mode was obtained. This is the foundation for the use of TAVI/TAVR valve with the pacemaker capabilities for pacing and resynchronization therapy of heart arrhythmias, frequently observed during and after TAVI/TAVR valve implantation.

CATEGORIES STRUCTURAL: Electrophysiology.

## TCT-129

Short- and Long-Term Outcomes Associated With New-Onset Atrial Fibrillation After Transcatheter Aortic Valve Replacement Usman Akbar,<sup>1</sup> Ahmed Muaaz Umer,<sup>2</sup> Mounica Vorla,<sup>3</sup>



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**BACKGROUND** New-onset atrial fibrillation (NOAF) is a frequently observed complication after transcatheter aortic valve replacement (TAVR), with its incidence rates varying across different studies. NOAF can significantly impact patient outcomes, leading to increased morbidity and mortality.

**METHODS** We conducted a comparative outcomes analysis using the TriNetX platform, which included data from 65 U.S. health care organizations. Two cohorts were defined: TAVR patients with and without atrial fibrillation. Propensity score matching balanced baseline characteristics, resulting in 5,290 patients per cohort. Primary outcomes analyzed were mortality, stroke, pacemaker implantation, and bleeding within 30-day, 60-day, and 1-year follow-up periods post-TAVR.

**RESULTS** The occurrence of NOAF after TAVR was 9.9% (95% CI: 8.1%-12%). After propensity score matching, the atrial fibrillation after TAVR cohort exhibited significantly worse outcomes compared with the no fibrillation after TAVR cohort. At 30 days, mortality (6.3% vs 1.8%; HR: 3.57; 95% CI: 2.85-4.49), stroke (6.5% vs 4.8%; HR: 1.37; 95% CI: 1.17-1.61), and bleeding (4.6% vs 2.9%; HR: 1.56; 95% CI: 1.28-1.90) were higher (Table). At 60 days, pacemaker implantation rates were 11.9% vs 13.9% (HR: 0.86; 95% CI: 0.77-0.95), and at 1 year, they were 18.8% vs 16.3% (HR: 1.15; 95% CI: 1.06-1.26).

Outcome	Time Period	Incidence Rate per 100 Person-Years	HR (95% CI)	p-value
Mortality	30 days	8.1	3.57 (2.85-4.49)	<0.001
	60 days	9.7	3.14 (2.59-3.82)	<0.001
	1 year	14.5	1.85 (1.66-2.07)	<0.001
Stroke	30 days	6.5	1.37 (1.17-1.61)	<0.001
	60 days	8.1	1.53 (1.32-1.78)	<0.001
	1 year	11.7	1.47 (1.30-1.66)	<0.001
Pacemaker	30 days	9.1	0.72 (0.65-0.81)	<0.001
	60 days	11.9	0.86 (0.77-0.95)	<0.001
	1 year	18.8	1.15 (1.06-1.26)	<0.001
Bleeding	30 days	4.6	1.56 (1.28-1.90)	<0.001
	60 days	6	1.59 (1.33-1.91)	<0.001
	1 year	10.4	1.44 (1.27-1.64)	<0.001

**CONCLUSION** NOAF is common after TAVR and is associated with worse short- and long-term outcomes, including increased mortality, stroke, and bleeding. These findings highlight the need for tailored management strategies to mitigate these risks in this high-risk population.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic.

## TCT-130

Conduction Disturbances and Permanent Pacemaker Implantation After Myval Transcatheter Heart Valve or Contemporary Standard Valves (Sapien and Evolut) Implantation: Insights From the LANDMARK Trial



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**BACKGROUND** LANDMARK was a multicenter randomized trial that demonstrated noninferiority of the Myval balloon-expandable transcatheter heart valve (THV) compared with the contemporary THVs (Sapien and Evolut series) at 30 days in patients with severe aortic stenosis.

**METHODS** From January 2021 to December 2023, 768 patients were randomized in a 1:1 ratio to receive either the Myval or a contemporary THV. This substudy investigated the conduction disturbances and rates of new permanent pacemaker implantation (PPMI) after THV implantation in detail. An independent core lab (CERC, Massy, France) analyzed electrocardiograms (ECGs).

**RESULTS** Electrocardiograms were analyzed in 757 patients at baseline, 744 before-discharge, and 715 after 30 days. In both arms, mean PR interval and QRS duration increased from baseline to predischarge (PR: Myval  $\Delta$ +21 ms [P < 0.01], contemporary  $\Delta$ +15 ms [P < 0.01]; QRS: Myval  $\Delta$ +15 ms [P < 0.01], contemporary  $\Delta$ +17 ms [P < 0.01]) and to 30 days (PR: Myval  $\Delta$ +7 ms [P < 0.01], contemporary  $\Delta$ +3 ms [P < 0.01], QRS: Myval  $\Delta$ +10 ms [P < 0.01], contemporary  $\Delta$ +9 ms [P = 0.07]). Before discharge, left bundle branch block (LBBB) was observed in 19% of the Myval and 24% of the contemporary group. At 30 days, the frequency of LBBB decreased to 12% in both arms. The occurrence of new PPMI at 30 days was 15% in the Myval and 17% in the contemporary arm. In both arms, 90% of patients received PPMI before discharge, with no differences in time between both arms. The leading cause of PPMI was complete atrioventricular block (AVB) (Myval 79%, contemporary 69%), followed by second-degree AVB (both arms 9%) and LBBB (Myval 7%, contemporary 11%). Among clinical sites that included more than 20 cases in the trial, the rate of PPI ranged from 0% to 33%, reflecting a wide range in clinical practice. Analysis of predictors for PPMI is ongoing and will be presented at TCT.

**CONCLUSIONS** In the randomized LANDMARK trial, post-THV implantation significant increases of PR and QRS duration were observed in both the Myval and the contemporary arms, which partially resolved at 30 days. The rates of PPMI were similar between the 2

arms, with complete AVB being the most frequent cause. A significant variation in PPMI rates was observed among study sites.

CATEGORIES ENDOVASCULAR: Diseases of the Aorta and Aortic Intervention.

## TCT-131

In-Hospital, 1-Year and Long-Term Outcomes of Transcatheter Aortic Valve Replacement in Patients Requiring Permanent Pacemaker Implantation

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BACKGROUND The impact of permanent pacemaker implantation (PPI) following transcatheter aortic valve replacement (TAVR) on late morbidity and mortality remains controversial.

METHODS We compared in-hospital, 1-year, and late outcomes of 309 PPI patients vs 2,230 no-PPI patients undergoing TAVR since 2016. All patients were treated with newer-generation TAVR valves (S3 [Ultra], Evolut series).

**RESULTS** In comparison with no-PPI patients, PPI patients were more likely male (62% vs 53%, P = 0.002), but the 2 cohorts were well matched for age (81.6  $\pm$  7.7 vs 81.1  $\pm$  8.4 years, *P* = 0.068), cardiac risk factors and comorbidities, pre-TAVR echocardiography and cardiac catheterization findings, Kansas City Cardiomyopathy Questionnaire (KCCQ12) scores (51.7  $\pm$  25.9 vs 49.5  $\pm$  25.5, P = 0.082), and STS Risk Score (9.4  $\pm$  7.1 vs 9.1  $\pm$  7.4%, P = 0.291). PPI and no-PPI cohorts did not differ with respect to use of femoral vs non-femoral access or balloon-expandable vs self-expanding valves. In-hospital and 1-year outcomes are described in Table 1. Kaplan-Meier survival curves demonstrated similar mortality up to 1 year in the 2 cohorts, followed by worsening survival in PPI patients with a mean all-cause mortality (29.8% vs 21.5%, P < 0.001) at a mean survival time of 61.2 months (57.8-64.5).

Outcomes		PPI	No-PPI	P value
Procedural	Cardiac arrest	8 (2.6%)	21 (0.9%)	0.011
	Ventricular Perforation	7 (2.2%)	22 (1.0%)	0.047
In-Hospital	Mortality	3 (1.0%)	20 (0.9%)	0.902
	Ischemic Stroke	0 (0.0%)	36 (1.6%)	0.024
	Composite Bleeding	12 (3.9%)	112 (5.0%)	0.384
	Major Vascular Complication	9 (2.9%)	36 (1.6%)	0.105
	Post-TAVR length of stay (days)	3.7±3.4	2.3±3.5	< 0.001
1-Year	All-Cause Mortality	13 (3.7%)	92 (4.2%)	0.629
	Hospital Re-admission	15 (4.9%)	90 (4.0%)	0.498
	KCCQ12 Score	89.9±12.7	84.2±18.4	0.004
	LV Ejection Fraction	56.7±9.6	57.1±11.3	0.367

**CONCLUSION** TAVR patients requiring PPI have a higher incidence of procedural complications and longer length of hospital stay, no evidence of worse mortality or morbidity out to 1-year post TAVR, followed by worsening survival out to a mean follow-up of 61.2 months. CATEGORIES STRUCTURAL: Electrophysiology.

## **TCT-132**

Impact of Comorbid Heart Failure With Reduced Ejection Fraction (HFrEF) in the Development of Arrhythmias Among Patients Hospitalized for Transcatheter Aortic Valve Replacement (TAVR): A U.S. Population-Based Cohort Study

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BACKGROUND Previous studies suggested that patients undergoing transcatheter aortic valve replacement (TAVR) are at risk for atrial fibrillation. However, there is paucity of data regarding the impact of comorbid heart failure with reduced ejection fraction (HFrEF) and the risk for overall arrhythmia development among hospitalized patients for TAVR using a national database.

METHODS We used the 2018 to 2020 U.S. National Inpatient Sample Database in conducting this population-based retrospective cohort study. We identified HFrEF patients hospitalized for TAVR during the index hospitalization using appropriate International Classification of Diseases-10th Revision-Clinical Modification and PR codes. A survey multivariable logistic and linear regression analysis was used to calculate adjusted ORs (aORs) for the outcomes of interest. A P value < 0.05 was considered statistically significant.

RESULTS A total of 32,097 hospitalized patients for TAVR were identified in the years 2018 to 2020, of which 17.93% (5,754/32,097) had concomitant HFrEF. The overall arrhythmia rate among TAVR patients was 42.43% (13,619/32,097). Among those with concomitant HFrEF, the overall arrhythmia rate was significantly higher at 51.69% (2,974/5,754;  $P \le 0.001$ ). Using a stepwise survey multivariable logistic regression model that adjusted for patient- and hospital-level confounders, concomitant HFrEF among hospitalized patients for TAVR was independently associated with an increased risk for overall arrhythmias (aOR: 1.40; 95% CI: 1.22-1.61;  $P \le 0.001$ ), particularly atrial fibrillation (aOR: 1.24; 95% CI: 1.08-1.42; P = 0.002), supraventricular tachycardia (aOR: 1.55; 95% CI: 1.12-2.13; P= 0.007), ventricular tachycardia (aOR: 1.60; 95% CI: 1.28-2.02;  $P\leq$  0.001), ventricular fibrillation (aOR: 2.36; 95% CI: 1.38-4.03; *P* = 0.002), and premature atrial/ventricular contraction (aOR: 2.19; 95% CI: 1.01-4.80; P = 0.049).

**CONCLUSION** Our study showed that concomitant HFrEF among hospitalized patients for TAVR was independently associated with increased risk for overall arrhythmia development. This highlights the significant impact of HFrEF as a possible predictor of increased risk for arrhythmia-associated morbidity among hospitalized patients for TAVR.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic.



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