Multi-modality evaluation of transcatheter structural valve degeneration at long-term follow-up

SUPPLEMENTARY DATA

Table 1 of the supplementary data. Factors associated with structural valve degeneration post-TAVR.

	Univariate		Multivariate	
	HR (95%CI)	*P*	HR (95%CI)	*P*
Variable				
Male sex	0.56 (0.31-1.02)	.056	0.90 (0.37-2.20)	.823
Hypertension	5.38 (0.74-38.9)	.096	5.29 (0.73-38.2)	.099
Valve size 20-23 mm	1.89 (1.10-3.27)	.021	1.76 (0.78-3.99)	.177

95%CI, 95% confidence interval; HR, hazard ratio;

Table 2 of the supplementary data. Transoesophageal echocardiography data, clinical management and outcome of SVD patients (n = 15).

Patient No.	Cause of SVD	Leaflet mobility	Leaflet thickness	AR grade	AR type	Clinical management and outcome
1	AR	Normal	Thickened	4	Both	No treatment. Died at age 84 y from HF
2	AR	Reduced	Thickened	3	Both	No treatment. Died at age 83 y from HF
3	AR	Reduced	Thickened	3	Intraprosthetic	No treatment. Death at age 73 y from HF
4	AR	Reduced	Thickened	3	Both	TAVR-in-TAVR 1 y after diagnosis
5	AR	Reduced	Thickened	4	Both	TAVR-in-TAVR 4 y after diagnosis
6	AR	Reduced	Thickened	4	Intraprosthetic	TAVR-in-TAVR 2 y after diagnosis
7	AR	Normal	Normal	1	Both	No treatment. Died at age 76 y from TAVR endocarditis
8	AR	Normal	Normal	3	Both	TAVR-in-TAVR 2 mo after diagnosis
9	AR+stenosis	Reduced	Thickened	2	Both	No treatment. Died at age 75 y from HF
10	AR+stenosis	Reduced	Thickened	3	Intraprosthetic	TAVR-in-TAVR 2 y after diagnosis
11	Stenosis	Reduced	Thickened	1	Perivalular	No treatment. Died at age 79 y from HF
12	Stenosis	Reduced	Thickened	0	-	THV balloon valvuloplasty 8 d after diagnosis
13	Stenosis	Reduced	Thickened	2	Both	TAVR-in-TAVR 1 y after diagnosis
14	Stenosis	Reduced	Thickened	3	Intraprosthetic	TAVR-in-TAVR 4 mo after diagnosis
15	Stenosis	Normal	Normal	1	Intraprosthetic	No treatment. Died at age 91 y from HF

AR, aortic regurgitation; HF, heart failure; SVD, structural valve degeneration; TAVR, transcatheter aortic valve replacement; THV, transcatheter heart valve.

Aortic regurgitation was graded from 0 to 4 (0 = none, 1 = trace, 2 = mild, 3 = moderate, 4 = severe).

Table 3 of the supplementary data. Baseline and procedural characteristics, according to the performance of MDCT examination at follow-up.

	No MDCT (n = 127)	MDCT (n = 85)	*P*
Clinical characteristics			
Age, y	79.8 ± 7.1	78.6 ± 8.3	.268
BMI, kg/m^2	27.3 ±	26.2 ± 4.7	.138
Male sex	56 (44.1)	28 (32.9)	.116
Diabetes mellitus	44 (34.7)	27 (31.8)	.767
Hypertension	115 (90.6)	77 (90.6)	.992
Dyslipidemia	99 (78.6)	73 (85.9)	.208
COPD	36 (28.4)	20 (23.5)	.525
NYHA class III-IV	97 (76.4)	65 (76.5)	.988
eGFR < 60 mL/min	75 (59.1)	57 (67.1)	.251
Previous CAD	87 (68.5)	55 (64.7)	.655
Previous stroke	29 (22.8)	16 (18.8)	.608
Previous atrial fibrillation	37 (29.1)	24 (28.2)	.887
STS-PROM score, %	6.6 ± 3.8	6.6 ± 3.9	.936
Baseline echocardiogram			
LVEF, %	52.6 ± 14.6	55.4 ± 14.4	.162
LVEF < 50%	40 (31.5)	21 (24.7)	.353
Mean gradient, mmHg	40.6 ± 16.4	43.1 ± 16.8	.274
Aortic valve area, cm^2	0.66 ± 0.19	0.60 ± 0.18	.029
Moderate/severe AR	5 (4.1)	9 (10.6)	.092
Procedural variables			
Transfemoral approach	55 (43.3)	27 (31.8)	.114
Valve size 20-23 mm	59 (46.5)	53 (62.4)	.025
Balloon predilation	122 (96.1)	82 (96.5)	.879
Balloon postdilation	27 (21.3)	24 (28.2)	.255
Need for second valve	1 (0.8)	3 (3.5)	.304
Discharge echocardiogram			
LVEF, %	52.9 ± 12.8	55.2 ± 13.1	.212
LVEF < 50%	34 (26.8)	18 (21.2)	.417
Mean gradient, mmHg	10.5 ± 4.2	11.5 ± 4.9	.093
Aortic valve area, cm^2	1.43 ± 0.34	1.29 ± 0.35	.007
Moderate/severe AR	6 (4.8)	1 (1.2)	.246
Severe PPM	23 (19.2)	24 (30.0)	.089

BMI, body mass index; CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; eGFR, estimated glomerular filtration rate; HR, hazard ratio; LVEF, left ventricular ejection fraction; MDCT, multidetector computed tomography; NYHA, New York Heart Association; PPM, prosthesis-patient mismatch; STS-PROM, Society of Thoracic Surgeons-Predicted Risk of Mortality.

Values are expresses as No. (%), or mean ± standard deviation.

Figure 1 of the supplementary data. Incidence of clinically relevant structural valve degeneration (SVD) and subclinical SVD at mid-term (1-5 years) and long-term (6-10 years) of follow-up.

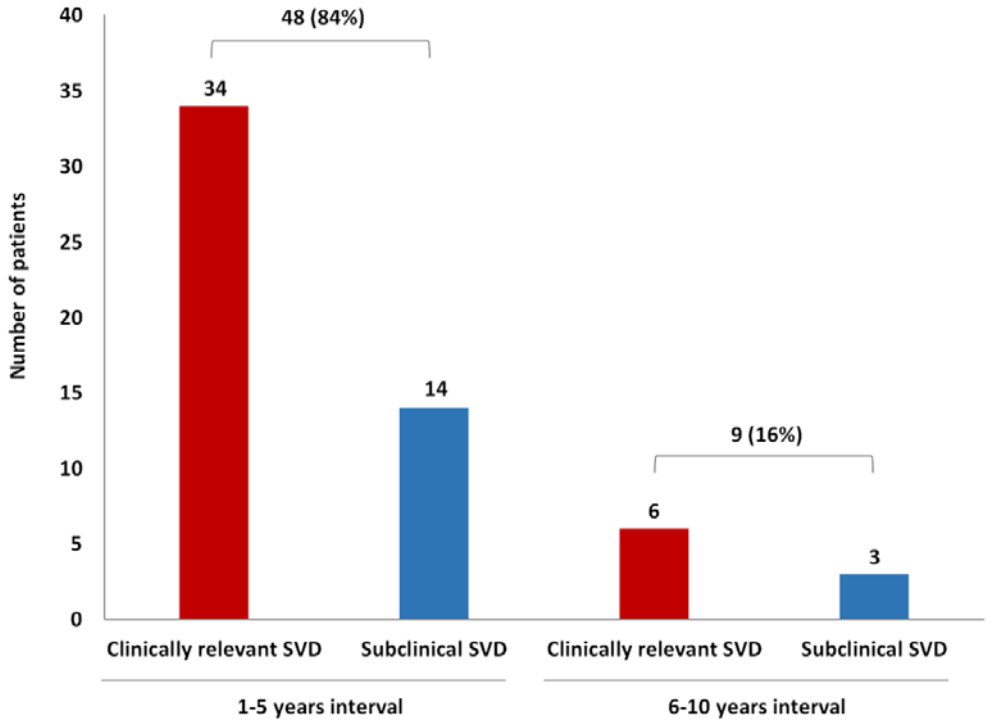

Figure 2 of the supplementary data. Changes in transcatheter valve hemodynamics of structural valve degeneration patients with transthoracic echocardiography assessment at hospital discharge, mid-term (1-5 years) and long-term (6-10 years) follow-up (n = 16). A: mean aortic gradient and effective orifice area; *P* < .001 and *P* < .01 for changes in mean gradient and effective orifice area from discharge to 6-10 year follow-up, respectively. B: intraprosthetic valve regurgitation. *P* = .045 for the increase in the proportion of higher grades of intraprosthetic regurgitation. AR, aortic regurgitation.