However, only poor data are known about safety and efficacy of diltiazem in this setting. The aim of our study was to evaluate the safety and efficacy of different vasodilators in the prevention of RAS during transradial PCI.

Methods: 332 patients were consecutively randomized to blindly receive diltiazem 5 mg (n=117), verapamil 2.5 mg (n=109), or isosorbide dinitrate 1 mg (n=106) in three centers (Paris, France). All study drugs were administered through the arterial sheath. The primary endpoint was the occurrence of a severe RAS defined by the operator as severe limitation of the catheter movement, with or without angiographic confirmation. Secondary endpoints included minor RAS, safety events (need for vasopressor, fluids, atropine support) and pain assessment scale.

Results: Main characteristics including age, sex, weight, height, diabetes, arterial sheath diameters, and number of coronary catheters used were identical across the three groups. The rate of severe RAS was lowest in patients receiving isosorbide dinitrate (n=4, 3.8%), and verapamil (n=6, 5.5%), compared to diltiazem (n=12, 10.3%) but the difference was not statistically significant (p=0.128). The same results were found for minor RAS, respectively 17.4%, 16.0% and 25.6% (p=0.147). There was also no significant difference in term of safety events and pain sensation between the different groups. PCI was successful for all patients and there was no switch to transfemoral was reported in the entire population.

Conclusions: Frequency of severe RAS tended to be higher in patients receiving diltiazem compared to verapamil and isosorbide dinitrate during transradial procedures.

TCT-413
Left and Right Heart Catheterizations Utilizing the Radial Artery and Forearm Vein: a Single Center Experience
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Background: The transradial approach for left heart catheterization has become more frequent due to lower rate of major access site complications Even if the central venous access from periferal veins is an established technique, less data are available with regard to its use in the right heart catheterization.

Methods: We analyzed data on 764 patients who underwent left and right heart catheterizations in our hospital between January 2009 and March 2012. From January 2010 all 4 operators of the Cath-Lab have chosen the radial artery as a standardized approach for left catheterization and the forearm vein for the right catheterization. Procedural information, need of access shift, vascular complications, radiological data, duration of the procedure, type and amount of contrast agent were recorded.

Results: On this population, left and right heart catheterization utilizing the radial artery and superficial forearm vein were performed in 325 on 764 patients (45%), 302 (43%) patients underwent left and right catheterization trough the leg, 106 pts underwent left heart catheterization through the radial artery and right catheterization trough the femoral vein, 31 pts underwent left catheterization trough femoral artery and right catheterization trough femoral vein. From January 2011 the 82% of patients underwent complete cardiac catheterization trough radial artery and forearm vein. The vein shift from forenum to femoral vein occurred in 14 patients (4%) and the arterial shift from radial to femoral approach in 21 patients (6%). In the group of right heart catheterization utilizing the superficial forearm vein, complications related to the vein access occurred in 1 patients (artero-venous fistula); in the group of artery radial access site complications occurred in 2 patients (one artery perforation and one subclavian artery dissection); no case required surgical treatment.

Conclusions: The transradial artery and superficial forearm venous approach for bilateral cardiac catheterizations can be safe and feasible alternative to the femoral access. This approach can improve safety and patient comfort. Learn and take confidence with this cardiac catheterizations can be safe and feasible alternative to the femoral approach. This approach can improve safety and patient comfort.

TCT-414
Angiographic predictive factors of vascular complications after transcatheter aortic valve implantation in patients treated with Prostar closure device
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Background: Percutaneous techniques with closure device with transcatheter aortic valve implantation (TAVI), have diminished vascular complications, which nevertheless still occur. In this retrospective study we will report incidence and angiographic factors predictive of major vascular complications, in patients undergoing TAVI using Prostar® XL closure device as a default strategy.

Methods: Consecutive patients, who underwent TAVI transanibularly using Prostar® XL, were evaluated. The incidence of vc was evaluated according to VARC criteria. Using arterial angiography, the femoral-iliac arterial tortuosity was adjusted for large arterial diameters, and expressed as the ratio Total Tortuosity/Arterial Diameter (TT/AD). Arterial calcification, the combination of angulation and atheromatosis at the puncture site, and ideal puncture, were evaluated. The incidence of vc was evaluated according to VARC criteria. Using arterial angiography, the femoral-iliac arterial tortuosity was adjusted for large arterial diameters, and expressed as the ratio Total Tortuosity/Arterial Diameter (TT/AD). Arterial calcification, the combination of angulation and atheromatosis at the puncture site, and ideal puncture, were evaluated. The incidence of vc was evaluated according to VARC criteria.

Results: Of 112 patients treated with TAVI, in 84 patients (42 males (48.8%), 80.2±5.86 years, AVG: 0.65±0.14 cm2) the procedure was performed transfemorally. In patients with major vascular complications (17/84 (20.23%)) comparing to those without, arterial calcification (11 pts (64.7%) vs. 8 pts (11.9%), p<0.001) and the TT/AD (30.2 ± 11.25 vs. 22.06 ± 8.64, p<0.001) were independent predictors. A correlation of the angiographic TT with the one calculated with computed tomography in 10 selected patients was verified (r=0.66, p=0.013). Additionally, ideal puncture was achieved more frequently among patients without vascular complications comparing to those with major (94.1% vs. 70.6%, p=0.011). Blood transfusions (1.48 ± 0.37 vs. 2.45 ± 0.59, p=0.025) and procedural delays (5 ± 4.77 minutes vs. 22.71 ± 4.98 minutes, p<0.01) were more frequent among patients with major vascular complications (16/17). Finally, minimum creatinine clearance after TAVI predicted all-cause 30 days mortality (p=0.021).

Conclusions: Major vascular complications after TAVI with the use of Prostar closure device can be predicted by arterial calcification at the puncture site and TT/AD ratio. Minimum creatinine clearance after TAVI, predicted 30-day mortality.

TCT-415
Transradial Catheterization is Not Associated With Increased Patient Radiation Exposure Compared to Transfemoral Access: A Meta-analysis
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Background: We conducted a meta-analysis to determine whether transradial catheterization is associated with higher patient radiation exposure compared to transfemoral access.

Methods: Using various keywords, we conducted search at major electronic databases from 1950 to May 2012. We included original English language articles comparing transradial and transfemoral access and reporting patient radiation dose in dose area product and air kerma. Approximate means and standard deviations were obtained by assuming that data came from a Weibull distribution derived from Monte-Carlo algorithm.

Results: A total of 14 studies (3 randomized, 10 prospective, 1 retrospective) were included for analysis. A meta-analysis of all 14 studies revealed no difference in patient radiation dose between transradial and transfemoral access (standard difference in mean=0.11, 95% CI –0.04 to 0.25, p=0.15). Analysis of the randomized studies alone also showed no difference (standard difference in mean= 0.079, 95% CI –0.025 to 0.183, p=0.14). Figure-1 shows the forest plot of combined and the randomized studies. The heterogeneity was high (I squared= 94) with all studies combined, however the heterogeneity decreased after removal of the observational studies (I squared=37). This indicates that most of the heterogeneity came from the observational studies likely a result of biases inherent to non-randomized studies. Begg and Mazumdar’s correlation test showed no indication of publication bias (two tailed p=0.36).

TCT-416
Radiation Exposure Compared to Transfemoral Access: A Meta-analysis
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Conclusions: Transradial catheterization was not associated with higher patient radiation exposure than transfemoral access.