

Objective

Patients with contraindications to transfemoral TAVR (5-15%) may benefit from alternative approaches such as transcarotid access. Still, there is no robust evidence supporting its safety and effectiveness.

Methods

In our study we propose a propensity match analysis between transfemoral and transcarotid TAVR (868 patients) realized under local anesthesia done at Reims University Hospital from January 2017 to September 2023. Statistical analyses were performed using R 3.6.0.

Results

Propensity score matching provided 135 matched pairs with comparable operative risk (mean EuroSCORE II, TC-TAVR 6,4% vs TF-TAVR 4,8%, P 0.37).As expected,peripheral artery disease was numerically greater in: TC TAVR (73,9 % vs 24,0% P 0.58). Thirty-day (3.0% vs 1.5%, P = 0.447), 1-year mortality (6.2% vs 5.9%, P = 0.807) and 2-year mortality (6.2% vs 7.5%, P = 0.851) after TC-TAVR were comparable with TF-TAVR. No transient ischemic attack was observed in this series. Stroke (n = 4) was numerically more frequent after TC-TAVR compared with TF-TAVR (3.0% vs 0,7%, P = 0.370), but the difference did not reach statistical significance.

Anyway, in TC-TAVR patients we registered only contro-lateral stroke, (2 successful treated with mechanical thrombectomy), not access related.

On the other side,TF-TAVR was associated with a greater risk of permanent pacemaker implantation (16.3% vs 14.1%, P 0.735) compared with TC-TAVR. Other complications were not frequent and were similarly distributed between the matched groups.

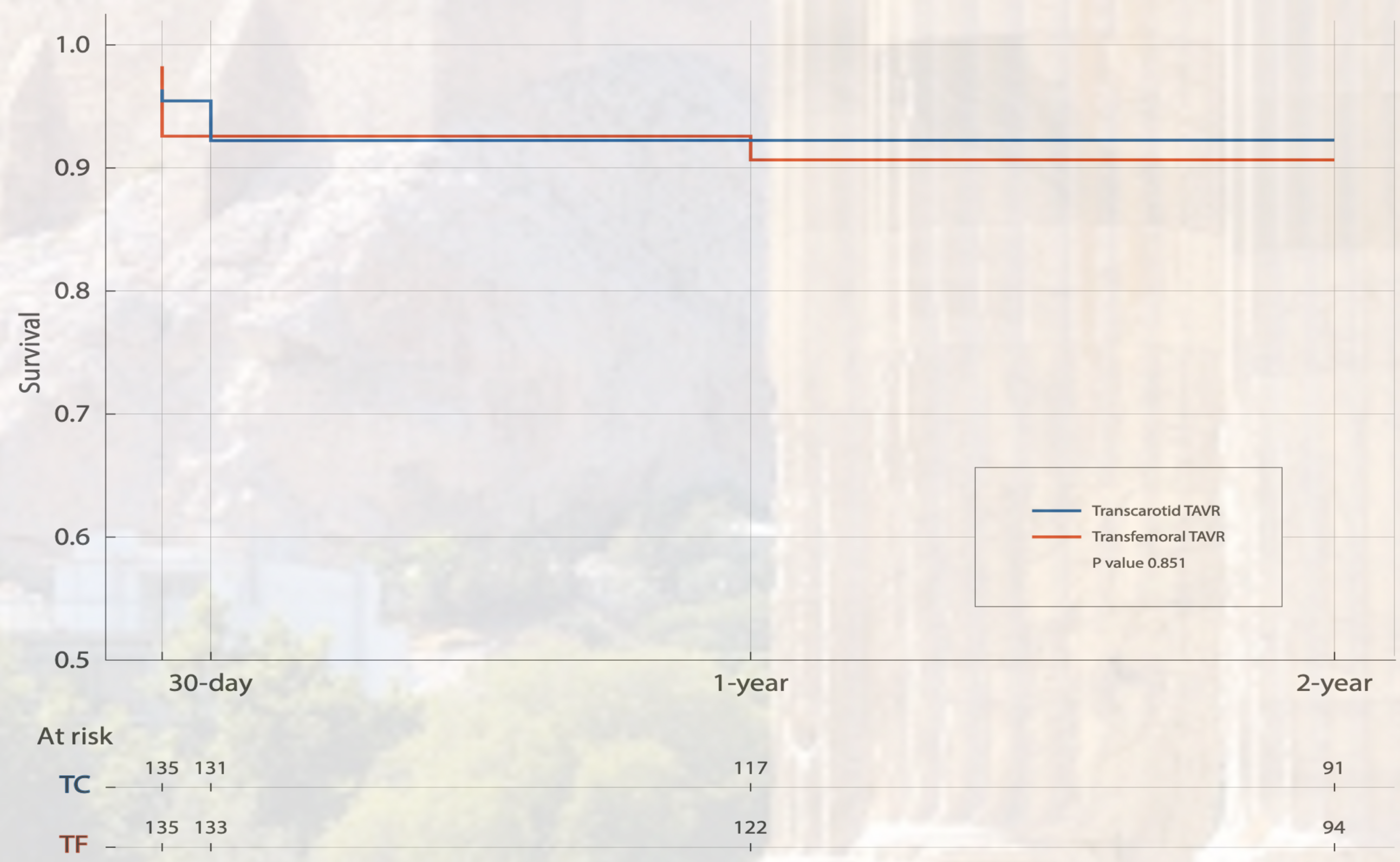
Variable	Unit	Transfemoral	Trans carotid	p
Preoperative data				
Population	N, %	135	135	-
Age	Years	81 [77-86]	82 [78-87]	0.929
Male gender	N, %	83 (61.5)	83 (61.5)	1.000
Body mass index	Kg/m²	26.0 [23.6-28.7]	25.0 [23.0-29.4]	0.500
EuroSCORE II	%	4.8 [4.1-8.7]	6.4 [5.6-7.5]	0.374
NYHA	N, %			0.202
Class I		5 (3.7)	4 (3.0)	
Class II		33 (24.4)	38 (28.1)	
Class III		95 (70.4)	85 (63.0)	
Class IV		2 (1.5)	8 (5.9)	
Risk factors	N, %			
Coronary artery disease		78 (57.8)	76 (56.3)	0.902
Diabetes		35 (25.9)	47 (34.8)	0.145
Peripheral artery disease		32 (24.0)	99 (73.9)	0.580
Atrial fibrillation		59 (43.7)	52 (38.5)	0.458
COPD		52 (38.5)	46 (34.1)	0.527
Previous cardiac surgery	N, %	17 (12.6)	15 (11.1)	0.851
Previous CABG		12 (8.9)	15 (11.1)	0.685
Previous PCI	N, %	48 (35.6)	51 (37.8)	0.801
KDIGO	N, %			0.227
Class 1		23 (17.0)	30 (22.2)	
Class 2		75 (55.6)	56 (41.5)	
Class 3		25 (18.5)	36 (26.7)	
Class 4		9 (6.7)	8 (5.9)	
Class 5		3 (2.2)	5 (3.7)	
Pacemaker/ICD	N, %	34 (25.2)	21 (15.6)	0.070
Creatinine		95 [82-126]	99 [79-127]	0.891
Hemoglobin		11.7 [10.3-12.9]	11.9 [10.7-13.1]	0.219
Echocardiography				
Indexed AVA	cm²/m²	0.47 [0.39-0.50]	0.47 [0.40-0.60]	0.244
Mean gradient	mmHg	43 [35-50]	44 [38-51]	0.717
LVEF	%	58 [50-65]	57 [50-60]	0.720
PAPs	mmHg	30 [28-38]	35 [28-43]	0.256

Intraoperative data				
Device type	N, %			0.253
Sapien 3		92 (68.1)	82 (60.7)	
Evolut R		43 (31.9)	53 (39.3)	

Postoperative data				
			TC	p-value
In-hospital mortality	N, %		4 (3.0)	0.684
Cardiovascular events	N, %			
Stroke			4 (3.0)	0.214
Homolateral			0 (0)	
Contralateral			4 (3.0)	
Embolic			4 (3.0)	

Postoperative data				
In-hospital mortality	N, %		2 (1.5)	0.684
Cardiovascular events	N, %			
Stroke			1 (0.7)	0.214

30-day follow-up					
Paravalvular Leak Significant	N, %		9 (6.7)	8 (5.9)	1.000
Aortic stenosis Mean gradient >20 mmHg	mmHg N, %		7 (5.2)	4 (3.0)	0.540
Vascular access Complication requiring surgery	N, %		3 (2.2)	4 (3.0)	1.000
Vascular access Hematoma	N, %		7 (5.2)	5 (3.7)	0.768
Acute kidney injury	N, %		7 (5.2)	5 (3.7)	0.768
Myocardial infarction	N, %		7 (5.2)	3 (2.2)	0.335
Pacemaker implantation	N, %		22 (16.3)	19 (14.1)	0.735



	30-day	1-year	2-year
At risk			
TC	135 131	117	91
TF	135 133	122	94