Conclusion The R^2^Q family of catheters incorporates novel technology for CA. This series demonstrates a high FPE and similar rates of SR compared with published data using other aspiration catheters. Further prospective studies of this technology are planned to evaluate its clinical efficacy.

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**E-067** REDUCING TIME TO REVASCULARIZATION IN ACUTE ISCHEMIC STROKE

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Background Endovascular treatment (EVT) of large vessel occlusions in the treatment of disabling strokes is more effective if reperfusion is achieved quickly. Streamlining protocols from patient presentation to groin puncture can lead to improved timelines to treatment and functional outcomes.

Purpose The purpose of this study was to identify the impact of specific hospital based process improvement strategies in the acute ischemic stroke patient population undergoing endovascular therapy with the specific intent to decrease median arrival to groin puncture. Our multidisciplinary events to review pre and intraprocedure work flow as part of a process improvement (PI) project began in November 2018 during fiscal year (FY) 2019 (9/1/2018–9/1/2019) and implementation of recommendations began FY 2020 (9/1/19–12/31/19).

Methods The study includes a pre- and post-intervention retrospective review of consecutive patients 18 years or older, hospital admission between September 1, 2016 and December 31, 2019, who underwent EVT for treatment of acute ischemic stroke. Patients experiencing acute stroke within an established hospital admission were excluded from analysis. The primary outcome variables were time from arrival to groin puncture and first pass during the acute ischemic stroke admission. The data points were collected from internal stroke review dataset and anonymized prior to analysis. All but two of our cases used general anesthesia.

Results In FYs 2017 (9/1/16–9/1/17) and 2018 (9/1/17–9/1/18) before intervention our median door to needle times were 94 minutes in FY 2017 (37 patients) and 113 minutes in FY 2018 (48 patients). Our median door to first pass times were 114 minutes in FY 2017 and 139 minutes in FY 2018. Post intervention our door to groin puncture times were 64 minutes in FY 2019 (64 patients) and 56 minutes in FY 2020 (35 patients). Our median door to first pass times were 86 minutes in FY 2019 and 74 minutes in FY 2020. The drop in door to groin puncture and door to first pass times pre and post intervention were statistically significant (P<0.05).

Conclusions Having multidisciplinary team events dedicated to PI alone (which provided education and awareness to multiple stakeholders) resulted in a substantial decrease in median door to groin puncture and door to first pass times. Implementation of hospital based PI initiatives to improve work flow including: early endovascular team activation, a streamlined transport process, a streamlined patient preparation process in the lab, and utilization of a feedback tool resulted in continued improvement in door to groin puncture and first pass times.


**E-068** IMPROVING EFFICIENCY OF ACUTE ISCHEMIC STROKE THERAPIES: REDUCING DOOR-TO-NEEDLE AND DOOR-TO-PUNCTURE TIME

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Introduction/Purpose Early recanalization has been associated with a higher likelihood of favourable clinical outcome in acute ischemic stroke (AIS). It is imperative that stroke systems of care are set up to minimize workflow latencies that delay initiation of reperfusion therapies, i.e. IV tPA and mechanical thrombectomy (MT). Guidelines recommend a maximum door-to-needle (DTN) time of 60 minutes and a door-to-groin puncture time (DGPT) of 90 minutes in 50% of cases of large vessel occlusion (LVO). We aimed to evaluate various workflow latencies during stroke code, including door-to-needle and door-to-groin puncture times, prior to and
following initiation of internal quality improvement (QI) initiative at St Louis University Hospital (SLUH).

Materials and Methods All patients who received IV-tPA or MT at SLUH from December 2016 to May 2018 and July 2018 to December 2019 were included in this study and dichotomized into ’Pre-intervention’ and ’Post-intervention’ groups. Chart review data including patient demographics, arrival method, and risk factors were collected retrospectively. In addition, relevant times were collected which included time of ED arrival, time of NIHSS, time of CT acquisition, time of tPA bolus, time of groin puncture, and time of recanalization. NIHSS at discharge and complications of therapy were also collected.

Results For those receiving tPA, mean time to NIHSS was similar in the pre- and post-intervention groups, 4.28 minutes and 3.88 minutes, respectively (t=0.25, p=0.80); mean time to CT acquisition was also similar, 11.28 minutes and 12.53 minutes (r=-0.53, p=0.60). However, mean time for DTN decreased from 42.52 minutes to 33.87 minutes following the quality improvement initiative (t=2.29, p=0.02). tPA post-intervention patients were less likely to have asymptomatic ICH (χ²=6.22, p=0.01) and less likely to have other complications (χ²=4.66, p=0.03). For those receiving MT, mean time to NIHSS similar in both groups, 3.81 minutes compared to 5.55 minutes in the post-intervention group (t=0.66, p=0.51); mean time to CT acquisition was 10.53 minutes compared to 12.23 minutes (t=-0.52, p=0.60). DGPT decreased from 101.81 minutes to 75.91 minutes (t=-3.48, p=0.001) and mean time to recanalization decreased from 176.89 minutes to 109.74 minutes (t=6.68, p<0.001). In the MT group, no significant differences were found in complication rates between the pre- and post-intervention groups.

Conclusion Our internal QI Initiative to improve workflow latencies in the Code Stroke Protocol resulted in statistically significant reductions in DTN and DGPTs.

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E-069 PREVENTABILITY OF STROKE DUE TO LARGE VESSEL OCCLUSION TREATED WITH MECHANICAL THROMBECTOMY

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Background and Objective Mechanical Thrombectomy (MT) is standard treatment for acute ischemic stroke due to large vessel occlusion (LVO). However, extent of preventability of these strokes is generally not addressed. This study analyzes stroke preventability for patients treated with MT for LVO.

Subjects and Methods We conducted retrospective analyses of stroke patients treated with MT for LVO at UC Irvine Medical Center from June 2008 to March 2019. We obtained data including age, NIH Stroke Scale (NIHSS) at onset, and (beginning in 2015) 90-day outcome measured by modified Rankin Scale (mRS). We used the Stroke Preventability Score (SPS, 0–10 points) from our prior work (JAMA Neurology 2016, 73:186), based on how well patients had been treated given their hypertension, hyperlipidemia, atrial fibrillation, and prior stroke history. We examined associations of SPS with age, NIHSS at onset, and mRS.

Results For 301 patients treated with MT for LVO, mean ± standard error of age was 60±0.1 years (range 18–97) and NIHSS was 17±0.4 (range 0–37, n=282); one-third (n=96) were male. SPS was calculated for 273 patients, with mean ±SE 2.1±0.1 (range 0–8). Over two-thirds (n=184, 67%) demonstrated some degree of preventability (SPS 1 or higher), while 23% (n=64) showed high stroke preventability (SPS 4 or higher). Among those with high SPS, atrial fibrillation with no treatment was seen in 54 (85.7%) patients. Among 119 patients with mRS data, stroke preventability was associated with age (66±2.5, 69±2.4 and 79±1.7 years for no, high and high SPS, respectively; p<0.002). Stroke preventability was also associated with NIHSS at onset (15 ±1.3, 16±0.9, and 20±1.4 for no, low and high preventability, respectively; p<0.04). SPS was significantly correlated with age (r=0.33, p<0.0002), NIHSS (r=-0.29, p=0.002), and mRS (r=-0.22, p=0.02). The partial correlation coefficient for SPS remained significant after adjusting for age and NIHSS.

Conclusion Nearly one-quarter of patients, with LVO treated with MT, presented with strokes that were highly preventable. High stroke preventability tended to be seen in older patients, patients with more severe deficits, and (to a lesser extent) patients with poor outcome. Severe LVO strokes with the worst outcome (post-mechanical thrombectomy) tended to be the most preventable strokes. While most acute stroke treatment efforts focus on streamlining workflow, these findings demonstrate the enduring importance of stroke prevention in this patient population. These findings raise the question whether resources for treatment of acute stroke are being directed toward patients whose strokes are the most preventable.


E-070 ENDOVASCULAR TREATMENT OF THE VERTEBRAL ARTERY ORIGIN STENOSIS BY USING THE CLOSED-CELL, SELF-EXPANDABLE CAROTID WALLSTENT

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Background Endovascular treatment has been considered a good alternative to surgery for symptomatic vertebral artery origin stenosis (VAOS) due to the high risk of morbidity associated with surgery. The purpose of this study was to evaluate the feasibility and efficacy of insertion of the closed-cell, self-expandable Carotid Wallstent for treatment of VAOS.

Methods The records of 72 patients with VAOS refractory to adequate medication who were treated by endovascular treatment with the Carotid Wallstent from December 2004 to November 2010 were retrospectively evaluated.

Results Of the 72 patients, 43 presented with transient ischemic attacks. Forty-seven patients (65.3%) manifested other brachiocephalic stenoses; of these, 40 patients had occlusion, hypoplasia, or stenosis of the contralateral vertebral artery. Overall technical success (defined as 20% or less residual stenosis) was 100%. Procedure complications (n=8, A68


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