compared. This study was conducted in advanced cardiac center of postgraduate institute of medical sciences (PGIMER), Chandigarh.

Results: This study enrolled 722 patients who underwent PCI from January 2014 to June 2015. Transfemoral PCI with VCD use was done in 303 (42%) whereas transradial PCI was done in 419 (58%) patients. Mean age of patients was 59.2 ± 10.7 years in femoral group and 57.0 ± 10.5 years in radial group. Overall 83.4% were males. 59.8% in radial group and 40.2% in femoral group. Overall 32.4% were diabetic, 43.9% were hypertensive, and 23.4% were smoker and FHCAD was in 1.5%. The mean BMI was 25.2 in femoral group and 25.4 in radial group. Overall there were 47.8% patients with BMI in normal range. 46.1% were overweight. Patient with obesity were 5%, whereas only 1% were with BMI > 35. 39.3% patients were of STEM1, 32.8% were of USA/NSTEMI and 28% with chronic stable angina NYHA II/III. Out of 722 patients, 303 underwent transfemoral PCI with VCD use while 419 patients underwent transradial PCI. Out of 303 patient with transfemoral PCI, 7 French sheath was used in 28 (9.2%) patients with 6 French sheath in rest of patients. While in transradial group, 6 French sheaths were used in all patients. Overall 41 (5.7%) patients had complications. 19 (6.3%) patients of femoral group and 22 (5.3%) of radial group. Only minor complications were seen. In the subgroup analysis overall 5.9% diabetic, 8.7% hypertensive, 5.9% smokers, and 5.8% females had complications. The results were statistically not significant. In the subgroup analysis of BMI and complications, 47.8% complications were seen in patient with normal BMI, 46.1% in overweight patients, 5% in obese patients, and no complications seen in patients with BMI > 35. There was no statistical significant difference in either group. 7 (2.3%) patients had hematoma formation in femoral group while 1 (0.2%) patient had hematoma in radial group. All hematoma were less than < 5 cm in size. There was no observed case of local site infection, rebleeding, pseudoaneurysm, A-V fistula, loss of pulses or any sensory loss at access site in either group. There was no need of blood transfusion in any patient. No death was seen in either group. The mean time to ambulation after the PCI was 5.2 h in femoral group and 1.5 h in radial group. The mean time to discharge after PCI was 1.94 days in femoral group and 1.78 days in radial group.

Conclusion: We concluded that performing PCI in patients with CAD using TFA and VCD implantation is an attractive alternative to TRA. Performing PCI procedures using this strategy is easy for most operators, effective, minimizes local site complications to the level of TRA, and allows early rehabilitation of the patient. The duration and efficacy of PCI were comparable in both groups. Overall the use of vascular closure devices after PCI in the transfemoral group resulted in a similar incidence of access site and bleeding complications rates as in the transradial group.

Incidence and predictors of radial artery spasm in transradial coronary angiography

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Background: Radial artery spasm (RAS) is a complication of transradial approach and can occur during any phase of procedure. There is paucity of data regarding incidence and various predictors of radial artery spasm in Indian population. We assessed incidence and predictors of RAS in patients undergoing transradial coronary angiography.

Methods: In this prospective observational study, patients who underwent coronary angiography through transradial route were included. After proper local anesthesia, radial artery cannulation was done using 20-gauge needle, 0.021-inch guide wire and 6 French 11 cm long hydrophilic sheath (Lepu Medical). Intraarterial vasodilator cocktail of nitroglycerin (100–200 mcg) and diltiazem 2.5 mg was used along with 250U of intraarterial heparin. SF TIG (Terumo Corporation) catheter used for angiography. Sheath, catheters and wires were removed immediately following procedure and hemostasis obtained with pressure bandage. Radial spasm was assessed by questionnaire. Pain was rated using Numerical Rating Scale.

Results: Among, 501 patients, 26.3% developed RAS. RAS was more common in female than male (44.96% vs 19.89%, p < 0.001). Mean weights developing RAS 64.05 ± 11.99, mean BMI 25.43 ± 4.43, it was 65.51 ± 10.96 and 24.96 ± 3.81, respectively in controls (p = 0.242). RAS patients mean height 158.74 ± 9.12 compared to 162.02 ± 8.82 in controls (p < 0.001). 34.6% diabetics and 23.5% non-diabetic developed RAS (p = 0.013). Surprisingly, RAS occurred in 51.1% non-smokers and 18.9% of smokers (p = 0.002). Mean length of angiography in RAS patients 12.47 ± 7.10 min compared to 6.96 ± 3.16 min in controls (p < 0.001). Patients requiring > 1 attempt to cannulate radial artery, intensity of pain during cannulation and > 1 catheter use during angiography were predictors of RAS.

Conclusion: RAS is common during transradial coronary angiography. Female sex, short height, small body surface area, diabetes, increase length of procedure, > 1 attempt to cannulate radial artery, intensity of pain during cannulation and > 1 catheter use during angiography were predictors of RAS.

An important rare coronary anomaly (type 5 dual LAD) that may be missed by many cardiac interventionists!


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A 52-year-old male, known diabetic, hypertensive and smoker presented with unstable angina. His conventional (cath-lab) coronary angiogram revealed triple vessel disease, the images of which are displayed in the following pictures.

In LAO (left anterior oblique) cranial view, the regular left anterior descending (LAD) artery is short and stays in the anterior interventricular sulcus ending well before the cardiac apex. The distal LAD is not visualized through either homo or hetero-collaterals. Angiographically, the anterior portion of the apical septum is a branch of LAD because it is not supplied by regular LAD artery. In such cases, one should suspect Spindola-Franco type 4 or type 5 dual LAD distribution. In Type 4 dual LAD distribution, the long LAD arises along with right coronary artery (RCA) or in type 5 dual LAD arise separately from right sinus (in which case it may be missed in cath-lab angiograms). In our patient, long LAD originated separately along with a prominent right ventricular branch from right sinus. These anomalies are easily recognized in computed tomography coronary angiograms. Dual LAD had been reported to occur with an incidence of 1% by Spindola-Franco et al. In cath-lab, when dual LAD is strongly suspected, a non-selective injection in right aortic sinus may give clues regarding separate origin if selective engaging is not easily possible initially. However, it is important to recognize this variant in patients undergoing revascularization to prevent persistent ischemia.