

B.02

Fluoroquinolone antibiotics and risk of secondary Pseudotumor Cerebri Syndrome

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Background: Fluoroquinolones (FQs) are one of the most prescribed classes of antibiotics in North America. There have been a number of cases reports linking FQs with secondary pseudotumor cerebri syndrome (PTCS) but data from large epidemiological studies are lacking. **Methods:** We conducted a case-control study of people 15-60 years of age from the LifeLink Database (IMS, USA). Cases had the first international classification for disease 9th edition clinical modification (ICD-9 CM) code for benign intracranial hypertension (BIH) as well as having received a procedure code for an MRI or CT scan and a lumbar puncture within 15 days or 30 days of receiving the BIH code. For each case, ten controls were selected and matched to the cases by age, gender and calendar time. **Results:** From a cohort of 6,110,723 people, there were 339 cases of PTCS and 3,390 corresponding controls. In the primary analysis, the adjusted rate ratio (RR) for current users for fluoroquinolones for both the 15 day and 30 day definitions were 5.67 (95% CI:2.72-11.83) and 4.15 (95% CI:2.29-7.50) respectively. **Conclusions:** Our study suggests an increase in the risk of PTCS with current users of fluoroquinolones. Patients who experience symptoms of raised intracranial pressure including headaches and double vision when on FQs should seek medical attention.

B.03

Safety and effectiveness of insular resections for drug-resistant epilepsy

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Background: Insular cortex involvement as a part of epileptogenic zone is often suspected in the context of operculo-insular semiology and can be confirmed by routine interrogation of the insula with stereo-electroencephalography (SEEG). However the safety and efficacy of insular resections remains unclear. **Methods:** We reviewed all the patients who underwent insular resection for drug-resistant epilepsy, from 2002 – 2016, in the Calgary Epilepsy Program. Details of the comprehensive pre-surgical evaluation, surgery performed, complications and seizure outcome at the latest follow-up were collected. **Results:** Fifteen patients (8 males, 7 females) with age range 3 – 41 years were identified. MRI was normal in 9 patients. The decision to resect the Insula was made based on clinical semiology and structural and functional imaging in 6 patients and on SEEG findings in 9 patients. Insular resection was total in 11 and partial in 4 patients. Four (26%) patients had transient hemiparesis and 1 patient had permanent mild upper extremity weakness following total resection. After a mean follow-up period of 45.6 months (range 2 – 150 months), 40% of the patients are seizure free. **Conclusions:** Insular cortex resections for drug resistant epilepsy can be performed safely

and may contribute to additional effectiveness in seizure outcomes in patients with challenging extra-temporal epilepsy.

B.05

Hemi-laryngopharyngeal spasm (HELPS) syndrome: The discovery, cure, and characterization of a new neurological condition

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Background: We published the world's first case of hemi-laryngopharyngeal spasm (HELPS) syndrome cured by microvascular decompression (MVD) of the Xth cranial nerve in 2016. We now present a small cohort of patients (n=3) successfully treated with surgery in order to better delineate the common characteristics of this syndrome, diagnostic tests of choice, nuances of their surgical care and outcomes of their treatment. **Methods:** The history and physical examination of three patients with HELPS syndrome are presented. Pre-operative laryngoscopy, neuroimaging, response to botox and intra-operative videos are detailed. Post-operative outcome and complications are presented. **Results:** Each patient reported similar motor (choking) and sensory (coughing) features in their history. Episodic choking relentlessly progressed over the years until it occurred while sleeping and with frightening severity prompting tracheostomy in one patient and intubation in another. A “tickling” sensation deep in the throat triggered episodic coughing that worsened over the years until it occurred while sleeping and with frightening severity (syncope and incontinence). **Conclusions:** A review of the literature suggests that patients with similar symptoms, often called episodic laryngospasm in the past, have been treated with psychotherapy or antacids. With the recognition that a clearly defined subset of these patients have HELPS syndrome, we can offer them the potential of a neurosurgical cure.

B.06

The “Worried Well”?: characteristics of cognitively normal patients presenting to a rural and remote memory clinic

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Background: In an effort to better understand why cognitively normal patients are referred to a memory clinic, we sought to identify features of “worried well” patients to better identify those more likely to be cognitively normal. **Methods:** Three hundred and seventy-five consecutive patients referred by primary care practitioners to a Rural and Remote Memory Clinic, were categorized into two groups based on their neurologic diagnosis, “worried well” (cognitively normal, N=81) or “other” (patients with any neurologic diagnosis, N=294). The two groups were compared using a t-test and a Chi-squared test. The same comparison was done between the same set of “worried well” patients (N=81) and the subgroup of patients with a diagnosis of Alzheimer's disease (N=146) from the “other” group. Ethics approval was obtained from the University of Saskatchewan Biomedical Research Ethics Board. **Results:** Significant differences included younger age, more formal education, more frequent previous

psychiatric diagnosis and more self-reported alcohol consumption in the “worried well” group. The “worried well” and “Alzheimer’s Disease” comparison had the same significant differences as the “worried well” and “other” comparison. *Conclusions:* We observed a pattern of differences between the “worried well” patients and those with cognitive disease. Taking multiple factors into account when evaluating a patient may help with clinical decision making.

B.07

Differences between Indigenous and non-Indigenous patients referred to a rural and remote memory clinic

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Background: Jacklin et al. (2013) described a rising incidence and a younger onset of dementia in Albertan First Nations compared to non-First Nations patients. Canadian research is limited in Indigenous patients with dementia, leaving it difficult to understand factors contributing to the differences in incidence and prevalence. *Methods:* 375 patients (41 Indigenous) was seen at the clinic. The questionnaire given during initial assessments were reviewed and differences between groups (non-Indigenous patients versus Indigenous) were assessed. *Results:* Compared to the non-Indigenous patient, Indigenous patients were younger ($p=0.007$), were more likely to be female ($p=0.033$) and had less education ($p=0.055$). They were less likely to live solely with a partner ($p<0.001$) and more likely to have a daughter as caregiver ($p=0.004$). The Indigenous patients were more likely to smoke ($p<0.001$). Although no differences in diagnosis of mental health disorders were seen ($p=0.735$), the Indigenous patients scored significantly higher on the CES-D ($p<0.0001$). *Conclusions:* This comparison highlights differences potentially affecting the health of Indigenous patients. Acknowledging these differences is critical to individualized patient care. Further research is required to explore how these factors affect dementia disease course and treatment, and how these factors play a role in the differences in incidence and prevalence demonstrated in previous studies.

CNSS CHAIR’S SELECT ABSTRACTS

C.01

Cystic Vestibular Schwannomas respond best to radiosurgery

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Background: Vestibular Schwannomas (VS) have a well-documented response to Gamma Knife® Stereotactic radiosurgery (SRS). However, there is limited data available regarding the volumetric response of cystic tumors. This report correlates the radiographic appearance of VS before radiosurgery with the delayed volumetric response. *Methods:* This study reviewed 219 VS patients between 2003 and 2013. Patients were treatment naïve and had a significant extracanalicular tumor volume. MRI at SRS identified;

42 contrast enhancing macrocystic tumors, 45 contrast enhancing microcystic tumors, and 132 homogeneously enhancing tumors with no intra-tumoral cyst formation. The median follow-up was 49.1 months. The median tumor volume was 2.6cm³ (0.70-16.1cm³) and the median dose was 12.5Gy (11-13Gy). *Results:* The actuarial tumor control rate was 99.4% at 2-years and 96.4% at 5-years. A volumetric reduction of >20% occurred in 85.4% of macrocystic tumors, 76.1% of microcystic tumors and 62.8% of homogeneously enhancing VS. The median volume decrease per year for macrocystic, microcystic and homogenous tumors was 17.2%, 7.5% and 7.9% per year respectively ($p<0.001$). Serviceable hearing was maintained in 61.5% of patients that had Gardner-Robertson grade I-II hearing. *Conclusions:* SRS provided VS tumor control in >95% of patients, regardless of radiographic characteristics. Tumor volume regression was most evident in patients with cystic tumors.

C.02

Delayed new-onset hormone dysfunction following complete and incomplete resection of nonfunctioning pituitary adenomas

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Background: Post-operative delayed hormone dysfunction (DHD) in patients with nonfunctioning pituitary adenomas (NFPA) is highly variable and is predicted based on limited evidence. This study was undertaken to assess the likelihood of developing new DHD and its relation to the extent of tumor resection and recurrence. *Methods:* Four hundred fifty-five prospectively collected patient files were reviewed from our Program’s database. Inclusion criteria: NFPA; underwent surgery; and minimum follow-up of two years. Tumor recurrence was correlated with DHD (starting one year post-operatively) based on standardized annual imaging and hormone testing. *Results:* Eighty-nine patients met our inclusion criteria: 39 males and 50 females; mean follow-up was 4.3yrs (ranging from 2 to 11yrs). With no post-op residual tumor, the probability of developing DHD was only 7% by six years; no patient in this group developed DHD after three years of follow-up. In contrast, by six years, the probability of DHD was 33% in patients with residual stable tumor, and 54% in those with tumor recurrence/growth. *Conclusions:* By six years, approximately one third of patients with incomplete resection, and over half with tumor regrowth, will likely develop DHD. In contrast, the risk of DHD with complete tumor resection is <10% and, when seen, occurs within three years of surgery.

C.03

Surgical clipping or endovascular coiling for unruptured intracranial aneurysms: a pragmatic randomized trial

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Background: Unruptured intracranial aneurysms (UIAs) are treated using endovascular treatment or microsurgical clipping. The safety and efficacy of treatments have not been compared in a randomized trial. *Methods:* We randomly allocated clipping or coiling to patients with 3-25mm UIAs judged treatable both ways. The primary