LV MECHANICS AND TAVI. SOMETHING TO CONSIDER

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EuroValve
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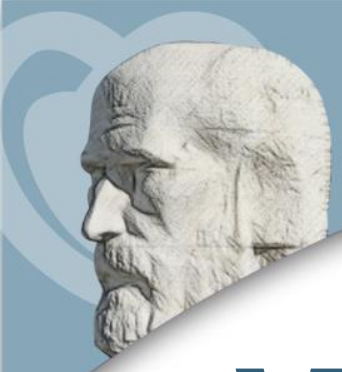
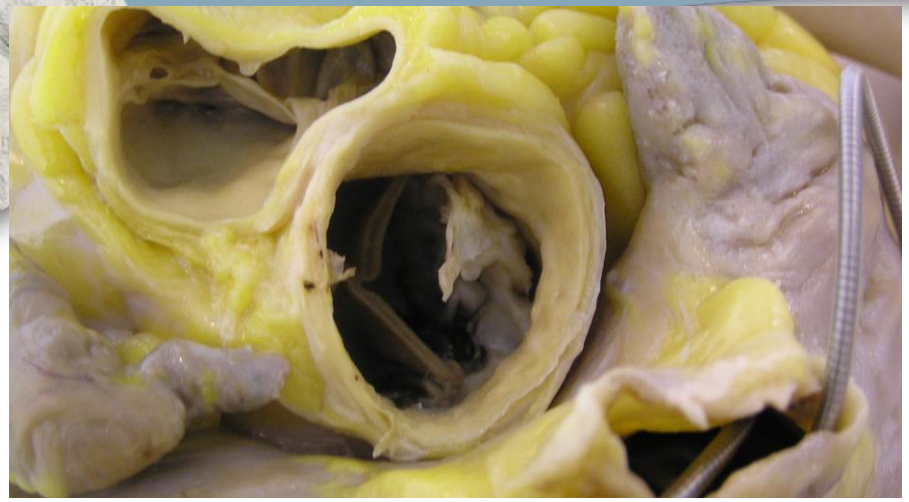
- **Reserch Grant.**

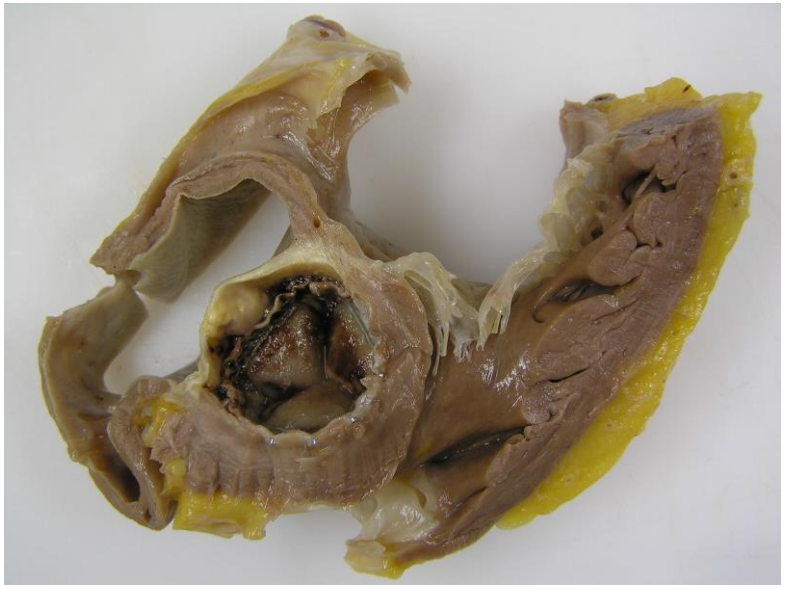
Boston and Edwards related to TAVI

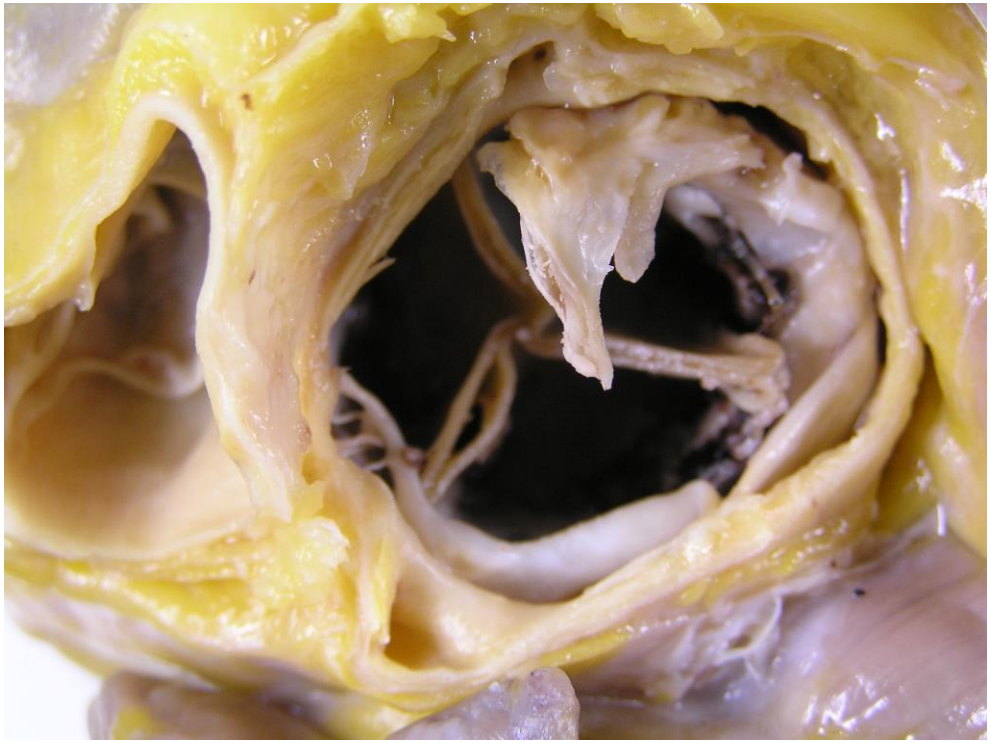


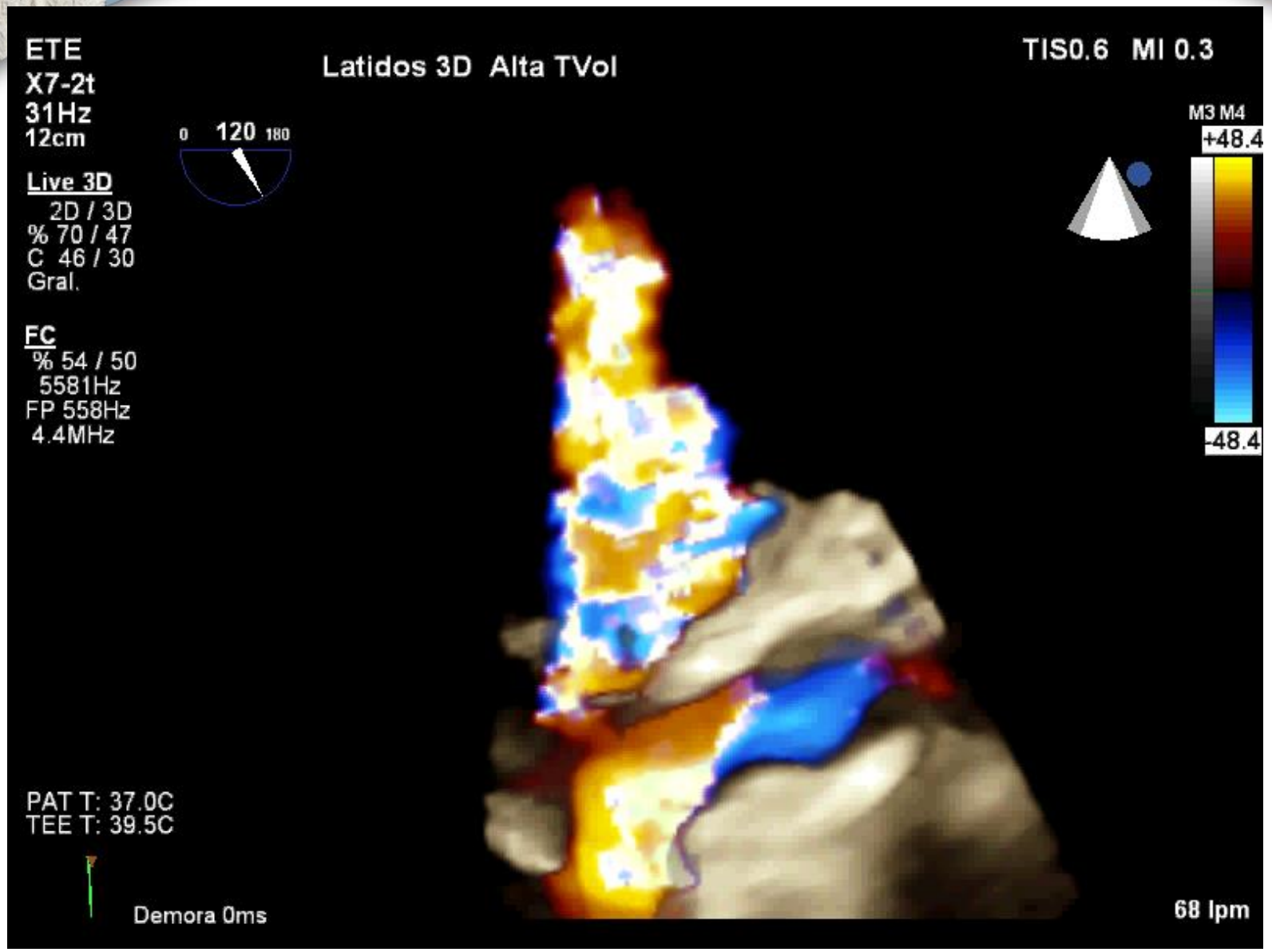
- What is related to durability ?

What should we consider for long term ?








ETE
X7-2t
31Hz
12cm
Latidos 3D Alta TVol
TIS0.6 MI 0.3
0 120 180
Live 3D
2D / 3D
% 70 / 47
C 46 / 30
Gral.
FC
% 54 / 50
5581Hz
FP 558Hz
4.4MHz
M3 M4
+48.4
-48.4
PAT T: 37.0C
TEE T: 39.5C
Demora 0ms
68 lpm

Long-Term Outcomes After Transcatheter Aortic Valve Implantation in High-Risk Patients With Severe Aortic Stenosis

The U.K. TAVI (United Kingdom Transcatheter Aortic Valve Implantation) Registry

Mortality

Predictors of Mortality at 1 Year

870 patients

Variables	Multivariate Model	p Value
Edwards SAPIEN		
Medtronic CoreValve		
Route, other		
Route, transfemoral	0.73 (0.52–1.04)	0.08
AR moderate/severe	1.66 (1.10–2.51)	0.016
Major vascular complication		
Permanent pacemaker		
Male		
Age, yrs		
AV gradient		
LVEF ≥50%	1.00	
LVEF 30%–49%	1.49 (1.03–2.16)	0.03
LVEF <30%	1.65 (0.98–2.79)	0.06
NYHA functional class I/II		
NYHA functional class III/IV		
Coronary disease	1.23 (0.88–1.73)	0.23
Any previous cardiac surgery		
PVD		
Diabetes mellitus		
COPD	1.41 (1.00–1.98)	0.05
Creatinine >200 mmol/l	1.55 (0.90–2.68)	0.11

AR 1.66 (1.10–2.51)

Similar results at one year follow-up from the French registry Italian registry

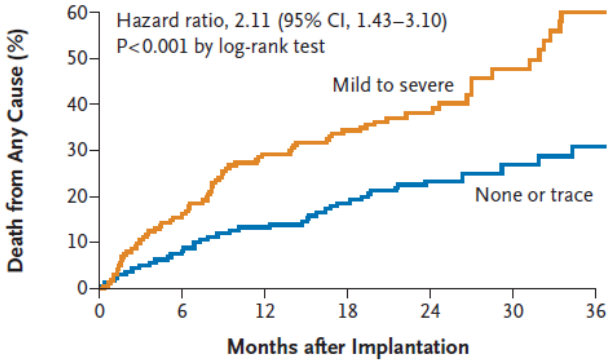
Tamburino, C. *et al Circulation* 2011
Eltchaninoff, H. *Eur. Heart J.* 2011

Two-Year Outcomes after Transcatheter or Surgical Aortic-Valve Replacement

The NEW ENGLAND JOURNAL of MEDICINE

Partner trial

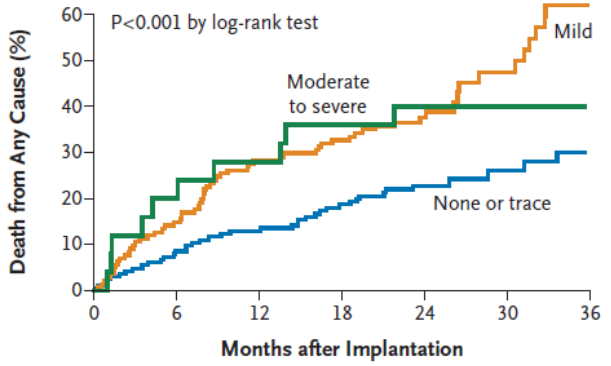
A Severity of Paravalvular Leak: None or Trace versus Mild to Severe



No. at Risk

None or trace	158	142	134	121	84	39	15
Mild to severe	160	134	112	101	64	26	12

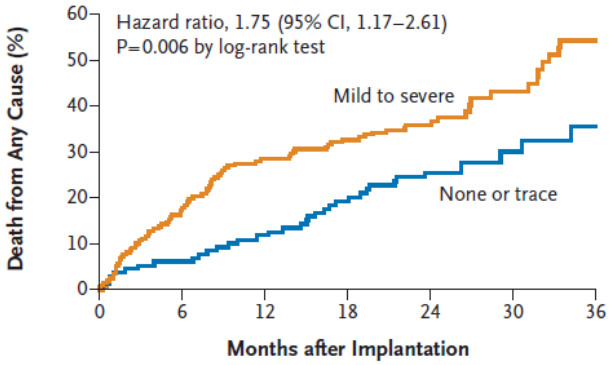
B Severity of Paravalvular Leak: None or Trace, Mild, or Moderate to Severe



No. at Risk

None or trace	158	142	134	121	84	39	15
Mild	136	115	95	86	51	21	10
Moderate to severe	24	19	17	15	13	5	2

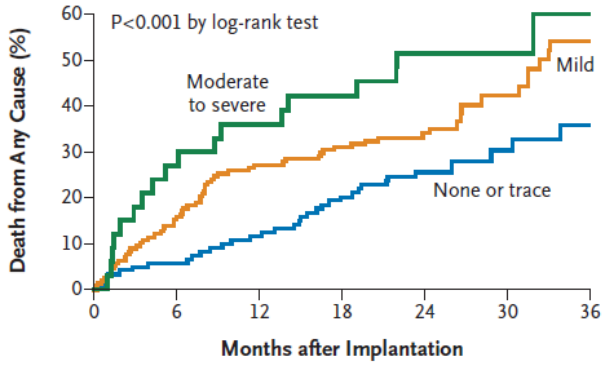
C Severity of Total Aortic Regurgitation: None or Trace versus Mild to Severe



No. at Risk

None or trace	125	117	108	95	64	29	10
Mild to severe	196	161	140	128	85	37	17

D Severity of Total Aortic Regurgitation: None or Trace, Mild, or Moderate to Severe

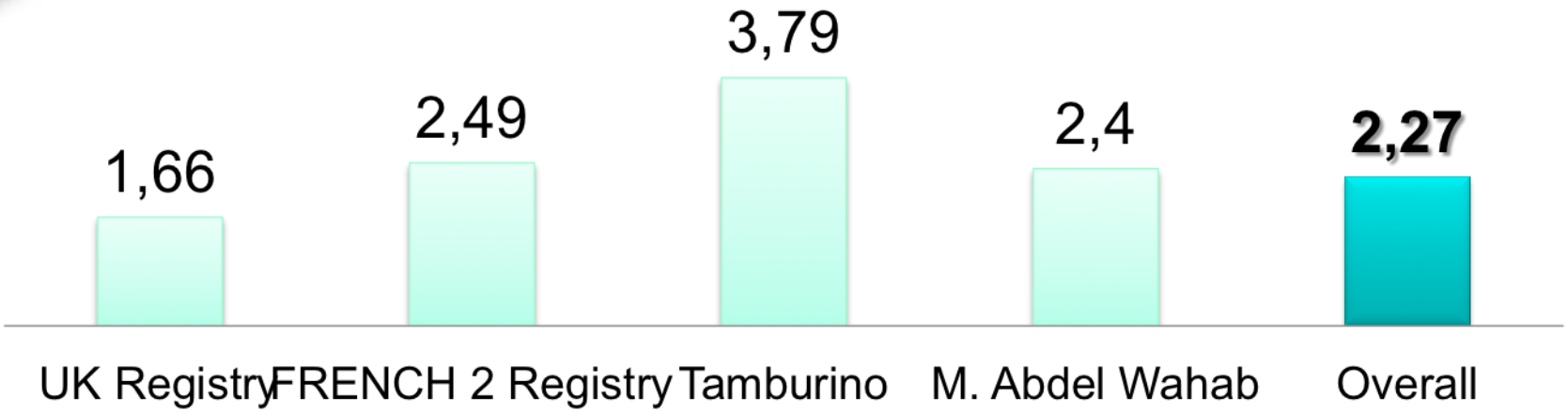


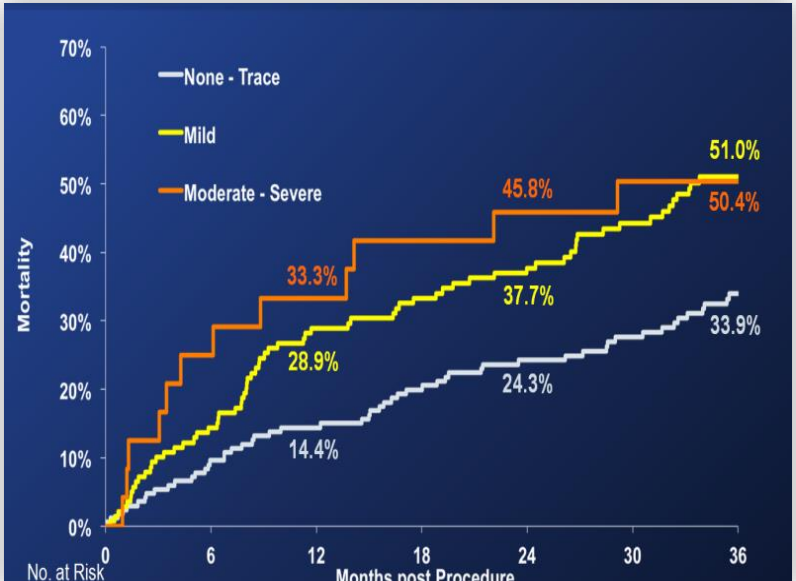
No. at Risk

None or trace	125	117	108	95	64	29	10
Mild	162	136	118	109	70	31	15
Moderate to severe	34	25	22	19	15	6	2

CLINICAL IMPACT

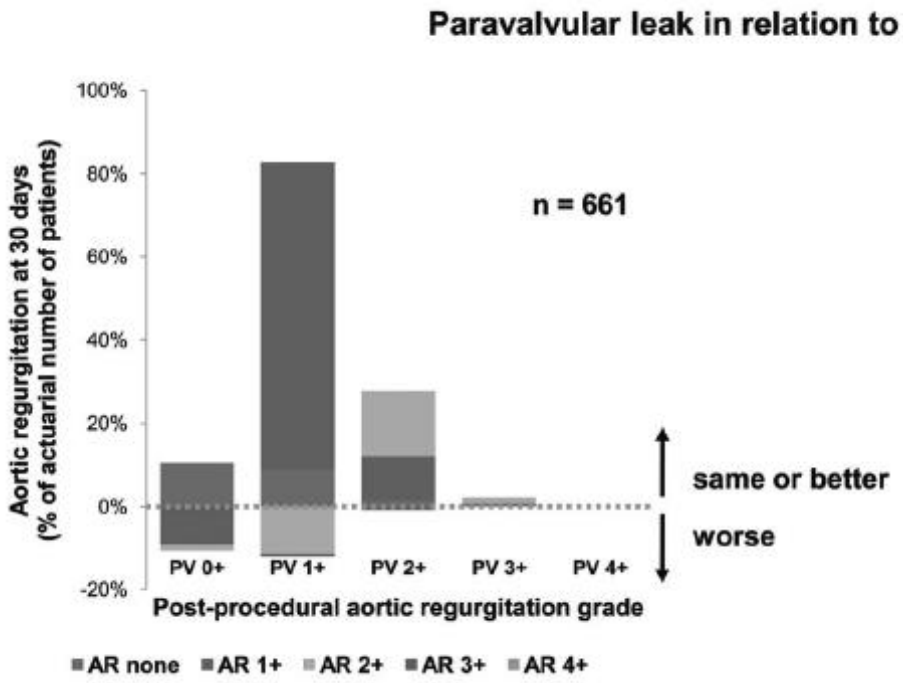
Moderate o severe PAR. Hazard ratio for 1-year mortality

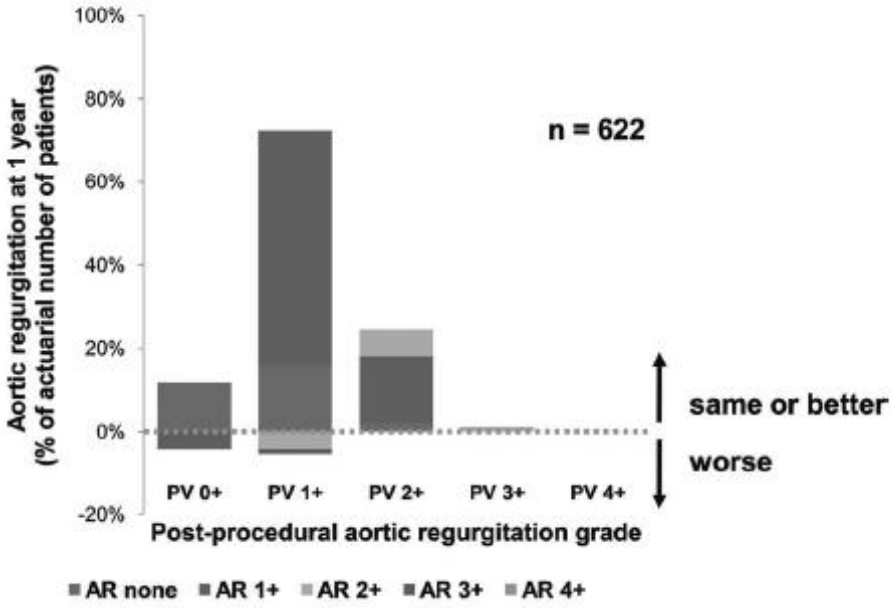




Paravalvular regurgitation: Is it relevant / frequent

AR Evolution at 1 years follow-up





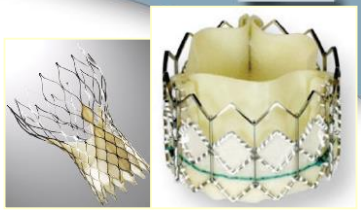
in the majority of the series, post-procedural aortic regurgitation **remains unchanged or tends to reduce**

Tamburino C et al. Circulation. 2011;123:299-308

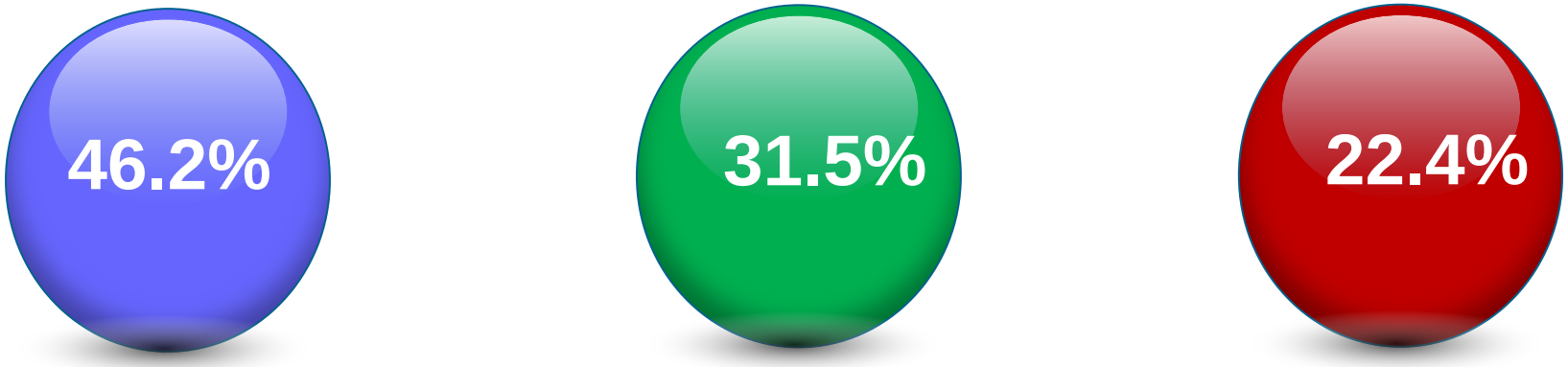
Paravalvular regurgitation: Is it relevant / frequent

The NEW ENGLAND JOURNAL of MEDICINE

Partner trial



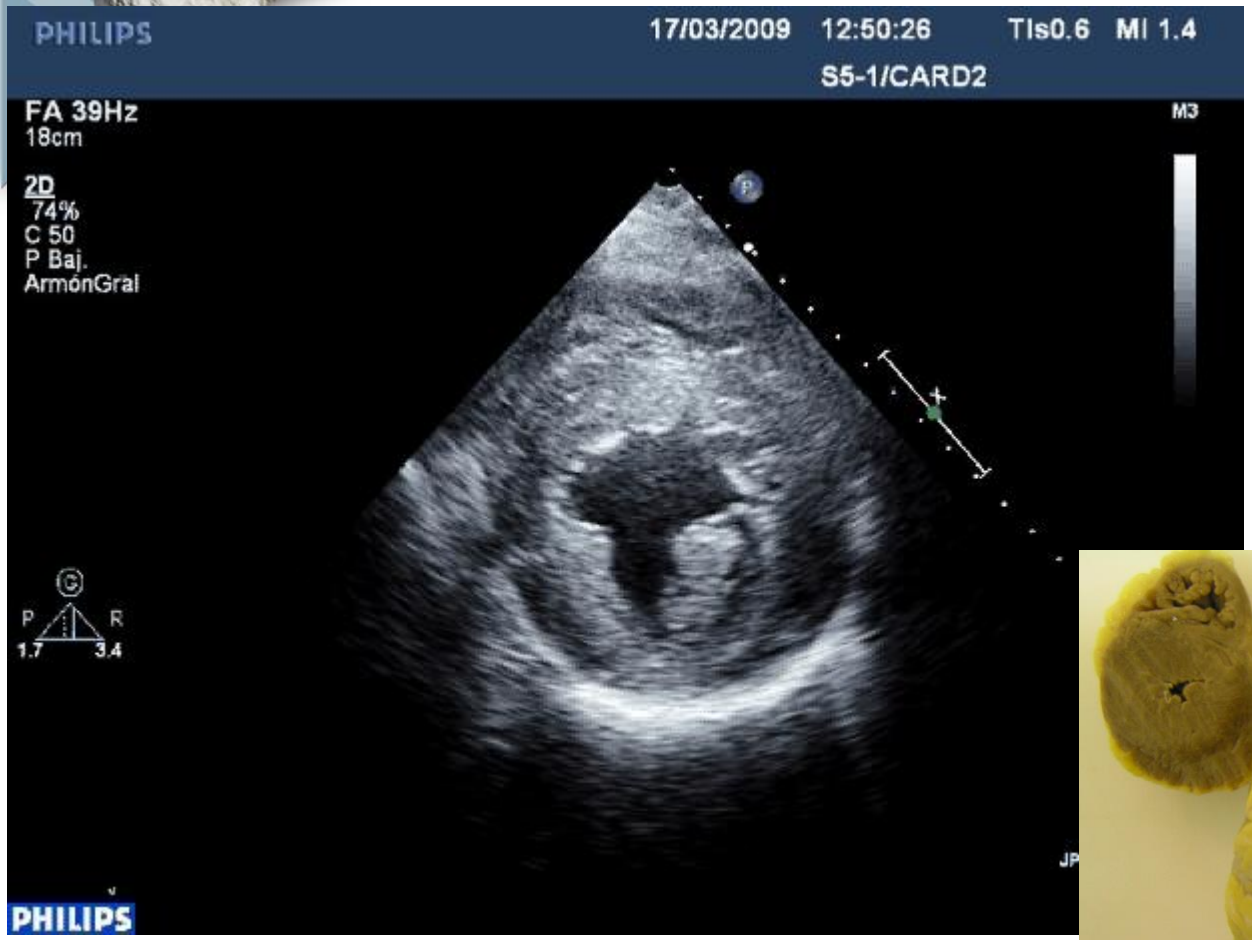
AR Evolution at 2 years follow-up

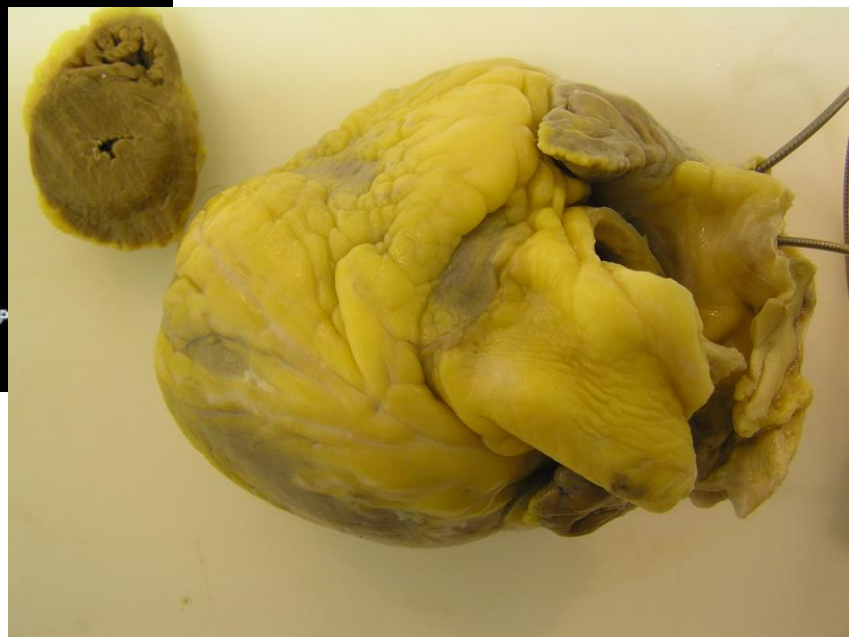


Unchanged **Improved** **Worse**

Kodali et al. N Engl J Med. 2012

The LVH response !
Diastole and/or Systole ?



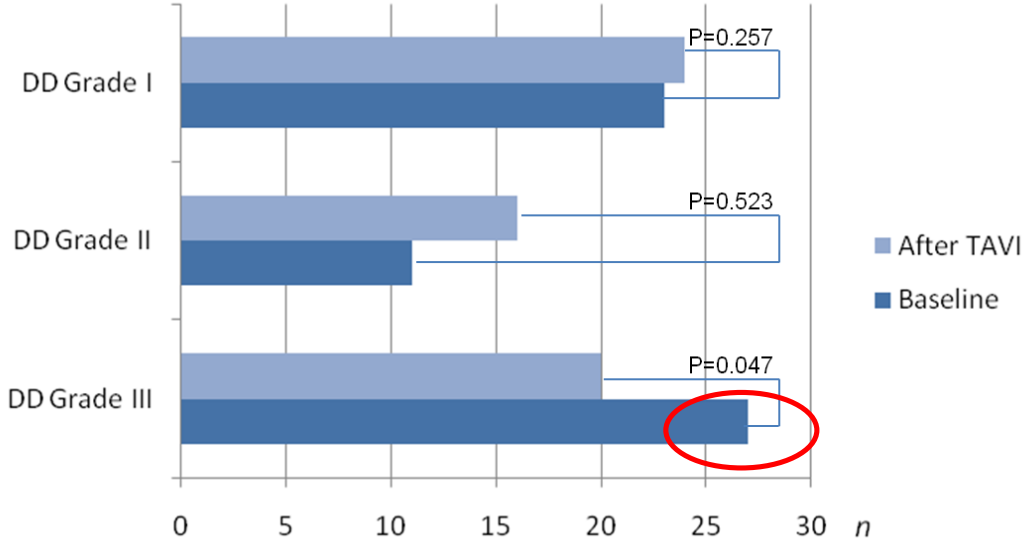


European Journal of Echocardiography

Acute left ventricle diastolic function improvement after transcatheter aortic valve implantation

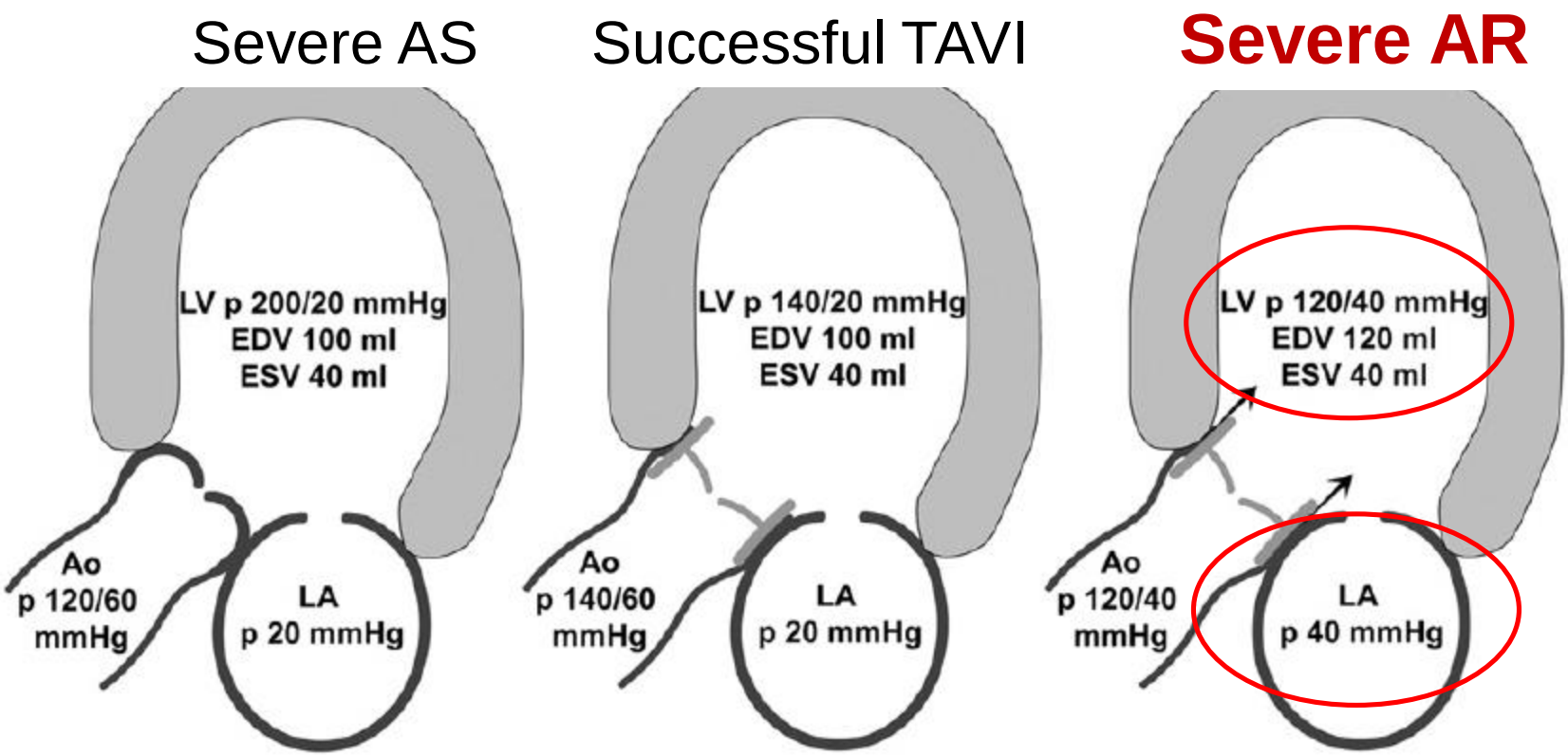
Alexandra Gonçalves[1,2], Pedro Marcos-Alberca[1], Carlos Almeria[1], Gisela Feltes[1], Enrique Rodríguez[1], Rosa Ana Hernández-Antolín[1], Eulogio Garcia[1], Luis Maroto[1], Cristina Fernandez Perez[3], José C. Silva Cardoso[2], Carlos Macaya[1], and José Luis Zamorano[1]*

- 61 patients with preserved LV systolic function submitted to successful TAVI.
- Parameters of diastolic function were evaluated before and minutes after TAVI.



This is the first study describing LV diastolic performance during TAVI. Immediate improvement in diastolic function parameters was described.

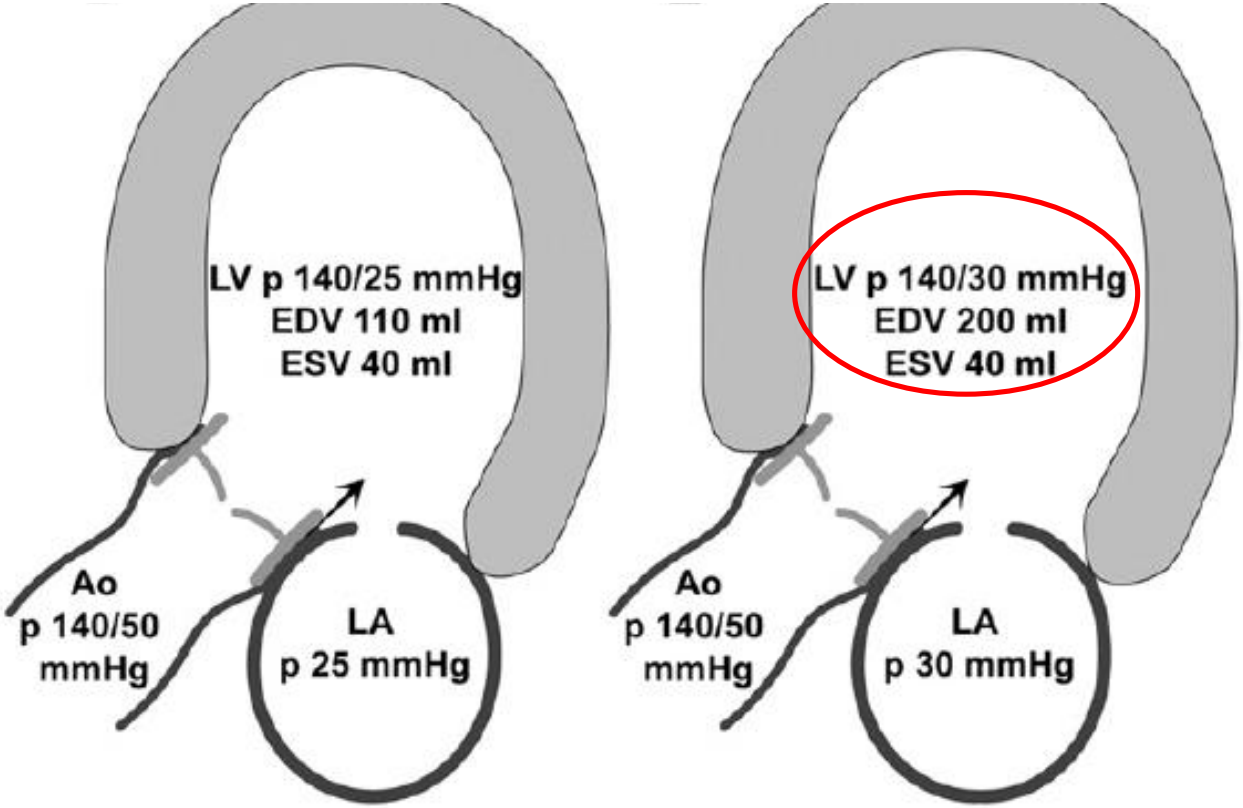
Paravalvular regurgitation: Changes in LV pressures



M Gotzmann et al. Am Heart J 2012;163:903-11

Paravalvular regurgitation: Chronic AR. Medical Tx

Chronic AR



M Gotzmann et al. Am Heart J 2012;163:903-11

What is new ?

Lv mechanics after TAVI

CENTRO	N	BL	DS	6M	12M
H. St Antonius NL	**10**				10
H. U. La Paz Madrid	**21**				21
H. U. Central Asturias	**24**				24
Cardiocentro Ticino	**22**				22
H. Reina Sofía	**14**				14
H. San Raffaele	**2**				2
H. U. Ramón y Cajal	**10**				10
H. Santiago Compostela	**8**				8
H. Guipuzkoa	**5**				5
H. La Timone France	**1**				0
	117				**116**

Ongoing study

LV MASS, EF, AVA & Grad: BL-DS

	Corevalve		Lotus	
Ind. LV Mass Diff BL-DS	-15.17	**0.0002**	-11.10	**0.0102**
Diff LVEF Simpson BL-DS	+2.13%	**0.0259**	-0.31%	0.7704
Diff AVA BL-DS	+1.36	**0.0000**	+1.02	**0.0000**
Diff Gradient BL-DS	-40.96	**0.0000**	-28.81	**0.0000**

LV MASS, EF, AVA & Peak G: BL-12M

	Corevalve		Lotus	
Diff LV mass index BL-12Mo	-30.79	**0.0000**	-25.25	**0.0051**
Diff LV EF Simpson BL-12Mo	+4.92%	**0.0026**	+3.74%	0.0807
Diff AVA BL-12Mo	+1.35	**0.0000**	+0.74	**0.0000**
Diff Grad BL-12Mo	-42.53	**0.0000**	-26.42	**0.0000**

TAVI & GLS 6Mo- According to AVA

		Δ Coreval ve			Δ Lotus	
AVA > 1.5	31	**-2.86**	**0.0025**	26	**-1.47**	**0.0498**

TAVI & GLS 12Mo- According to AVA

		Δ Coreval ve			Δ Lotus	
GP medio <30	50	**-3.60**	**0.0000**	29	**-1.88**	**0.0344**
GP medio <40	50	**-3.60**	**0.0000**	29	**-1.88**	**0.0344**

What may influence in long term resultsafter TAVI

- Still needed LONG Term FU
- Focus in Ao Reg….. Mortality
- Focus in Diastolic function. Short term filling pressures. Acute changes
- Focus Systolic function. LV mechanics also changes and needs to be correlated with Long term prognosis