TCT-723

What Should The Default Vascular Access And Closure Strategy Be For Transcatheter Aortic Valve Replacement?

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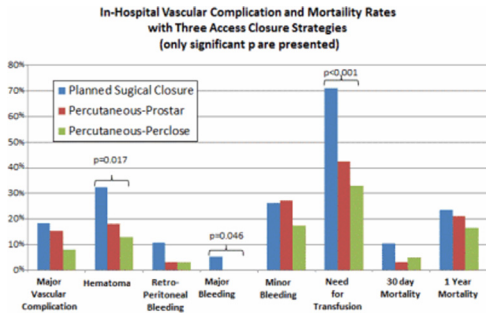
Background: Transcatheter aortic valve replacement (TAVR) success is hampered by a relatively high rate of vascular complications, which correlates with mortality. A trend from surgical access to percutaneous has led to a decrease in the reported complication rate, but it is still considered a valid access strategy. The aim of this study was to explore the vascular complication rates of surgical versus percutaneous access for TAVR and of the two most frequently used closure devices.
Methods: From a cohort of 231 patients who underwent transfemoral TAVR, 38 (16.5%) had planned surgical access while 193 (83.5%) had percutaneous access (Perclose ProGlide n=160; ProStar n=33). A comparison of the three groups' baseline characteristics, Valve Academic Research Consortium (VARC)-defined vascular complication, and mortality rates was performed.
Results: Baseline characteristics were mostly similar save for a higher incidence of SAPIEN valve use in the surgical access group (71.3% percutaneous vs. 97.4% surgical; p <0.001). Although the rate of major VARC vascular complication did not differ between groups, (Figure) access site hematomas, major bleeding and need for transfusion were more frequent in the surgical access group. Mortality rates at 30 days and 1 year did not differ among the three groups. No differences were noted in outcome when Perclose was compared with Prostar use.
Conclusions: Complete percutaneous vascular access and closure with either Perclose ProGlide or ProStar is associated with lower rates of vascular complications compared with surgical cut down and should be the preferred access technique in TAVR.



TCT-724

Low-Flow Low-Gradient Severe Aortic Stenosis by Echocardiography Does Not Reliably Predict Aortic Stenosis Classification by Invasive Hemodynamics

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Background: It may be challenging to distinguish low-flow low-gradient (LFLG) severe aortic stenosis (AS) from pseudo-severe AS, underestimation normal-flow high-gradient (NFHG) AS, or inaccurate effective orifice area (EOA) on transthoracic echocardiography (TTE). We evaluated changes in classification of AS by left/right heart catheterization (LHC) over TTE findings alone.
Methods: We examined 144 consecutive individuals with severe AS on TTE (EOA <1.0 cm2 or indexed EOA <0.6 cm^2/m^2) and LHC within 2 months referred for possible transcatheter aortic valve implantation (TAVI), and after exclusion of patients with >mild tricuspid regurgitation (n=27), subaortic obstruction (n=3) or non-diagnostic studies (n=6). We evaluated the prevalence and hemodynamic findings of NFHG (mean gradient >40 mmHg or peak velocity >4.0 m/sec) and LFLG severe AS on TTE (mean gradient ≤40 mmHg and peak velocity ≤4.0 m/sec), and assessed the frequency in which LHC reclassified AS type.
Results: Mean age was 78.9±8.8 years, and 58.3% were male. TTE observed a high mean gradient in 36% (52/144) of patients, while a high peak velocity was noted in 44% (63/144). LHC observed a high gradient in 59% (85/144) of individuals. Overall, TTE identified NFHG and potential LFLG severe AS in 46% (66/144) and 54% (78/144) of patients, respectively. In the 78 patients with potential LFLG severe AS by TTE, LHC reported a mean gradient >40 mmHg in 41% (32/78), consistent with TTE underestimation of gradients; in an additional 10% (8/78), LHC reported an EOA ≥1.0 cm^2, suggesting overestimation of AS severity on TTE. In comparison to TTE alone, the addition of LHC findings reduced the proportion of patients with potential LFLG severe AS from 54% (78/144) to 26% (38/144)(p<0.001), while LHC confirmed the presence of severe AS in 94% (136/144) of patients.
Conclusions: TTE reporting of LFLG severe AS is common in patients referred for TAVI. The addition of LHC hemodynamics reclassified about half of LFLG cases by TTE as having NFHG severe AS, although LHC agreed with the overall diagnosis of severe AS in 94% of cases. In patients with LFLG severe AS by TTE, LHC may be useful to confirm this diagnosis.

TCT-725

Aortic Valve Calcium Score (AVCS) Predicts The Prevalence Of Paravalvular Leakage After Transcatheter Aortic Valve Implantation (TAVI)

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Background: TAVI represents an emerging technology that is nowadays widely used for the treatment of aortic-valve disease in high-risk patients. However, paravalvular leakage (PVL) still represents a major problem and was recently shown to be associated with increased mortality and morbidity. This study evaluates the impact of CT based aortic-valve calcification and its distribution on the post-procedural occurrence of PVL.
Methods: From May 2008 to December 2012 a total of 369 patients were scheduled for the treatment of aortic stenosis with a TAVI procedure either using a CoreValve-Medtronic (n=198), Edwards-SAPIEN (n=164), Symetis-Acurate (n=2) and Medtronic-Engager prosthesis (n=5). Of these, 260 patients with a mean logistic EuroSCORE I of 19.3±12% had a preoperative CT-Scan and were included in this study. AVCS was measured in mg and mm3 using a method analogous to the Agatston calcium scoring of coronary arteries. The image data were analyzed separately to determine the degree of calcification for each cusp and commissure. The occurrence of intra- or post-procedural PVL was assessed by echocardiography and correlated to the calcium degree and distribution.
Results: TAVI was successfully performed in 254 Patients (97.7%). A new Pacemaker Implantation was observed in 22.4% (n=57) of patients and MACE (Myocardial Infarction, Stroke, major vascular complication, Death) occurred in 11.4% (n=29) of all cases. The mean hospital length of stay was 11.3 ± 8.3 days. There was a statistically relevant difference in AVCS between Groups when correlating to the occurrence of post-interventional PVL Grade*0-1 (550.4 ± 377.2 mg, n=164) and Grade 2 (755.6 ± 470.6 mg, n=78, p<0.001) or Grade 3 (825 ± 460.8 mg, n=12, p<0.05). There was no correlation between a new pacemaker implantation and AVCS.
Conclusions: This study highlights the significant correlation between the degree of calcification and the occurrence of post-interventional paravalvular leakage after TAVI procedure. Thus, preoperative AVCS calculation may represents an important predictor for PVL and may be added to the routine list of parameters for CT planning before TAVI. *PVL Grade 0 - none; 1 - minimal; 2 - mild; 3 – moderate

TCT-726

Characteristics and outcomes of clopidogrel responder and hypo-responder patients post transcatheter aortic vavle replacement

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Background: Dual anti-platelet therapy is an essential component of post- percutaneous coronary intervention (PCI) and transcatheter aortic valve replacement (TAVR) management. While several trials have studied the impact of hypo-responsiveness to clopidogrel [Platelet Reactivity Units (PRU) > 230] in PCI patients, data on the clopidgorel hypo-responsiveness post TAVR is lacking. The objectives of the study were to characterize predictors and outcomes of clopidogrel responders and hypo-responders patients using Accumetrics VerifyNow® (San Diego, CA) P2Y12 testing post TAVR.
Methods: Twenty two consecutive patients underwent TAVR and platelet function testing after initial background aspirin and 600 mg of clopidogrel. Post procedure a daily maintenance dose of 75 mg clopidogrel was administrated. Patients' characteristics, presentation [heart failure, syncope, angina] and major adverse cardiac events (MACE) (death, acute myocardial infarction, major bleeding and re-admission) were compared between responders and hypo-responders.
Results: Of the 22 patients 15 (68%) were hypo-responders. Comparison between the two groups is presented in table 1. MACE rate at 30 days was similar between responders and hypo-responders [2/7 (29%) vs. 3/15 (20%), respectively, p=0.9)].