Methods: Frailty indices according to VARC-2 recommendations [5-meter walk test (5MWT) and hand grip strength] as well as other available scales of frailty [Katz index, elderly mobility index (EMS), Canadian Study of Health and Aging (CSHA) scale, Identification of Seniors at Risk (ISAR) scale] were assessed at baseline. Sarcopenia was evaluated with psoas muscle area (PSA) and volume (PSV) using CT scans. The primary endpoint was 12-month all-cause mortality.
Results: We enrolled 153 TAVI patients with analyzable CT scans and complete frailty data. Median of PSA normalized for body surface area (BSA) was 2581.1 (2214.9–2654.9) mm^2/m^2, and median of normalized PSV was 338.8 (288.1–365.6) cc/m^2. According to 5MWT 13.7% were frail, EMS scale – 5.2%, CSHA scale - 11.1%, Katz index - 12.4% patients, hand grip test - 4.6%, and ISAR scale – 28.7%. At 12 months, all-cause mortality and new-onset atrial fibrillation were highest in the lowest tertile of normalized PSA. In the ROC analysis, all the tested frailty indices, as well as PSA and PSV, were good predictors of 12-month all-cause mortality after TAVI with the highest AUC value for PSA and PSV normalized for BSA.
Conclusion: Normalized PSA and PSV are stronger predictors of long-term mortality after TAVI as compared to subjective frailty scores. CT evaluation of psoas muscles could be incorporated to preprocedural comprehensive clinical models used for prediction of outcomes in patients scheduled for TAVI.

P4496
Changes in valvulo-arterial impedance after transcatheter aortic valve implantation according to calcification burden of thoracic aorta

T. Gegenava, E.M. Vollema, A. Rosendael, R. Abou, L. Goedemans, F. Kley, A. Weger, N. Ajmone, J. Bax, V. Delgado. *Leiden University Medical Center, Cardiology, Leiden, Netherlands*

Background: Global left ventricular (LV) afterload in patients with severe aortic stenosis consists of the load imposed by the stenotic valve and the vascular load. Valvulo-arterial impedance (Zva) reflects the global LV afterload. Changes in Zva after aortic valve replacement may vary according to the calcification burden of the thoracic aorta (associated with aortic stiffness and vascular load).
Purpose: To investigate the changes in Zva according to the calcification burden of thoracic aorta assessed with computed tomography (CT) in patients with severe aortic stenosis treated with transcatheter aortic valve replacement (TAVI).
Methods: A total 298 patients with symptomatic severe aortic stenosis (51% male, 81±7 years) were evaluated with CT prior to TAVI. The calcification burden of the thoracic aorta was estimated according to the Agatston score. Zva was measured on echocardiography at baseline, before discharge and 30- 90 days after TAVI. Patients were divided according to tertiles of the thoracic aorta calcification burden. Changes in Zva overtime were compared among tertiles of the thoracic aorta calcification burden.
Results: In the overall population, Zva significantly reduced after TAVI (from 4.8±1.9mmHg/mL/m^2 to 3.9±1.9mmHg/mL/m^2, p<0.001) and remained unchanged at follow-up (4.0±1.9mmHg/mL/m^2). When dividing the population according to tertiles of thoracic aorta calcification, patients within the lowest tertile (<1000 HU) had significantly lower values of Zva at all-time points compared with the other tertiles (Figure). Zva significantly decreased after TAVI in all tertiles. The change in Zva was significantly more pronounced in within the first tertile of thoracic calcification burden as compared to the other two groups (estimate -0.6±0.17, P<0.001).
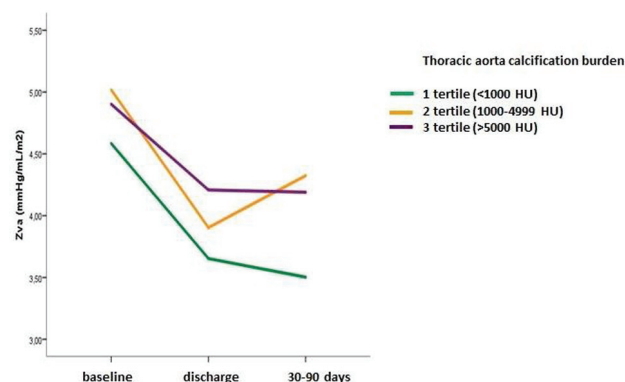
Figure: Changes in valvulo-arterial impedance (Zva) over time for each tertile of thoracic aortic calcification burden (green-tertile1:<1000HU; orange-tertile2: 1000-4999HU; purple-tertile3: >5000HU).

Conclusions: In severe aortic stenosis patients treated with TAVI, Zva reduces significantly after the procedure and remains unchanged during the next 30–90 days. Patients within the lowest tertile of thoracic aorta calcification show the highest reduction in Zva compared with the other groups, suggesting that the calcification burden of the thoracic aorta has an important influence on the global LV afterload.

P4497
Impact of serum hemoglobin level at discharge on long-term survival in patients undergoing transcatheter aortic valve implantation for severe aortic stenosis: an observational cohort study

M. Okamoto, H. Kaneko, G. Tambor, M. Neuss, F. Hoelschermann, C. Butter. *Brandenburg Heart Center, Cardiology, Bernau bei Berlin, Germany*

Background: Nowadays, short-term outcomes of transcatheter aortic valve implantation (TAVI) as a treatment for severe aortic stenosis (AS) have been dramatically improved because of technical and device progress. Consequently, as TAVI may be also used in younger patients, favorable long-term outcomes are important in this field. Furthermore, preprocedural hemoglobin (Hb) is a known predictive factor of TAVI. However, it may be affected by the periprocedural events, suggesting the importance of postprocedural Hb. Therefore, we focused on Hb at discharge as a possible predictor of one-year survival.
Purpose: In this study, we aimed to clarify the impact of serum Hb level at discharge on one-year survival, in order to improve the long-term prognosis of patients undergoing TAVI.
Methods: A total of 1,261 patients who underwent TAVI for severe AS between July 2008 and September 2016 in our institute were included in this study. Among them, 42 patients (3%) were excluded due to in-hospital death, and 1 patient due to an absence of Hb data. Finally, we retrospectively analyzed 1,218 patients.
Results: According to receiver-operating characteristic analysis, we determined the cut-off values of serum Hb as 11.0 g/dL for male, and 9.6 g/dL for female. Using this cut-off value, we divided the study patients into two groups; preserved serum Hb level at discharge group (preserved Hb group, 696 patients (57%)) and low serum Hb level at discharge group (low Hb group, 522 patients (43%)). More patients in the low Hb group were male than female (65% vs. 31%, p<0.001), mean age was not different between groups (80±6 vs. 81±6 years, p=0.759). Logistic EuroSCORE (19±13 vs. 17±12 years, p=0.007) and serum N-terminal pro-brain natriuretic peptide (NT-pro BNP) levels (5,572±7,520 vs. 4,680±6,982 pg/mL, p=0.038) were higher in low Hb group. Chronic kidney disease (CKD) (59% vs. 50%, p=0.005) and anemia (77% vs. 40%, p<0.001) were more frequently complicated in low Hb group. Prior history of percutaneous coronary intervention (PCI) (41% vs. 33%, p=0.004), coronary artery bypass grafting (CABG) (15% vs. 9%, p=0.003), and heart surgery (16% vs. 10%, p=0.002) was more common in low Hb group. Kaplan-Meier survival curves showed that lower one-year survival rate in low Hb group (Log rank p<0.001) (Figure), while the univariate Cox regression analysis indicated the higher mortality in low Hb group (p<0.001 hazard ratio (HR) 2.3). After adjusted by gender, logistic EuroSCORE, NT-pro BNP, CKD, preprocedural anemia, and prior procedures, multivariable Cox regression analysis showed that low serum Hb level at discharge was independently associated with lower one-year survival (p=0.014, HR 2.1).

Figure Kaplan-Meier curves for survival
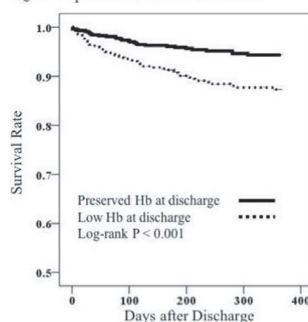
Conclusions: Low serum hemoglobin level at hospital discharge was an independent predictor of worse one-year survival after TAVI, emphasizing the importance of postprocedural management of anemia to improve long-term outcomes of patients undergoing TAVI.

P4498
Durability and clinical outcomes at 5 to 9 years following transcatheter aortic valve implantation

A.J. Munoz Garcia, M. Munoz-Garcia, E. Munoz-Garcia, A.J. Dominguez-Franco, F. Carrasco-Chinchilla, J.H. Alonso-Briales, J.J. Gomez-Doblas, J.M. Hernandez-Garcia, M.F. Jimenez-Navarro, E. De Teresa-Galvan. *University Hospital Virgen de la Victoria, Department of Cardiology, Malaga, Spain*

The durability of transcatheter heart valves and long-term clinical outcomes are unknown. The aim of this study was to evaluate clinical and hemodynamic outcomes between 5 to 9 years after Transcateter Aortic Valve Implantation (TAVI).
Methods: Between April 2008 and December 2012, 305 patients underwent TAVI for the treatment of severe symptomatic aortic stenosis with the auto-expandable prosthesis.
Results: The mean age, logistic EuroSCORE and STS score were 79.3±6.5 years, 19.4±12% and 6.6±4% respectively. Mean aortic valve gradient decreased from 48.7±15 mm Hg to 8.9±4.3 mmHg after TAVI, to 11.1±9 mm Hg at 4 years, and 22.7±12 mmHg at 5 years (p for post-TAVI trend 0.03). Mean aortic valve area

increased from 0.63±0.16 cm^2 to 1.57±0.3cm^2 after TAVI to 1.48±0.2 at 4 years and 0.97±0.3 cm^2 at 5 years (p for post-TAVI trend 0.01). Mean left ventricular ejection fraction increased from 61.1±15% to 65.5±11% after TAVI, to 58.2±17% at 4 years and 60.7±8% at 5 years (p for post-TAVI trend 0.001). Late mortality after a mean of 4.15±2.4 years 58% and in only 34.1% patients was cardiovascular mortality. Survival rates at 1 to 9 years were at 87.5%, 79%, 73.1%, 65.6%, 55.4%, 48.2%, 41.9%, 37.3% and 35.1% respectively. At 5 years, 3 patients had severe prosthetic valve dysfunction (severe stenosis and moderate transvalvular regurgitation). Median survival time after TAVI was 6 years (95% confidence interval [CI]: 5.89 to 6.28), and the risk of death was significantly increased in patients with frailty (adjusted hazard ratio [HR]: 1.864; 95% CI: 1.204 to 2.886),p=0.001, Charlson index [HR= 1.243 (95% CI 1.148–1.346), p<0.001], and left ventricular ejection fraction [HR= 1.012; (95% CI 1.001–1.024) p=0.044].

Conclusions: Our study demonstrated favorable long-term outcomes after TAVI. Signs of prosthetic valve failure were observed in 0.97% of patients

P4499
Impact of new onset atrial fibrillation on outcome of patients undergoing transfemoral transcatheter aortic valve replacement

F. Woitek[1], N. Mangner[1], L. Crusius[1], S. Haussig[2], R. Hoellriegel[2], A. Spindler[1], F. Schlotter[1], G. Stachel[1], P. Kiefer[3], S. Leontyev[3], D. Holzhey[3], H. Thiele[1], M.A. Borger[3], A. Linke[2]. [1]*University of Leipzig, Heart Center, Department of Internal Medicine and Cardiology, Leipzig, Germany;* [2]*Dresden University of Technology, Heart Center Dresden - Department of Internal Medicine/Cardiology, Dresden, Germany;* [3]*University of Leipzig, Heart Center, Department of Cardiac Surgery, Leipzig, Germany*

Background: Prevalence and impact of pre-existing atrial fibrillation (PEAF) and new-onset atrial fibrillation (NOAF) on outcome after transfemoral transcatheter aortic valve replacement (TF-TAVR) treated for severe symptomatic aortic stenosis are still limited and partially inconsistent.

Purpose: The aim of the current study was to assess the prevalence and outcome of patients treated by TF-TAVR in our large single center real world registry.

Methods: Consecutive TF-TAVR patients (n=3040) treated between 2009 and 2016 were stratified according to the presence of PEAF, NOAF or sinus rhythm (SR). NOAF was defined as any documented phase of atrial fibrillation lasting for at least 30 seconds during the initial hospitalization phase. All-cause-mortality at one-year was the primary end point. All end point definitions were subject to the Valve Academic Research Consortium 2 definitions.

Results: PEAF was evident in 1341 patients (43.5%), 155 patients (4.3%) suffered from NOAF and 1544 (42.7%) were in SR. PEAF and NOAF patients had a higher STS-PROM (9.1±6.6 vs. 8.1±6.8 vs. 7.3±5.3%, p=0.02), PEAF patients were more often in NYHA class III/IV (79.9% vs. 75.7% vs. 72.4%, p=0.015), had more often a moderate/severe mitral regurgitation (18.3% vs. 16.3% vs. 9.9%, p=0.003) and were more often in CKD state 3b-5 (35.0% vs. 26.3% vs. 27.6%, p=0.02). Other baseline characteristics were not different between the groups. Self-expandable valves were most often used in NOAF compared to PEAF and SR (76.7% vs. 65.4% vs. 62.7%, p=0.017). The need for postdilatation was also higher in NOAF (25.7% vs. 13.8% vs. 15.2%, p=0.01). VARC success and VARC related complications were comparable between groups except for higher rate of pacemaker implantation in NOAF compared to PEAF and SR (37.0% vs. 30.1% vs. 24.8%, p=0.02). 30-day mortality was statistically not different between PEAF, NOAF and SR (6.3% vs. 2.2% vs. 6.2%, p=0.058). In contrast, one-year mortality was significantly higher in patients with PEAF compared to SR and NOAF (22.0% vs. 14.3% vs. 15.7%, p<0.001), predominantly driven by a higher cardiovascular mortality (21.4% vs. 13.2% vs. 11.5%, p<0.001).

Conclusion: Atrial fibrillation post TF-TAVR per se does not affect one year mortality. The presence of PEAF post TAVR is associated with a significantly higher one-year mortality rate. Further studies are necessary to evaluate the long term effect of NOAF on outcome after TF-TAVR.

P4500
Prognostic value of galectin-3 according to carbohydrate antigen 125 in transcatheter aortic valve implantation

T. Rheude[1], C. Pellegrini[1], J. Nunez[2], T. Trenkwalder[1], M. Joner[1], N.P. Mayr[1], V. Bodi[2], W. Koenig[1], A.M. Kasel[1], H. Schunkert[1], A. Kastrati[1], C. Hengstenberg[3], O. Husser[1]. [1]*German Heart Center of Munich, Munich, Germany;* [2]*University of Valencia, Valencia, Spain;* [3]*Medical University of Vienna, AKH – Vienna, Cardiology Clinic, Vienna, Austria*

Purpose: Galectin-3 (Gal3) and carbohydrate antigen 125 (CA125) have been associated with adverse outcome after transcatheter aortic valve implantation (TAVI). However, in case of Gal3 results from available studies are conflicting. Experimental and clinical data suggest a potential molecular interaction between Gal3 and CA125. Therefore, we evaluated the prognostic value of Gal3 and the association with CA125 for prognosis after TAVI.

Methods and results: This study includes 439 patients with severe aortic stenosis undergoing TAVI. The composite primary endpoint was all-cause mortality and readmission for worsening heart failure. During a median follow-up of 371 days after TAVI, the primary endpoint occurred in 16.4% of patients. Gal3 was dichotomized at ≥8.71 ng/ml into elevated (Gal3+) and not elevated (Gal3-). Gal3+ was present in 31.9% and was associated with a higher risk of the pri-

mary endpoint (25% vs. 12.4%, hazard ratio (HR) 2.26; p<0.001). After multivariable adjustment, the association of Gal3+ with the primary endpoint was borderline significant (HR 1.59; p=0.066). CA125 was dichotomized at ≥18.4 U/ml into elevated (CA125+) and not elevated (CA125-). CA125+ was present in 51.9% and was also associated with a higher risk of the primary endpoint (25.4% vs. 6.6%, HR 4.20; p<0.001). After multivariable adjustment, CA125+ (HR 2.84; p=0.001) remained independently associated with the primary endpoint. There was a significant interaction (p=0.048) of continuous Gal3 values within CA125 strata (CA125+ vs. CA125-). In case of CA125-, Gal3+ was not associated with an increased rate and adjusted risk of the primary endpoint (6.6% vs. 6.7%, HR 1.21; p=0.768). However, in case of CA125+, Gal3+ was associated with an increased rate and adjusted risk of the primary endpoint (38.8% vs. 18.2%, HR 1.99; p=0.016].

Event rates

	Crude event rate	Univariate analysis		Multivariate analysis	
	Primary endpoint n (%)	Unadjusted HR [95% CI]	p-value	Adjusted HR* [95% CI]	p-value
CA125– (n=211)					
Gal3– (n=151)	10 (6.6%)	1.03 [0.32–3.29]	0.959	1.21 [0.23–2.93]	0.768
Gal3+ (n=60)	4 (6.7%)				
CA125+ (n=228)					
Gal3– (n=148)	27 (18.2%)	2.42 [1.44–4.07]	<0.001	1.99 [1.14–3.49]	0.016
Gal3+ (n=80)	31 (38.8%)				

CA125: Carbohydrate antigen 125; CI: Confidence interval; Gal3: Galectin-3; HR: Hazard ratio.
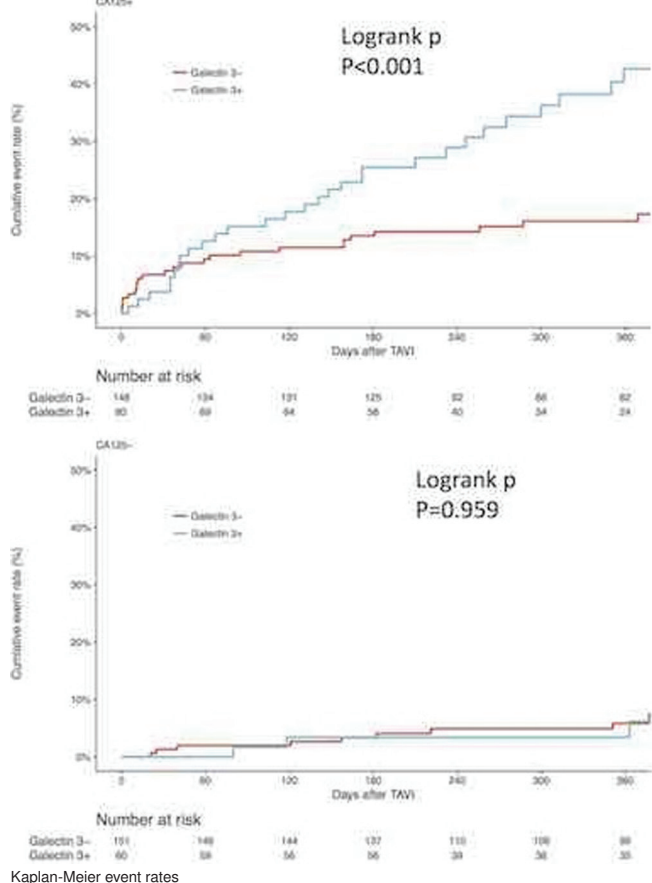
Kaplan-Meier event rates

Conclusions: In patients undergoing TAVI, Gal3 predicts adverse clinical outcome, but only in those patients with elevated values of CA125. These clinical findings confirm previous data suggesting a potential molecular interaction between both biomarkers.

P4501
Prognostic value of thoracic aorta calcification burden in patients after transcatheter aortic valve implantation

T. Gegenava, M. Vollema, R. Abou, L. Goedemans, A. Rosendael, F. Kley, A. Weger, N. Ajmone, J. Bax, V. Delgado. *Leiden University Medical Center, Cardiology, Leiden, Netherlands*

Background: It is suggested that the degree of thoracic aorta calcification burden partly explains the vascular component of the left ventricular (LV) global afterload in patients with severe aortic stenosis (AS). After aortic valve replacement, indirect measures of aortic stiffness have been associated with prognosis.

Purpose: To investigate the association between total thoracic aorta calcification