

P.054**Clinical characteristics and outcomes of patients treated for acromegaly at The Ottawa Hospital**

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doi: 10.1017/cjn.2018.156

Background: Acromegaly is associated with significant morbidity. The purpose of this study was to establish characteristics and outcomes of patients treated for acromegaly at The Ottawa Hospital, to compare our results with published reports from other centers and to identify opportunities to improve patient care. **Methods:** A retrospective chart review of patients surgically and medically treated for acromegaly between January 1, 2007 and December 31, 2016 was completed. Demographic information, biochemical data, presenting features, disease comorbidities, treatment interventions, and were collected. **Results:** Fifty-one patients were identified using CCI/ICD-10 codes and IGF-1 levels. Similar to other centers, the majority of patients had a macroadenoma (78.4% vs 11.8%) with a high percentage invading the cavernous sinus (57.5%). While surgical intervention was performed in 90% of patients, only 23.3% of patient achieved surgical cure (IGF-1 normalization within reference range). Approximately 30% of patients were controlled with adjuvant medical therapy while more than 40 % had elevated IGF-1 levels at last follow-up. Radiotherapy was less commonly used. **Conclusions:** Despite a multi-modal treatment approach for acromegaly, outcomes are variable. This study highlights the need for further research to better understand factors associated with surgical cure, response to medical therapy and the role of radiotherapy.

P.055**Epidemiologic features of pituitary adenoma patients requiring surgical treatment: large North American patient population based study**

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doi: 10.1017/cjn.2018.157

Background: The surgical treatment of pituitary adenoma has evolved greatly over the decades. In order to better understand the patient population and their surgical treatment, we conducted an institutional review for pituitary adenoma surgery using the endoscopic endonasal trans-sphenoidal (EETS) approach. **Methods:** A retrospective review of all EETS cases for pituitary tumor resection was performed between November 2009 and June 2016. Patient characteristics, tumor type, endocrine data, operation characteristics were extracted from medical records. Preoperative MRI images were reviewed. The SIPAP classification was applied to the pituitary tumors. Postoperative patient data were extracted for the available follow-up period. **Results:** 232 cases were identified. Functional tumors were present in 29% of the cohort. Complete excision was most common for functioning tumors (49%) compared to nonfunctioning tumors (26%). There were no major vascular injuries. Hormone replacement with cortisol was required transiently in 70% of patients, with thyroid hormone replacement occurring in 40% of the cohort. **Conclusions:**

From this large North American cohort nearly 30% of operated pituitary tumors were functioning. More commonly, these tumors were completely resected compared to the nonfunctioning group. The most commonly replaced hormone following EETS surgery was cortisol and this was largely transient.

P.056**Predictability of pituitary tumor resection and recurrence following endoscopic endonasal trans-sphenoidal surgery**

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doi: 10.1017/cjn.2018.158

Background: The surgical treatment of pituitary tumour has undergone substantial changes over time. In this study we evaluated our institutional results for pituitary tumour surgery using the endoscopic endonasal trans-sphenoidal (EETS) approach. **Methods:** Patient demographic, clinical and surgical data were extracted from medical records. Preoperative MRI images were reviewed. The SIPAP classification was applied to the pituitary tumors. Chi2 test and t test were used for statistical analysis. **Results:** 202 cases were identified. Functional tumors were present in 29% of the cohort. Patients with a suprasellar or parasellar SIPAP score of 0 or 1 had complete resection of their tumor in 66.6% of cases, compared to 29% with a suprasellar or parasellar SIPAP score ≥ 2 (Risk Ratio 2.3 CI 1.58-3.39, $p=0.0005$). When the tumor was completely resected radiologically, the mean time to recurrence was not different for the SIPAP 0 or 1 group which was 27 months in comparison to 34 months for the group with a SIPAP score 2 ($p=0.13$). **Conclusions:** Our study results showed that the preoperative MRI SIPAP score can be used to better inform patients about their expected outcomes of EETS.

P.057**A systematic review of the prophylactic antibiotic use in endoscopic endonasal transsphenoidal surgery for pituitary lesions**

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doi: 10.1017/cjn.2018.159

Background: The benefit of prophylactic antibiotic use in endoscopic endonasal transsphenoidal surgery (EETS) for pituitary lesions is controversial. Many surgeons administer antibiotics perioperatively not based on clear guidelines but “to be safe”. **Methods:** A systematic review using PRISMA guidelines was performed to assess the efficacy of perioperative antibiotic use to prevent infectious complications in patients undergoing EETS. Inclusion criteria: randomized controlled trials, systematic reviews, observational studies, and case series. Data extracted: study design, year of publication, sample size, surgery type, perioperative antibacterial treatment (antibiotic, dose, and duration), number of patients with 30-days post-operative meningitis and/or sinusitis. End points: rates of meningitis and sinusitis post-EETS. **Results:** A total of 280 articles were identified. Four observational studies met inclusion criteria. Based on GRADE score these studies were considered low in quality. 633 patients were

included in those studies. The most common antibiotics used were cefazolin and ceftazidime. The rate of infection ranged from 0.5% to 3.1 % for meningitis as the most common infection. **Conclusions:** The need to use antibiotic(s) perioperatively is not clear in patients with pituitary lesions undergoing EETS. Randomized control trials are needed to evaluate the efficacy of prophylactic antibiotic use in patients with pituitary lesions undergoing EETS.

NEUROCRITICAL CARE

P.058

Introduction of continuous video EEG monitoring into two different NICU models by training neonatal nurses

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doi: 10.1017/cjn.2018.160

Background: Continuous video-EEG (cvEEG) monitoring is the standard of care for diagnosis and management of neonatal seizures. However, it is labour-intensive. We aimed to establish consistency in monitoring of newborns utilising NICU nurses. **Methods:** Neonatal nurses were trained to apply scalp electrodes, troubleshoot technical issues. Guidelines, checklists and visual training modules were developed. A central network system allowed remote access to the cvEEGs by the epileptologist for timely interpretation and feedback. We compared 100 infants with moderate to severe HIE before and after the training program. **Results:** 192 cvEEGs were performed. Of the 100 infants compared; time to initiate brain monitoring decreased by average of 31.5 hours, in electrographic seizure detection increased (20% compared to 34% a), seizure clinical misdiagnosis decreased (65% compared to 36%), and Anti-Seizure burden decreased. **Conclusions:** Training experienced NICU nurses to set-up, start and monitor cvEEG can decrease the time to initiate cvEEG which may lead to better seizure diagnosis and management.

P.059

A systematically conducted review of the Full Outline of UnResponsiveness (FOUR) score and its use in outcome prediction

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doi: 10.1017/cjn.2018.161

Background: Our goal was to perform a scoping systematic review of the literature on the application of the FOUR score with critically ill patients. **Methods:** 6 databases were searched. Two reviewers independently screened the results. Inclusion and exclusion criteria were applied to each article to obtain final articles for review. **Results:** The initial search yielded 1709 citations. Of those used, 49 were based on adult and 6 on pediatric populations. All but 8 retrospective adult studies were performed prospectively. Patient categories included traumatic brain injury, intraventricular hemorrhage, intracerebral hemorrhage, subarachnoid hemorrhage, ischemic

stroke, general/combined neurology and neurosurgery, post-cardiac arrest, medicine/general critical illness, and patients in the emergency department. A total of 9092 adult patients were studied. 14 studies demonstrated good inter-observer reliability of the FOUR score. 9 studies demonstrated prognostic value of the FOUR score in predicting mortality and functional outcomes. 31 studies demonstrated equivalency or superiority of the FOUR score compared to GCS in prediction of mortality and functional outcomes. Similar results were seen for the pediatric population. **Conclusions:** The FOUR score has been shown to be a useful outcome predictor in many patients with depressed level of consciousness. It displays good inter-rater reliability among physicians and nurses.

P.060

Utility analysis of continuous video EEG (cvEEG) monitoring during the treatment of hypoxic ischemic encephalopathy (HIE) in the NICU

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doi: 10.1017/cjn.2018.162

Background: Therapeutic hypothermia (TH) improves the outcome in HIE but cvEEG is vital to detect any seizures that occur. Unfortunately, the costs associated with cvEEG can make it impractical. We studied outcomes in TH with the objective of optimizing the length of cvEEG required. **Methods:** Term infants with HIE were treated with 72 h of TH followed by 6 h of rewarming. cvEEG reports were quantified (background, sharp transients, seizures) and compared with pre and post-cooling variables to determine whether risk stratification was possible. **Results:** 25/78 infants had seizures during the TH, however, most seizures occurred early, with 7 infants seizing prior to cooling and 15 having their first seizure within 24h. Only 3 infants had their first seizure between 24-48h and none were recorded after. Novel seizures after 24h were brief and did not require treatment. EEG variables such as frequent sharp transients and first seizures within 24h were correlated with MRI abnormalities. **Conclusions:** For the majority of infants undergoing TH, 24h of cvEEG may be sufficient with few infants requiring longer than 48h. A combination of clinical variables (abnormal neurological exam) and EEG traits (frequency of discharges, seizures) can help to decide on the likelihood of seizures and length of EEG recording needed.

P.061

Reliability of EEG reactivity in assessment of comatose patients under standardized protocol

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doi: 10.1017/cjn.2018.163

Background: Electroencephalography (EEG) is a routine clinical tool that is used to evaluate thalamocortical function in comatose patients. The presence or absence of reactivity in background EEG patterns to afferent stimuli is believed to be an important indicator of clinical outcome. At present, there are no guidelines or standardized testing protocols for the assessment of EEG reactivity in critically ill patients. Moreover, the inter-rater reliability of subjectively identifying