

from inception to November 2020 for relevant articles. **Results:** Thirty-six relevant articles were identified. There was significant evidence supporting an association with continuous time-domain TCD based indices and functional outcomes following TBI. Physiologic parameters such as intracranial pressure, cerebral perfusion pressure, Carbon Dioxide (CO<sub>2</sub>) reactivity as well as more established indices of cerebrovascular reactivity have all been associated with these TCD based indices. The literature has been concentrated in a few centres and is further limited by the lack of multivariate analysis. **Conclusions:** There is a substantial body of evidence that cerebrovascular reactivity as measured by time-domain TCD based indices have prognostic utility following TBI. The literature supports some associations between these indices and cerebral physiologic parameters. Further validation in multi-institution studies is required before these indices can be widely adopted clinically.

### P.187

#### Evaluating congruency between intramedullary and subdural pressure in a porcine model of acute spinal cord injury

*MA Rizzuto (Vancouver)\* A Allard Brown (Vancouver) K Kim (Vancouver) K So (Vancouver) N Manouchehri (Vancouver) M Webster (Vancouver) S Fisk (Vancouver) DE Griesdale (Vancouver) MS Sekhon (Vancouver) F Streijger (Vancouver), BK Kwon (Vancouver)*

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**Background:** Clinical guidelines recommend MAP maintenance at 85-90 mmHg to optimize spinal cord perfusion post-SCI. Recently, there has been increased interest in spinal cord perfusion pressure as a surrogate marker for spinal cord blood flow. The study aims to determine the congruency of subdural and intramedullary spinal cord pressure measurements at the site of SCI, both rostral and caudal to the epicenter of injury. **Methods:** Seven Yucatan pigs underwent a T5 to L1 laminectomy with intramedullary (IM) and subdural (SD) pressure sensors placed 2 mm rostral and 2 mm caudal to the epicenter of SCI. A T10 contusion SCI was performed followed by an 8-hour period of monitoring. Axial ultrasound images were captured at the epicenter of injury pre-SCI, post-SCI, and hourly thereafter. **Results:** Pigs with pre-SCI cord to dural sac ratio (CDSR) of >0.8 exhibited greater occlusion of the subdural space post-SCI with a positive correlation between IM and SD pressure rostral to the injury and a negative correlation caudal to the epicenter. Pigs with pre-SCI CDSR <0.8 exhibited no correlation between IM and SD pressure. **Conclusions:** Congruency of IM and SD pressure is dependent on compartmentalization of the spinal cord occurring secondary to swelling that occludes the subdural space.

### P.188

#### Neurotrauma in Indigenous populations of Canada: challenges and future directions: A Scoping Review

*Z Salaheen (Waterdown)\* A Moghaddamjou (Toronto)\*, MG Fehlings (Toronto)*

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**Background:** Neurotrauma accounts for over 24 000 hospitalizations annually in Canada. Among those affected, Indigenous peoples are disproportionately impacted. The goal of this scoping review is to identify factors underlying these disparities. **Methods:** A scoping review was conducted to collect papers pertaining to neurotrauma in Indigenous populations of Canada. Using MEDLINE, 676 articles were screened with MeSH terms including 'Indigenous', 'spinal cord injuries', 'brain injuries, traumatic' and 'Canada' as of April 2021. **Results:** Studies report over twice the incidence of traumatic brain injury and traumatic spinal cord injury in Indigenous populations compared to non-Indigenous populations. The burden of neurotrauma is attributable to infrastructure disparities in rural communities and reserves, elevated rates of substance use and violence, and inequities in treatment and rehabilitation following injury. These issues are deeply rooted in the trauma endured by Indigenous peoples through the course of Canadian history, owing to government policies that severely impacted their socioeconomic conditions, culture, and access to healthcare services. **Conclusions:** Systems-level interventions guided by Indigenous community members will help to address the disparities that Indigenous peoples face in the care and rehabilitation of neurotrauma. This study will inform further research of culturally appropriate approaches to reduce neurotrauma burden among Indigenous peoples.

## NEUROVASCULAR, STROKE AND NEUROINTERVENTIONAL

### P.189

#### Unruptured Posterior Cerebral Artery aneurysm causing temporal lobe epilepsy

*M Fatehi Hassanabad (Canada) G Redekop (Vancouver), LS Yefet (Vancouver)\**

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**Background:** Cerebral aneurysms are an unusual cause of epilepsy. To date, several groups have reported temporal lobe seizures caused by aneurysms projecting into the parahippocampal gyrus. Given the low incidence of posterior cerebral artery

aneurysms, they are a very rare cause of temporal lobe seizures. **Methods:** Here, we report a rare case of temporal lobe epilepsy caused by an unruptured aneurysm. We also present a review of the literature yielding two similar cases. **Results:** A previously well 56 year old male presented to a neurologist with symptoms consistent with temporal lobe epilepsy. He was started on carbamazepine and underwent imaging and neuropsychological assessments. An MRI suggested the existence of a 7mm posterior cerebral artery aneurysm arising from the P2 segment of the posterior cerebral artery and projecting into the parahippocampal gyrus. This was also confirmed with CT angiography and the patient elected to have the aneurysm clipped. **Conclusions:** Temporal lobe epilepsy is an uncommon presentation for unruptured cerebral aneurysms. We report a rare case wherein a laterally pointing PCA aneurysm was buried in the posterior parahippocampal gyrus. This aneurysm had caused perifocal gliosis leading to stereotyped seizures. Post-operatively, the patient has been seizure free.

## P.190

### Choosing Endovascular Treatment or Thrombolysis in Patients with Pre-stroke Comorbidities: UNMASK EVT, a Worldwide Survey

*A Ganesh (Calgary)\* N Kashani (Calgary) JM Ospel (Basel) AT Wilson (Calgary) MM Foss (Calgary) G Saposnik (Toronto) MA Al-Mekhlafi (Calgary) M Goyal (Calgary) BK Menon (Calgary), MD Hill (Calgary)*

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**Background:** Decisions to treat large-vessel occlusion with endovascular therapy(EVT) or intravenous alteplase depend on how physicians weigh benefits against risks when considering patients' pre-stroke comorbidities. **Methods:** In an international survey, experts chose treatment approaches under current resources and under assumed ideal conditions for 10 of 22 randomly assigned case-scenarios. Five included comorbidities (metastatic/non-metastatic cancer, cardiac/respiratory/renal disease, non-disabling/mild cognitive impairment[MCI], physical dependence). We examined scenario/respondent characteristics associated with EVT/alteplase decisions using multivariable logistic regressions. **Results:** Among 607 physicians(38 countries), EVT was favoured in 1,097/1,379(79.6%) responses for comorbidity-related scenarios under current resources versus 1,510/1,657(91.1%,OR:0.38, 95%CI.0.31-0.47) for six "level-1A" scenarios (assuming ideal conditions:82.7% vs 95.1%, OR:0.25,0.19-0.33). However, this was reversed on including all other scenarios(e.g. under current resources:3,489/4,691[74.4%], OR:1.34,1.17-1.54). Responses favouring alteplase for comorbidity-related(e.g.75.0% under current resources) scenarios were comparable to level-1A scenarios(72.2%) and higher than all others(60.4%). No comorbidity-related factor independently diminished EVT-odds. MCI and dependence carried higher alteplase-odds; cancer and cardiac/respiratory/renal disease had lower odds. Relevant respondent characteristics included performing more EVT cases/year (higher EVT, lower alteplase-odds), practicing in East-Asia (higher EVT-odds), and in interventional neuroradiology(lower alteplase-odds vs neurology). **Conclusions:** Moderate-to-severe comorbidities did not

consistently deter experts from EVT, suggesting equipoise about withholding EVT based on comorbidities. However, alteplase was often foregone when respondents chose EVT.

## P.191

### Development and Testing of a Novel Hydrogel Embolization Treatment for Neurovascular Diseases: Preliminary Animal Results

*JC Ku (Toronto)\* Y Dobashi (Toronto) CR Pasarikovski (Toronto) J Ramjist (Toronto) J Madden (Vancouver) K Walus (Vancouver), V Yang (Toronto)*

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**Background:** Embolization represents a minimally invasive treatment modality for arteriovenous malformations (AVMs), tumors, aneurysms, and vessel sacrifice, but can be limited by currently available embolization agents. Discovery of new and improved agents could lead to better treatment outcomes. The goal of this project was to develop and test a novel embolization agent using hydrogels, a class of materials which may be bioengineered to suit a variety of indications. **Methods:** We devised a method of liquid hydrogel embolization with photo-modulated crosslinking for intravascular solidification, using a custom microcatheter set-up. We tested this in swine blood vessels (n=3), the swine renal arterial trees as a vascular tumor model (n=5), and the swine arterial-arterial networks of the rete mirabile as an AVM model (n=3). Hydrogel embolization was assessed for treatment efficacy and safety. Follow-up angiography was performed at 2-4 week intervals. **Results:** Hydrogel embolization was technically successful in all animals, with full occlusion of the vascular target immediately following embolization and at follow-up. There were no instances of clinical or angiographic complications. **Conclusions:** We demonstrated a novel method of dynamic photomodulation and delivery of bioengineered hydrogels to address current limitations of endovascular embolization therapies. This promising technology will be investigated further with longer-term comparative animal trials.

## P.192

### Arterial Hemodynamics and the Clinical Presentation of Cerebral Arteriovenous Malformations

*S Lownie (London)\*, A Chalil (London)*

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**Background:** Arterial Hemodynamics have been implicated in hemorrhage from cerebral arteriovenous malformations (AVMs). The correlation between hemodynamic characteristics and the tendency of AVMs to rupture has been explored in the past, and various theories have been proposed to explain the clinical presentation of AVMs as a hemorrhage vs. seizure. **Methods:** We monitored feeder artery pressures in 45 patients with AVMS (16 presenting with hemorrhage, 29 without) during super selective angiography and AVM embolization. **Results:** Mean feeder artery pressure (FP) was found to be 49mm Hg. The mean FP in patients presenting with hemorrhage was somewhat