CRT-100.90

Transradial Coronary Intervention (TCI) Using 5-Fr Versus 6-Fr Guiding Catheters in the Setting of Acute Coronary Syndrome (ACS)

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INTRODUCTION As in any vascular access, the size of guiding catheter is an operator preference. Although 5-Fr versus 6-Fr guiding catheters for transradial coronary intervention (TCI) have similar vascular safety profiles and can be performed safely and successfully with either, the data comparing the 5-Fr vs. 6-Fr guiding catheters for TCI in terms of fluoroscopy time, procedure time, and contrast amount in the setting of ACS is limited, and large RCTs are needed.

We conducted this study to compare the use of 5-Fr versus 6-Fr guiding catheters for TCI in the setting of ACS.

METHOD In this single-center retrospective cohort study, patients with ACS (STEMI, NSTEMI, and unstable angina) who underwent percutaneous coronary intervention using radial access (at least one stent) suing 5 Fr or 6 Fr guiding catheters in the period from July 2014 to July 2015 were included.

A total of 267 patients were included and divided into two groups; 5 Fr catheter group (203 patients) and 6 Fr catheter group (64 patients).

The primary endpoints were contrast amount, fluoroscopy time and procedure time.

The means for the primary outcomes were compared between the two groups (5 Fr vs. 6 Fr catheters) using Independent T score test.

RESULTS There was a significant reduction in the volume of contrast medium used with the 5 Fr group compared to the 6 Fr group (130.66 +/- 3.46 ml vs. 166.25 +/- 10.05 ml in the 5 and 6 Fr groups, respectively; $p < 0.001$) as well as with fluoroscopy time (12.62 +/- 0.50 min vs. 16.61 +/- 1.28 min in the 5 and 6 Fr groups, respectively; $p = 0.005$). Also there was significant reduction in the procedure time in the 5 Fr group (38.74 +/- 1.27 min vs. 46.03 +/- 2.86 min in the 5 and 6 Fr groups, respectively; $p = 0.023$).

CONCLUSION Percutaneous coronary intervention (PCI) using radial access in the setting of acute coronary syndrome (ACS) is safe and feasible, whether using 5 Fr or 6 Fr catheters. However using 5 Fr catheters for TCI could be preferred for patients presenting with ACS due to lower amount of contrast medium used and less fluoroscopy and procedure time.

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Assessment of the Clinical Determinants of Radial Artery Diameter Using Routine Prospective Forearm Angiography in Transradial Coronary Angiography

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BACKGROUND Transradial coronary angiography (TRA) is associated with improved bleeding, vascular complication and mortality in acute coronary syndromes as compared to the transfemoral approach, but radial artery diameter (RAD) has not yet been systematically studied in a U.S. urban population using routine prospective forearm angiography (FAA).

METHODS Consecutive patients (pts) with FAA acquired during TRA from September 2015 to August 2016 were retrospectively analyzed. Quantitative radial angiography (QRA) was performed on digital subtracted angiograms. RAD measurements (in millimeters) at distal (dRAD), mid (mRAD), and proximal (pRAD) segments, as well as minimum (minRAD) and maximum (maxRAD) diameters were indexed to radial arterial sheath size and measured. RAD measurements were adjudicated by 2 expert operators. Descriptive statistics and regression analyses were performed using Stata15 (College Station, TX).

RESULTS Of 175 FAA, 2 were excluded due to uninterpretable QRA. Clinical and radial artery characteristics are summarized (Table). Women had smaller RAD versus men at mRAD (2.87 vs. 3.04 mm, p=0.037), pRAD (3.11 vs. 3.33 mm, p=0.021), minRAD (2.36 vs. 2.59 mm, p=0.006), and maxRAD (3.32 vs 3.53 mm, p=0.0195). Univariate analysis showed correlation between minRAD and sex (p=0.012), age (p=0.019), and weight (p=0.008). However, after multivariate analysis, only sex was associated with minRAD (p=0.05).

CONCLUSION This is the first study to describe the clinical determinants of RAD using prospective FAA in TRA in a U.S. population. Women had significantly smaller RAD across mid, proximal, minimum, and maximum segments. Sex was the only multivariate predictor of minRAD.

Demographic and Clinical Variables	Male	Female	P-value
Mean Age (years)	64.4 ± 12.78	66.7 ± 11.4	0.11
Diabetes	42 (37.8%)	25 (37.8%)	0.08
Hypertension	100 (90.1%)	59 (89.1%)	0.58
PCI performed	37 (33.6%)	19 (28.6%)	0.25
Congestive Heart Failure	46 (41.4%)	27 (40.6%)	0.50
Previous Myocardial Infarction	24 (20.9%)	8 (12.5%)	0.08
Previous Coronary Artery Bypass Graft	24 (20.7%)	7 (10.9%)	0.50
Indication for Transradial Angiography			
Acute STEMI	6 (5.2%)	2 (3%)	0.25
NSTEMI/Unstable Angina	21 (18.1%)	10 (15.2%)	0.30
Stable Angina/Positive Stress Test	38 (32.8%)	23 (34.8%)	0.39
Radial Artery Diameter (RAD)			
Distal RAD (mm)	2.83 ± 0.57	2.71 ± 0.49	0.077
Mid RAD (mm)	3.04 ± 0.59	2.87 ± 0.50	0.037
Proximal RAD (mm)	3.33 ± 0.68	3.11 ± 0.62	0.021
Minimum RAD (mm)	2.59 ± 0.59	2.36 ± 0.53	0.006
Maximum RAD (mm)	3.53 ± 0.66	3.32 ± 0.59	0.0195

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Radial Hemostasis Study: A Randomized Comparison of Safeguard Radial and TR Band on Radial Artery Occlusion

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BACKGROUND Asymptomatic radial artery occlusion (RAO) is a major limitation of transradial catheterization (TRC). Two radial compression hemostatic devices are compared for their effect on RAO.

METHODS During 2016 in a prospective, randomized, single-center, blinded trial, 320 patients were randomly treated with a TR band (Terumo Corporation) or Safeguard Radial (Merit Medical). Institution-wide protocols consisting of anticoagulation, patent hemostasis, duration of compression, and use of 6 Fr slender sheaths (Terumo Corporation) were observed. Discomfort related to the device was recorded using the universal pain scale. Radial artery patency was evaluated by reverse Barbeau's test prior to discharge (1 hr post diagnostic and 6-24 hrs post-intervention) and at 30-days.

RESULTS Of the 320 patients, 155 were randomized to the TR group (TRG) and 159 to the Safeguard group (SGG), and 6 were excluded due to access failure. Demographic and procedural characteristics were similar with the exception of the type of procedure (Table). Both bands were equally effective in achieving patent hemostasis. Despite having a higher rate of post-procedure hematoma (1.29% TRG vs. 3.1% SGG, $p = 0.04$) and acute RAO (3.8% TRG vs. 6.28% SGG, $p = 0.05$) with the Safeguard band, at 30 days RAO was similar in both groups (1.9% TRG vs. 2.5% SGG; $p = 0.21$). Patients in the SGG reported significantly lower discomfort and were found to require less air to achieve patent hemostasis (Table).

CONCLUSION Evidence-based contemporary transradial catheterization protocols of using smaller diameter access sheath, anticoagulation, and use of just enough pressure for the shortest duration of time to achieve hemostasis is associated with very low RAO rate at 30 days irrespective of the brand of radial compression device used.

Demographic	TR Band (n=155)	Safeguard (n=159)	P
Age (mean yrs.)	64.34	65.21	0.38
Height (mean meter)	1.84	1.96	0.42
Weight (Kg	90.5	87.23	0.51
BMI	33.4	32.6	0.59
Male/Female (%)	63/37	65/35	0.51
Previous use of ipsilateral radial	19	21	0.29
Caucasian/Black/Others (%)	81/12/7	85/10/5	0.54
Prior use of ipsilateral Radial (once/twice/>3 times)	21/7/5	19/13/4	0.52
Platelet count (mean)	1.80	1.76	0.48
Active Oral Anticoagulant use (INR>1.5)	4%	6%	0.59
Procedural Characteristics			
Diagnostic Only/Intervention	92/63	114/45	0.03
Heparin ≥ 50 U/kg	155	159	
Time to Access (Lidocaine inj. To Sheath insertion in minutes)	2.03	2.08	0.57
Number of catheters exchanged (mean)	3.2	2.7	0.43
Posterior/Anterior Puncture technique	93%/7%	94%/6%	0.54
Number of attempts for access (1/2/>3)	87%/10%/2%	89%/9%/2%	0.42
Fluoro-time (minutes)	10.94	9.11	0.24
Contrast use (ml)	132	119	0.10
Amount of Air required for patent hemostasis (mean ml)	11.6	4.8	0.001
Minutes to achieve hemostasis (Diagnostic only)	79.30	84.21	0.39
Minutes to achieve hemostasis (Intervention)	132	141.20	0.43
Patent Hemostasis	86%	87%	0.52
Complications			
Minor bleeding	9 (5.8%)	10(6.2%)	0.75
Radial pseudoaneurysm	0	1 (0.6%)	0.41
Hematoma >2 cm	2 (1.29%)	5 (3.1%)	0.046
Device Crossover	1	2	0.50
Discomfort from the hemostatic band (No pain/ mild to moderate pain/ severe pain)	126 /29/0	141/17/0	0.04
Radial occlusion (At discharge)	6 (3.8%)	10 (6.28%)	0.05
Radial occlusion (At 30 days)	3 (1.9%)	4 (2.5%)	0.10

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The Procedural Success and Complication Rate of the Left Distal Transradial Approach

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BACKGROUND Current updated guidelines recommend the use of radial approach rather than femoral approach in terms of immediate ambulation, less bleeding complication and reduced mortality rate. Recently, the left distal transradial approach (ldTRA) has been introduced as an alternative for feasibility and safety while satisfying both patient and operator convenience. However, there are few studies related to ldTRA. The purpose of this prospective observational study is to assess the feasibility and safety of the ldTRA for coronary angiography (CAG) and percutaneous coronary intervention (PCI).

METHOD Two hundred patients with palpable left distal radial arteries and need to perform CAG or ad hoc PCI were prospectively enrolled. Co-primary endpoints were the success rate and complication rate of CAG and PCI via ldTRA.

RESULT Fifty-six patients were enrolled during 4weeks. Mean age was 64.3±13.3 years (median: 62) and there were more men (n=38, 67.9%) than women (n=18, 32.1%). Acute coronary syndrome (myocardial infarction: n=18, 32.2%; unstable angina: n=19, 33.9%) was the most common condition, followed by stable angina (n=7, 12.5%). Ad hoc PCI was n=29 (52%), and only diagnostic CAG was n = 27 (48%). Two cases of puncture failure (3.57%) via ldTRA were observed. Where puncture was successful, CAG and ad hoc PCI succeeded. There were no serious bleeding complication and nerve injury.

CONCLUSION In this ongoing prospective registry, CAG and ad hoc PCI via ldTRA showed good feasibility and safety. Updated data will be presented.

TRIAL REGISTRATION Clinicaltrials.gov NCT03292367 Registered on 25 September, 2017

SVG INERVENTION

CRT-100.95

Drug Eluting Stents Versus Bare Metal Stents in Saphenous Vein Graft Interventions. Evidence From a Meta-analysis of Randomized Controlled Trials

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BACKGROUND The optimal stent type in saphenous vein graft (SVG) intervention remains debatable. Multiple randomized controlled trials (RCTs) compared drug-eluting stents (DES) with bare-metal stents (BMS) in SVG intervention with conflicting results.

METHODS We searched the online databases for RCTs comparing DES with BMS in SVG percutaneous coronary interventions (PCI). We performed meta-analysis using random effects model to calculate the risk ratio for outcomes of interest.

RESULTS A total of 6 RCTs including 1582 patients undergoing PCI of SVGs. The mean follow-up was 24.6 months. The mean age was 70.2 vs. 70.1 years with DES and BMS, respectively. Indication for PCI was acute coronary syndrome in 42.4% in the DES group and 45.9% in the BMS group. The mean age of the SVG was 12.2 years in the DES group and 13.08 in the BMS group. Embolic protection was used in 66.2% in DES vs. 69.5% in the BMS group. All-cause mortality was not significantly different between DES (12%) vs. BMS (9.7%) (OR 1.28, 95% CI 0.73 - 2.26; p = 0.39), neither was cardiac death 8.3% vs. 5.9% (OR 1.31, 95% CI 0.42 - 4.05, p = 0.64). Major adverse cardiovascular events were also not significantly different (19.6% vs. 27.7% (OR 0.57, 95% CI 0.3 - 1.08, p = 0.08)), nor myocardial infarction (10.7% vs. 13.5% (OR 0.74, 95% 0.45 - 1.21, p=0.23)). There was a trend toward fewer target vessel revascularizations with DES (15.4%) vs. BMS (19.1%) (OR 0.56, 95% CI 0.31 - 1.0: p=0.052).

CONCLUSION At a mean of 24 months of follow-up, no difference was observed in clinical outcomes between DES and BMS in SVG interventions. A trend toward fewer target vessel revascularizations with DES compared to BMS was observed and is hypothesis-generating.