

invasive tubular retractor is a useful tool, providing the surgeon with enhanced visualization of the operative field, while reducing potential damage to tissue, and optimizing surgical outcomes.

## P.123

### Functional status in neurosurgery and out of hospital outcomes: insights from a 12 year, 2300 patient retrospective cohort study

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**Background:** Limited information exists in neurosurgery regarding the association between functional status at hospital discharge and adverse events following discharge. **Methods:** A retrospective cohort study included all adults in one Boston teaching hospital who underwent neurosurgery between 2000-2012, survived hospitalization and had a Physical Therapist functional status assessment within 48-hours of discharge. 90-day post-discharge all-cause mortality was obtained from the US Social Security Administration Death Master File. Logistic regression analysis was used. **Results:** 2,369 patients were included, comprising 65% cranial and 35% spinal. Malignancy and trauma was 47% and 13%, respectively. 238 patients had independent functional status. 90-day mortality and readmission was 8.3% and 28%, respectively. Second, third and lowest quartile of functional status was associated with a 3.16 (95%CI 1.08-9.24), 6.00 (2.11-17.04) and 6.26 (2.16-18.16) respective increased odds of 90-day post-discharge mortality compared to patients with independent functional status, adjusting for age, gender, race, length of stay, presence of malignancy and Deyo-Charlson comorbidity. Good discrimination (AUC 0.82) and calibration (Hosmer-Lemeshow  $\chi^2$  P = 0.23) were demonstrated. Adjusted odds of 90-day readmission in patients with the lowest quartile of functional status was 1.89 (1.28-2.80) higher than patients with independent functional status. **Conclusions:** Lower functional status at hospital discharge following neurosurgery is associated with increased post-discharge mortality and hospital readmission.

## P.125

### Is idiopathic normal pressure hydrocephalus familial—what do we know thus far? Case report and critique of the literature

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**Background:** One aspect of idiopathic normal pressure hydrocephalus (iNPH) that has garnered interest is whether it can be familial. Thus far, the literature consists of several case reports, and two larger pedigree cohorts. Our objective is to highlight key deficiencies in such studies so far, illustrating them through a family case study of our own, and to propose a set of criteria that studies on familial iNPH should incorporate. **Methods:** Our case study is a retrospective chart review of three siblings, two male and one female, who were diagnosed with iNPH after the age of 60, and whose symptoms improved with cerebrospinal fluid (CSF) shunting. An interview with them revealed that their mother also exhibited symptoms of iNPH, but was never treated with a shunt. **Results:** Our family case is reflective of

several deficiencies of familial iNPH research as a whole—unconfirmed diagnosis, especially confirmation with shunt responsiveness, and lack of measures of symptom improvement. **Conclusions:** Research on familial iNPH should focus on patients whose diagnosis is confirmed by shunt responsiveness, and should involve a system to objectively measure signs of NPH. Studies should also compare the prevalence of iNPH among first degree relatives of NPH patients to that in the general population.

## P.126

### A nation-wide prospective multi-centre study of external ventricular drainage accuracy, safety, and related complications: Interim analysis

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**Background:** External ventricular drain (EVD) insertion is a common neurosurgical procedure performed in patients with life-threatening conditions, but can be associated with complications. The objectives of this study are to evaluate data on national practice patterns and complications rates in order to optimize clinical care. **Methods:** The Canadian Neurosurgery Research Collaborative conducted a prospective multi-centre registry of patients undergoing EVD insertions at Canadian residency programs. **Results:** In this interim analysis, 4 sites had recruited 46 patients (mean age: 53.9 years, male:female 2:1). Most EVD insertions occurred outside of the operating theatre, using free-hand technique, and performed by junior neurosurgery residents (R1-R3). The catheter tip was in the ipsilateral frontal horn or body of the lateral ventricle in 76% of cases. Suboptimally placed catheters did not have higher rates of short-term occlusion. EVD-related hemorrhage occurred in 6.5% (3/45) with only 1 symptomatic patient. EVD-related infection occurred in 13% (6/46) at a mean of 6 days and was associated with longer duration of CSF drainage (P=0.039; OR: 1.13). **Conclusions:** Interim results indicate rates of EVD-related complications may be higher than previously thought. This study will continue to recruit patients to confirm these findings and determine specific risk factors associated with them.

## P.127

### Single centre review of lumboperitoneal shunt outcomes

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**Background:** Ventriculoperitoneal (VP) shunts are an established treatment modality for CSF diversion. An alternative to VP shunting is lumboperitoneal (LP) shunting. There is a paucity of evidence on LP shunt use in the literature, but available studies demonstrate that it is a safer and similarly efficacious method for conditions such as normal pressure hydrocephalies (NPH) and idiopathic