

	Patient 1	Patient2	Patient3	Patient4
Age	75	54	52	65
Sex	F	F	F	M
BMI	25[1.4-56]	27[1.5-65]	28[1.6-74]	23[1.8-81]
Site of Aneurysm	Lt P.com	Lt ICA	Lt MCA	Lt P.com
LMA protector size	4	4	4	5
Insertion Attempts	1	1	1	2
Tidal Volume	348	408	474	390
Peak airway pressure	17	20	12	14
Minute ventilation	3.8	4.7	5.6	5.4
End tidal CO2	30	33	34	40
Procedure duration	170	150	135	210
Adverse events	Nil	Nil	Nil	Blood tinged secretions on removal

synapsis of the reflexes across the central nervous system. Opioids affect pupil size, but do seem not alter light reflex amplitude or constriction velocity and propofol decrease both the amplitude of the light reflex independently of any change in pupil size.²

In this study, we wanted to assess the possibility of using different characteristics of the PLR to predict loss of consciousness.

Methods: This is an observational prospective study, where 25 consecutive patients were enrolled. Patients scheduled for neurosurgical procedures, with general total intravenous anesthesia with propofol and remifentanyl were considered when no premedication was used. The PLR was measured using a portable infrared pupillometer (AlgiScan—IDMed, France) before and after loss of consciousness was achieved. The pupillometer applied a flash of visible light and measured the minimum diameter obtained afterwards, the response latency and velocity of contraction. A logistic regression for loss of consciousness was then calculating using these 3 variables. Data are presented as mean \pm SD.

Results: The logistic regression model showed goodness of fit (Hosmer and Lemeshow test $P=0.921$). Velocity of contraction was statistical significant ($P<0.001$, Exp(B) 0.98).

Receiver operating characteristic curve of the predicted probabilities yielded an area under the curve of 0.982 ($P<0.001$) (Fig. 1).

Discussion: From this preliminary results, it seems that some measurements related to the PLR can be used to detect loss of consciousness. However, further studies are needed to assess if it correlates with the time it ensues.

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[SNACC-105] Pupillary Pain Index correlates with Postoperative Pain Scores in Neurosurgical Patients

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Background: Acute postoperative pain, if inadequately treated, not only limits mobility and impairs ventilation, but also increases stress hormones and the risk for chronic postsurgical pain.¹ In contrast, if opioids are given in excess they can cause respiratory depression, nausea and vomiting, ileus, sedation and even hyperalgesia.¹

Adequate titration of analgesia intraoperatively lacks a widely accepted monitor. Nevertheless, some studies have addressed this issue by using surrogate variables of the autonomic nervous system to guide opioid administration.^{2–3} In this study, we recorded the pupillary dilation response immediately before extubation and compared it with the ratings of patient's pain reported in the postanesthesia care unit (PACU) using a visual analog scale (VAS).⁴

Methods: Pupillary dilation response was determined through pupillometry using AlgiScan and its Pupillary Pain Index (PPI). The PPI consists in measuring the changes in pupillary dilation in response to a continuously increasing electric stimulus discharge, which then assigns scores from 1 (when pupillary dilation is $<5\%$ despite maximal tetanic stimulation intensity) to 10 (when pupillary dilation rises above 13% with the 10 mA).³ Twenty-two patients undergoing neurosurgery were included in this study. General anesthesia was induced and maintained with propofol and remifentanyl, titrated to achieve adequate levels of sedation and analgesia during the medical procedure. PPI measurements were performed after propofol was stopped at the end of surgery and before extubation. VAS pain assessment was performed at PACU arrival. Correlation analysis between PPI and VAS was assessed using 2-tailed Spearman test with significance for $P<0.01$. Data are presented as mean \pm SD.

Results: Demographics were: 57 ± 13 years, 68.3 ± 9.1 kg, 163 ± 8 cm, 9% ASA I, 82% ASA II, 9% ASA III, 15 females and 7 males. Mean PPI before extubation was 6.2 ± 2.5 and VAS at PACU arrival was 5 ± 2.6 . VAS was correlated with PPI (Spearman $R=0.57$, $P=0.006$), and could be predicted (adjusted $R^2=0.41$) as $VAS=0.79 \times PPI + 0.046$.

Conclusions and Discussion: We found a correlation between pre-extubation PPI and the VAS at PACU arrival. This data suggest that PPI could be used to titrate analgesia in the end of the intraoperative period, targeting optimal analgesia in the immediate postoperative period.

References:

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[SNACC-106] Clinical Epidemiology of Adults With Moderate Traumatic Brain Injury

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Background: Moderate traumatic brain injury (TBI) is common but unlike mild or severe TBI, little is known about patients with moderate TBI. The aim was to describe the clinical epidemiology of patients specifically with moderate TBI.

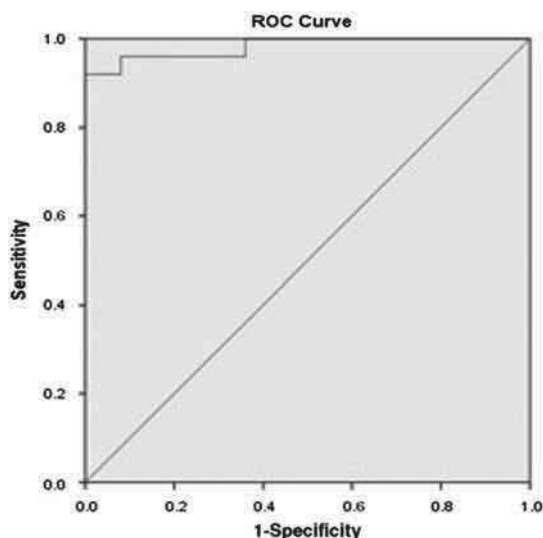
Methods: We examined National Trauma Data Bank (NTDB) data between 2007 and 2014 of adults (age older than 18 y) with moderate TBI (TBI ICD 9 codes and admission Glasgow Coma Scale [GCS] 9 to 13). Demographics, mechanism of injury, hospital course, and facility characteristics were examined. Admission characteristics associated with discharge outcomes were analyzed using multivariable Poisson regression models.

Findings: Of 114,066 patients, most were white (62%), male (69%), and had median admission GCS 12 (IQR, 10-13). The leading injury mechanisms were falls (43%) and motor vehicle-related (34%). Seventy-seven percent had isolated TBI. Concussion, which accounted for 25% of moderate TBI, was the most frequent TBI diagnosis. Fourteen percent received mechanical ventilation and 66% were admitted to intensive care unit. Over 30% were admitted to a nontrauma center and 50% received care at a community hospital. Seven percent died and 32% had a poor outcome, including those with GCS 13. Compared with patients 18 to 44 years, patients 45 to 64 years were twice as likely (aRR, 1.97; 95% CI, 1.92-2.02), and patients over 80 years were 5 times as likely (aRR, 4.66; 95% CI, 4.55-4.76) to have a poor outcome. Patients with a poor discharge outcome were more likely to have had hypotension at admission (aRR, 1.10; 95% CI, 1.06-1.14), lower admission GCS (aRR, 1.37; 95% CI, 1.34-1.40), higher ISS (aRR, 2.97; 95% CI, 2.86-3.09), and polytrauma (aRR, 1.05; 95% CI, 1.02-1.07), compared with those without poor discharge outcomes.

Interpretation: Many patients with moderate TBI deteriorate, require neurocritical care, and experience poor outcomes, but do not receive care at a trauma center.

[SNACC-107] Awake Craniotomy for Cerebral Abscess in a Patient With Unrepaired Cyanotic Congenital Heart Disease

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We report the case of a 39-year-old male with complex cyanotic congenital heart disease undergoing emergency craniotomy for a cerebral abscess. Maintenance of intraoperative hemodynamic stability and adequate tissue oxygenation during anesthesia may be challenging in patients with cyanotic congenital heart disease. In this case, we decided to perform the surgery as an awake craniotomy after interdisciplinary consensus. We discuss general aspects of anesthetic management during awake craniotomy and specific concerns in the perioperative care of patients with congenital heart disease.

[SNACC-108] High Spinal Block in a Patient With a Preexisting Ventriculo-Peritoneal Shunt for Normal Pressure Hydrocephalus

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Spinal anesthesia has been used successfully in patients with ventriculo-peritoneal (VP) shunts and high spinal block has not been previously reported in the literature in this population. We describe a 74-year-old patient with normal pressure hydrocephalus (NPH) and a functioning VP shunt who presented for transurethral resection of a bladder tumor. The patient was obese (body mass index, 45 kg/m²) with a potentially difficult airway. Without sedative premedication, a low dose spinal anesthetic was administered with hyperbaric bupivacaine (10 mg) and fentanyl (10 mcg). The patient suffered immediate respiratory arrest, followed by loss of consciousness, bradycardia and hypotension consistent with a high spinal block. These adverse effects reversed within 4 hours and the patient was discharged with no sequelae. A possible explanation for this unanticipated high spinal block in the context of NPH and a VP shunt includes an increased gradient of cephalad flow of cerebrospinal fluid (CSF) due to a persisting compensatory increase in CSF reabsorption from NPH as well as CSF flow through the shunt. Our case demonstrates the need to consider the potential for high spinal block in a patient with NPH and a VP shunt.

[SNACC-109] Anesthesia Management for an Adult Patient With Methylmalonic Aciduria Undergoing Complex Spinal Surgery

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Long-term survival of patients with methylmalonic aciduria (MMA) to adulthood has significantly improved nowadays. However, this has brought new challenges in anaesthesia management of these patients. We report a case of MMA with multiple complications who was successfully operated for complex cervical spine surgery in 2 different positions. A 33-year-old male with MMA, metabolic stroke at the age of 8, dystonia, contractures, degenerative spinal cord compression and myelomalacia was admitted for elective cervical spine surgery. Preoperative investigations were satisfactory. Intravenous 10% dextrose with potassium was started during fasting period to prevent metabolic acidosis. On

