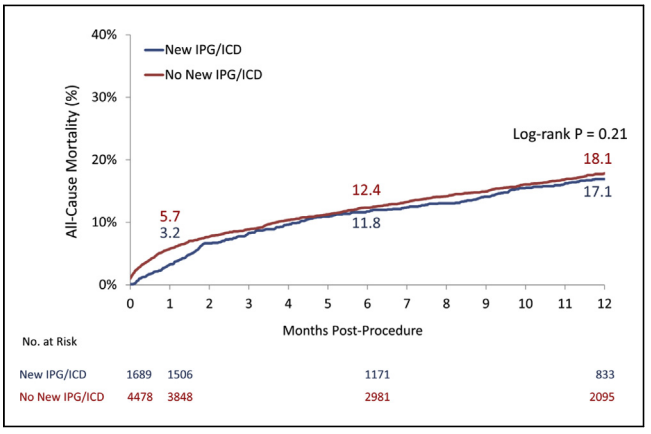
CONCLUSION Permanent pacemaker implantation after TAVR with the self-expanding CoreValve bioprosthesis was not associated with an increased risk for mortality at 1 year. This observation is consistent with published reports for the self-expanding valve in large scale investigational studies.



CRT-800.12

Effect Of Transcatheter Aortic Valve Size And Position On Valve-in-valve Hemodynamics: An In-vitro Study

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OBJECTIVE Transcatheter heart valve implantation in failed aortic bioprostheses (valve-in-valve,ViV) is an increasingly used therapeutic option for high-risk patients. However, high post-procedural gradients are a significant limitation of aortic ViV. Our Objective was to evaluate Medtronic CoreValve® Evolut® R ViV hemodynamics in relation to the degree of device oversizing and depth of implantation.

METHODS 23mm and 26mm Evolut R devices were implanted within 21, 23, and 25mm Hancock® II bioprostheses. Small and gradual changes in implantation depth were attempted. Hemodynamic testing was performed in a pulse duplicator under ISO-5840 standard.

RESULTS A total of 47 bench-testing experiments were performed. The mean gradient of the 26mm Evolut R in 23mm and 25mm Hancock II was lower than 23mm Evolut R ($p<0.001$). However, mean gradient of 26mm Evolut R in 21mm Hancock II bioprostheses R (ranging from 21.30±0.23 to 24.30±0.22mm-Hg) was worse than 23mm Evolut R (ranging from 15.94±0.18 to 20.35±0.16mm-Hg, $p<0.001$). Furthermore, our results suggest that supra-annular implantation of 23mm and 26mm Evolut R devices within the bioprostheses can lead to lower gradient and improved leaflet coaptation. Regardless of implantation depth, superior transvalvular gradient is expected with 26mm Evolut R than 23mm Evolut R in a non-stenotic Hancock II with a true internal diameter > 17.5mm.

CONCLUSION The current comprehensive bench testing assessment demonstrates the importance of both transcatheter heart valve size and device position for the attainment of optimal hemodynamics during ViV procedures. Additional in vitro testing may be required to develop hemodynamics-based guidelines for device sizing in ViV procedure in degenerated surgical bioprostheses.

CRT-800.13

Contemporary Transcatheter Aortic Valve Replacement Experience With Third-generation Balloon-expandable Versus Self-expanding Devices

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INTRODUCTION Two competing TAVR technologies are approved for commercial use in the US: the balloon-expandable Sapien 3 (S3) (Edwards, Irvine, CA) and the self-expanding Evolut R (Medtronic, Minneapolis, MN).

METHODS A total of 257 consecutive patients treated with S3 or Evolut R were included. Baseline demographic, procedural, echocardiographic and CT imaging, and follow-up data were prospectively collected at a tertiary referral hospital in the US where both devices are routinely used.

RESULTS Patients selected for Evolut R were more likely to be female and have lower body surface area (BSA) and smaller iliofemoral vessels (Table 1). There was no difference in the severity of aortic stenosis (valve area 0.70±0.17 vs 0.68±0.13, $p=0.27$ for S3 vs Evolut R). Balloon valvuloplasty was performed more frequently in the S3 group (65.4% vs 36.7%. $p<0.001$). Four patients suffered periprocedure ischemic stroke with S3 compared with 1 with Evolut R. Pacemaker implantation rate was higher in the Evolut R group. The major vascular complication rate was similar in both groups (4.8% vs 4.5%, $p=1.0$, for S3 vs Evolut R) as was the rate of life-threatening and major bleeding (3.5% vs 2.9%, $p=1.0$, respectively). Dimensionless index was significantly higher in the Evolut R group, but the incidence of >mild paravalvular leak was also numerically higher. There was no difference in 30-day mortality.

CONCLUSION In our contemporary experience, both technologies had advantages and disadvantages. These data highlight the importance of individualized decision making, with the choice of TAVR device tailored to each patient. Although there was no difference in 30-day mortality, it will be important to evaluate longer-term prosthesis hemodynamics and clinical outcomes going forward.

	Sapien3 (n=183)	Evolut R (n=74)	p value
Female	46.4%	60.8%	0.037*
Body surface area, mean ± SD (m^2)	1.9 ± 0.3	1.8 ± 0.3	0.048*
Minimal rightiliofemoral diameter, mean ± SD (mm)	6.8 ± 1.5	5.9 ± 1.5	<0.001*
Minimal left iliofemoral diameter, mean ± SD (mm)	6.9 ± 1.4	5.9 ± 1.4	<0.001*
Successful valve deployment	96.4%	98.4%	0.72
Pacemaker implantation	4.7%	12.7%	0.049*
Prosthetic valve dimensionlessindex, mean ± SD	0.50 ± 0.10	0.57 ± 0.12	<0.001%
Paravalvular leak >mild in severity	4.1%	8.2%	0.31
30-day mortality	1.6%	1.4%	1.00

(* denotes statistical significance). SD: standard deviation.

CRT-800.14

Percutaneous Coronary Intervention Prior to Transcatheter Aortic Valve Replacement: A Matched Cohort Analysis

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BACKGROUND A significant proportion of patients with severe aortic stenosis (AS) have coexisting significant coronary artery disease (CAD). There is limited data regarding outcomes of percutaneous coronary intervention (PCI) prior to transcatheter aortic valve replacement (TAVR) in patients with severe AS and significant CAD. We sought to assess clinical outcomes in patients with severe AS who underwent PCI within 30 days prior to TAVR.

METHODS 286 consecutive patients were identified who underwent TAVR from 5/31/2011 to 2/4/2016. Of these, 29 patients underwent PCI for CAD within 30 days prior to TAVR (PCI+TAVR group). We matched these patients in a 1:1 fashion (based on age, gender, prior myocardial infarction and left ventricular ejection fraction) with 29 consecutive non-AS patients who underwent PCI for CAD (PCI group) during the same time period. Primary end-point was a composite outcome of major adverse cardiovascular events (including myocardial infarction and stroke), all-cause mortality and readmissions, all within 30 days. Continuous variables were analyzed using t-test and categorical variables were analyzed using Fisher's exact test.