

Figure 1 (a). Forest plot of studies evaluating association of RLM with stroke/TIA

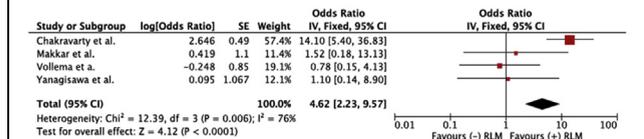


Figure 1 (b). Forest plot of studies evaluating association of RLM with valve degeneration

CRT-700.32

Debris Heterogeneity Across Different Valve Types Captured by a Cerebral Protection System During TAVR

Tobias Schmidt

Asklepios Klinik St. Georg, Hamburg, Germany



BACKGROUND Differences of transcatheter heart valve (THV) types and cerebral injury after TAVR are not well understood; therefore, this study investigated differences between THV types and debris captured by a cerebral embolic protection system (Claret Medical Sentinel, Santa Rosa, CA).

METHODS 246 patients pooled from two prospective studies (SENTINEL IDE Trial n=100, SENTINEL-H trial n=146) were included in the analysis. Histopathologic assessment and histomorphometric analyses of debris were compared with THV types. Analyses were differentiated by particle size (>150µm, >500µm, >1000 µm), particle count (PC), total particle area (TPA) and maximum of largest dimension (MOLD). Only commercially available THVs were included: 16% Evolut R (EvR), 15% Lotus, 59% SAPIEN 3 (S3) and 10% SAPIEN XT (XT).

RESULTS Particles were captured in 99% of patients. There was a significantly higher debris related to the vascular bed (valve tissue, arterial wall, calcification) in EvR patients compared to S3 pts. 53% of all patients irrespective of valve type had at least one particle >1mm. Larger particles (>500µm and >1000µm) were significantly more frequent in EvR than XT and S3 patients. Lotus patients with particles >1000µm were significantly more frequent than in S3 patients. PC, TPA and MOLD were significantly higher in both Lotus and EvR patients compared to S3 and XT.

CONCLUSIONS Debris was captured in 99% of patients, of whom 53% had at least one particle of debris >1mm. Embolic debris is universal across valve types and supports the potential benefit of using cerebral embolic protection in all TAVR procedures.

CRT-700.33

Critical Adverse Events During Transfemoral TAVR in Conscious Sedation: Is an Anaesthesiological Support Mandatory?

N. Patrick Mayr, Gunther Wiesner, Oliver Husser, Michael Joner, Thomas Ried, Jürgen Knorr, Constanza Pellegrini, Sabine Bleiziffer, Heribert Schunkert, Rüdiger Lange, Peter Tassani-Prell
Deutsches Herzzentrum München, TU München, Munich, Germany



BACKGROUND Transfemoral TAVR (tf-TAVR) under conscious sedation (CS) has become more and more popular. The need of anaesthesiological support during tf-TAVR has been questioned. However, critical events during the procedure might require immediate action. We analyzed the frequency of periprocedural critical adverse events (CAE) during tf-TAVR in CS to assess the need for the presence of an anaesthesiologist.

METHODS Tf-TAVR has been performed in our institution since 2007. We excluded the patients of the first four years to minimize the influence of any learning curve. CAE were defined as the occurrence of 1.) "CPR", 2.) "defibrillation", 3.) "emergency extracorporeal circulation (ECC)" and 4.) "conversion to general anesthesia (GA) not related to 1.-3.)". Data were prospectively collected in our AVIATOR TAVR registry.

RESULTS Between 2011 and 2016, a total of 2009 patients received tf-TAVI in our institution. Of these 601 were performed in CS (30%). 291 (48%) of the patients were female, and median age was 82 [78-85] years. 309 patients (51%) had an STS-Score <4%, and 83 patients (14%) had a score >8%. Preprocedural reduced left ventricular ejection fraction between 31% and 50% was found in 141 patients (23%), lower than 31% in 38 patients (7%). 446 patients (74%) showed symptoms of NYHA ≥ III. Overall, CAE were recorded in 55 patients (9%). Conversion to GA was necessary in 45 patients (7.5%). 11 (2%) of these were intubated due to CPR, defibrillation or ECC. Procedural data are shown in Table 1 (absolute number (percentage) or Median [IQR]).

CONCLUSION Even in a high-volume center, CAE may occur in nearly every tenth patient. Conversion to GA was the most common CAE. Catecholaminergic support (primary vasopressor support) was needed in nearly every second patient. These points underline the necessity of a cardiac anaesthesiologist to be on site during the procedure.

Table 1	
Procedural data	
Duration of procedure (minutes)	60 [45-75]
TAVI implantation	
selfexpanding	131 (22%)
baloon-expanding	470 (78%)
Catecholaminergic therapy	
Vasopressor support needed	249 (41%)
Total dose norepinephrine (µg/kg)	1.8 [1.0-3.2]
Inotropic support needed	59 (10%)
Total dose epinephrine (µg/kg)	0.4 [0.2-2.1]
Emergency pacing (3rd degree AV-block)	34 (6%)
Adverse events	
critical adverse events (CAE)	
cardiopulmonary resuscitation	12 (2%)
defibrillation	10 (1.6%)
extracorporeal circulation	2 (0.3%)
conversion to general anaesthesia	34 (5.6%)
<i>procedure related</i>	10 (1.6%)
vascular injury	5 (0.8%)
change of access	2 (0.3%)
pericardial effusion	2 (0.3%)
deployment system failure	1 (0.2%)
<i>sedation related</i>	24 (4%)
unrest / pain	13 (2%)
respiratory distress	11 (2%)

CRT-700.34

Impact of Gender on Mortality in Adults Undergoing Transcatheter or Surgical Aortic Valve Replacement: A Systematic Review and Meta-Analysis

Ting-Yu Wang, Luis Gruberg, Smadar Kort, Javed Butler, Allen Jeremias, Joanna Chikwe, Puja B. Parikh
Stony Brook University Medical Center, Stony Brook, NY



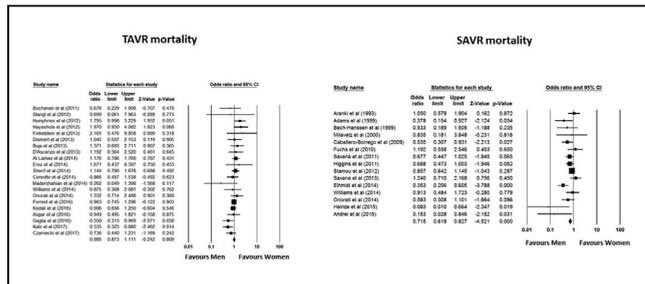
BACKGROUND Limited data exists regarding gender differences in outcomes following transcatheter (TAVR) and surgical aortic valve replacement (SAVR). We sought to review the published data and perform a systematic review to investigate differences in mortality between men and women following TAVR and SAVR.

METHODS We systematically searched Medline from 1972 to May 2017 for randomized trials and observational studies examining the relationship between gender and mortality outcomes in patients following TAVR or SAVR. Two authors selected studies and extracted data independently. Studies were excluded if data regarding 30-day all-cause mortality were not provided for both men and women.

RESULTS There were 34 articles, a total of 41,089 patients, enrolled in our systematic review and meta-analysis, including 22,894 men and 18,195 women. Of these 34 articles, 19 involved TAVR, 13 involved

SAVR, and 2 involved both TAVR and SAVR. Rates of 30-day all-cause mortality following TAVR was noted to be similar in men and women [odds ratio (OR) 0.99, 95% confidence interval (CI), 0.87 to 1.11]. Men had lower rates of 30-day all-cause mortality following SAVR compared to women (OR 0.72, 95% CI, 0.62 to 0.83) (Figure).

CONCLUSIONS Female gender is associated with higher rates of mortality following SAVR. No significant differences in mortality were noted in men versus women following TAVR.



CRT-700.35

Slope of Left Ventricular Filling as an Index of Valvular and Paravalvular Regurgitation in Native and Prosthetic Aortic Valves

Nader Makki,¹ Xu Ghao,¹ Satya Shreenivas,² Bryan Whitson,¹ Juan Crestanello,¹ Scott Lilly¹

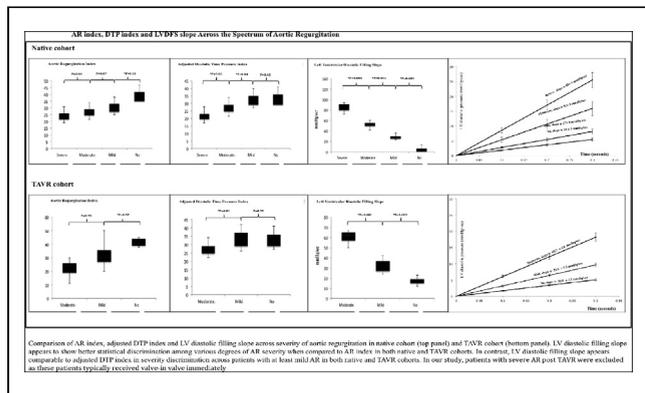
¹Ohio State University Wexner Medical Center, Columbus, OH; ²Christ Hospital, Cincinnati, OH

BACKGROUND Precise quantification of paravalvular aortic regurgitation (PAR) is challenging. Aortic regurgitation index (AR index) has been validated in transcatheter aortic valve replacement (TAVR) cohorts; however, accuracy is limited by heart rate dependency. Diastolic pressure time (DPT) index has been suggested as an alternative and also predicts mortality after TAVR. We chose to evaluate the left ventricular diastolic filling slope (LVDFS) as a surrogate of AR, and suggest it is less heart rate dependent than the AR index and comparable to DPT index.

METHODS For initial validation, we compared the LVDFS between 3 cohorts of patients with native aortic valves referred for hemodynamic assessment: (1) Patients without AR; (2) moderate AR; and (3) severe AR. We then retrospectively identified TAVR patients between January 2012-2017, and compared LVDFS to echocardiographic PAR.

RESULTS In both TAVR patients and patients those with native aortic valve disease, the LVDFS showed a stepwise increase with increasing echocardiographic AR severity. When compared to AR or DPT indices, LVDFS better discriminated the degree of AR in native valves and post-TAVR when AR is primarily paravalvular. Additionally, the slope did not considerably change across a spectrum of heart rates in both native or post-TAVR populations.

CONCLUSION The LVDFS is a simple, reproducible metric that can be operationalized in patients undergoing TAVR, as well as those with native valve regurgitation. Additional studies are necessary to determine the relationship between LVDFS and post-TAVR outcomes.



CRT-700.36

Dual Antiplatelet Therapy Versus Single Antiplatelet Therapy After Transaortic Valve Replacement: Meta-Analysis

Abdulah Alrifai,¹ Mohamad Soud,² Amjad Kabach,³ Yash Jobanputra,¹ M Chadi Alraies,⁴ Zaher Fanari⁵

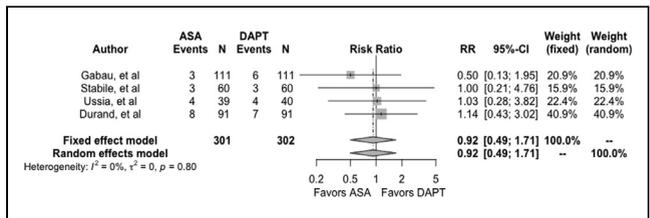
¹University of Miami/JFK Medical Center, Atlantis, FL; ²MedStar Heart and Vascular Institute, Washington, DC; ³Creighton University, School of medicine, Omaha, NE; ⁴MedStar Heart and Vascular Institute, MedStar Washington Hospital Center, Washington, DC; ⁵Heartland Cardiology/Wesley Medical Center, University of Kansas School of Medicine, Wichita, KS

BACKGROUND The current American College of Cardiology/American Heart Association (ACC/AHA) recommends empirical therapy with dual antiplatelet (DAPT) regimen of ASA and clopidogrel for six months after aortic valve replacement (TAVR). This recommendation is based on the expert consensus rather than clear clinical evidence. Given the lack of clear consensus on treatment strategy for ischemic events prevention following TAVR, we performed a meta-analysis of studies comparing aspirin based mono-antiplatelet therapy (MAPT) with DAPT in patients who have undergone TAVR.

METHODS We performed a systematic review and meta-analysis from randomized clinical trials (RCTs) and prospective studies that tested DAPT vs. MAPT for all-cause mortality and major bleeding. The primary efficacy outcomes were 30-days mortality and stroke. The primary safety outcomes were major bleeding and major vascular complications. Secondary safety outcomes included minor bleeding and minor vascular complications.

RESULTS The meta-analysis included 603 patients with 301 receiving MAPT and 302 receiving DAPT. The use of MAPT was associated with similar mortality (MAPT 5.9% vs. the DAPT 6.6%; RR= 0.92; = 95% CI 0.49 to 1.71; P= 0.68) or in major strokes (1.3% vs. 1.3%; RR 1.04; 95% CI 0.27 to 4.04; P=0.81). MAPT was associated with significantly less risk of major bleeding (4.9% vs. 14.5%; RR 0.37; 95% CI 0.20 to 0.70; P<0.01). However there was no difference in major vascular complication (4.2% vs. 8.9%; RR 0.52; 95% CI 0.23 to 1.18; P=0.17), minor bleeding (4.2% vs. 3.6%; RR 1.16; 95% CI 0.43 to 3.10; P= 0.85) or minor vascular complication (4.2% vs. 7.3%; RR 0.58; 95% CI 0.25 to 1.34; P=0.14).

CONCLUSION MAPT use post TAVR is associated with lower risk of major bleeding comparing to DAPT with no significant difference in mortality, stroke or vascular complications risk.



CRT-700.37

Accurate Model to Predict Coronary Obstruction during TAVR

Amirsepehr Azimian, Scott Lilly, Jennifer Dollery, Juan Crestanello, Lakshmi Prasad Dasi
The Ohio State University, Columbus, OH

BACKGROUND Coronary Obstruction (CO) occurrence during TAVR often proves fatal. Existing CO predictive parameters based on coronary height (h) and Sinus of Valsalva diameter (SOVd)^(1,2) lack 3D geometric information on the aortic root and calcific lesions, and are prone to error. In this study we aim to improve predictive power by incorporating leaflet length (L), coronary artery diameter (d) and calcium nodule size (t).

METHODS The study population includes 600 patients who underwent TAVR at The Ohio State University Wexner Medical Center January 2014 to August 2017. To enrich the population in patients at higher risk of CO, patients with h > 14 mm and SOVd > 32 mm were excluded from the screening process, resulting in total 23 patients, 15 women [65.2%], aged 80 ± [8] years (mean ± [SD]). The standard variables (h and SOVd) along with L, d, and t were measured for all