

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)*

doi: 10.1017/cjn.2021.466

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)*

doi: 10.1017/cjn.2021.467

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)*

doi: 10.1017/cjn.2021.468

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

higher than in those without hemorrhage, but the difference was not statistically significant (53.8 mm Hg vs 47.0 mm Hg, $p=0.13$). Systemic mean pressure was found to correlate with AVM size ($r=-0.31$, $p=0.037$). Significant predictors of feeder artery pressure were systemic pressure, AVM size, and the distance of microcatheter from the circle of Willis. Meanwhile, the presence or absence of venous outflow stenosis and the position of the AVM nidus (superficial or deep to the cortical surface) were the most significant predictors of AVM hemorrhage vs seizures. **Conclusions:** Anatomic factors may be more important than arterial hemodynamic factors in determining the clinical presentation of cerebral AVMs.

P.193

Competitive Flow Diversion: Proposed Classification System

MA MacLean (Halifax)* T Huynh (Halifax) M Schmidt (Halifax)
VM Pereira (Toronto), A Weeks (Halifax)

doi: 10.1017/cjn.2021.469

Background: Competitive flow diversion (CFD) is a novel application of flow diversion stenting (FDS), redirecting flow into a normal artery proximal or distal to the aneurysmal parent artery. A classification system for CFD has not been previously reported. **Methods:** Report of operative technique and novel classification system for CFD. **Results:** A patient with subarachnoid haemorrhage and three aneurysms arising from the Pcomm-P1 complex, was treated with endovascular coiling and CFD. The PCOM aneurysm was coiled. Two aneurysms arose from the distal right P1-PCA. After a failed attempt to treat with FDS across the P1-PCA, the P1-aneurysms were successfully treated with CFD distal to the P1-PCA, from Pcomm to P2. Over 12 months, CFD redirected flow via ICA-Pcomm-P2, reducing the size of the P1-PCA, obliterating the P1-aneurysms. Herein, we classify competitive flow diversion into two types. Type I CFD is when the parent artery harbouring the aneurysm is “jailed” proximally. Type II CFD occurs when flow is diverted from the parent artery distal to the aneurysm origin. **Conclusions:** Herein, we propose a novel classification for CFD. We describe the first case of aneurysm occlusion in the circle of Willis with Type II CFD, and use of CFD for the treatment of multiple adjacent aneurysms.

P.194

In search of real-world neuroprotection in mechanical thrombectomy for ischemic stroke

TK Mattingly (Rochester)* R Whyte (Rochester) GS Kohli (Rochester) S Susa (Rochester) MT Bender (Rochester), T Bhalla (Rochester)

doi: 10.1017/cjn.2021.470

Background: The promise of neuroprotection for stroke remains elusive. Common medications in endovascular stroke thrombectomy have putative neuroprotective mechanisms in basic science literature. We evaluated our stroke registry for

evidence that these medications have any impact on clinically meaningful outcome. **Methods:** A retrospective stroke thrombectomy database was evaluated for clinical and angiographic outcomes of patients receiving IV or IA tPA, Heparin, or Verapamil during procedure. Univariate analysis evaluated associations with periprocedure hemorrhage, recanalization, and functional outcomes. **Results:** 284 patients underwent mechanical thrombectomy over 2.75 years. For periprocedural hemorrhage, IV tPA (OR 0.457, CI 0.261-0.811, $p=0.008$) and Heparin (1.897, CI 1.112-3.205, $p=0.019$) had significant relationships. No medication had impact on favorable recanalization (TICI 2b/3). Heparin had a negative impact on 90day mRS 0-2 (OR 0.563, CI 0.348-0.901, $p=0.023$). Favorable recanalization remains associated with favorable outcomes at 90days (OR 2.066, CI 1.063-4.069, $p=0.0361$). **Conclusions:** While the adjunctive use of 3 commonly used periprocedural medications have a logical role in the mechanical thrombectomy eg IA tPA for clot lysis, they do not have clinical benefit that represents neuroprotection. Multivariate analysis may show more effect. A role for intraarterial neuroprotective agents exists given only 45% of patients in this series achieved functional independence.

P.195

Giant aneurysm, tiny patient: flow diversion stenting of a giant MCA aneurysm in a young child

A Bokeris (Halifax) D Mcneely (Halifax) M Schmidt (Halifax), G Pickett (Halifax)*

doi: 10.1017/cjn.2021.471

Background: A 3-year-old girl presented with a 6-day history of severe headaches. On examination, upper motor neuron signs were noted in the left upper and lower extremities with increased tone, reflexes, and a positive Babinski sign. MRI of the brain revealed a giant right middle cerebral artery (MCA) aneurysm with significant mass effect, associated with cerebral edema and ventricular effacement. CT and CT angiogram showed evidence of aneurysmal wall calcification and lamellar thrombosis within the aneurysmal sac. In addition, there was a smaller right MCA aneurysm in close proximity to the giant aneurysm. **Methods:** After a balloon occlusion test to assess collateral blood flow to the MCA territory, it was decided to treat both aneurysms with a flow diverting stent. Dual antiplatelet loading was done with aspirin and clopidogrel. The smallest available diameter of Pipeline Shield stent was deployed. **Results:** The patient remained neurologically unchanged. Early follow-up imaging demonstrated stent patency, reduced size and mass effect of the large aneurysm, reduced cerebral edema, and no flow into the smaller aneurysm. **Conclusions:** Flow diversion stenting may be employed successfully in pediatric patients, though has unique technical considerations including small size vessels and limited evidence for antiplatelet agent choice and dosing.