E-112 TRANSRADIAL APPROACH FOR INTRAOPERATIVE ANGIOGRAPHY IN NEUROSURGERY: A SAFE AND EFFECTIVE ALTERNATIVE

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Introduction Intraoperative angiography (IOA) is an essential tool for neurosurgery to confirm aneurysm occlusion, parent vessel patency, and effects of other cerebrovascular surgeries. Although the transradial approach for neuroangiography is becoming more popular, it has not been thoroughly studied for IOA. Therefore, we aimed to evaluate the safety and feasibility of transradial IOA in various indications.

Methods We conducted a retrospective study at our academic institution on consecutive patients aged 18 years or older who underwent IOA between April 2019 and December 2022 with attempted vascular access to the upper extremity. Data were collected on patient characteristics and surgical indications, procedural variables, and complications.

Results Seventy consecutive patients were included. The mean age was 52.9 ± 14.0 years, 58.6% were female, 15.7% were current smokers, and the median body mass index was 27.6. Access was attempted via the radial artery in 60 (85.7%) patients [52/60 (74.3%) right arm, 29/60 (41.4%) distal transradial approach] and the ulnar artery in 14.3% of patients [3/10 (30.0%) right arm]. Of these patients, 60.0% had aneurysm clipping, 20.0% AVM resection, 15.7% dAVF resection, 2.9% decompression for bow hunter syndrome, 1.4% meningioma resection, and 1.4% bypass surgery for Moyamoya disease. Patients were positioned supine in 78.6% of cases, prone in 18.6%, and three-quarters prone in 2.9%. The procedure was successful in 98.6% of cases, as one required conversion to femoral access due to significant spasm in the proximal right radial artery. No procedure was aborted, and no patient experienced angiography-related or access-site complications. The median fluoroscopy time was 8 (5.4-11.4) minutes. IOA changed the surgical management in 3 (4.3%) cases. Re-access for follow-up angiography was unsuccessful in three (13.6%) of 22 cases due to radial artery occlusion.

Conclusion Our findings support that transradial IOA is a safe and feasible alternative to femoral access in various neurosurgical indications and positions.

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Abstract E-112 Table 1 Procedural characteristics

Variables	Patients/procedures (n=70)
Vessels selected, median (IQR)	1.0 (1.0-2.0)
Fluoroscopy time, median min (IQR)	8.0 (5.4-11.4)
Fluoroscopy time/vessel, median min (IQR)	5.4 (3.6-8.3)
Contrast dose, median mL (IQR)	50.0 (30.0-80.0)
Contrast dose/vessel, median mL (IQR)	30.0 (25.0-50.0)
Dose Area Product, median μGym^2 (IQR)	7025.9 (5255.5-9647.0)
Dose Area Product/vessel, median μGym^2 (IQR)	4758.6 (3493.4-7346.4)
Reference Air Kerma, median mGy (IQR)	482.2 (329.2-777.1)
Reference Air Kerma/vessel, median mGy (IQR)	327.6 (230.2-530.1)

E-113 LOWER LOW-DENSITY LIPOPROTEIN LEVEL INCREASES THE RISK OF DELAYED PARENCHYMAL HEMATOMA FOLLOWING ENDOVASCULAR THROMBECTOMY

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Introduction Low levels of low-density lipoprotein (LDL) have been suggested to increase the risk of hemorrhagic transformation following acute ischemic stroke (AIS). However, the literature on the relationship between LDL levels and post-thrombectomy hemorrhagic complications is sparse. The aim of this study is to investigate the association between LDL level and delayed parenchymal hematoma (PH) following endovascular treatment for AIS.

Materials and Methods Upon obtaining institutional review board approval, we conducted a retrospective analysis of all patients with large vessel occlusion ischemic stroke who underwent thrombectomy at a comprehensive stroke center from 2018-2021. All patients received dual-energy head CT (DEHCT) immediately post-thrombectomy and MRI or CT at 24 hours as routine standard of care. The presence of contrast and/or hemorrhage was assessed by iodine map and virtual non-contrast images of DEHCT. Delayed PH was determined by 24-hour imaging. Patients with hemorrhage on DEHCT were excluded. For univariate analysis, chi-squared and Mann-Whitney tests were performed for categorical and continuous variables, respectively. We then performed multivariate logistic regression using stepwise backward elimination to determine independent predictors of delayed PH.

Results A total of 160 patients without hemorrhage on post-thrombectomy DEHCT were included in the analysis. Among them, 18 patients (11%) developed delayed PH on 24-hour imaging. On univariate analysis, delayed PH was associated with lower LDL level (75.83 mg/dL vs. 94.78 mg/dL, p=0.040), lower high-density lipoprotein level (35.94 mg/dL vs. 42.86 mg/dL, p=0.048), higher presenting NIHSS (20.00 vs. 14.80, p=0.0194), higher contrast volume (55.51 mL vs. 9.07 mL, p<0.001), higher mean contrast density (27.60 HU vs. 13.81 HU, p<0.001), larger standard deviation of contrast density (11.36 HU vs. 4.75 HU, p<0.001), and higher maximum contrast density (100.33 HU vs. 38.89 HU, p<0.001). Statin use and triglyceride level were not associated.

In the multivariate logistic regression model, contrast volume (OR:1.05, 95% CI:1.02-1.0877, p=0.0035, per 1 mL increase) and LDL level (OR:0.95, 95% CI:0.92-0.99, p=0.01, per 1 mg/dL increase) were associated with delayed PH following thrombectomy. After adjusting for potential confounders, LDL<50 mg/dL (OR:5.38, 95% CI:1.70-17.04, p=0.004) was an independent predictor of delayed PH, while LDL >100 mg/dL (OR:0.26, 95% CI:0.07-0.96, p=0.041) was a protective factor.

Conclusion LDL level <50 mg/dL independently predicted delayed PH following thrombectomy and LDL >100 was shown to be a protective factor, irrespective of statin use. Further study is needed to explore the underlying mechanism and