Impact of female sex in transcatheter aortic valve replacement. Long-term outcomes

E. Gambo Ruberte, B. Peiro Aventin, T. Simon Paracuellos, D. Gomez Martin, A. Perez Guerrero, C. Cortes Villar, G. Fuertes Ferre, J. Sanchez-Rubio Lezcano, G. Galache Osuna, M.C. Gracia-Ferrer, J.A. Diarte De Miguel, M.R. Ortas Nadal

University Hospital Miguel Servet, Zaragoza, Spain

Introduction: Women comprise ≥50% patients undergoing transcatheter aortic valve replacement (TAVR). Women have different baseline clinical characteristics and some studies have suggested that TAVR procedure carries better results and prognosis.

Purpose: Evaluate gender differences in baseline characteristics and long-term outcomes in patients with aortic stenosis undergoing TAVR.

Methods: A cohort study was conducted. Consecutive patients underwent TAVR from January 2012 to December 2020 were included. Clinical and follow-up characteristics were recorded. MACE (major adverse cardiovascular events including all-cause mortality, myocardial infarction, cerebrovascular accident and heart failure hospitalization) as primary outcome was searched.

Results: A total of 292 consecutive patients were included. 48.95% were women and median age was 81.07 years (77.73–86.22). 77% TAVR patients received self-expanding prosthesis.

Compared with men, women were significantly older and had lower glomerular filtration rate but a lower prevalence of comorbid conditions, such as atrial fibrillation (AF), coronary and peripheral arterial disease (PAD) and cerebrovascular disease. Left ventricular ejection fraction (LVEF) was higher in women. Global baseline characteristics and events at follow-up are summarized in figure 1.

At a median follow up of 21.30 (8.52–38.94) months, MACE were lower in women (Odds ratio [OR] 0.60 95% CI: 0.36–1.00). Additionally, women showed lower rates of heart failure hospitalizations (OR 0.34 95% CI 0.16–0.70). There were no statistically significant differences in all-cause mortality.

Survival curves for the endpoint of heart failure hospitalizations are represented in figure 2, showing a significant difference between men and women, and demonstrating that the latter present fewer events during follow-up (HR 0.42 95% CI 0.21–0.83).

Conclusion: In our study, female TAVR recipients had better outcomes than men.

The possible reasons for this female-sex-related benefit could be due to better LVEF and fewer comorbidities. Understanding the reasons why men have worse prognostic post-TAVR is essential for guarantee appropriate treatment selection, as well as for achieving the best possible long-term and safety outcomes.

	Total	Men	Women	p
Global basaline characteristics				
Age (years)	81.07	79.63	82.54	<0.01
HBP (%)	80.8	79.73	81.94	0.63
BMI (kg/m2)	29.8	28.00	31.82	0.22
Diabetes Mellitus (%)	35.05	39.86	30.07	0.08
Hypercholesterolemia (%)	67.81	72.97	62.50	0.05
Active smoking (%)	4.76	8.27	1.43	<0.01
eGFR (mL/min)	37.68	66.29	48.34	<0.01
PAD (%)	17.2	25.68	8.3	<0.01
Ischemic cardiopathy (%)	40.75	50	31.5	<0.01
Prior CABG	7.19	13.51	0.69	
Prior valve replacement surgery	7.88	7.43	8.33	0.077
Previous CVA (%)	11.9	16.22	7.64	0.02
AF (%)	37.54	44.4	30.50	0.01
LVEF (%)	55.9	52.62	59.27	<0.01
EUROscore II (%)	6.15	6.74	5.5	0.04
Previous pacemaker (%)	16.10	21.62	10.42	<0.01
ECG conduction blocks* (%)	40.14	46.76	33.57	0.02
Events at long-term follow-up				
MACE (%)	31.10	36.36	25.71	0.05
Mortality (%)	20.77	22.92	18.57	0.36
Heart failure admission (%)	15.69	22.14	8.96	<0.01
CVA (%)	3.28	1.44	5.19	0.08
MI	1.09	2.14	0	0.08
Pacemaker implantation after TAVR (%)	30.01	34.71	26.67	0.17

HBP: high blood pressure. BMI: body mass index eGFR Estimated glomerular filtration rate. PAD peripheral arterial disease. CABG: coronary artery bypass grafting. CVA: cerebrovascular accident. AF: atrial fibrillation LVEF: Left ventricular ejection fraction. MI: Myocardial infarction.
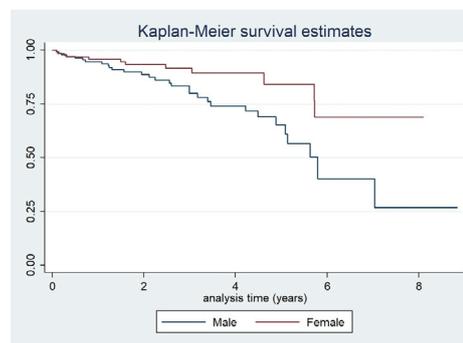*First-degree AV block, fascicular blocks, branch block.

Figure 1

Figure 2