

population. Emergency care appears to be delivered in a timely fashion. Both centers participate in research registries focused on collecting data related to tSCI, surgical interventions, and patient outcomes. Registries are valuable research tools that allow for an alternative way to examine the quality of care their patients receive.

P.077

A Concussion-U educational presentation improves knowledge and attitudes of concussion amongst elite female high-school hockey players

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Background: Research has suggested that female athletes have a higher incidence of concussion compared to their male counterparts. As such, programs designed to improve knowledge and attitudes of concussion should target this high-risk population. Previous work demonstrated the effect of a novel Concussion-U educational presentation on knowledge and attitudes of concussion amongst male Bantam and Midget AAA hockey players. The objective of this study was to determine if the same presentation was effective in improving the knowledge and attitudes of concussion in a cohort of elite female hockey players. **Methods:** 26 elite female high-school aged (14-17) hockey players from the province of New Brunswick consented to participate in the study. Each participant completed a modified version of Rosenbaum and Arnett's Concussion Knowledge and Attitudes Survey questionnaire immediately before and after a Concussion-U educational presentation. Results were compared across the two time-points to assess the effectiveness of the presentation. **Results:** Concussion knowledge and attitude scores significantly ($p < .001$) increased from pre-presentation to post-presentation by 12.5% and 13.4%, respectively. **Conclusions:** A Concussion-U educational presentation resulted in increased knowledge and improved attitudes towards concussion in elite female hockey players. Future research should examine the long-term retention of these improvements.

P.080

Traumatic brain injury in a rural indigenous population in Canada: a community-based approach to surveillance

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Background: Indigenous populations are disproportionately affected by traumatic brain injury (TBI). These populations rely on large jurisdiction surveillance efforts to inform their prevention strategies, which may not address their needs. This study describes the TBI determinants of a Quebec indigenous population, the Cree served by the Terres-Cries-de-la-Baie-James health region, and compares them to the determinants of two neighbouring health regions and the entire Province of Quebec. **Methods:** We conducted a retrospective population-based cohort study of incident TBI hospitalizations, stratified by the aforementioned health regions, in Quebec from 2000-2012. MED-éCHO administrative data were used for case finding. A sub-analysis of the Terres-Cries-de-la-Baie-James

adults was completed to assess for determinants of TBI severity and outcomes. Regression models, multiple imputations and a sensitivity analysis were used to account for biased associations. **Results:** 172 incident TBI hospitalizations occurred in the Terres-Cries-de-la-Baie-James region from 2000-2012. The incidence rate was 92.1 per 100,000 person-years and the adjusted IRR was 1.86 (95% CI 1.56-2.17) when compared to the entire province. Determinants of TBI for the Terres-Cries-de-la-Baie-James were significantly different from those of neighboring populations and the entire province. **Conclusions:** TBI surveillance information from large jurisdiction initiatives can be misleading for indigenous communities. Community-based surveillance provides evidence that these populations should use to prioritize prevention strategies.

P.081

Penetrating brain injury, recent case series of a single institution and literature review

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Background: Penetrating brain injury is a rare entity. Furthermore, clinical presentation can be highly variable and management difficult, especially when the foreign body is retained in the skull. **Methods:** We present a series of three recent cases of penetrating brain injury that happened at our institution including clinical and radiological data. We discuss management of those challenging cases and present a brief review of the literature. **Results:** Our cases (3) encompassed different mechanisms: bilateral nail gun injury, knife and aircraft propeller. All patients were male, with a median age of 37 years old. Work-up was negative for intracranial vascular injury. All patients were treated with initial craniectomy (bilateral in one case) and a course of antibiotics. Cranioplasty was later performed. All patients survived and evolved in favorable fashion. **Conclusions:** Penetrating brain injury is a rare injury, requiring individualized surgical and medical management. A few recommendations may be found in the literature but are often based on literature from blunt traumatic brain injury or war-related injuries.

P.082

Traumatic inter hemispheric subdural hematomas – clinical presentation, management and outcome

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Background: There is currently little data on the incidence, clinical outcome and management of traumatic interhemispheric subdural hematomas (IHSDHs). **Methods:** All patients admitted with an acute subdural hematoma (SDH) over a 5-year period at a Level I trauma center were included. A detailed review of all cases of large IHSDH (≥ 7 mm) was performed to document clinical presentation, management and outcomes. **Results:** Of 1182 patients with acute subdural hematomas (SDHs), 420 had IHSDHs (24%), and 50 were large IHSDHs. For patients with large IHSDH, the average age was 76 years (± 11) and 44% were female. The average GCS was 12 on presentation (± 4), and the average GOSE was 4 (± 2). 66% of patients had associated cranial/ intracranial injuries (fracture, subarachnoid/

epidural/SDH) and 26% required operations for acute convexity SDH. Three patients required operations for their IHSDH by inter hemispheric approach. By 10 weeks, 82% had a complete resolution of the IHSDHs. *Conclusions:* IHSDHs are often referred to as rare entities. Our results show they are common. Conservative management is often appropriate to manage even large IHSDHs, as most resolve spontaneously. This study will help document the occurrence of falx syndrome, as well as the management and outcomes of larger IHSDHs.

FUNCTIONAL NEUROSURGERY AND PAIN

P.083

Trigeminal neuralgia caused by an intra-axial glioma in a child: first surgical case report and systematic review

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Background: Trigeminal neuralgia (TGN) is usually caused by arterial compression of the trigeminal nerve. There are very few cases caused by intra-axial brainstem masses. Little information is therefore available regarding the response to incomplete resection of offending lesions. We present one such case, and systematically review the published in the literature. *Methods:* Case report and systematic review of MEDLINE and EMBASE *Results:* Case report: A seven year-old girl is referred with typical TGN pain. MRI revealed a cervicomedullary tumor with no abnormalities of the pons or trigeminal nerve. Subtotal resection under neurophysiologic monitoring was achieved, leaving a small residual attached near the expected location of the trigeminal spinal nucleus and tract. Patient recovered well with resolution of her TGN pain. She is asymptomatic seven years post-operatively. Literature Review: We found no other published cases in children or secondary to gliomas. Among reviewed cases, only two underwent surgery. Both were adults with brainstem cavernomas and both reported substantial improvement despite incomplete resection. *Conclusions:* Our case as well as literature review both show that surgical resection is beneficial in such cases and, even if subtotal, can result in substantial pain relief. This suggests intra-axial compression of the trigeminal spinal nucleus and tract as the possible cause of TGN pain in such cases.

P.086

The clinical significance of trigeminal neuralgia nomenclature

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Background: A diagnosis of trigeminal neuralgia (TN) may be broadly applied to many neuralgic facial pains, while more stringent criteria are required for management decisions, outcome assessment, and pathophysiological correlations. Our aim was to evaluate existing classification systems of facial pain. *Methods:* The study population was comprised of 534 Manitobans referred to neurosurgery for facial

pain from 2001 to 2013. A retrospective chart review identified presenting features; pain distribution, nature, and duration. The recorded diagnoses (rDx) were then re-classified according to the International Classification of Headache Disorders (ICHD-3) and Burchiel System of TN1 and TN2. *Results:* There was complete correlation between rDx and ICHD-3 for typical TN (tTN) in 266(49.8%) patients, atypical TN (aTN) in 39(7.3%), and idiopathic facial pain (IFP) in 59(11%). Idiopathic trigeminal neuropathy (iTn) in 35(6.6%) was not classified in ICHD-3. Burchiel-TN1 included heterogeneous diagnoses including tTN (266), aTN (27), iTn (2) and IFP (8); Burchiel-TN2 included aTN (10), iTn (23), and IFP (15). Another 135(25.5%) had other facial pain diagnoses. *Conclusions:* Classification of TN is especially important when selecting and evaluating surgical treatments. Diagnostic criteria should clearly differentiate between unique conditions and ideally have basis on underlying etiology. The ICHD-3 nomenclature best satisfies these aims although should be expanded to include iTn.

P.087

RETRACTION - Low back pain relief with a new 32-contact surgical lead and neural targeting algorithm

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Background: Advances in surgical leads have been thought to potentially enable improved low-back pain relief using SCS. A recently introduced 32-contact surgical lead, which couples multiple independent current control and anatomically-based neural targeting stimulation algorithms, allows for patient-specific programming optimization. We present a real world study of this surgical lead. *Methods:* A multi-center, consecutive observational study of a new 32-contact surgical lead was carried out, using the Precision Spectra SCS System (Boston Scientific) in 100 subjects out to 12 months post-implant. We examined procedural information, programming parameters, and clinical outcomes including pain reduction (NRS), activities of daily living, and change in pain medications. *Results:* Surgical lead placement distribution was between T7 and L2, with most at top of T9 (26%). A mean reduction of 5.1 points (SD 2.15, $p < 0.001$) from 7.8 (baseline) to 2.6 in overall pain was observed. A subset of subjects reporting low-back pain only exhibited a mean decrease of 6.0 points (SD 2.12, $p < 0.001$) from 8.3 (baseline) to 2.2. Of these, 83.1% of subjects showed $\geq 50\%$ back pain reduction. Increases in activities of daily living and reduction in pain medication usage were also observed in majority of subjects. *Conclusions:* Subjects implanted with a 32-contact surgical lead using a neural targeting algorithm demonstrated significant low-back pain reduction.