

differences in clinical outcomes between those surgically treated for lumbar disk herniation in Canada as compared to the United States. **Methods:** Surgical lumbar disk herniation patients enrolled in the Canadian Spine Outcome Research Network (CSORN) prospective registry, were compared with the surgical cohort enrolled in the Spine Patients Outcome Research Trial (SPORT) study. Spine-related patient reported outcomes (PROs) were compared at 3 months and 1 year. **Results:** The CSORN cohort consisted of 443 patients and the SPORT cohort was made up of 573 patients. Patients in the CSORN cohort were older ($p < 0.001$), and were more likely to be employed ($p = 0.003$). The CSORN cohort demonstrated significantly greater rates of satisfaction after surgery at 3 months (87.2% vs. 65.5%, $p = 0.003$) and 1 year (85.6% vs. 69.0%, $p < 0.0001$). The CSORN cohort was a significant independent predictor of patient satisfaction at 1 year. **Conclusions:** Patients undergoing surgical treatment for lumbar disc herniation in Canada reported higher rates of satisfaction at 3 months and 1 year post-operatively compared to the United States.

P.219

The effect of peri-operative adverse events on long-term patient reported outcomes after lumbar spine surgery

O Ayling (Vancouver), C Fisher (Vancouver)*

doi: 10.1017/cjn.2021.330

Background: Peri-operative adverse events (AE) lead to patient disappointment and greater costs. There is a paucity of data on how AEs affect long-term outcomes. The purpose of this study is to examine peri-operative AEs and their impact on outcome after lumbar spine surgery. **Methods:** 3556 consecutive patients undergoing surgery for lumbar degenerative disorders enrolled in the Canadian Spine Outcomes and Research Network were analyzed. AEs were defined using the validated Spine Adverse Events Severity system. Outcomes at 3, 12, and 24 months post-operatively included the Oswestry Disability Index (ODI), SF-12 Physical (PCS) and Mental (MCS) scales, visual analog scale (VAS) leg and back, Euroqol-5D (EQ5D), and satisfaction. **Results:** Adverse events occurred in 767 (21.6%) patients, 85 (2.4%) suffered major AEs. Patients with major AEs had worse ODI (physical disability) scores and did not reach minimum clinically important differences at 2 years (no AE 25.7 ± 19.2 , major: 36.4 ± 19.1 , $p < 0.001$). Major AEs were associated with worse ODI (physical disability) scores on multivariable linear regression ($p = 0.011$). **Conclusions:** Major AEs after lumbar spine surgery lead to worse functional outcomes and lower satisfaction. This highlights the need to implement strategies aimed at reducing adverse events.

P.220

Mechanism of injury is associated with neurological outcomes in cervical sensorimotor complete traumatic spinal cord injury

AB Bak (Toronto), A Moghaddamjou (Toronto), M Fehlings (Toronto)*

doi: 10.1017/cjn.2021.335

Background: There is significant heterogeneity in neurological recovery after complete (ASIA A) traumatic spinal cord injury (tSCI). Neurological recovery is often associated with a conversion to a higher letter grade of the American Spinal Injury Association's impairment scale (ASIA). The mechanism of injury (MOI) may play a significant role in the primary injury and should be considered for greater precision in care. **Methods:** We isolated ASIA A cervical tSCI patients from three multicenter prospective randomized controlled trials (NACTN, STASCIS, Sygen). Chi-square test with pairwise comparisons with Bonferroni corrections was performed to compare the proportion of ASIA A patients that converted to a higher ASIA grade between different MOI. **Results:** We identified 486 complete cervical tSCI patients. For patients who developed tSCI as a result of a fall, a significant proportion converted to a higher ASIA grade by 52 weeks ($p = 0.009$). For patients who developed tSCI as a result of a sports injury, a significantly smaller proportion did not convert to a higher ASIA grade compared to those that converted ($p = 0.034$). **Conclusions:** Due to the difference in outcomes, tSCI patients should be treated differently depending on their mechanism of injury.

P.221

Frailty is an Important Predictor of 30-day Morbidity in Patients Treated for Lumbar Spondylolisthesis Using a Posterior Surgical Approach

V Chan (Edmonton), C Witiw (Toronto), J Wilson (Omaha), MG Fehlings (Toronto)*

doi: 10.1017/cjn.2021.364

Background: A non-operative approach has been favoured for elderly patients with lumbar spondylolisthesis due to a perceived higher risk with surgery. However, most studies have used an arbitrary age cut-off to define "elderly." We hypothesized that frailty is an independent predictor of morbidity after surgery for lumbar spondylolisthesis. **Methods:** The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database for years 2010 to 2018 was used. Patients who received posterior lumbar spine decompression with or without posterior fusion instrumented fusion for degenerative lumbar

spondylolisthesis were included. The primary outcome was major complication. Secondary outcomes were readmission, reoperation, and discharge to location other than home. Logistic regression analysis was done to investigate the association between outcomes and frailty. **Results:** There were 15 658 patients in this study. The mean age was 62.5 years (SD 12.2). Frailty, as measured by the Modified Frailty Index-5 was significantly associated with increased risk of major complication, unplanned readmission, reoperation, and non-home discharge. Increasing frailty was associated with increasing risk of morbidity. **Conclusions:** Frailty is independently associated with higher risk of morbidity after posterior surgery in patients with lumbar spondylolisthesis. These data are of significance to clinicians in planning treatment for these patients.

P.222

Subjective pattern of postoperative neurological recovery in degenerative cervical myelopathy varies by preoperative severity of disease

AC Friesen (London) SA Detombe (London) P Doyle-Pettypiece (London) W Ng (London) K Gurr (London) C Bailey (London) P Rasoulinejad (London) F Siddiqi (London) R Bartha (London), N Duggal (London)*

doi: 10.1017/cjn.2021.386

Background: Degenerative cervical myelopathy is a spinal disorder resulting in progressive spinal cord compression and consequent neurological deficits that can be assessed and tracked using the modified Japanese Orthopedic Association (mJOA) questionnaire. However, it is difficult to predict which patients will recover neurological function after surgery, making it difficult for clinicians to set reliable postoperative patient expectations. **Methods:** Sixty-eight operative myelopathy patients (50 male, 14 female) consented to complete the mJOA questionnaire both preoperatively and 6-months postoperatively. Fifteen of these patients had mild, twenty-three had moderate, and thirty had severe preoperative disease. **Results:** We found that in mild myelopathy, sensation and strength recover in similar proportions. In moderate myelopathy, a greater proportion of patients recover in each domain except for sensation. Recovery in severe myelopathy was comparable to moderate disease, but showed more dramatic recovery in sensation and sphincter function. **Conclusions:** This study shows that the severity of myelopathic disease influences the pattern of postoperative recovery. Though limited in sample size, the recovery patterns identified above are an important first step in recognizing myelopathy as a disease that patients experience heterogeneously both pre- and post-operatively. Our results will aid clinicians in goals-of-surgery discussions and assist with managing postoperative patient expectations.

P.223

Correlating the pre- and post-operative subjective experience of myelopathic impairments with the objective clinical exam

AC Friesen (London) SA Detombe (London) P Doyle-Pettypiece (London) W Ng (London) K Gurr (London) C Bailey (London) P Rasoulinejad (London) F Siddiqi (London) R Bartha (London), N Duggal (London)*

doi: 10.1017/cjn.2021.446

Background: Degenerative cervical myelopathy is a debilitating condition of the spinal column resulting in a progressive, clinically measurable loss of motor and sensory function secondary to spinal cord compression. We sought to correlate the patient's subjective experience of specific myelopathic impairments with components of the objective clinical exam, to determine if the latter provides any clinically-relevant information postoperatively. **Methods:** Thirty-eight myelopathy patients consented to complete the mJOA questionnaire and receive a physical exam preoperatively, and 6-weeks and 6-months postoperatively. mJOA components were correlated with the physical exam using Spearman correlations with an alpha of 0.05. **Results:** mJOA scores for sensation and lower limb motor function correlated with the sensory and lower limb motor exams respectively, both preoperatively and 6-weeks postoperatively. mJOA scores for upper limb motor function did not correlate with the upper limb motor exam at either timepoint. **Conclusions:** At baseline and immediately postoperatively, patients self-report sensation and lower limb motor function accurately. However, the patients' subjective experience of upper limb motor function does not align with clinical exam findings, suggesting either a continued need for this component of the physical exam or a need for tools that better correlate with the patient's experience of upper limb motor impairment.

P.224

A Case Report of Spinal Screws Penetrating the Pulmonary Artery

H Girgis (Ottawa), D Mulder (Montreal)*

doi: 10.1017/cjn.2021.473

Background: Spinal instrumentation is commonly utilized to mechanically stabilize the spine in trauma, oncology and degenerative disease. Although several complications have been reported, this is the first case of screw penetration of the pulmonary artery. **Methods:** We present a case of a 74-year old gentleman who suffered from a thoracic spine chordoma. He underwent a T8 resection with T8-T12 instrumented fusion with