have no clinical signs and therefore require continuous electroencephalographic (cEEG) monitoring for their detection. We sought to determine which neonates are at highest risk for seizures in order to optimize allocation of scarce cEEG resources. **Methods:** We identified term neonates diagnosed with HIE who underwent at least 24 hours of protocol-based cEEG monitoring between 2016 and 2019. We quantified seizure incidence, timing and burden, and correlated these with potential risk factors such as HIE severity, use of therapeutic hypothermia, preceding suspected clinical seizures, amplitude-integrated EEG (aEEG) background and patterns suspicious for seizures, and use of anti-seizure drugs. **Results:** cEEG monitoring was completed in 218 neonates with HIE, of whom 164 (75%) underwent therapeutic hypothermia. Preceding clinical/aEEG seizures occurred in 147 (67%), 99 (67%) of whom had been cooled but only 22 (10%) had cEEG-confirmed seizures. Characterization of seizure burden and correlation with potential risk factors is ongoing. **Conclusions:** Although seizures are commonly suspected in neonates with HIE, they are infrequently confirmed during cEEG monitoring, creating opportunities for more efficient risk-based allocation of cEEG resources.

P.097

Adrenal Insufficiency among Children treated with Hormonal Therapy for Infantile Spasms

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doi: 10.1017/cjn.2021.375

Background: Hormonal therapy is a standard treatment for infantile spasms. The high doses given and long treatment duration expose patients to the risk of adrenal insufficiency (AI). This study aims to quantify the incidence of AI among children with infantile spasms treated with corticosteroids and/or adrenocorticotropic hormone (ACTH). **Methods:** A retrospective chart review of patients treated for infantile spasms was performed between January 2009 to March 2020 in one pediatric specialized hospital. Variables collected included patient and treatment characteristics, risk factors of AI and adrenal function testing. Analysis included descriptive statistics. **Results:** Thirty-one patients met the inclusion criteria and received a total of 33 separated courses of treatment. Adrenal function following each course of treatment was evaluated in all patients. AI occurred in 25/33 (76% [95CI 58-89]) children. There was no predictive factor of AI. No drug regimen was deemed safe. The two patients (6%) with an acute adrenal crisis were the youngest of the cohort. **Conclusions:** Adrenal suppression is frequent and can lead to adrenal crisis after standard hormonal therapy for infantile spasms. A routine laboratory assessment of adrenal function should be done for all patients. Hydrocortisone replacement therapy should be given until testing results are obtained, particularly for younger infants.

P.098

The Epilepsy Surgery Experience in Children with Infantile Spasms at the Hospital for Sick Children

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doi: 10.1017/cjn.2021.376

Background: Infantile spasms (IS) is an epileptic encephalopathy, characterized by epileptic spasms, hypsarrhythmia, and developmental regression. This is a retrospective case series detailing the experience in children with IS who have undergone epilepsy surgery at The Hospital for Sick Children (HSC). **Methods:** Records of 223 patients from HSC were reviewed. Patients were included if they had a current or previous history of IS with a lesion detected on MRI/PET scan who underwent epilepsy surgery. **Results:** Nineteen patients were included. The etiology of IS was encephalomalacia in six patients (32%), malformations of cortical development in 11 patients (58%), atypical hypoglycaemic injury in one patient (0.5%), and partial hemimegalencephaly in one patient (0.5%). The median age at the onset of IS was five months. The median age at surgery was 18 months. Nine patients (47%) underwent hemispherectomy and 10 patients (53%) underwent lobectomy/lesionectomy. Fifteen patients (79%) were considered ILAE Seizure Outcome Class 1. Developmental outcome was improved in 14/19 (74%) and stable in 5/19 (26%) patients. **Conclusions:** Even with a generalized EEG pattern such as hypsarrhythmia, patients should be considered for focal resective surgery. Early surgical intervention shortens the duration of active epilepsy thus limiting the potentially irreversible effects of on-going seizures.

P.099

Generator replacement with cardiac based VNS device in children with drug-resistant epilepsy

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doi: 10.1017/cjn.2021.377

Background: We aimed to study the proportion of patients with DRE and pre-existing VNS device, who show improvement of at least one class in McHugh seizure outcome classification at last follow up after generator replacement with cardiac based VNS device. **Methods:** We retrospectively reviewed children with DRE with the older VNS model (102) who underwent battery replacement with the AspireSR®, model 106 since September 2016 at our institution. We assessed the seizure

outcomes since the first VNS device insertion till the last follow up after AspireSR® (with cardiac-based seizure detection) using McHugh seizure outcome classification. **Results:** The study population was comprised of 15 patients. The mean age at seizure onset was 2.7 years old, with mean age of initial VNS1 placement being 10.1 years and mean age of replacement with VNS2 being 14.9 years of age. Three of the fifteen patients had reported status epilepticus prior to initial VNS insertion, and none reported episodes following insertion. Two patients showed at least one class improvement in McHugh seizure outcomes at last follow up after VNS2. **Conclusions:** Through our preliminary data at the present time, we note that the majority of our patients maintains their seizure control following replacement with VNS2 with a few showing improvement.

P.100

A Retrospective Study of Alberta Emergency Room Utilization by Pediatric Epilepsy Patients

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doi: 10.1017/cjn.2021.378

Background: Epilepsy, a common neurologic condition, instigates a large number of emergency room (ER) visits annually. This project aims to retrospectively review the patterns and characteristics of Alberta ER visits by pediatric epilepsy patients. **Methods:** Methods: Alberta Health administrative databases, including the Inpatient Discharge Abstract Database, the National Ambulatory Care Reporting System, Diagnostic Imaging and Medical Laboratory, were used to identify ER utilization patterns among children with epilepsy in Alberta, Canada between 2012–2018. **Results:** Of 5,419 pediatric epilepsy ER patients between 2012–2018 in Alberta, 59% were developmentally delayed children. Children in this particular group, when compared to developmentally normal children with epilepsy, had the following characteristics: they were significantly more likely to utilize ERs in children's hospitals versus other hospitals; they presented at a significantly younger age; they had a significantly longer length of stay; they had higher triage scores; they were subjected to significantly more investigations; and they had significantly more hospital admissions for epilepsy. **Conclusions:** Discussion: This novel Alberta-wide study of resource utilization of pediatric epilepsy patients shows that developmentally delayed children with epilepsy use significantly higher resources compared to developmentally normal children with epilepsy. Whether this is justified or not requires further study.

P.101

Response to high dose nocturnal diazepam in children with ESES

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doi: 10.1017/cjn.2021.379

Background: To assess the response to high dose daily nocturnal diazepam (HDD) in children with encephalopathy associated with electrical status epilepticus in sleep (ESES). **Methods:** A prospective cohort of patients (4-12 years), newly diagnosed with ESES, initiated on the first course HDD, was followed for ≤ 1-year. Sleep EEG scores (SES) pre and post HDD were evaluated. An EEG grading system based on both sleep spike wave index (sSWI) (Grade: 1-4) and distribution of epileptiform discharges (Grade: 0-4) was used and summed to yield an aggregate SES (ASES) (Grade: 1-8). **Results:** Eighteen eligible children (M:F 12:6; median age, 7.6 years) were initiated on first course HDD (median, 0.5 mg/kg/d). sSWI decreased from 85.7% (mean, SD 13.9) to 32.6% (mean, SD 37.1) at subsequent EEG (95% CI = -70.60- -35.62; $p < 0.001$). ASES decreased from 6.5 (SD 1.3) to 3.1 (SD 1.9) (95% CI = -4.17- -2.60; $p < 0.001$). EEG relapse after a period of improvement occurred in 10 children. Minimal response to HDD occurred in 2 children. Five patients manifested mild side effects; behavior (2), hyperactivity (2), and lethargy (1). **Conclusions:** HDD safely and significantly reduces both SWI and aggregate sleep EEG score in children with ESES.

P.102

Childhood Absence Epilepsy: Prevalence of treatment resistance and neuropsychiatric comorbidity.

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doi: 10.1017/cjn.2021.380

Background: Seizures in childhood absence epilepsy (CAE) are usually 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 refractoriness in a cohort of CAE at a single centre. **Methods:** We retrospectively reviewed patients with CAE (ILAE 2017 classification) diagnosed between January 1999 and December 2016 with at least 1-year follow-up. Treatment resistance was defined as failure to respond to two or more appropriate ASMs. Exclusion criteria included eyelid myoclonia with absence, myoclonic absence, and generalized tonic-clonic (GTC) seizure before developing absences. **Results:** The