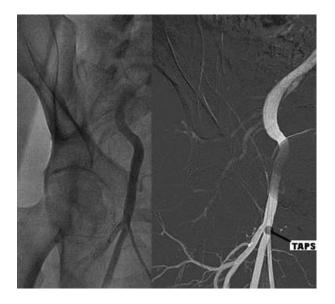## TCT-394

True Arterial Puncture Site (TAPS) is Different from Perceived Arterial Puncture Site (PAPS) on Femoral Sheath Angiography (FSA)

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Background: Following femoral arterial access, FSA is often performed with the sheath angled away from the common femoral artery(CFA) in an attempt to determine the puncture site. This information is then factored in when making decisions regarding a closure device. We hypothesize that determining the puncture site using the above technique may be inaccurate.

Methods: We prospectively performed 200 baseline FSA's at 17″ magnification in a 35-degree ipsilateral oblique view(IOV) as the sheath was angled medially away from CFA. We then performed FSA using fluoroscopic subtraction, capturing a contrast filled Mynx(AccessClosure Inc, USA) balloon(MB) as it was withdrawn to the TAPS during closure device deployment (See Image). Three independent operators, blinded to MB images, were asked to mark the PAPS on baseline angiograms. PAPS was then compared with TAPS (the center of the MB margin abutting against the vessel wall), and the distance between the two points was measured.

Results: See Table.

DISTANCE of TAPS from PAPS	Reader 1	Reader 2	Reader 3	Overall
< 3 mm	49 (24.5%)	29 (14.5%)	35 (17.5%)	113 (18.8%)
3 - 5 mm	93 (46.5%)	103 (51.5%)	109 (54.5%)	305 (50.8%)
> 5 mm	58 (29%)	68 (34%)	56 (28%)	182 (30.4%)
Median Distance	4 mm	5 mm	4 mm	-
TAPS distal to PAPS	193 (96.5%)	191 (95.5%)	195 (97.5%)	-
TAPS at site where angled sheath silhouette (ANSS) crosses CFA silhouette (CFAS) on FSA	-	-	-	194 (97%)

DEMOGRAPHICS	Height (cm)	Weight (kg)	BSA	Male
	167.99	83.8	1.93	111 (55.5%)
	Previous PCI	PVD	CVD	Diabetes Mellitus
	65 (32.5%)	40 (20%)	19 (9.5%)	86 (43.5%)
	Hyperlipidemia	Hypertension	Renal Failure	Tobacco History
	135 (67.5%)	177 (88.5%)	19 (9.5%)	126 (63%)

Conclusions: Using the MB as a gold-standard for isolating TAPS, we found that PAPS is often imprecise. When making decisions regarding closure devices, operators must be mindful of the fact that TAPS is often significantly lower than PAPS. A useful indicator of TAPS is the point where ANSS crosses CFAS in a 35-degree IOV FSA.

TCT-395

Ultrasound-Guided Radial Artery Access By A Non-Ultrasound-Trained Interventional Cardiologist Improved First-Attempt Success Rates And Shortened Time For Successful Radial Artery Cannulation

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Background: There is growing use of the radial artery for cardiac catheterization and coronary intervention. Palpation guided needle cannulation is the most common method of gaining access to the radial artery. However, if the artery is not cannulated on the first or second attempt, repeated attempts may be unsuccessful because of radial artery spasm, hematoma or intimal dissection. Ultrasound-guided radial artery access (UGRAA) may be a method to increase successful first attempt access rates and shorten time for successful cannulation.

Methods: Fifty consecutive patients underwent ultrasound-guided radial artery catheterization performed by an interventional cardiologist with little prior UGRAA experience (20 run-in cases). The diameter of the radial artery was measured before and 5 minutes after each patient received a sublingual dose of nitroglycerin. An ultrasound probe was placed on the patient's wrist to guide needle insertion into the radial artery. The time from the moment the needle was first inserted into the skin until the sheath was inserted into the artery and the number of attempts for cannulation were recorded. A single attempt was defined as both the forward movement of the needle and the withdrawal of the needle. A subsequent forward motion of the needle after previous needle withdrawal was counted as an additional attempt.

Results: All patients had successful UGRAA, 80% on the first attempt and 92% on the first or second attempt. The median time from start to sheath insertion was 35 seconds (25-75% interquartile 31-55 seconds) and the mean time was 61 seconds. There is little published data comparing palpation versus ultrasound guided radial artery cannulation, but two small studies showed a 49% first-attempt success rate for palpation, with a mean of time of approximately 120 seconds in a separate small study.

Conclusions: Comparing historical data to the study results, ultrasound-guided techniques improve first-attempt success and shorten the time needed for radial artery cannulation. A large randomized trial of palpation versus UGRAA is needed to confirm that UGRAA in fact increases the first attempt cannulation rate, and shortens the overall time of radial artery cannulation.

TCT-396

Assessment of early radial injury after transradial coronary intervention by high-resolution ultrasound biomicroscopy: Innovative technology application

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Background: The radial artery has become an alternative vascular access site for percutaneous coronary procedures. Transradial coronary intervention (TRI) introduces injury to the radial artery (RA) which will affect repeat transradial coronary procedure and the quality as a bypass conduit. We sought to compare the early radial injury after TRI between first-TRI and repeat-TRI by ultrasound biomicroscopy (UBM).

Methods: A total of 1116 patients who underwent the transradial coronary procedures were enrolled. The patients depending on whether for the first time to accept transradial coronary procedure divided into first-TRI group and repeat-TRI group. The radial artery (RA) was examined by UBM before and 1 day after the procedure.

Results: The early injuries were compared between first-TRI and repeat-TRI. Compared with first-TRI group, the mean RA diameter of repeat-TRI on 1 day after the procedure decreased significantly (P<0.05). In first-TRI group, the mean RA diameter was 2.32 ± 0.53 and 1.93 ± 0.57mm before procedure and 1 day after the procedure respectively (P <0.05). In repeat-TRI group, the mean RA diameter was 2.37 ± 0.51 and 1.79 ± 0.54mm before procedure and 1 day after the procedure, respectively (P <0.01). The early radial injuries and intimal thickening were compared between first-TRI and repeat-TRI. The mean intima-media thickness of RA was 0.24 ± 0.13mm and 0.59 ± 0.28mm before procedure and 1 day after the procedure in first-TRI group. The mean intima-media thickness of RA was 0.29 ± 0.16mm and 0.68 ± 0.32mm before procedure and 1 day after the procedure in repeat-TRI group. The frequency of acute injury was significantly higher in repeat-TRI RAs (P <0.01). Intimal dissection, Stenosis and Occlusion-were all significantly greater in repeat-TRI RAs (P<0.05). Linear regression analysis revealed that a repeated TRI procedure and small diameter was the independent predictor of intimal thickening.

Conclusions: RA early injuries were greater in repeat-TRI patients than in first-TRI patients. We first use high-resolution UBM imaging to demonstrate the rate of radial injury and revealed that a repeated TRI procedure and small diameter was the independent predictor of intimal thickening. So, care of the radial artery i.

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