

E-144 INITIAL EXPERIENCE OF THE DERIVO EMBOLIZATION DEVICE FOR THE TREATMENT OF UNRUPTURED INTRACRANIAL ANEURYSMS IN REGARDING SAFETY AND TECHNICAL FEASIBILITY

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The aim of this study is to evaluate the technical feasibility of the Derivo Embolization Device (DED). Implantation of the DED was attempted in 10 aneurysms. The procedures were technically successful in all cases. Balloon angioplasty was performed for better wall apposition in one case. There are no procedure-related complications. Endovascular treatment with the DED is associated with high success rates. DED has a great opening pressure for better wall apposition. However, more stiff characteristic of the stent compared to other flow diverters is a weakness.

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E-145 MORTALITY FOLLOWING MECHANICAL THROMBECTOMY FOR ISCHEMIC STROKE IN PATIENTS WITH COVID-19

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Introduction Multiple prior studies have established a relationship between COVID-19 and ischemic stroke, which is likely multifactorial in nature. That said, while COVID-19 likely has a direct impact on the pathophysiology of stroke, it has also been shown to influence the acute treatment response to stroke, with increased time-to-thrombectomy and decreased overall thrombectomy rates. Using large-scale, recently released national data, this study assessed the effect of COVID-19 on patient outcomes following mechanical thrombectomy.

Methods Patients in this study were identified from the 2020 National Inpatient Sample. All patients with arterial strokes undergoing mechanical thrombectomy were identified using ICD-10 coding criteria; those with venous infarctions or other causes of stroke were excluded. Patients were further stratified by COVID-19 diagnosis (positive vs. negative). Other covariates, including patient/hospital demographics, disease severity, and comorbidities (assessed via both APR-DRG risk of mortality and Elixhauser Comorbidity Index) were collected. Multi-variable analysis was used to determine the independent effect of COVID-19 on both in-hospital mortality and unfavorable discharge.

Results 5078 patients were identified in this study; 166 (3.3%) were found to be COVID-19 positive during their hospitalization. COVID-19 patients had a significantly higher mortality rate (30.1% vs. 12.4%, $p < 0.001$). Patients with COVID-19 were more likely to be younger in age ($p < 0.001$) and had higher APR-DRG risk of mortality/illness severity. There was no significant difference in Elixhauser Comorbidity Index (ECI) when stratified by COVID-19 status.

When controlling for patient/hospital characteristics, APR-DRG disease severity, and ECI, COVID-19 was an

independent predictor of increased mortality following mechanical thrombectomy (OR 1.13, $p = 0.002$). COVID-19 was not significantly related to discharge disposition ($p = 0.480$). Older age and increased APR-DRG disease severity were also correlated with increase mortality.

Conclusion Overall, this study indicates that COVID-19 is a predictor of mortality among mechanical thrombectomy. This finding is likely multifactorial but may be related to multisystem inflammation, hypercoagulability, and re-occlusion seen in COVID-19 patients. Treatment-related factors, such as delays in care, may also play a role. Additional research would be needed to further delineate these findings.

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E-146 OPEN RESECTION FOR UNRUPTURED CRANIAL ARTERIOVENOUS MALFORMATIONS WITH ARUBA TRIAL: A NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM STUDY

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Background In 2014, A Randomized Trial of Unruptured Brain Arteriovenous Malformations (ARUBA) concluded that medical management alone for cranial arteriovenous malformations (AVMs) had better clinical outcomes than interventional treatment. A significant decrease followed this finding in the rate of open AVM resection compared to endovascular treatment. The ARUBA study's impact on changes in intervention and outcomes rates is unknown. Thus, we investigated whether the conclusions from ARUBA may have influenced the outcomes following the open resection of unruptured AVMs.

Methods The National Surgical Quality Improvement Program (NSQIP) was queried between 2010 and 2020 for adult patients who underwent open resection of unruptured AVMs. Logistic regression was used to assess the odds of postoperative rupture, upper quartile (Q3) of LOS (≥ 12 days), and operative time (≥ 327) following open resection of AVMs. Join-point regression was used to assess differences in outcomes of the following resection before and after the time-point (2014).

Results A total of 760 patients underwent open resection of AVMs between 2010 and 2020, with 20% ruptured (N=152). The postoperative Q3 LOS, operative time, and postoperative AVM rupture rates decreased between 2010 and 2020 ($p < 0.01$). Comparing pre and post-ARUBA periods, we found that the pre-ARUBA period (OR= 1.71, $p=0.03$), transfer from non-home (OR= 2.79, $p < 0.01$), and ventilation for > 48 hours (OR= 2.6, $p=0.02$) are more likely to increase the risk of AVM rupture following resection. Age (OR= 1.03, $p < 0.01$), Higher preoperative WBC (OR= 1.1, $p < 0.01$), platelet count (OR= 1.003, $p=0.02$) and ventilation for > 48 hs (OR= 5.57, $p < 0.01$) are more likely to increase the risk of extended LOS following resection while smoking is more likely to increase the risk of Q3 operative time (OR= 1.49, $p < 0.01$). For the post-ARUBA period, preoperative INR (OR= 15.64, $p < 0.01$), partially independent functional status (OR= 5.31, $p < 0.01$), and ventilation for > 48 hours (OR=