

Table 1. Peri-procedural characteristics of study population

Variables	GIB group N (%) 14 (7)	Non-GIB group N (%) 179 (93)	p-value
Baseline characteristics			
Male	7 (50)	91 (50)	1.00
Caucasian	14 (100)	176 (98)	1.00
Prior CVA	1 (7.2)	22 (12)	1.00
Hypertension	13 (92.8)	175 (98)	0.32
Hyperlipidemia	7 (50)	95 (53)	1.00
Diabetes Mellitus	5 (36)	53 (30)	0.76
Atrial fibrillation/ flutter	8 (57)	52 (29)	0.04
History of CAD	9 (64)	139 (78)	0.32
Smoking			
Active smoker	3 (21)	5 (3)	
Quit	6 (43)	107 (60)	
Non-smoker	5 (36)	67 (37)	0.02
PPI use	4 (29)	127 (71)	0.002
Pre-procedural echocardiographic characteristics			
Pre-TAVR AV Mean gradient (mmHg)			
<25	-	17(9)	
25-39	7 (50)	56 (31)	
>/=40	7 (50)	104 (58)	0.29
Pre-TAVR AV area (cm ²)			
<1	13 (93)	171 (96)	
1-1.5	1 (7)	6 (3)	0.42
Procedural characteristics			
Procedural approach			
Transfemoral	12 (86)	148 (83)	
Transapical	-	11 (6)	
Transaortic	2 (14)	6 (3)	
Subclavian	-	13 (7)	0.20
Peri-procedural TEE	14 (100)	174 (97)	1.00
Type of valve			
Sapien 3	5 (36)	79 (44)	
Sapien XT	4 (29)	37 (21)	
CoreValve	5 (36)	62 (35)	0.67
Post-procedural findings and antithrombotic regimen			
30 day AV mean gradient (mm Hg)			
<25	11(79)	142(80)	
25-40	-	2(1)	1.00
Type of antithrombotic therapy			
Antiplatelet only	2 (14)	97 (54)	
Anticoagulant only	1 (7)	3 (2)	
Antiplatelet and anticoagulant	10 (71)	74 (41)	
None	1 (7)	5 (3)	0.008
All-cause mortality	1 (7)	15 (8)	1.00
Stroke	1 (7)	3 (2)	0.26
		Median (Range)	Median (Range)
Length of stay of index hospitalization (days)	6.5 (3-77)	5 (2-49)	0.33
No. of units of blood transfusion post-TAVR	4 (0-67)	0 (0-2)	<0.0001

CRT-700.10

The Impact of Gradient And Flow on the Outcomes of TAVR in Severe Aortic Stenosis with Preserved Left Ventricular Ejection Fraction



Abdulah Alrifai,¹ Mohamad Kabach,¹ Jesus Pino,¹ Pradeep Dayanand,¹ Edwin Grajeda,¹ Fergie Ramos,¹ Swethika Sundaravel,¹ Lawrence Lovitz,¹ Mark Rothenberg,¹ Robert Cubeddu,¹ George Daniel,¹ Eric Heller,¹ Cristiano Faber,¹ Marcos Nores,¹ Zaher Fanari²
¹University of Miami/JFK Medical Center, Atlantis, FL; ²Heartland Cardiology/ Wesley Medical Center, University of Kansas, Wichita, KS

BACKGROUND While transaortic flow and gradient are important determinant of prognosis in patients with severe AS treated medically or with surgical aortic valve replacement, it is unclear whether these echocardiographic values are still predictive of outcomes in patients with severe aortic stenosis with preserved ejection fraction who are undergoing transcatheter aortic valve replacement (TAVR) is less defined.

METHODS We identified consecutive patients presenting for TAVR between 01/2011 to 6/ 2016 with an aortic valve area (AVA) < 1.0cm² and EF ≥ 50%. The primary outcome was 1-year mortality. Normal flow (NF) was defined as having stroke volume index (SVI) of ≥ 35 ml/m²; while low Flow (LF) was defined as SVI<35. High gradient (HG) was defined as mean gradient of ≥ 40 mmHg; while low gradient (LG) was defined as < 40 mmHg.

RESULTS A total of 264 patients were included in the analysis with a 1-year follow up. At baseline there was no significant difference in baseline characteristics in regards of age, race, gender, or baseline characteristics including hypertension, hyperlipidemia, diabetes or coronary artery disease. There was no difference in 1-year mortality outcomes after TAVR in relation to either gradient (12.5% LG vs. 17.3% HG; P=0.63) or transaortic flow (15.5% LF vs. 19.4% NF; P=0.63).

CONCLUSIONS TAVR seems to help improving the prognosis of severe aortic stenosis regardless of transaortic flow and gradient in patients with normal ejection fraction.

CRT-700.11

Impact of Female Gender on 30-Day Outcomes Following Transcatheter Aortic Valve Replacement with Contemporary Valves



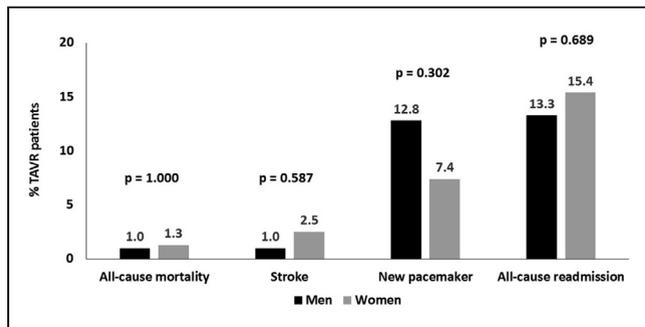
Ting-Yu Wang, Ely Gracia, Susan Callahan, Luis Gruberg, Smadar Kort, Javed Butler, Thomas Bilfinger, Henry Tannous, Jonathan Weinstein, Giridhar Korlipara, Neal Patel, Shamin Khan, Daniel Montellese, Joanna Chikwe, Puja B. Parikh
 Stony Brook University Medical Center, Stony Brook, NY

BACKGROUND The impact of gender on early outcomes following transcatheter aortic valve replacement (TAVR) in the setting of contemporary valves is not well known. We aimed to evaluate gender-specific differences on 30-day outcomes in adults undergoing TAVR with contemporary valves.

METHODS The study population included 179 consecutive patients who underwent TAVR with a contemporary valve [Sapien 3 valve (Edwards Life Sciences, Irvine, CA) or CoreValve Evolut R or Evolut Pro (Medtronic, Minneapolis, MN)] from December 2015-October 2017 at an academic tertiary medical center.

RESULTS Of the 179 patients, 100 (55.9%) were men and 79 (44.1%) were women. Women had a trend towards older age (82 vs 79 years, p=0.065). They had lower serum creatinine (1.0 vs 1.6mg/dl, p=0.001) and hemoglobin (11.2 vs 12.2 g/dl) and higher platelet count (245 vs 193 K/uL). Women had lower rates of prior myocardial infarction, prior coronary artery bypass graft surgery, atrial fibrillation, chronic obstructive pulmonary disease, abdominal aortic aneurysm, and less severe coronary artery disease. Women also had smaller aortic annular area (391 vs 502mm², p<0.001) and perimeter (72.2 vs 81.7mm, p<0.001) and underwent implantation of small TAVR valves. Women had higher rates of periprocedural intubation and lower rates of conscious sedation. Women were also more likely to be discharged on aspirin (98.7% vs 88.9%, p=0.013) and more likely to be sent to a skilled nursing facility (26.9% vs 14.1%, p=0.034). No significant differences in rates of 30-day outcomes were noted in men and women (Figure).

CONCLUSIONS In this observational study of adults undergoing TAVR with contemporary valves, gender is not associated with higher rates of 30-day clinical outcomes. Further studies examining gender disparities in TAVR peri-procedural care and outcomes are warranted.



CRT-700.12

3D Printing and Computer Modeling to Predict Paravalvular Leak in Transcatheter Aortic Valve Replacement

Sergey G. Gurevich,¹ Lars Mattison,¹ Anthony Prisco,¹ Mackenzie Mbai,² Paul Iaizzo,¹ Joseph Nichols,¹ Santiago A. Garcia,² Ganesh Raveendran¹

¹University of Minnesota, Minneapolis, MN; ²Minneapolis Veterans Affairs Medical Center, Minneapolis, MN

INTRODUCTION Paravalvular regurgitation (PVL) is common after transcatheter aortic valve replacement (TAVR) and associated with worse long-term outcomes when moderate or severe.

METHODS Three patients undergoing TAVR for severe, calcific aortic stenosis and at risk for PVL had Pre-TAVR CT images analyzed and segmented for printing of 3D models using Ninjabflex (Ninjabtek Mannheim, PA) on MakerBot 2X (MakerBot Industries, Brooklyn, NY). 3D aortic root models were then implanted with Sapien XT (Edwards Lifesciences, California) frames at nominal pressure. Ex-vivo implanted 3D models (eTAVR) were then scanned using Siemens SOMATOM flash dual source CT (Siemens, Malvern, PA). eTAVR were then evaluated using Mimics software (Materialise NV, Leuven, Belgium) for final analysis of PVL location. These were then compared to in-vivo implanted TAVR (iTAVR) echocardiograms.

RESULTS Patients 1 and 2 were implanted with 26 mm and patient 3 with 23 mm Sapien XT valves. Patient 1 had mild PVL (2+) at the 1 - 3 o'clock position after TAVR (figure 1B). On 3D analysis, we noted incomplete apposition of the valve stent frame at this location (figure 1A). Similarly, Patient 2 had mild PVL at 3 o'clock (figure 2B) with poor stent frame apposition at the 3 o'clock position (figure 2A). Finally, patient 3 had two small PVLs at 1 and 9 o'clock positions (figure 3B). Both sites showed poor stent frame apposition at these locations (figure 3A). When compared with pre TAVR CT images, Patient 1 and 3 had significant calcifications in areas of poor stent apposition (figures 1C and 3C). Patient 3 had no notable calcification at the annular plane (figure 2C).

CONCLUSION Virtual reconstruction of the aortic annulus with 3D printing and computer modeling of valve implantation prior to TAVR may predict location of PVL site.

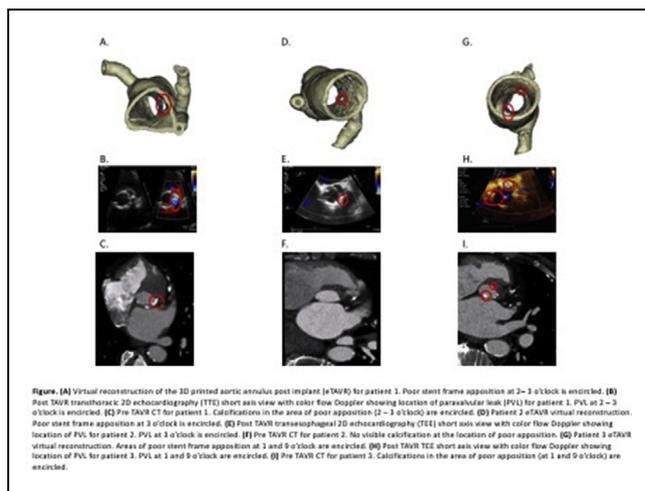


Figure. (A) Virtual reconstruction of the 3D printed aortic annulus post implant (eTAVR) for patient 1. Poor stent frame apposition at 2-3 o'clock is encircled. (B) Post TAVR transesophageal 2D echocardiography (TEE) short axis view with color flow Doppler showing location of paravalvular leak (PVL) for patient 1. PVL at 2-3 o'clock is encircled. (C) Pre TAVR CT for patient 1. Calcifications in the area of poor apposition (2-3 o'clock) are encircled. (D) Patient 2 eTAVR virtual reconstruction. Poor stent frame apposition at 3 o'clock is encircled. (E) Post TAVR transesophageal 2D echocardiography (TEE) short axis view with color flow Doppler showing location of PVL for patient 2. PVL at 3 o'clock is encircled. (F) Pre TAVR CT for patient 2. No visible calcification at the location of poor apposition. (G) Patient 3 eTAVR virtual reconstruction. Areas of poor stent frame apposition at 1 and 9 o'clock are encircled. (H) Post TAVR TEE short axis view with color flow Doppler showing location of PVL for patient 3. PVL at 1 and 9 o'clock are encircled. (I) Pre TAVR CT for patient 3. Calcifications in the area of poor apposition (at 1 and 9 o'clock) are encircled.

CRT-700.13

Increased Mortality in Patients with Low Gradient and Normal Ejection Fraction Severe Aortic Stenosis Undergoing Transcatheter Aortic Valve Replacement

Micaela Iantorno, Rebecca Torguson, Deepakraj Gajanana, Michael J. Lipinski, Kyle Buchanan, Toby Rogers, Ron Waksman, Federico Asch
Medstar Wahington Hospital Center, Washington, DC

BACKGROUND There is an increased awareness of the existence of patients with severe aortic stenosis (AS) (aortic valve area < 1 cm²) that have low mean Doppler gradients (<40 mmHg) despite having a normal ejection fraction (EF) (>50%). In a study performed in a surgical population s/p aortic valve replacement, patient with severe AS with low gradient and normal EF had worse outcomes compared to patients with severe AS and high gradients. The aim of this retrospective analysis was to evaluate the 1 year outcomes after transcatheter aortic valve replacement (TAVR) in patients with low gradient severe AS and normal EF (LT40) compared to patients with severe AS, normal EF and high gradients (GT40).

METHODS Within our TAVR database we identified 99 subjects with normal EF severe AS and mean gradient lower than 40 mmHg and 440 patients with normal EF severe AS and mean gradient higher or equal to 40 mmHg. Mortality at 1 year was assessed and proportional Cox hazard model analyses was performed to assess outcome after adjustment for baseline characteristics summarized in the STS score as a continuous variable (including age, sex, height, weight, heart failure/cardiac symptoms, renal function, prior myocardial infarction, lung disease, diabetes, hypertension, presence of aortic, tricuspid and mitral valvular disease) and right ventricular dysfunction

RESULTS There was no difference between the two groups in the rate of 30 days mortality (6.6% vs 8.1%; p=0.6). The 1 year unadjusted death rate was 18.7% in the GT40 group and 28.2% in the LT40 group (p<0.05). After adjustment for STS score and right ventricular dysfunction the LT40 group had significantly worse outcome compared to the GT40 group (p=0.02).

CONCLUSIONS Patients with low gradient normal EF have worse outcomes compared to patients with high gradient normal EF after TAVR in a single center population analysis. Further studies are needed to identify the causes associated with increased mortality in this patient population.

CRT-700.14

Reduction in Radiation and Contrast Dose in Transcatheter Aortic Valve Replacement Over Time: A Single-Center Experience

Abdulah Alrifai, Edwin Grajeda, Fergie Ramos, Mohamad Kabach, Jesus Pino, Swethika Sundaravel, Pradeep Dayanand, Eduardo Venegas, Lawrence Lovitz, Mark Rothenberg, Roberto Cubeddu, George Daniel, Eric Heller, Cristiano Faber, Robert Chait, Marcos Nores
University of Miami/JFK Medical Center, Atlantis, FL

BACKGROUND Transcatheter aortic valve replacement (TAVR) is recommended for severe aortic valve stenosis (AS). This study aims to evaluate the association between radiation dose, time and contrast dose in TAVR with improved experience over time.

METHODS A Retrospective analysis of 570 patients with severe AS who underwent TAVR between March 2012 and March 2016. We compared 2012-2014 vs. 2015-2016. Primary endpoints were fluoroscopy time, absorbed dose (Air Kerma in mGy) and dose-area product (DAP) and contrast volume in mL. Welch 2-sample t-test was used.

RESULTS At baseline there was no significant difference in baseline characteristics in regards of age, race, gender, or baseline characteristics including hypertension, hyperlipidemia, diabetes or coronary artery disease. Mean fluoroscopy time reduction was 20% (23.81 vs. 19.12 min; P<0.001). DAP was reduced by 23% (16722237.1 vs. 129153 Gycm²; P=0.0004). Absorbed dose was reduced by 37% (1580.5 mGy vs. 984.9 mGy; P<.0001). Mean contrast dose was reduced by 16% (107.24 ml vs 87.6 ml; P= 0.0005).

CONCLUSIONS Radiation exposure and contrast dose has dramatically decreased over the last 5 years during TAVR and is related to operator experience, case volume and technology evolution. This has significant implications for both patient and operator long-term risk.