

**P.134****Long-term quality of life deterioration in vestibular schwannoma patients treated with radiotherapy: a matched cohort with surveillance, radiation and surgery***S Taniguchi (Vancouver)\* J Kam (Vancouver) R Akagami (Vancouver)*

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Background: There is an absence of studies evaluating longitudinal quality of life (QoL) amongst vestibular schwannomas (VS) with matched tumor and patient characteristics between treatment groups. We present novel findings of 12 yearlong follow-up of patient QoL and symptomatology outcomes in this matched cohort study. Methods: Symptomatology and 36-Item Short Form Health Survey (SF36) between 2000-2017 in VS patients managed at a single tertiary centre was conducted. Radiation (R) and active surveillance (A) groups were matched for tumor size and age against the surgery (S) group. Results: 14 A patients, 24 R patients, 49 S patients met matching and inclusion criteria. Mean age, tumor diameter and follow up was 69.1 years, 21.6mm and 12.0 years respectively. Mental component summary (MCS) scores deteriorated significantly in the radiation group (3.1 S, 3.7 A, -3.5 R, p-value 0.008). Physical component summary scores remained stable at follow up (-0.2 S, 0.00 S, -4.0 R, p-value 0.227). Various symptoms resolved statistically in surgery group, whereas tinnitus on follow up was higher with radiation (40.8% S, 66.7% R, p-value 0.038). Conclusions: Surgery group demonstrated improvements in long term QoL with good symptom resolution, whilst radiation group demonstrated small but significant deterioration over time.

**P.135****Automated awake brain mapping with eloquentaid: a novel tool for low-resource settings***E Guo (Calgary) JG Pascual (Manila)\* SN Cua (Manila) KO Khu (Manila) S Lama (Calgary) GR Sutherland (Calgary)*

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Background: Intraoperative testing for awake craniotomies requires a multidisciplinary team which may not be available in low-resource settings. We explored the creation of an AI tool for automated testing. Methods: We developed a NodeJS application, EloquentAid (<https://www.eloquentaid.com/>), for language testing automation. The workflow was as follows: users select an image-based naming task and verbally identify the image in English. Then, the application transcribes the response using OpenAI's Whisper transcription service. Finally, the application evaluates response correctness. Feedback is provided through auditory and color signals. To assess its reliability, we tested the EloquentAid versus a human rater using a 57-item test based on the Boston Naming Test. Participants were neurosurgery and neurology residents from the Philippines. Qualitative surveys were obtained post-test. Results: A total of 798 observations were recorded (N=14). Human-application agreement was 60.52%. Cohen's kappa was 0.31 (fair agreement). There were no false positive identifications by EloquentAid. Noun-type was felt to affect human error (i.e. "knocker," "yolk," "trellis").

Accent and pronunciation were felt to affect EloquentAid errors. Conclusions: EloquentAid is a promising tool to facilitate intraoperative testing and brain mapping using AI for speech recognition and response evaluation. Preliminary data shows fair human-app agreements. Improvements in test items and pronunciation recognition may be made.

**P.136****Implementation of BC Children's Hospital's intraventricular hemorrhage of prematurity management pathway: a quality improvement analysis***MW Elder (Vancouver)\* A Weir (Vancouver) I Watson (Vancouver) F Haji (Vancouver) A Singhal (Vancouver) M Tamber (Vancouver)*

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Background: Early placement of a ventricular access device (VAD) may decrease the need for permanent CSF diversion and improve cognitive outcomes in premature infants with intraventricular hemorrhage. In 2019, BC Children's Hospital implemented a multidisciplinary early intervention pathway for these infants. This study evaluated process and compliance measures related to protocol implementation. Methods: A retrospective quality improvement chart review of enrolled infants was performed. Select measures included time to neurosurgery consult and intervention, compliance with VAD tapping and ultrasound protocols, overall ultrasound resource use, and complications. Results: Sixteen patients were included. Median time to VAD insertion was 6 days (IQR 4-9.5), greater than the 3-day target. Transfer time from peripheral NICUs and access to OR time were found to be important reasons for delay. Patients received a median 92.2% (IQR 85.1-100%) of the ultrasounds required by protocol, with a median of 36.5 (IQR 29-43.25) ultrasounds per patient. VAD tapping was 88.8% (IQR 75.6-94.8%) compliant; most protocol deviations were indicated taps not performed due to technical difficulties. Conclusions: Compliance with the new protocol was satisfactory. Areas for improvement include continued education at peripheral NICU sites to minimize transfer delays, improved access to the OR, and maintenance of technical skills amongst our NICU partners.

**P.137****Neurosurgical consultations in Nova Scotia: a descriptive analysis***E Parker (Halifax)\* MA MacLean (Halifax) E Leck (Halifax) J Han (Halifax) A Alwadei (Halifax) R Greene (Halifax) DB Clarke (Halifax)*

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Background: Receiving and managing neurosurgical consultations are central to providing quality patient care but are resource intensive processes. As part of an ongoing quality improvement initiative, we conducted a single-institution descriptive analysis of adult neurosurgical consultations. Methods: A retrospective review of prospectively collected consultation records and call schedules from a 12-month period from February 2019 to 2020 was performed. Consults were graded according to disposition (admission for

surgery, non-operative admission, additional investigations recommended, opinion without further investigations, unnecessary consult). Results: There were 1916 consultations reviewed, with 52% of calls (n=991) originating outside of our hospital, and 72% (n=1387) coming from an emergency department. Cranial cases made up 64% (n=1230) of consults, while the remaining 36% (n=688) were spine cases. The mean patient age was 60.1±0.4 years. In multinomial logistic regression analysis, age, geographical distance of consulting site, and consult specific variables (neurosurgical subspecialty, inside vs. outside call, emergency department vs. inpatient ward or private office) were associated with consult disposition ( $p < 0.001$ ). Conclusions: This study provides a descriptive analysis of neurosurgical consultations in Nova Scotia. Results from this study may be used to address inefficiencies in the neurosurgical consultation process, including targeted education for consulting physicians.

### P.138

#### Burnout in Canadian neurosurgery

*J Skulsampaopol (Toronto)\* S Shitsama (Nairobi) MD Cusimano (Toronto)*

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Background: Burnout is common among health care professionals and can lead to depression and poor patient outcomes. The prevalence of burnout among Canadian neurosurgeons and trainees is yet unknown. Methods: International survey of neurosurgeons and trainees Results: Of total 403 responses, 47 were Canadian respondents (80.9% were male and 14.9% were female). Rate of burnout among Canadian neurosurgeons and trainees was 42.6%; however, there was no significant difference between rate of burnout between Canadian respondents and non-Canadian respondents (35.3%),  $p=0.33$ . Rate of burnout among Canadian neurosurgeons and resident/fellow was 40 and 47.1%, respectively,  $p=0.64$ . Subgroup analysis showed no difference in rate of burnout between Canadian and non-Canadian practicing neurosurgeons ( $p=0.34$ ) and Canadian and non-Canadian resident/fellow ( $p=0.76$ ). Canadian neurosurgeons with work experience of 5-10 years are more likely to have burnout compared to neurosurgeons with more or less work experience (OR 17, 95%CI 1.43-826.22,  $p=0.005$ ). There was a trend that female Canadian respondents had more burnout than male counterparts (OR 4.2, 95%CI 0.57-47.45,  $p=0.09$ ). Conclusions: Burnout is not uncommon among Canadian neurosurgeons/trainees. Monitor and supports should be provide to those who are at risk to mitigate burnout and provide resilience.

### P.139

#### The use of tranexamic acid in craniotomy: a Canadian survey and literature review

*S Jung (Halifax)\* L Julien (Halifax) SD Christie (Halifax) SP Lownie (Halifax)*

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Background: There is growing evidence supporting the intraoperative use of an antifibrinolytic agent, tranexamic acid (TXA) to limit blood loss; however, use of TXA has not been widely adopted in cranial procedures. We aimed to determine the practice pattern regarding the use of TXA in craniotomy in Canada, and review the

literature. Methods: A survey was conducted among the Canadian centres on TXA use during elective craniotomy. Online databases were searched for randomized controlled trials reporting the use of TXA in craniotomy for tumors. The results included the estimated blood loss and the dose used. Results: TXA was not routinely used in elective craniotomy but used selectively in 6 of 15 centres based on risk, intraoperative bleeding, or surgeon preference. The dose was 1 g with or without infusion. 6 studies were identified through literature search. The dose varied between 10–20 mg/kg bolus and 1 mg/kg/hr infusion, or a 2 g bolus alone. All studies reported a significant reduction in blood loss with TXA. Conclusions: We found widely divergent indications for intraoperative TXA use in elective craniotomy throughout Canada. This is in keeping with limited evidence in the literature. Further studies are needed to inform the decision regarding TXA use.

### P.140

#### The clinical outcomes of patients with normal pressure hydrocephalus and fecal incontinence

*HK Cheema (Ottawa)\* E Torio (Milwaukee)*

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Background: Normal Pressure Hydrocephalus (NPH) is characterized by the clinical triad of dementia, gait disturbance, and urinary incontinence. An initial case series by Hakim and Adams highlighted that all patients exhibited this triad, with only one presenting with fecal incontinence. This study aims to examine the outcomes of individuals experiencing fecal incontinence who have undergone ventriculoperitoneal shunting (VPS). Methods: A systematic review and surgical case series was conducted, involving consecutive adults diagnosed with NPH and treated with VPS between September 2016 and September 2022. Results: In the cohort of 85 patients, the median duration of NPH symptoms was 3.2 years. Gait and balance symptoms were prevalent in all patients, while cognitive, bladder, and bowel symptoms were observed in 85.9%, 91.8%, and 23.5% of cases. No significant differences were noted in age, sex, neurologic diseases presence, or lower gastrointestinal or pelvic pathology. The prevalence of fecal incontinence pre-surgery, within less than 3 months, and 3 months post-surgery were 23.5%, 32.9%, and 17.6%. The systematic review search yielded 515 articles, and 18 included patients with fecal incontinence. Conclusions: The insights gained from the systematic review and cohort offer a comprehensive understanding of the outcomes observed in patients with NPH and fecal incontinence following VPS.

### P.141

#### Endoscopic transorbital approach to the skull base: a single centre experience

*ME Yasuda (Hamilton)\* J Moore (HAMILTON) T Nguyen (HAMILTON) Y Alammr (HAMILTON) MA Mohd Slim (HAMILTON) A Mastrodonardo (HAMILTON) D Sommer (HAMILTON) K Reddy (HAMILTON)*

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Background: Minimally invasive endoscopic techniques via the transorbital approach (ETOA) have emerged as a promising