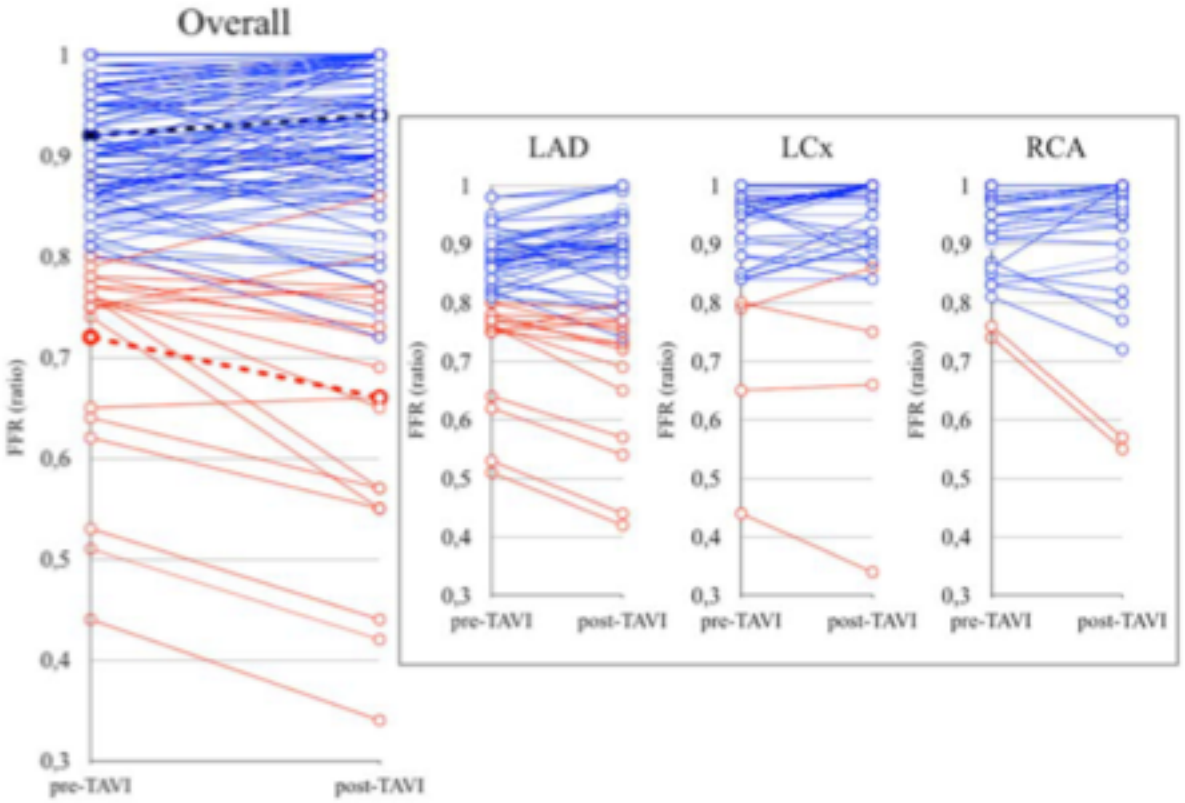
Coronary Physiologic Assessment and Imaging

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

FFR before and after TAVI in 54 Patients



Circulation CV Intv 2016

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Conclusions…

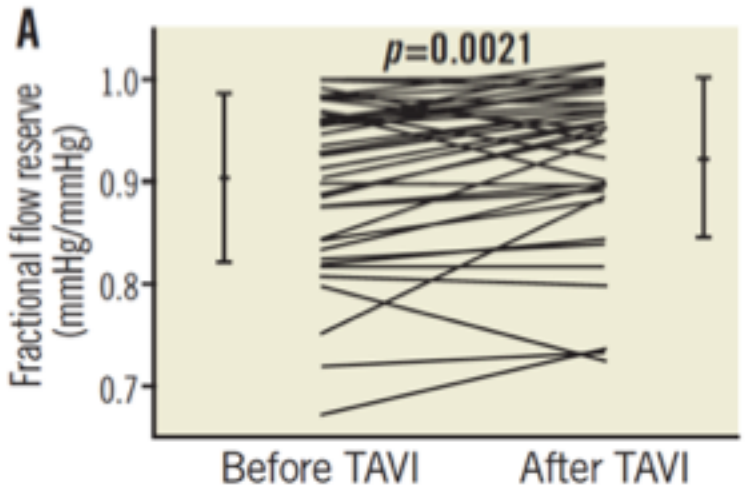
Conclusions—Coronary hemodynamics are influenced by aortic valve stenosis removal. Nevertheless, FFR variations after TAVI are minor and crossed the diagnostic cutoff of 0.8 in a small number of patients after valve replacement. Borderline coronary lesions might become functionally significant after valve replacement, although FFR-guided interventions were infrequent even in patients with angiographically significant lesions. **(*Circ Cardiovasc Interv*. 2016;9:e004088. DOI: 10.1161/CIRCINTERVENTIONS.116.004088.)**

EFFECTS OF TAVI ON CORONARY HAEMODYNAMICS

Stoller M et al. *EuroIntervention* 2018; 14:166-173

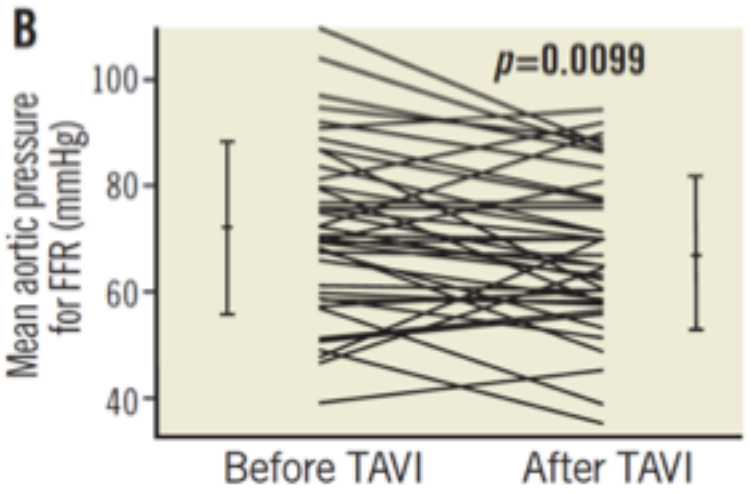
40 Patients undergoing TAVI

FFR



0.90±0.08 => 0.93±0.08

Hyperhaemic Mean Aortic Pressure



71±16 mmHg => 67±15 mmHg

SHALL WE RELY ON FFR ?

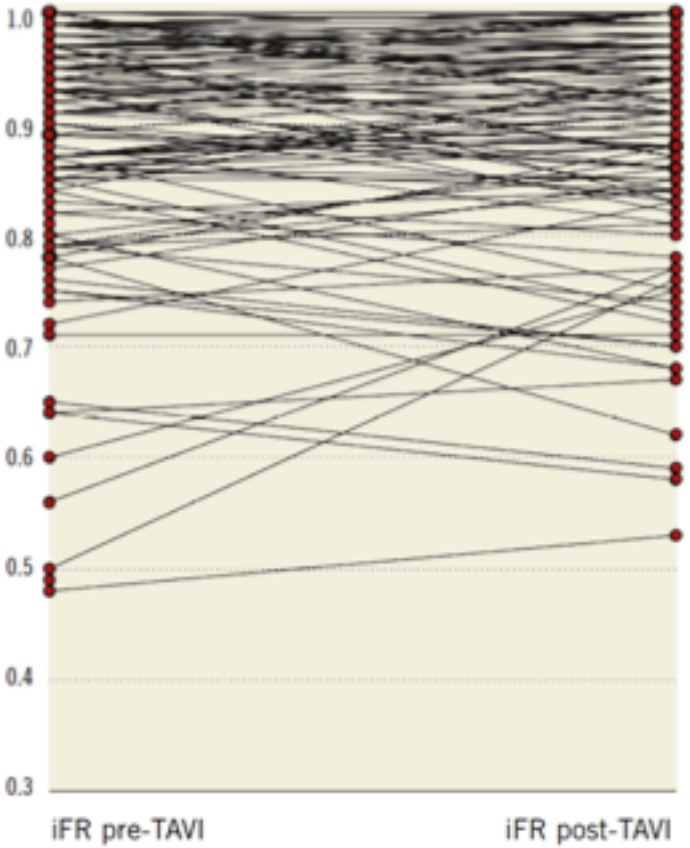
NO !

SHALL WE RELY ON iFR ?

Physiologic evaluation of coronary lesions using instantaneous wave-free ratio (iFR) in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation

Roberto Scarsini[1], MD; Gabriele Pesarini[1], MD; Carlo Zivelonghi[1], MD; Anna Piccoli[1], MD; Valeria Ferrero[1], MD; Mattia Lunardi[1], MD; Leonardo Gottin[2], MD; Claudia Zanetti[1], MD; Giuseppe Faggian[3], MD; Flavio Ribichini[1]*, MD

FFR before and after TAVI in 66 Patients



Eurointervention 2018

Physiologic evaluation of coronary lesions using instantaneous wave-free ratio (iFR) in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation

Roberto Scarsini[1], MD; Gabriele Pesarini[1], MD; Carlo Zivelonghi[1], MD; Anna Piccoli[1], MD; Valeria Ferrero[1], MD; Mattia Lunardi[1], MD; Leonardo Gottin[2], MD; Claudia Zanetti[1], MD; Giuseppe Faggian[3], MD; Flavio Ribichini[1]*, MD

Conclusions…

Conclusions: Although overall values did not change after TAVI, iFR presented significant and mostly erratic individual variations after valve replacement. Delta iFR was influenced by the extent of the transaortic gradient drop induced by TAVI. Therefore, caution is advisable in the interpretation of iFR in the presence of AS.

SHALL WE RELY ON iFR ?

NO !

SHALL WE LOOK AT THE ANATOMICAL BURDEN ?

ESC Guidelines on Myocardial Revascularization 2018

Recommendations	Class[a]	
Primary valve intervention and coronary revascularization		
PCI should be considered in pat… primary indication to und… coronary artery di… >70% in proximal seg…	IIa	C
PCI … sidered in patients with a …cation to undergo transcatheter … valve interventions and coronary artery diameter stenosis >70% in proximal segments.	IIa	C

Follow the Guidelines !

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THANKS FOR YOUR KIND ATTENTION !

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