and reduce the financial burden of stroke on the healthcare and hospital system.


E-050 PROPER INDICATION FOR DECOMPRSSIVE CRANIECTOMY FOR THE PATIENT WITH MASSIVE BRAIN EDEMA AFTER INTRAARTERIAL THROMBECTOMY

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Objective There have been many reports showing that early decompressive craniectomy (DC) within a limited time window for a large hemispheric infarction has been effective in saving one’s life and improving a neurologic outcome. However, most of these reports had studied before the intraarterial thrombectomy (IA-Tx) has become a popular treatment. The objective of this study was to find the proper indications for DC after IA-Tx and the effect of successful recanalization after IA-Tx on neurologic outcomes.

Methods A total of 67 patients with anterior circulation infarction who underwent DC after treating with IA-Tx who were included in this study. Glasgow coma scale (GCS), initial intracranial pressure, midline shifts and surgical time window were measured for all patients just before DC. Successful recanalization was evaluated after IA-Tx. These factors were analyzed for neurologic outcomes (favorable outcome: 0~2 mRS) at 90 days after the treatment.

Results For the patients treated with IA-Tx and DC, the GCS ≥ 8 had the lowest neurologic status (p = 0.013). The successful recanalization after IA-Tx had a significant influence on favorable outcomes (p = 0.001) and mortality (p = 0.000). However, surgical time window (p = 0.803) and midline shift (p = 0.247) were not correlated with favorable outcomes.

Conclusion On this study, results suggest that the surgical indication for DC after IA-Tx should focus on patient neurologic status (GCS ≥ 8) rather than surgical time window, similar to the treatment guideline for DC in traumatic brain injury.

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E-051 RACIAL AND SOCIOECONOMIC DISPARITIES IN INTRACRANIAL HEMORRHAGE OUTCOMES: ANALYSIS FROM THE NATIONALWIDE INPATIENT SAMPLE

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Introduction Primary intracranial hemorrhage (ICH) is a significant cause of morbidity and mortality. We sought to determine the impact of race and socioeconomic status on the clinical outcome.

Methods Nationwide Inpatient Sample from 2006 to 2015 were reviewed to identify patients with primary diagnosis of primary ICH with ICD-9 (431.XX). Baseline characteristics, and disease severity were compared between patients with good outcome and those with poor outcome or in-hospital mortality. Good outcome was defined as discharge to home or acute rehabilitation facility. Propensity score matching was utilized to control for significantly different potential baseline confounders. Following grouping by race and demographic characteristics, outcomes were compared with respect to all-cause mortality, discharge disposition, length of stay, and hospitalization costs. T-tests (numerical variables) and chi-squared (categorical) or their nonparametric alternatives were utilized to compare outcomes, as appropriate. Odds ratios were calculated for each respective predictor. Statistical significance was set p<0.05.

Results A total of 16497 cases met inclusion/exclusion criteria, representing a total of 82087 patients with ICH from years 2006 to 2015. Mean age was 57.6 (sd 17.7), with 45.8% patients being female. Of the patients presenting, 63.8% were White, 15.2% Black, 11.2% Hispanic/Latino, 4.7% Asian, 0.6% Native American, and 4.5% Other. Most patients had Medicare (39.7%) or private insurance (35.2%) as the primary insurance, with 15.5% on Medicaid.

Racial Breakdown After controlling for baseline characteristics via propensity matched analysis, Black patients had higher rates of inpatient mortality than White (odds ratio [OR] 1.25; confidence interval CI: [1.12,1.39]). Hispanic/Latino [OR 1.07; CI [0.94,1.22]], Asian OR 0.99; CI [0.81,1.20]), Native American (OR 1.09, CI [0.63, 1.79]), and Other (OR 1.05, CI [0.86, 1.27]) did not have significantly different odds of mortality. Black patients were slightly less likely to receive a craniotomy (OR .95, CI [0.91, 0.99]) than White, while all other racial groups were more likely to receive a craniotomy than White. Hispanic/Latin had the highest mean charge (139284 sd 217618), followed by Asian (132645, sd 198542), and Other (121742 sd 191789); (p<0.01). White patients had the shortest length of hospitalization (mean 8.1 days, p<0.0001), an effect which reversed after propensity matching for age and comorbidities.

Insurance Breakdown Patients on Medicaid had the highest mean cost (162607 sd 256707) and were likely to stay the longest (mean 16.1 days sd 24.6), followed by patients who were privately insured (113738 sd 181902). There was no significant difference in odds of mortality for any insurance except self pay/other (OR 1.21; CI: [1.13,1.29], as compared to Medicare) based on insurance when controlling for disease severity and comorbidities. Medicare patients were the least likely to receive a craniotomy (p<0.01). There was a significantly lower discharge to home for Medicare vs non-Medicare patients (p<0.01).

Conclusions This analysis of nationally representative database demonstrates racial and socioeconomic disparity in the outcome of primary ICH independent to the disease severity. African-Americans, Hispanics, and patients with low household income tend to have poor hospital outcome. Further studies warranted to understand the impact of race and socioeconomic status on the clinical outcome of primary ICH.

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E-052 TRANSRADIAL VS. TRANSFEMORAL ACCESS FOR INTRAOPERATIVE CEREBRAL ANGIOGRAPHY: EQUAL PROCEDURAL TIMES FOR TARGET VESSEL IMAGING

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Objective To compare procedural times for TARGET vessel imaging between transradial and transfemoral access.

Methods The retrospective analysis was performed for consecutive patients presenting to a single neuroangiography laboratory for in-hospital cerebral angiography from January 2015 to December 2016. All patients receiving either transradial or transfemoral access were included. Baseline characteristics, including age, gender, and hypertension were noted. Procedural times for angiography and intervention were recorded. Statistical analysis was performed using the independent t-test and two-sample proportion test. A p-value < 0.05 was considered significant.

Results A total of 150 patients were included in the analysis, 75 receiving transradial access and 75 receiving transfemoral access. There were no significant differences in age, gender, or hypertension between the two groups. The procedural times for angiography and intervention were similar between the two groups. The mean procedural times for angiography and intervention were 78.9 ± 13.8 minutes and 120.3 ± 17.2 minutes, respectively, for the transradial group and 79.2 ± 14.1 minutes and 121.0 ± 16.2 minutes, respectively, for the transfemoral group. The difference in procedural times was not statistically significant (p = 0.81 and p = 0.89, respectively).

Conclusions In this study, there was no significant difference in procedural times for TARGET vessel imaging between transradial and transfemoral access. Both approaches resulted in similar procedural times, indicating that either approach can be used with similar efficiency.

Introduction Recent studies demonstrated that diagnostic cerebral angiography and neuroendovascular surgical procedures can be safely and effectively performed via the transradial (TR) route. The transfemoral (TF) route is still the primary access site for most hybrid or intraoperative angiograms but there is interest to adopt the TR route. However, switching to the TR route requires a specific skill set and organizational considerations that might impede its broad application. In addition, whether the TR route is equally effective for intraoperative cerebral angiography (IOCA) for open cerebrovascular surgery requires further exploration.

Methods Between 08/2020 and 03/2022, 65 cerebrovascular procedures were performed with subsequent IOCA. Baseline demographics were retrospectively collected. In addition, times were obtained from vascular imaging (PACS). The primary outcome was the time from established vascular access to the first run of the target vessel (sheath-target time) and compared among access sites selected (TR vs. TF) and aortic arch anatomy.

Results Collectively, 65 patients (34 females, 31 males) treated for cerebral aneurysm (58.5%), arteriovenous malformation (15.4%), carotid endarterectomy (10.8%), STA-MCA bypass (7.7%), dural arteriovenous fistula (4.6%) and intraparenchymal hematoma (3.1%) were identified. The TR access was attempted in 18 patients, with one patient (5.6%) requiring conversion to a TF due to a minute proximal radial artery caliber visualized on the radial artery sheath run. The median sheath-target time for the TR access (n=17) and TF access (n=48) was 6 minutes (2 - 15) and 5 minutes (2 - 12), respectively (p=0.082). Type II/III arch configuration significantly increased median sheath-target times in the TF access group (6 vs 4 minutes in type I, p=0.013), while type II/III arch configuration did not affect sheath-target times in the TR access group (6 vs 6 minutes, p=0.838). Bovine configuration did not affect sheath-target times with either access site.

Conclusions The transradial and transfemoral access represent similar practical approaches for IOCA for various cerebrovascular pathologies. The TR access deserves certain technical and organizational aspects that can quickly be adopted. Individual anatomy dictates procedural times and requires consideration prior to selecting the optimal access site.

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E-053 A STENT-LIKE DEVICE AS A TREATMENT OPTION FOR INTRACRANIAL HEMORRHAGE: AN INITIAL STUDY

Introduction An intracranial hemorrhage (ICH) is a potentially deadly and debilitating disease for which there are limited effective, acute treatment options. The continuous bleeding inherent in ICH can be caused by rupture of the perforating arteries. As the bleeding expands, there is increased mortality and morbidity. The goal of this study is to build an in-vitro ICH model to test the hypothesis that a stent-like device can direct blood flow away from the perforating arteries and reduce the bleeding.

Materials and Methods The ICH model included the following components: 1. 3D-printed vascular replicas, mimicking human internal carotid artery (ICA), middle cerebral artery, anterior cerebral artery (Formlabs, Somerville, MA) and lenticulostriate arteries (LSAs), 2. flow sensors (TS410, Transonics, Ithaca, NY), 3 pressure transducers (YS100, ICU Medical, San Clemente, CA), and 4. a data acquisition system (ADInstruments, Bella Vista, Australia). The LSA model had vessel branches with a diameter ranging from 400\(\mu\)m to 1mm, and was printed using a digital anatomy 3D printer (Stratasys Ltd, Minneapolis, MN). The fluid inside the vascular model was circulated by a pulsatile flow pump fluid and physiologically representative hemodynamics of healthy individuals was applied to the model system. The stent-like device was deployed through a 0.027” microcatheter to cover the LSAs.

The flow and pressure measurements were acquired before the devices were introduced into the flow model (baseline), after device deployment and after the procedure.

Results The figure below shows the changes in LSA flow (left) and pressure (right) during the procedure. An 11% LSA flow reduction was observed after deployment of the device (baseline: 8.3±2.0ml/min vs. after device deployment: 7.4±4.8ml/min). The LSA flow returned to 8.2±4.7ml/min after the device was removed from the flow model. The LSA pressure remained the same throughout the procedure. However, the ICA pressure was elevated from 150± 33mmHg (baseline) to 166± 38mmHg after device deployment.

Conclusion The initial study demonstrates the potential use of a stent-like device to temporarily divert a fraction of the