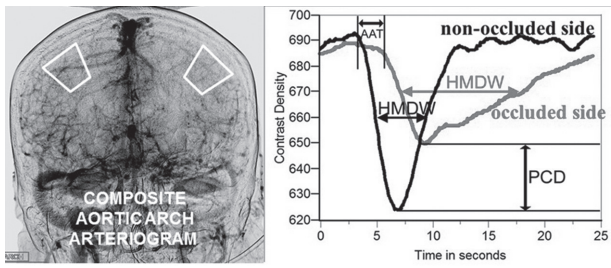
density curves derived from the ROIs were analyzed both manually and automatically to calculate arterial arrival time (AAT), interhemispheric percent differences in peak contrast density (PCD) and Half Maximum Density Width (HMDW) (figure). Estimated cerebral blood volume (eCBV) was automatically derived using the central volume principle, from which cerebral blood flow (eCBF) was calculated as eCBV/HDMDW. Linear regression analysis compared automated derived parameters to manually derived parameters and to SPECT derived occluded versus non-occluded cerebral blood flow ratios (SPECT L/N ratios).



Abstract E-104 Figure 1 Interhemispheric difference in arterial arrival time (AAT), peak contrast density (PCD) and half maximum density width (HMDW) are calculated from time-density curves derived from trapezoidal regions of interest within wastershed zones

Results Nineteen patients with a mean age of 62 (sd=10.0) (12 male) were included. Manually and automatically derived PCD, HMDW delay and ATT had varying degrees of correlation (R^2=0.9451, 0.9449 and 0.4176 respectively and high levels of agreement by Bland Altman analysis. Correlations between SPECT values and angiographically automatically derived values showed a strong linear relationship for PCD, HMDW, AAT and eCBF (R^2=0.636, 0.680, 0.882, and 0.877 respectively). Measures of delay in AAT between selective and aortic arch studies had a mean 0.12 (SD=0.52) second difference which is attributable to cases with dominant posterior circulation supply due to differences in arrival time through the vertebral artery versus the carotid artery. This suggests that calculation of AAT on aortic arch arteriography may overestimate AAT in cases where collateral supply is posterior circulation dominant. In patients with no interhemispheric CBF difference by SPECT, AAT was under 0.5s.

Conclusions Preliminary data indicate that during BTO, PCD, HMDW, AAT and eCBF automatically derived from digital subtraction angiography images can provide an ischemic risk assessment comparable to HMPAO-SPECT. Close attention to the circle of Willis supply is needed for appropriate interpretation of the results.

Disclosures A. Salome: None. **G. Christoforidis:** 1; C; NIH. **J. Fan:** None. **D. Kromrey:** None. **T. Carroll:** 1; C; NIH.

E-105 CAROTID STENTING WITHOUT EMBOLIC PROTECTION DEVICES IS SAFE: A SINGLE-CENTER EXPERIENCE

N Alharbi*, M Alwadai, A Martyniuk, A Aljuzair, A Algird, B Van Adel. *McMaster University, Hamilton, ON, Canada*

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Background and purpose One of the main procedural complications with carotid artery stenting (CAS) is intra-procedural dislodgement of atheromatous plaque. Performing the procedure using a distal embolic protection device is believed to minimize the risk of cerebral embolisms and subsequent ischemic stroke. The purpose of this study to share our experience with CAS without using distal embolic protection devices.

Method We performed a retrospective chart review of 102 percutaneous stenting and/or angioplasty procedures involving the extracranial carotid artery performed at our institution between January 2012 and April 2018. Ninety-Five patients underwent the procedure without the use of a distal embolic protection device. Baseline, procedural and follow-up data were prospectively collected. Technical success rate, stroke/death/myocardial infarction rate at 30 days, access-site complications, and long term follow up outcome were collected.

Results All procedures were performed on patients with symptomatic carotid stenosis except one procedure which was performed on a patient with recurrent severe stenosis post carotid endarterectomy (CEA). Carotid artery percutaneous stenting and/or angioplasty was successful in 94 procedures (94%). There were no minor strokes or TIAs. Major adverse events in the peri-procedural period (0–30 days) occurred in two patients (2%), and there was one death (1%) secondary to a large intracerebral hemorrhage in a patient with hyperperfusion syndrome. One patient (1%) suffered a myocardial infarction (NSTEMI) as well as a major stroke due to acute in-stent thrombosis with complete occlusion of the stent 3 days after CAS. Three patients (3%) sustained access related complications: one patient required a blood transfusion. During the follow-up period, (range: 0 to 60 months) there were 6 deaths: 1 patient due to a massive ipsilateral stroke 8 days after a failed attempt at CAS; 2 patients died secondary to myocardial infarction, 3 patients died of non-neurological causes.

Conclusion Our results of carotid artery stenting and/or angioplasty without using a distal embolic protection device demonstrates high feasibility and safety without an increased risk of intraprocedural/periprocedrual ipsilateral ischemic stroke.

Disclosures N. Alharbi: None. **M. Alwadai:** None. **A. Martyniuk:** None. **A. Aljuzair:** None. **A. Algird:** None. **B. Van Adel:** None.

E-106 FEASIBILITY OF AUTOMATION OF STAGED BALLOON GUIDE CATHETER (BGC) ASPIRATION DURING STROKE THROMBECTOMY USING A CUSTOMIZABLE IPAD APP AND A BLUETOOTH-ENABLED SMART PUMP: AN *IN-VITRO* STUDY

[1]B Jagadeesan*, [2]V Janardhan, [2]V Janardhan. *[1]Radiology and Neurosurgery, University of Minnesota, Minneapolis, MN; [2]Division of Stroke Devices Research, Insera Therapeutics, Inc, Dallas, TX*

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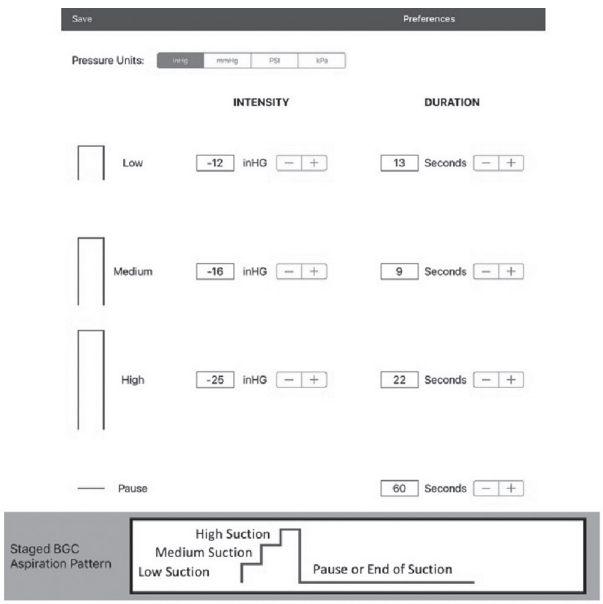
Purpose Balloon Guide Catheter (BGC) aspiration is becoming increasingly recognized as an important adjunctive technique to stroke thrombectomy for improving first pass recanalization as well as clinical outcomes. Currently, BGC aspiration requires two operators, one for thrombectomy and second for staged BGC aspiration using a manual syringe. Automating BGC aspiration using a customizable iPad app and a smart pump would enable stroke thrombectomy to be performed with a single operator, and potentially help alleviate some of the manpower challenges for 24/7 coverage for stroke thrombectomies globally.

Methods *Phase 1:* Staged BGC aspiration (increasing suction levels – initially low, then medium, then high – to avoid vessel collapse) is manually performed by an experienced operator using a 60 cc syringe and a standard BGC (9F Merci BGC, Stryker Corp., MI). The suction intensity levels for low, medium, and high (in inHg) are measured using a vacuum gauge (DuraChoice, Irving, TX). The duration (in seconds) at each of these levels is measured. *Phase 2:* the Mean suction levels and duration (low, medium, high, followed by pause or end of suction) from three sample measurements are entered into a customizable iPad app (CLEAR^{TM} Pro, Insera Therapeutics, Inc.) to create an automated BGC suction pattern (figure 1). *Phase 3:* With a BGC positioned in an *in-vitro* flow model simulating stroke thrombectomy (United Biologics, CA), the feasibility of automating staged BGC aspiration is assessed by pressing the customized BGC pattern on the iPad app. The iPad app activates a bluetooth-enabled smart pump (CLEAR^{TM} Aspiration System, Insera Therapeutics, Inc.) connected to the BGC.



Abstract E-106 Figure 1

Results Phase 1 testing was performed and the suction intensity levels for staged BGC aspiration and duration (values rounded to nearest integer) were noted. Low suction ranged from 10–13 inHg (Mean: 12 inHg) with a duration ranging from 11–17 s (Mean: 13 s), Medium suction ranged from 15–18 inHg (Mean: 16 inHg) with a duration ranging from 8–11 s (Mean: 9 s), and High suction ranged from 24–26 inHg (Mean: 25 inHg) with a duration ranging from 19–25 s (Mean: 22 s), The total duration of staged BGC aspiration ranged from 39–53 s with a 60 s safety pause or end of suction prior to another retrieval attempt. Phases 2 and 3 were successfully performed to create a customized BGC aspiration pattern and staged BGC aspiration was automated during simulated stroke thrombectomy (figure 1).

Conclusion Automation of staged BGC aspiration is feasible using a customizable iPad app and a bluetooth-enabled smart pump.

Disclosures B. Jagadeesan: None. **V. Janardhan:** 4; C; Insera Therapeutics, Inc. **V. Janardhan:** 4; C; Insera Therapeutics, Inc.

E-107 INTRACRANIAL VENOUS HYPERTENSION INDUCED BY EXTRACRANIAL ARTERIOVENOUS FISTULA MIMICKING DURAL ARTERIOVENOUS FISTULA

J Lim*, H Kwon, H Koh, S Choi, S Kim. *Neurosurgery Department, Chungnam National University Hospital, Daejeon, Korea, Republic of*

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Introduction Intracranial venous hypertension can be caused by various causes, especially venous sinus thrombosis or dural arteriovenous fistula. Intracranial venous hypertension can manifest various clinical symptoms depending on vein drainage. We report a case of intracranial venous hypertension mimicked dural arteriovenous fistula due to extracranial arteriovenous fistula without any intracranial vascular lesions.

Methods A 35 – year – old female patient visited our clinic with right oculomotor nerve palsy. The patient had a history of insulin-dependent diabetes mellitus, end-stage renal disease, and hypertension 20 years ago and several extracranial arteriovenous fistulas were performed for hemodialysis. Magnetic resonance imaging (MRI) showed a strong suspicion of dural arteriovenous fistula, but digital subtraction cerebral angiogram did not show any dural arteriovenous fistula findings but internal jugular vein occlusion, severe stenosis of distal brachiocephalic vein was caused by a previous arterial fistula and venous reflex caused intracranial venous hypertension.

Result We performed the balloon angioplasty at severe stenosis of brachiocephalic vein. Post-balloon angioplasty angiogram showed no more intracranial venous reflux.

Conclusion Extracranial arteriovenous fisula can induce intracranial venous hypertension in the poor venous circulation case.

Disclosures J. Lim: None. **H. Kwon:** None. **H. Koh:** None. **S. Choi:** None. **S. Kim:** None.

E-108 ALADIN STUDY: AUTOMATED LARGE ARTERY OCCLUSION DETECTION IN STROKE IMAGING STUDY – A MULTICENTER ANALYSIS

[1]C Barreira*, [1]M Bouslama, [2]J Lim, [1]A Al-Bayati, [1]Y Saleem, [3]T Devlin, [1]D Haussen, [2]M Froehler, [4]J Grossberg, [3]B Baxter, [1]M Frankel, [1]R Nogueira. *[1]Marcus Stroke Center – Neurology, Grady Memorial Hospital – Emory University, Atlanta, GA; [2]Neurology and Neurosurgery, Vanderbilt University Medical Center, Nashville, TN; [3]University of Tennessee Health Science Center, Chattanooga, TN; [4]Marcus Stroke Center – Neurosurgery, Grady Memorial Hospital – Emory University, Atlanta, GA*

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Introduction Large Vessel Occlusion (LVO) for Acute Ischemic Stroke (AIS) remains a public health issue as there is significant morbidity and mortality when left untreated. Timely recognition, therefore, is of utmost significance, as there are validated therapeutic options involving cerebrovascular reperfusion. Best patient care relies on tailored and expeditious clinical identification, using multimodal neuroimaging and facilitating referrals to comprehensive centers. Artificial Intelligence (AI)-guided technologies applied to medical fields are