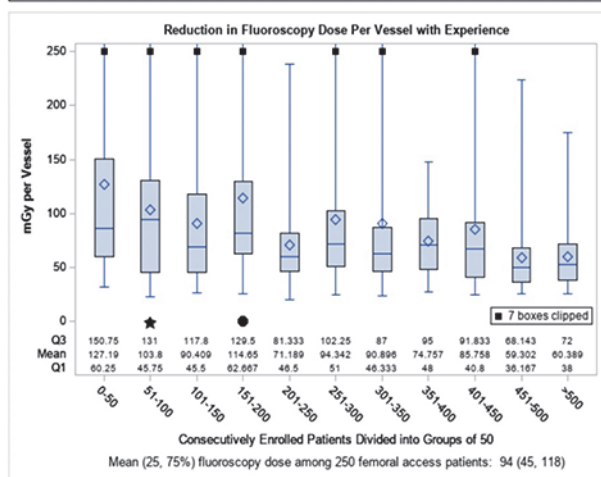
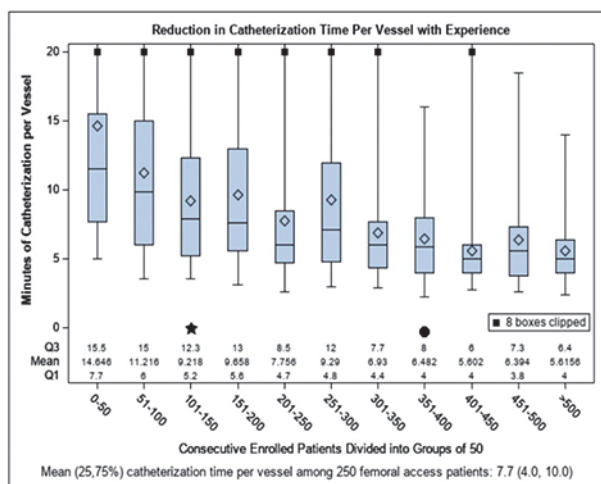


**Abstract E-178 Table 1** Comparison of Femoral to Radial Access Procedure Metrics (values are mean, median (IQR))

Metric	Femoral (n=250)	Entire Radial Cohort (n=545)	Reduced Radial Cohort (n=445)	Significance (femoral vs entire radial cohort)	Significance (femoral vs reduced radial cohort)
Vessels injected	3.9, 4 (3)	3.9, 4 (3)	4, 3 (3)	p=0.69	p=0.42
Duration (min)	22,21 (10)	25,24 (13)	24, 23 (14)	p<0.001	p<0.001
Duration/vessel (min)	7.7, 5.5 (5.9)	8.5, 6.5 (5.4)	7.5, 6 (4.6)	p<0.001	p=0.30
Fluoro time (min)	5.2, 4.6 (3.8)	7.6, 6.7 (5.5)	7.4, 6.6 (5.4)	p<0.001	p<0.001
Fluoro time/vessel (min)	1.7, 1.3 (1.0)	2.4, 1.8 (1.4)	2.0, 1.6 (1.1)	p<0.001	p<0.001
Fluoro dose (mGy)	318, 220 (229)	290, 237 (219)	293, 240 (225)	p=0.90	p=0.74
Fluoro dose/vessel (mGy)	94, 70 (72)	89, 67 (55)	83, 65 (52)	p=0.35	p=0.06
Contrast dose (mL)	63, 60 (45)	60, 60 (40)	60, 60 (40)	p=0.33	p=0.37
Contrast/vessel (mL)	19.7, 16 (10.6)	18.5, 15 (9.6)	17, 15 (8.8)	p=0.05	p<0.001



**Abstract E-178 Figure 1**

compared to a cohort of two hundred fifty consecutive trans-femoral cerebral angiograms from the preceding year.

**Results** Five hundred forty-five patients of 645 patients (84%) underwent primary radial access for diagnostic cerebral angiography (460 proximal radial, 85 distal radial). Compared to the femoral standard, radial cohort procedure duration/vessel and fluoroscopy time/vessel were significantly longer, but the fluoroscopy dose/vessel was statistically similar. The radial contrast dose/vessel was significantly less than the femoral standard. With experience, radial procedure duration/vessel and fluoroscopy dose/vessel became

significantly better than the femoral standard and the fluoroscopy time/vessel become statistically similar at the p=0.05 level. The radial to femoral conversion rate was 3.3%. There were no major periprocedural complications in the radial group.

**Conclusions** With experience, transradial cerebral angiography became better than or equal to the femoral standard in all procedure parameters with fewer complications and equal diagnostic utility. These findings add additional support for expanding use of transradial access for routine cerebral angiography.

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**E-179 TACTILE DEFORMABLE SOFT ROBOTS FOR ENDOVASCULAR MICROCATHETER NAVIGATION, PLACEMENT AND STABILITY**

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Endovascular procedures are limited by an absence of effective actuation methods for navigation and precise device positioning. The existing panoply of passive guidewires and catheters for the treatment of cerebral aneurysms, in particular, leaves neurointerventionists without a treatment option in at least 25% of patients. A key reason is the inability to steer the tip of the microcatheters in vivo. We overcome this problem with sub-millimeter diameter hydraulically-actuated hyperelastic polymer devices connected over a 160 cm length. These provide controlled 3D orientation of acute tip curvatures beyond 180 degrees at pressures of 400kPa that achieves stable coil deployment in vivo. This method uses saline as the working fluid, and forms a closed system from the steerable tip to the hydraulic actuator offering safety, ease of use, and design flexibility absent in approaches that require external actuation.

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