Conclusions Increasing operator experience improves TR cannulation failure and TF cross-over rates, reduces contrast dye dosing, and shortens fluoroscopy time. These data support an operator learning curve of at least 200 cases to achieve optimal TR performance.

Categories Other: Vascular Access: Transradial

Key Words: Coronary angiography, Percutaneous coronary intervention, transradial, Transradial

TCT-427

Safety and Efficacy of The ProStar XL Percutaneous Vascular Closure System for Transfemoral Transcatheter Aortic Valve Replacement (TAVR): A Single Center Six-year Experience

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Background Vascular complications are frequent following transcatheter aortic valve replacement (TAVR) and are associated with increased mortality and prolonged hospital stay. This study investigated the vascular complications and clinical outcomes associated with the use of the Prostar XL vascular closure system.

Methods Between October 2008 and February 2015, 481 consecutive patients underwent TAVR. A true percutaneous femoral approach was performed in 323 patients (67.2%). The femoral artery diameter, tortuosity and calcification were evaluated using CT. All complications were defined according to VARC-2 standardized endpoints. Successful closure with ProStar XL was defined as adequate hemostasis without Prostar-related vascular complications. The incidence of vascular complications in the early (2008-2011) and late (2012-2015) experience of the TAVR program were compared.

Results The mean age of the cohort was 79.14 ± 8.77 years, 51.1% were female, and mean logistic EuroScore was 21.2 ± 12.7%. The vast majority of cases used an 18F sheath (91.9%) and Medtronic CoreValve device (92.9%). The mean minimal luminal diameter of the femoral artery was 8.11 ± 1.20 mm, the mean sheath diameter was 7.20 ± 0.17 mm, and the mean SFAR was 6.90 ± 0.12. Vascular complications occurred in 13.3% of the cohort overall (15.2% vs. 12.0%, p = 0.467). Major vascular complications were decreased in the late experience (7.9% vs. 3.3%, p = 0.079). Prostar XL failure was more common in the early experience (10.8% vs. 4.9%, p = 0.09). There was no significant difference in life-threatening/disabling bleeding (0.6% vs. 1.1%, p = 0.779), BARC major bleeding (4.3% vs. 2.2%, p = 0.280), or BARC minor bleeding (8.6% vs. 2.8%, p = 0.200) in the latter group, despite higher rates of moderate and severe tortuosity (p < 0.001), more cases with SFAR > 1.5 (p = 0.04), and a trend towards more calcified vessels (p = 0.09). Overall Prostar XL failure was 7.1% and was more frequently seen in patients with SFAR > 1.5 (p = 0.001). On multivariate analysis, calcification score 2 or 3 (OR 2.62, 95% CI 2.01 to 6.13, p = 0.000), minimal CI lumen diameter (OR 0.60-95% CI 0.40 to 0.87, p = 0.009), and NYHA class III/IV (OR 0.20, 95% CI 0.06 to 0.62, p = 0.006) were independent predictors of vascular complications. Cardiovascular 30 day-mortality was similar in both early and late groups (1.4% vs. 0.5%, p = 0.585).

Conclusions The experience of the ProStar XL device for femoral artery closure reduced major vascular complications despite patients referred for TAVI since 2012 have tended to have anatomically more challenging femoral access when compared to cases referred previously. The ProStar XL device provides consistent, safe vascular closure following TAVI.

Categories Other: Vascular Access: Femoral and Closure Devices

Keywords: Aortic valve, Closure device, Vascular complications

TCT-428

The Long-term Effect of Transradial Coronary Catheterization on Upper Limb Function

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Background Anatomic and physiologic changes that are induced by radial access may lead to a decrease of upper limb function. This is the first study that investigated the effect of transradial (TR) access on upper extremity function at long-term follow-up.

Methods Between January 2013 and April 2014, upper limb function was assessed in a total of 349 patients with complete 1-year follow-up after coronary catheterization. Upper limb function was assessed with the self-reported Short-Form 36 health survey (SF-36). All patients were followed up for 1 year after TR access. Higher scores represent worse upper limb functionality or symptoms. The nonparametric Wilcoxon signed-rank test was used to assess the change of upper limb function and symptoms over time.

Results The mean age of the study population was 64 years, and 72% of the population was male. Radial approach was performed in 300 patients. Box plots of QuickDASH scores at baseline and follow-up for radial and femoral access are shown in Supplementary Figure 1. whiskers represent 5th to 95th percentiles. Upper limb function did not change significantly over time when catheterization was performed through the radial artery (baseline 2.39 [IQR 0.00-13.64]; f-up 0.00 [IQR 0.00-11.02]) or femoral artery (5.68 [IQR 0.00-15.91]; f-up 4.55 [IQR 0.00-17.05]). If we applied a Minimal Clinically Important Difference of 14, 11% of the TR patients would have a clinically-relevant increase of the QuickDASH, which was similar to the TF treated patients (12.5%, p = 0.76). Similarly, upper extremity was not affected by cold intolerance after TR access (baseline 0.00 [IQR 0.00-13.75]; f-up 0.00 [IQR 0.00-0.00], p = 0.09) or TF access (baseline 0.00 [IQR 0.00-31.25]; f-up 0.00 [IQR 0.00-33.00], p = 0.29). The development of pathological cold intolerance (defined as CISS > 30) was not associated with the applied access route (p = 0.22).

Conclusions At long-term follow-up upper limb function was not affected when coronary catheterizations and interventions were performed through the radial artery. The results of our study are of importance to all patients undergoing TR access, especially when optimal upper extremity function is essential.

Categories Other: Vascular Access: Transradial