CONCLUSIONS Angioplasty of femoropopliteal and infrapopliteal vascular stenosis with DEB is associated with significantly lower risk of TLR at both 12 and 24 months. DEB use is also associated with 64% higher patency rates compared to BA. Further studies are necessary assess the benefits of mortality with the use of DEB for peripheral vascular interventions.

CATEGORIES ENDOVASCULAR: Peripheral Vascular Disease and Intervention

TCT-168

Prosthesis-Patient Mismatch after Aortic Valve-In-Valve Implantation: Insights from the Valve-in-Valve International Data (VIVID) Registry

Sabine Bleiziffer,[1] John Webb,[2] Ran Kornowski,[3] David M. Holzhey,[4] Matheus S. Santos,[5] Isaac George,[6] Jan-Malte Sinning,[7] Massimo Napodano,[8] Luis Nombela-Franco,[9] Mayra Guerrero,[10] Henrik Nissen,[11] Tanja Rudolph,[12] Stephen Brecker,[13] Ashish Shah,[14] Petur Petursson,[15] Alfredo Giuseppe Cerillo,[16] Sujay Chandran,[17] Neil Moat,[18] Diego F. Gaia,[5] Seung-Jung Park,[19] Nikolaos Bonaros,[20] Raffi Bekeredjian,[21] Ruediger Lange,[1] Danny Dvir[22]
[1]German Heart Center Munich, Munich, Germany; [2]University of British Columbia, Vancouver, Canada; [3]Professor of Cardiovascular Medicine, Rabin Medical Center and Tel Aviv University, Petach Tikva, Israel; [4]University of Leipzig - Heart Center, Leipzig, Germany; [5]Escola Paulista de Medicina - UNIFESP, Sao Paulo, Brazil; [6]Columbia University Department of Surgery, New York, USA; [7]Heart Center Bonn, University Hospital Bonn, Bonn, Germany; [8]University of Padova, Padova, Italy; [9]Cardiovascular Institute, Hospital Clínico San Carlos, Madrid, Spain; [10]Evanston Hospital, Evanston, USA; [11]Odense University Hospital, Odense, Denmark; [12]University Heart Center Cologne, Köln, Germany; [13]St. George's Hospital, London, United Kingdom; [14]Toronto General Hospital, Toronto, Canada; [15]Sahlgrenska University Hospital, Gothenburg, Sweden; [16]Fondazione Toscana, Massa, Italy; [17]Brighton and Sussex University Hospitals, Sussex, United Kingdom; [18]Royal Brompton Hospital, London, United Kingdom; [19]Asan Medical Center, Seoul, Korea, Republic of; [20]Medical University Innsbruck, Innsbruck, Austria; [21]Heidelberg University Hospital, Heidelberg, Germany; [22]St Paul's Hospital, Vancouver, Canada, Vancouver, Canada

BACKGROUND Implantation of a transcatheter valve into a degenerated surgical bioprosthesis during aortic valve-in-valve (ViV) procedure may significantly reduce the effective orifice area (EOA) available for blood flow. We sought to investigate the impact of prosthesis-patient mismatch (PPM) on hemodynamics and survival in these patients.

METHODS A total of 657 data sets of aortic ViV procedures from the Valve-in-Valve International Data Registry were investigated for the current analysis. Severe PPM after ViV procedure was defined as an indexed EOA < 0.65cm2/m2 patient body surface area (BSA).

RESULTS Severe PPM was present in 202 patients after aortic ViV implantation (30.7% total, 61.4% men, STS score 10.6%). The incidence of severe PPM was higher in patients who received a balloon-expandable device than a self-expandable device (38.4% vs. 21.5%, p<0.0001). Patients with severe PPM were younger (77.2 ± 9.4 years vs. 78.7 ± 8.1, p = 0.05) and had larger body weight (80.9 ± 18.9 kg vs. 72.6 ± 14.1, p<0.0001) than those without severe PPM. In addition, patients with severe PPM had higher aortic mean gradient after the procedure (21.6 ± 10 mmHg vs. 14.1 ± 7.4) and lower aortic valve area (1.03 ± 0.2 cm2 vs. 1.66 ± 0.44), in comparison with patients without severe PPM. Multivariate analysis revealed independent predictors for having severe PPM after aortic ViV: effective orifice area before the procedure (Odds Ratio, OR 0.53 per 1cm2, confidence interval, CI, 0.3-0.94, p=0.03), patient age (OR, 0.97 per 1year increment, CI, 0.94-0.99, p=0.01), using a balloon expandable device (OR, 2.82, CI, 1.78-4.46, p<0.0001). In patients who survived aortic ViV implantation procedure, one-year survival was not affected by having severe PPM (93.3% vs. 93.8% in patients without severe PPM, log rank p=0.9).

CONCLUSIONS Severe PPM is common after aortic ViV implantation, occurring in approximately one-third of patients. Predictors for severe PPM include young age, stenotic surgical valves and balloon-expandable device implantation. Despite higher valve gradients in patients with severe PPM, one-year survival was similar to those without severe PPM. Therefore, the risk of severe PPM should not discourage operators from performing ViV procedures in inoperable elderly patients.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic

KEYWORDS Patient-prosthesis mismatch, Transcatheter aortic valve replacement, Valve-in-valve

TCT-169

Increased troponin concentrations in patients with stable coronary artery disease are associated with thin-cap fibroatheroma and future major adverse cardiovascular events

Adam J. Brown,[1] Anoop S. Shah,[2] Mateusz Orzalkiewicz,[3] Nick E. West,[4] David E. Newby,[2] Nicholas Mills,[5] Martin R. Bennett,[6] Patrick A. Calvert[3]
[1]University of Cambridge, Cambridge, United Kingdom; [2]University of Edinburgh, Edinburgh, United Kingdom; [3]University Hospitals Birmingham, Birmingham, United Kingdom; [4]Papworth Hospital NHS Trust, Cambridge, United Kingdom; [5]Edinburgh Heart Centre, Edinburgh, United Kingdom; [6]Addenbrooke's Hospital, Cambridge, United Kingdom

BACKGROUND Cardiac troponin-I (cTnI) is a marker of myocardial injury and improvements in assay sensitivity allow precise quantification at extremely low serum concentrations. Increased cTnI concentrations are known to predict outcomes in patients with stable coronary artery disease, although the underlying mechanisms remain unknown. As rupture of thin-cap fibroatheroma (TCFA) is thought responsible for the majority of myocardial infarctions, we tested the association between baseline cTnI concentration and plaque classification.

METHODS Patients undergoing planned percutaneous coronary intervention (PCI) for stable angina pectoris (n=99) underwent 3-vessel virtual-histology intravascular ultrasound imaging (VH-IVUS, Eagle-Eye Gold, Volcano Corp) before intervention. Virtual-histology (VH)-TCFA were defined as plaques (plaque burden >40%) with >10% necrotic core in contact with lumen for 3 consecutive frames. High-sensitivity cTnI was taken before PCI (ARCHITECT STAT high-sensitivity cTnI assay, Abbott Laboratories, Abbott Park, Il, USA), with patients subsequently stratified into tertiles. Major adverse cardiovascular events (MACE) were determined at follow-up (median 1,115 days).

RESULTS Serum cTnI concentrations for each tertile were; low 2.0 [2.0-3.0]ng/L, intermediate 4.0 [4.0-5.0]ng/L and high 7.0 [6.0-18.0] ng/L. In comparison with the lowest cTnI tertile, highest tertile patients were older (67±9.7 vs. 59.8±10.6yrs, p=0.002). However, there were no other differences in demographics between these groups, including diabetes mellitus (14.8 vs. 12.0%, p=0.98), hypertension (55.6 vs. 44.0%, p=0.33) and serum creatinine (1.00±0.15 vs. 0.97±0.21mg/dL, p=0.37). On 3-vessel VH-IVUS, total plaque number (p=0.27), plaque volume (p=0.09), % necrotic core (p=0.17) and % calcification (p=0.21) were similar between lowest and highest tertiles. However, patients in the highest cTnI tertile had a higher number of VH-TCFA, when compared with lowest tertile (2.0 [1.0-2.8] vs. 1.0 [0.0-1.3], p=0.027). On multivariable linear regression analysis, cTnI concentration (p=0.01) was independently associated with