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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.