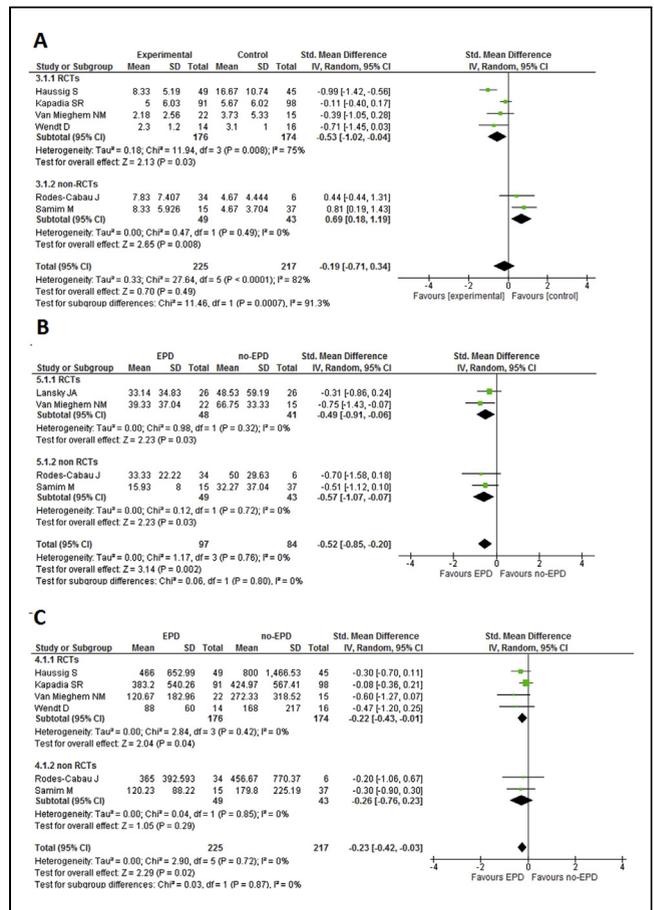
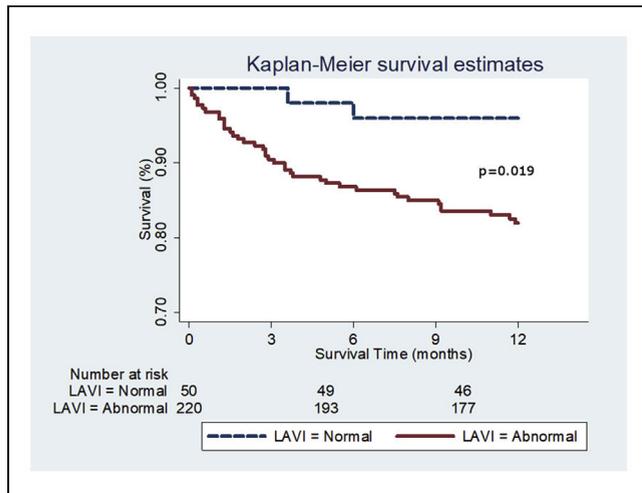


proportional hazard regression models were used to assess the associations between LAVI and all-cause mortality.

RESULTS There was a significant correlation between LAVI and all-cause mortality at 1 year. After covariate adjustment, Cox regression analysis showed LAVI was significantly associated with mortality at one year (hazard ratio, 3.66; 95% confidence interval 1.1-11.78, $p=0.029$). There was a significant difference in survival times between patients with a normal LAVI versus those with an abnormal LAVI (log rank test $p=0.0195$). The Kaplan-Meier survival probability estimates at 12 months were 0.80 for enlarged LAVI and 0.92 for normal LAVI.

CONCLUSION Indexed left atrial volume is a strong predictor of outcomes in patients with severe symptomatic aortic valve stenosis undergoing TAVR.



CRT-700.30
Cerebral Protection During Transcatheter Aortic Valve Implantation: An Updated Systematic Review and Meta-analysis

Luca Testa
 IRCCS Pol. S. Donato, Milan, Italy



BACKGROUND AND PURPOSE The use of embolic protection devices (EPD) may theoretically reduce the occurrence of cerebral embolic lesions during transcatheter aortic valve implantation (TAVI). Available evidence from single studies is quite inconclusive. The aim of the present meta-analysis was to assess the safety and efficacy profile of current EPD.

METHODS EMBASE, PubMed, Web of Science Core Collection, and the Cochrane Library were searched up to October 2017 for studies that evaluated patients undergoing TAVI with or without EPD. Endpoints of interest were 30-day mortality, 30-day stroke, the total number of new lesions, the ischemic volume per lesion, and the total volume of lesions.

RESULTS Seven studies involving 725 patients were included. The EPD delivery success rate was reported in all studies and was achieved in 94.5% of patients. The use of EPD was not associated with significant differences in terms of 30-day mortality [OR 0.57 (0.19, 1.66), $p=0.3$] or stroke [OR 0.67 (0.35-1.29), $p=0.23$]. Moreover, no differences were detected with respect to the number of new lesions: [standardized mean difference -0.19; (-0.71 to 0.34); $P=0.49$]. The use of EPD was associated with a significantly smaller ischemic volume per lesion [standardized mean difference, -0.52; (-0.85 to -0.20); $P=0.002$] and smaller total volume of lesions [standardized mean difference, -0.23 (-0.42 to -0.03), $P=0.02$].

CONCLUSIONS The use of EPD is not associated with a reduced rate of stroke, mortality and new ischemic cerebral lesions. The use of EPD during TAVI is associated with smaller volume of ischemic lesions and smaller total volume of ischemic lesions.

CRT-700.31
A Meta-analysis of Reduced Leaflet Motion: Relationship to Cerebrovascular Events and Valve Degeneration

Nader Makki,¹ Satya Shreenivas,² Dean Kereiakes,² Scott Lilly¹
¹Ohio state University Wexner Medical Center, Columbus, OH;
²Christ Hospital, Cincinnati, OH



BACKGROUND Reduced Leaflet motion (RLM) of transcatheter aortic valves (TAV) is observed in up to 4% of cases, with an incidence that differs based on prosthesis type and size. This phenomenon likely represents subclinical leaflet thrombosis. Herein we sought to analyze the existing reported literature to assess whether or not RLM is associated with subsequent valve degeneration or cerebrovascular events.

METHODS AND RESULTS We searched PubMed, and EMBASE (2008-2017) to identify relevant studies. Studies with less than 1-year follow-up, studies not evaluating RLM, and studies not evaluating neurological events and/or structural valvular degeneration were excluded. Our co-primary endpoints were the incidence of cerebrovascular events (stroke and/or transient ischemic attacks) or structural valvular degeneration defined as moderate or greater regurgitation and/or a mean gradient ≥ 20 mm Hg. The literature search yielded 20 potential studies. Of these, 4 observational studies with a total population of 1,005 patients met our selection criteria. RLM was associated with an increased risk of stroke or TIA (adjusted OR 2.29, 95% CI 1.31 to 3.99, $p = 0.004$). At 1 year, RLM was associated with an increased risk of structural valve degeneration (adjusted OR 4.62, 95% CI 2.23 to 9.57, $p = 0.006$).

CONCLUSIONS In TAVR patients, presence of RLM is associated with increased risk of stroke or TIA as well as structural valvular degeneration. These findings support ongoing surveillance efforts and evaluation of pharmacotherapies to address RLM in effort to minimize subsequent clinical events.

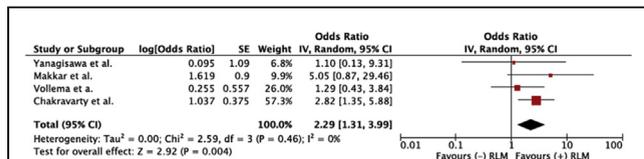


Figure 1 (a). Forest plot of studies evaluating association of RLM with stroke/TIA

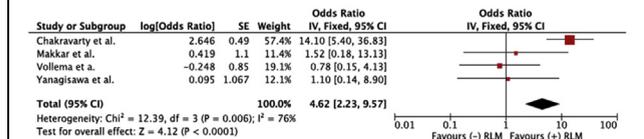


Figure 1 (b). Forest plot of studies evaluating association of RLM with valve degeneration

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 ($\geq 150\mu\text{m}$, $\geq 500\mu\text{m}$, $\geq 1000\mu\text{m}$), 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 $\geq 1\text{mm}$. Larger particles ($\geq 500\mu\text{m}$ and $\geq 1000\mu\text{m}$) were significantly more frequent in EvR than XT and S3 patients. Lotus patients with particles $\geq 1000\mu\text{m}$ 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 $>1\text{mm}$. 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 \geq 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