

variables on diagnosis of epilepsy. Diagnostic concordance between SSC nurses and epileptologists was also assessed. *Results:* Predominant referral sources were emergency department physicians and general practitioners. Mean wait-time for first assessment was significantly reduced by 70.5% employing the SSC model versus historical usual care. A diagnosis was established at first-contact in 80.5% of cases while 16.0% of patients required a second visit. Eighty-two patients (41.0%) were diagnosed with epilepsy. The most common non-seizure diagnosis was syncope (24.0%). An abnormal EEG was found in 93.9% of patients diagnosed with epilepsy. Sixty-three patients were started on anti-epileptic drugs. In 18% of cases driving restrictions were initiated by the SSC. There was moderate correlation between SSC nurses and physicians ( $\kappa=0.54$ ;  $p<0.001$ ) diagnoses. *Conclusions:* The SSC model reduces wait-times, streamlines assessments, and impacts clinical care decisions.

## CNSS CHAIR'S SELECT ABSTRACTS

### C.01

CNSS K.G. McKenzie Memorial Prize in Clinical Research

#### **Intrathecal morphine following lumbar fusion: a randomized, placebo-controlled trial**

*D Yavin (Calgary)\* P Dhaliwal (Orlando) T Whittaker (Calgary) GS Hawboldt (Calgary) GA Jewett (Calgary) S Casha (Calgary) S du Plessis (Calgary)*

doi: 10.1017/cjn.2016.67

*Background:* Despite the ease of intraoperative injection, intrathecal morphine (ITM) is rarely provided in lumbar spine surgery. We therefore sought to demonstrate the safety and efficacy of ITM following lumbar fusion. *Methods:* In this double-blind trial, 150 patients undergoing elective instrumented lumbar fusion were randomly assigned to receive a single injection of ITM (0.2 mg) or placebo (saline) prior to wound closure. Primary outcomes were postoperative pain on the visual-analog scale during the initial 24 hours after surgery and respiratory depression. Secondary outcomes included related adverse events, opioid requirements, and length of stay. Outcome curves were estimated in an intention-to-treat, repeated-measures analysis. *Results:* Age, disability, operative times, and pre-operative pain were similar in both groups. ITM was associated with less pain both at rest ( $p<0.002$ ) and with movement ( $p<0.02$ ) during the initial 24 hours following surgery. ITM did not increase the cumulative incidence of respiratory depression (hazard ratio 0.86,  $p=0.66$ ). While ITM reduced postoperative opioid requirements ( $p<0.03$ ), there was no significant difference in length of stay ( $p=0.67$ ). Adverse events did not significantly differ between groups. The early benefits of ITM on postoperative pain were no longer apparent after 48 hours. *Conclusions:* A single ITM injection safely reduces postoperative pain following lumbar fusion. (ClinicalTrials.gov NCT01053039)

### C.02

CNSS K.G. McKenzie Memorial Prize in Basic Neuroscience Research

#### **Whole genome expression profiling of blood-brain barrier endothelial cells after experimental subarachnoid hemorrhage**

*MK Tso (Calgary)\* P Turgeon (Toronto) B Bosche (Toronto) J Ai (Toronto) P Marsden (Toronto) RL Macdonald (Toronto)*

doi: 10.1017/cjn.2016.68

*Background:* The pathophysiology of subarachnoid hemorrhage (SAH) is complex and includes disruption of the blood-brain barrier (BBB). We freshly isolated BBB endothelial cells (BECs) by 2 distinct methods after experimental SAH and then interrogated their gene expression profiles with the goal of uncovering new therapeutic targets. *Methods:* SAH was induced using the prechiasmatic blood injection mouse model. BBB permeability studies were performed by administering intraperitoneal cadaverine dye injections at 24h and 48h. BECs were isolated either by sequential magnetic-based sorting for CD45-CD31+ cells or by fluorescence-activated cell sorting (FACS) for Tie2+Pdgrb- cells. Total RNA was extracted and analyzed using Affymetrix Mouse Gene 2.0 ST Arrays. *Results:* BBB impairment occurred at 24h and resolved by 48h after SAH. Analysis of gene expression patterns in BECs at 24h reveal clustering of SAH and sham samples. We identified 707 (2.8%) significant differentially-expressed genes (403 upregulated, 304 downregulated) out of 24,865 interrogated probe sets. Many significantly upregulated genes were involved in inflammatory pathways. These microarray results were validated with real-time polymerase chain reaction (RT-PCR). *Conclusions:* This study is the first to investigate in an unbiased manner, whole genome expression profiling of freshly-isolated BECs in an SAH animal model, yielding targets for novel therapeutic intervention.

### C.03

CNSS K.G. McKenzie Memorial Prize in Clinical Research (2<sup>nd</sup> place)

#### **Progressive contralateral hippocampal atrophy following surgery for medically refractory temporal lobe epilepsy**

*CA Elliott (Edmonton)\* D Gross (Edmonton) B Wheatley (Edmonton) C Beaulieu (Edmonton) T Sankar (Edmonton)*

doi: 10.1017/cjn.2016.69

*Background:* It remains difficult to predict which patients will experience ongoing seizures or neuropsychological deficits following Temporal Lobe Epilepsy (TLE) surgery. MRI allows measurement of brain structures, such as the contralateral (non-resected) hippocampus (cHC) after TLE surgery. Preliminary evidence suggests that the cHC atrophies following surgery, however, the time course of this atrophy, relation to cognitive deficits and seizure outcome remains unclear. *Methods:* T1-weighted MR imaging and hippocampal volumetry in 26 TLE patients pre- and post-TLE surgery (and 12 controls) as: 1) two-scan group (TSG) (pre- and post-operatively at 5.4 years) and 2) longitudinal group (LG; pre- and on post-operatively on day 1,2,3,6,60,120 and at an average 2.4 years. Seizure outcome and