analysis assessed if pre-operative cognition affected post-operative quality of life. Methods: PD patients receiving bilateral STN-DBS (n=100) were prospectively studied using STROBE guidelines. All had Montreal Cognitive Assessment (MoCA), motor (UPDRS), mood (BDI-II), and quality of life (Parkinson Disease Questionnaire summary index, PDQ-39-SI). Two cohorts, pre-operative MCI (MoCA:18-25) and normal cognition (MoCA:26-30), had post-operative PDQ-39-SI at 1-year. The primary outcome was the proportion of patients with an improved PDQ-39-SI at 1-year. Results: Cohorts were not significantly different in age, severity of illness, response to dopamine, or mood. MCI was present in 27/100. Improved quality of life at 1-year occurred in 75% with normal cognition and 70% with MCI (p=0.54) with RR=1.1 (95% CI, 0.8-1.5). Linear regression analysis showed no correlation between pre-operative cognition and post-operative outcome ($R^2$=0.02). Conclusions: Parkinson's patients with MCI should be offered DBS if their motor symptoms require surgery. Guidelines for DBS surgery in PD should change from "dementia is contraindicated" to "patients require adequate cognitive functioning, MoCA greater than equal to 18."

## B.6

### Endovascular treatment of acute ischemic stroke in patients with pre-morbid disability: a meta-analysis

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Background: Trials of endovascular thrombectomy (EVT) for acute stroke have excluded patients with pre-morbid disability. We performed a meta-analysis to assess the effectiveness and safety of EVT in patients with pre-morbid disability. Methods: According to PRISMA guidelines, we searched for studies describing outcomes in patients with pre-morbid disability (modified Rankin Scale [mRS] 2-5), treated with EVT or medical management (MM). Random-effects meta-analysis was used to pool outcomes including return to baseline mRS at 90 days, symptomatic ICH (sICH), and 90-day mortality. Results: We analyzed 14 studies of patients with pre-morbid disability (mRS2-5: EVT=1,373, MM=253). Compared to medical therapy, EVT was associated with higher likelihood of return to baseline mRS (OR=2.37, 95%CI:1.39-4.04) and a trend towards lower mortality (OR=0.68, 95%CI:0.46-1.02), with similar odds of sICH (OR 1.01, 95%CI:0.49-2.08). In studies comparing patients with vs. without pre-morbid disability treated with EVT, similar results were found except that pre-morbid disability, when defined more strictly as mRS 3-5, was associated with mortality (OR 3.49, p<0.001). Conclusions: In patients with pre-morbid disability, EVT carries a higher chance of return to baseline mRS compared to patients treated with MM or without pre-morbid disability, although with higher mortality than patients without pre-morbid disability. These findings merit validation with randomized controlled trials.

# Chair's Select Abstracts - Child Neurology/Neurophysiology (CACN/CSCN)

## C.1

### Cerebral venous sinus thrombosis in preterm infants

*R Christensen* (Toronto)*

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Background: Previous studies of neonatal cerebral venous sinus thrombosis (CVST) have focused on term infants, and studies of preterm infants are lacking. In this study, we examined the clinical and radiological features, treatment and outcome of CVST in preterm infants. Methods: This was a retrospective cohort study of preterm infants (gestational age <37 weeks) with radiologically confirmed CVST. All MRI/MRV and CT/CTV scans were re-reviewed. Clinical and radiological data were analysed using descriptive statistics, ANOVA and chi-square tests. Results: A total of 26 preterm infants with CVST were included. Of these, 65% were late preterm, 27% very preterm and 8% extreme preterm. Most (73%) were symptomatic at presentation with seizures or abnormal exam. Transverse (85%) and superior sagittal (42%) sinus were common sites of thrombosis. Parenchymal brain injury was predominantly periventricular (35%) and deep white matter (31%) in location. Intraventricular hemorrhage occurred in 46%. Most infants (69%) were treated with anticoagulation. None of the treated infants had hemorrhagic complications. Outcome at follow-up ranged from no impairment (50%), mild impairment (25%) and severe impairment (25%). Conclusions: Preterm infants with CVST are often symptomatic and have white matter brain lesions. Anticoagulation treatment of preterm CVST appeared to be safe and was not associated with hemorrhagic complications.

## C.2

### Muscular MRI pattern recognition for muscular dystrophies: the era of artificial intelligence beyond a systematic review

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doi: 10.1017/cjn.2022.103

Background: Genetic neuromuscular diseases (NMD) are a heterogeneous group of disorders comprised hundreds of genes. Despite the advanced genetic testing modalities, about 40 % of patients with NMD do not have a diagnosis. Muscle MRI has been proven as a useful tool to orientate the genetic testing by looking at the muscle involvement severity pattern. Moreover, muscle MRI patterns can be specific and informative for muscular dystrophies and yet can be characteristic and diagnostic. Methods: Systematic review was conducted to review muscle MRI patters for all Limb Girdle Muscle Dystrophies (LGMD). Then, we applied artificial intelligence (AI) on muscle MRI patterns for LGMDs and other NMDs

using open database containing muscle MRIs Mercuri scores from 950 individuals. Results: AI and machine learning were applied on 10 types of NMD muscle MRI Mercuri scores that represented muscle involvement based on the degree of fatty infiltration. Different models were generated, the one with highest accuracy was used. When tested on new patients, it achieved a 90% accuracy. Subsequently, was turned into a mobile application. Conclusions: Muscle MRI is a valuable tool to help in NMD diagnosis. Specific muscle involvement pattern can be predictive. Besides, AI facilitates the interpretation and comprehension of muscle imagining in NMD.

## C.3

### Childhood Absence Epilepsy: Prevalence of neuropsychiatric comorbidities and predictors of treatment resistance

*M Lagacé* (Vancouver)* *A Michoulas* (Vancouver) *M Demos* (Vancouver), *M Connolly* (Vancouver)

doi: 10.1017/cjn.2022.104

Background: Seizures in childhood absence epilepsy (CAE) are typically easily controlled with anti-seizure medications (ASMs). Factors predictive of treatment resistance remain unclear. Our objectives were to assess prevalence of neuropsychiatric problems and factors influencing treatment resistance in a cohort of CAE at a single centre. Methods: We retrospectively reviewed patients with CAE diagnosed between January 1999 and December 2016 with at least 1-year follow-up. Treatment resistance was defined as failure to respond to two appropriate ASMs. Exclusion criteria included eyelid myoclonia with absence, myoclonic absence, and generalized tonic-clonic (GTC) seizures prior to absence seizures. Results: The study population comprised 164 patients (65 males) with mean age at seizures onset of 6.1years. 21% had treatment-resistant seizures. The first ASM was Ethosuximide (63.4%), Valproic acid (23.2%), and Lamotrigine (6.7%). 32.9% of children had learning disabilities, 28.7% ADHD, and 12.8 % anxiety.

A stepwise binary logistic regression analysis identified GTC seizures, learning disability (LD) and ongoing general spike and wave on EEG as predictors of treatment resistance. At last follow-up (average of 5.4 years), 43.3% of children were seizure-free off ASMs. Conclusions: 21% of children with CAE had treatment-resistant seizures. LD, GTC and failure of normalization of the EEG were associated with treatment resistance.

## C.4

### Distinct BOLD signal variability changes in temporal and occipital cortices in pediatric epilepsy

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Background: Greater variability of neuronal signalling, measured as the standard deviation of the blood oxygen dependent signal ($BOLD_{SD}$), relates to information processing capacity. Resting-state functional magnetic resonance imaging was used to determine differences in $BOLD_{SD}$ between children with and without epilepsy. Methods: We studied 24 controls (mean age 8.52 ± 1.35 years) and 18 patients (mean age 11.5 ± 3.4 years) with medically refractory epilepsy that underwent imaging for preoperative planning.Standard preprocessing steps (FSL v6.0, FMRIB) were followed and AAL atlas was used. Whole-brain two sample t-tests were used for group comparisons and significance was set at $p < 0.05$ FDR-corrected. Results: Children with epilepsy showed significantly lower $BOLD_{SD}$ in left inferior and middle temporal gyri ($p < 0.001$), right caudate nucleus ($p < 0.01$), cuneus ($p < 0.001$), and fusiform gyrus ($p < 0.001$), and significantly increased $BOLD_{SD}$ bilaterally in inferior occipital gyri ($p < 0.0001$). There were no significant differences when comparing whole-brain $BOLD_{SD}$ values. Conclusions: Neuroplastic changes in epilepsy may depend on an optimal amount of internal neural variability driven by the identified key regions. Certain temporal and occipital regions may underlie neural processing differences in children with epilepsy. Further studies may correlate these findings with behavioral testing.

# POSTER PRESENTATIONS

## Adult Neurology (CNS/CSC)

## Dementia and Cognitive Disorders

## P.001

### The neural correlates of effort-reward decision-making in older adults

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Background: Effort mobilization is important in older adults to stay healthy, notably for decision-making. The process of decreasing subjective value of a reward as required effort increases is called effort discounting. By identifying underlying neural correlates related to effort discounting, we can better understand factors affecting normal cognitive aging. Methods: We acquired resting-state functional magnetic resonance images from 19 cognitively normal older adults (10 males; 66±6 years). Participants completed a computerized cognitive task—called Effort Expenditure for Rewards Task—capturing the willingness to expend effort for rewards through binary choices between high-reward-high-effort or low-reward-low-effort option to obtain varying monetary rewards. We modelled subjective value to assess the k parameter, effort discounting. A functional connectivity analysis examined the involvement of regions associated to the salience network. Results: The seed-to-voxel analysis revealed increased connectivity within the precuneus cortex and to clusters in the right temporal and posterior cingulate gyri, with increased k-value or decreased willingness to expend effort.