

Abstract #1

Critical Care Medicine

THE MODIFIED EARLY WARNING SYSTEM AS A PREDICTIVE FACTOR FOR UNPLANNED SICU ADMISSION: ANALYSIS IN 263 CONSECUTIVE PATIENTS

Annandita Kumar, MD (Ochsner Medical Center), Hussam Ghabra, MD (Ochsner Medical Center), Fiona Winterbottom, NP (Ochsner Medical Center), Michael Townsend, MD (Ochsner Medical Center), Phillip Boysen, MD (Ochsner Medical Center), Bobby Nossaman, MD (Ochsner Medical Center)

Annandita Kumar MD, Ochsner Health System

The Modified Early Warning Score (MEWS) has been proposed to warn healthcare providers of potentially serious adverse events. We evaluated this scoring system during unplanned escalation of care in hospitalized surgical patients over a one-year period. Materials and Methods: Following IRB approval, all consecutive unplanned surgical admissions into the Surgical Intensive Care Unit (SICU) during 2016 were entered into this study. MEWS and patient demographics during bedside evaluation for SICU admission were extracted from electronic medical records. Logistic regression analyzed the association of MEWS on the incidence of future mortality. P values were set at <0.01 for statistical significance. Results: In this series of 263 consecutive patients, the incidence of mortality following unplanned escalation of care was 29.3% CI 24.1 35.0%, ranging from 22% to 57% with all positive MEWS values. The association of MEWS to future mortality was not statistically significant (P=.0107). A misclassification rate of 0.29 CI 0.24-0.35 was observed with this association. Conclusions: MEWS provided no clinical benefit as an early warning system as mortality was elevated throughout the MEWS scale in this clinical setting. The high misclassification rate indicates MEWS does not provide the discriminatory support for patients at risk for mortality.

Abstract #2

Fundamentals of Anesthesiology

UNUSUAL CAUSE OF RESPIRATORY ARREST

Farees Hyatali M.D., June Jesunathadas D.O., Chizoba Mosieri M.D.

Benjamin Cooke D.O., LSU Health Shreveport

Pt is a 69 year old male with a past medical history of HTN that presented to our institution as a transfer from an outside hospital (OSH) for treatment of Fournier's gangrene. The patient underwent debridement of the perineum and buttocks with a diverting colostomy. His postoperative course was complicated with hypotension requiring liberal fluid administration, vasopressors and emergent intubation. The patient then developed subsequent pneumonia with acute respiratory distress syndrome at the OSH but was able to be extubated.

He presented to our institution for a skin flap on postoperative day 8. Urology and plastic surgery were consulted for surgical management with the internal medicine team providing recommendations regarding medical care. The patient was admitted to the step-down unit and over the course of his admission, his respiratory status worsened requiring BiPAP. CT of the chest showed a large pleural effusion. On postoperative day 24, the patient developed severe respiratory distress and became unresponsive, bradycardic and gradually lost his pulse. CPR was initiated for 8 seconds and the patient was given 1 milligram of epinephrine and obtained ROSC.

The decision was made to intubate the patient as he was unable to protect his airway. The patient was intubated with 8 mg etomidate, 30 mg propofol and 50 mg rocuronium. First attempt by the junior resident was made but reported inability to visualize airway. Senior resident then attempted the intubation and a grade 1 view with a Macintosh 4 blade was obtained and an 8.0 millimeter endotracheal tube was placed without issue.

There was report of a mass at the larynx. This was documented with a picture. The attending anesthesiologist visualized the airway and removed a 5x7 cm pink-white object from the patient's airway. Picture of specimen was documented and the specimen then sent down to the lab for pathology.



Abstract #3

Neuro Anesthesia

ANESTHETIC MANAGEMENT OF OPEN PHEOCHROMOCYTOMA, INFERIOR VENA CAVA, DIAPHRAGM, KIDNEY EN BLOC RESECTION

Kristen Skinner, DO, Tulane School of Medicine, Brian McClure, MD, Tulane School of Medicine, Nakeisha Pierre, MD, Tulane School of Medicine

Christopher Busack MD, Tulane School of Medicine

Background - Pheochromocytomas are rare, catecholamine secreting tumors with approximately 1000 new cases per year in the United States. Anesthetic management of pheochromocytoma resections requires multidisciplinary coordination for appropriate preoperative medical optimization. Intraoperative management necessitates utilization of vasoactive medications to prevent dangerous cardiopulmonary complications. Herein, we describe the anesthetic management of a pheochromocytoma resection complicated by the tumor's anatomical location.

Case - A 32 year-old man with no medical history presented with palpitations and diaphoresis. He was ultimately diagnosed with a pheochromocytoma. Phenoxybenzamine therapy was initiated two weeks prior to adrenalectomy on January 9, 2019. An arterial line was placed prior to intubation. Blood pressure rose to 200/120 during intubation, which was treated with nicardipine (500 mcg). During the period of minimal stimulation between induction and incision, the patient became hypotensive to 80/40, which improved after treatment with phenylephrine (400 mcg), vasopressin (2 units), and calcium chloride (300 mg). Surgical exposure created periods of hypotension and hypertension. Nitroprusside, nicardipine, and vasopressin infusions were utilized to maintain hemodynamic normalcy. The mass was adherent to the right kidney, vena cava, and diaphragm, so the tumor was resected en bloc. After interrupting the vena cava, approximately 2 liters of blood loss occurred rapidly. Three units of packed red blood cells were transfused. After removal of the specimen, hemodynamics stabilized without further intervention. The patient emerged from anesthesia and was extubated. He was discharged on postoperative day 4.

Discussion - A 14-day titration period for establishing alpha blockade and intravascular volume expansion is often recommended to mitigate hemodynamic shifts during pheochromocytoma resections. Given the rarity of pheochromocytomas, large-scale randomized control trials are unlikely to provide evidence-based guidelines for specific perioperative management. In preparation for pheochromocytoma resection, anesthesiologists must consider not only the hemodynamic consequences of tumor physiology, but also remember the anatomical challenges tumor location may present.

Abstract #4

Neuro Anesthesia

THE MYELOPATHIC PATIENT PRESENTING FOR ELECTIVE NON-SPINAL SURGERY

Jeffrey Borchardt, MD Tulane University School of Medicine, Department of Anesthesiology

Kristen Skinner DO, Tulane School of Medicine

Background: Cervical spondylotic myelopathy (CSM) is the most common cause of spinal cord dysfunction in individuals older than 55¹. Diagnosis is delayed due to insidious course and lack of pathognomonic findings. Patients are often asymptomatic or have mild symptoms, including gait imbalance^{1,2}. Anesthetic management should account for both the static and vascular components of CSM.

Case Report: 68 yo male with cervical stenosis s/p C3-C5 ACDF presented for robotic inguinal hernia repair. He condoned bilateral upper extremity paresthesia and worsening gait imbalance. Physical exam elicited decreased cervical extension with full strength in all extremities. Spinal imaging was not available for review. The patient placed his head into a neutral position on the operative table. Following standard IV induction, an atraumatic intubation was performed via C-Mac without further neck extension. After assuming 30° of Trendelenburg, the neutral positioning of head and neck was reconfirmed. Postoperatively, he demonstrated new onset tetraparesis. Physical exam deemed 1/5 lower extremity motor strength and 1/4 upper extremity, 3+ DTR, positive Hoffman's, and T4 sensory level. MRI confirmed severe spinal stenosis with cord compression below the prior fusion. A C6-C7 ACDF was then performed. He was discharged to inpatient rehabilitation on POD 9 with 3/5 lower extremity and 5/5 upper extremity strength.

Discussion: Etiologies have been purposed to explain intraoperative neurological deterioration in CSM. However, the role of spinal venous congestion leading to reduced cord perfusion may be under identified. When individuals are placed in Trendelenburg, vertebral veins demonstrate slowed velocity and increased diameter, suggesting venous congestion³. Due to prolonged surgical time, patients undergoing robotic surgery in Trendelenburg have an increased risk for spinal cord injury secondary to venous congestion. A high index of suspicion should be upheld for CSM. Preoperative neurologic exam, MRI, and possible neurosurgery referral will prioritize treatment of CSM prior to elective surgery.

Abstract #5

Obstetric Anesthesia

A MANAGEMENT TOOL FOR DIFFICULT AIRWAYS IN CAESAREAN SECTION

Justin Morello, MD, Dept of Anesthesiology, Ochsner Clinic Foundation

Kirbie Broughton, MD, Dept of Anesthesiology, Ochsner Clinic Foundation

Allison Clark, MD, Dept of Anesthesiology Ochsner Clinic Foundation

Philip Boysen, MD, Dept of Anesthesiology, Ochsner Clinic Foundation

Bobby Nossaman, MD, Dept of Anesthesiology, Ochsner Clinic Foundation

Andrew King MS, University of Queensland Faculty of Medicine, Ochsner Clinical School

The rate of failed orotracheal intubation in obstetrics has remained unchanged over the past four decades. The American Society of Anesthesiologists Task Force has developed and has revised guidelines for the management of the difficult airway, but not for general anesthesia in Caesarean. The purpose of this retrospective study was to review all Caesareans who underwent general anesthesia and develop a prediction tool for increasing attempts at orotracheal intubation.

All parturients aged 18 years and older who underwent Caesarean requiring general anesthesia were entered into this study over a 2-year period. Airway examination parameters in 481 consecutive patients (Fig. 1) were analyzed. Ordinal logistic fit of these parameters allowed development of a proactive decision tool to estimate the risk for increasing attempts for orotracheal intubation. The statistical program, JMP 13.2 (SAS Institute, Cary, NC) was utilized for this study.

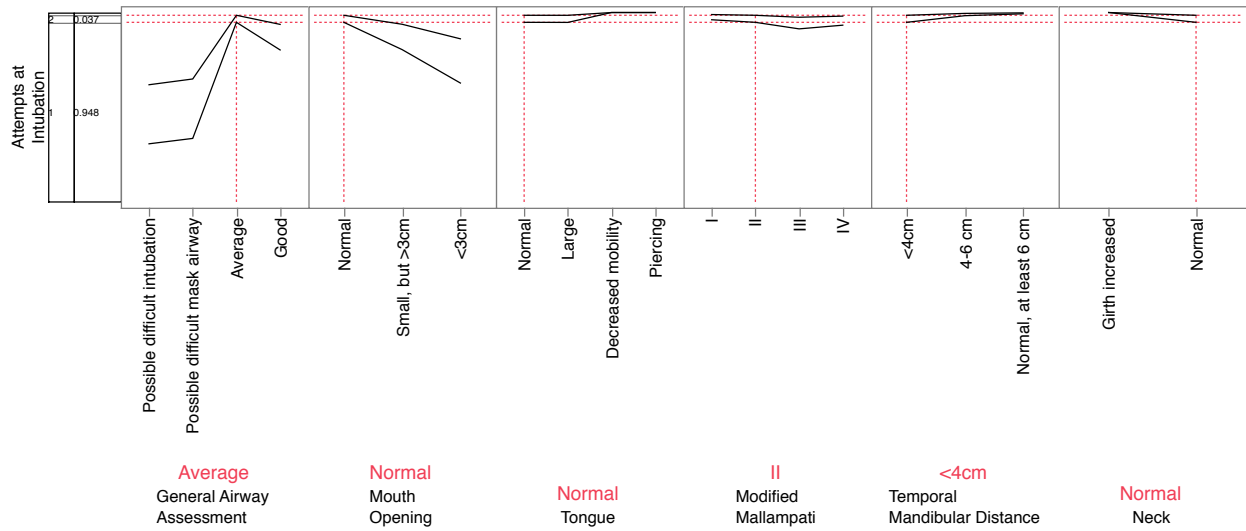
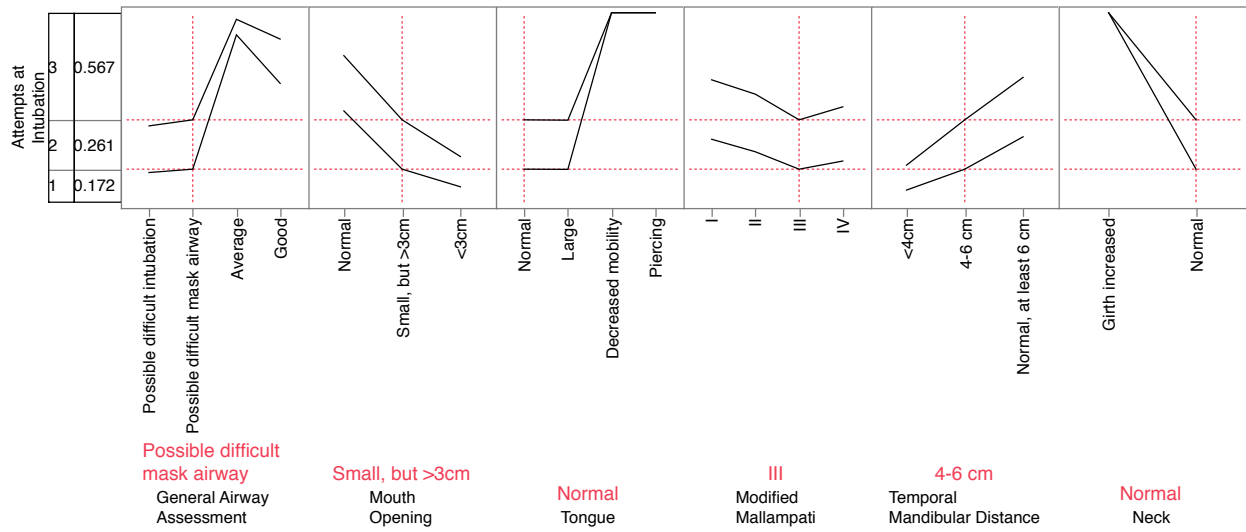
The incidence of Easy (one attempt) orotracheal intubation was 92.7% CI 89.9-94.7%, Awkward (two attempts) orotracheal intubation was 5.3% CI 3.6-7.8%, and Difficult (three attempts) orotracheal intubation was 2% CI 1.1-3.8%. C-index statistics for the ordinal logistic fit model were 0.77 for Awkward and 0.92 for Difficult with a misclassification rate of 6.7%. In the example (Fig. 1, upper panel), if a parturient had the following bedside airway examination, the chance for difficult orotracheal intubation could be 56.7% (upper panel) whereas a different examination (Fig. 1, lower panel) could change the incidence to 94.8% for Easy.

One limitation of outputs from multivariable analyses is that findings are applied to groups of patients and not to the individual patient undergoing care. The Prediction Profiler function develops a medical decision tool to display at-risk assessment based upon the examination of the parturient. Implementation of an institution-specific prediction model allows for proactive changes in airway management for parturients undergoing general anesthesia for Caesarean section.

Figure 1 upper and lower panel on next page

Figure 1

Prediction Profiler



Abstract #6
Pain Medicine

NOVEL WAVEFORMS IN SPINAL CORD STIMULATION

Ken P. Ehrhardt, MD1; Mark Motejunas, MD1; Best Anyama, MD1; Leo Webb, MD1; Devin Reed, MD1; Alan Kaye, MD1; Richard Urman, MD2

1Department of Anesthesiology, Louisiana State University Health Sciences Center, New Orleans, LA 2Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Ken Ehrhardt MD, LSU Health New Orleans

Purpose of review: The purpose of the present investigation is to summarize supporting evidence for novel sub perception Spinal Cord Stimulation (SCS) therapy over traditional paresthesia inducing low frequency waveform for the treatment of chronic pain. The focus of this review is to summarize key studies comparing traditional low frequency tonic waveforms to modern high frequency and burst stimulation for the treatment of patients with chronic intractable low back pain and/or leg pain.

Recent findings: Several recent studies have demonstrated the benefit of novel SCS therapies over traditional low frequency SCS for the treatment of patients with chronic low back and/or leg pain. SENZA-RTC showed that paresthesia-free high frequency SCS was superior to low frequency stimulation for treatment of chronic low back pain with leg pain. The SUNBURST crossover trial recently found that high frequency burst stimulation was preferred over low frequency tonic SCS by patients citing better pain relief and a preference for paresthesia free SCS. The new ongoing EVOLVE workflow retrospective multicenter study uses technology that can deliver both low dose and high dose SCS. Further, the wavewriter technology addresses patient variability with its ability to layer sub perception waveforms and paresthesia inducing low frequency stimulation tailored to patient needs via an interactive feedback feature.

Summary: Neuromodulation for the treatment of chronic pain is rapidly evolving with technology at its forefront. Modern SCS systems use novel waveforms, frequencies, and stimulation modes to deliver paresthesia free pain relief to patients suffering from chronic low back pain and/or leg pain with better results than traditional tonic low frequency SCS. As the field advances, new studies are needed comparing new waveform and delivery systems to optimize patient selection and treatment response.

Abstract #7
Pain Medicine

UPDATE ON THE PHARMACOGENOMICS OF PAIN MANAGEMENT

John Cefalu, MD1; Julia Kendrick, MD1; Andrew Brunk, MD1; Susan Jeffers, MD1; Adam Weinberg, MD1; Chikezie Okeagu, MD1; Alan Kaye, MD1; Richard Urman, MD2; Anusha Kallurkar, MD3 1Department of Anesthesiology, Louisiana State University Health Sciences Center, New Orleans, LA 2Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA 3Department of Anesthesiology, Ochsner LSU Health Shreveport, 1501 Kings Highway, Shreveport, LA

John Cefalu MD, LSU Health New Orleans

Pharmacogenomics is the study of genetic variants that impact drug effects through changes in a drug's pharmacokinetics and pharmacodynamics. Pharmacogenomics is being integrated into clinical pain management practice because variants in individual genes can be predictive of how a patient may respond to a drug treatment. Pain is subjective and is considered challenging to treat. Furthermore, pain patients do not respond to treatments the same way which makes it hard to issue a consistent treatment regimen for all pain conditions. Pharmacogenomics would bring consistency to the subjective nature of pain and could revolutionize the field of pain management by providing personalized medical care tailored to each patient based on their gene variants. Additionally, pharmacogenomics offers a solution to the opioid crisis by identifying potentially opioid-vulnerable patients who could be recommended a non-opioid treatment for their pain condition. The integration of pharmacogenomics into clinical practice creates better and safer healthcare practices for patients. Our abstract focuses on up to date information on the pharmacogenomics of pain management, describing genes involved in pain, genes that may reduce or guard against pain and discuss specific pain management drugs and their genetic correlations. Monitoring the DNA polymorphisms in each patient can allow health care providers to predict how a patient will respond to a drug and could potentially save a patient's life. This is of particular importance when considering the relationship between pain management and drug addiction. There are established genetic polymorphisms in individuals who abuse drugs, yet a clinician currently assesses the potential for abuse by interacting with the patient and reports from those close to the patient, thereby missing potentially crucial genetic predispositions to abuse. Therefore, a health care provider could prevent the possibility of a patient to abuse a drug based on their polymorphisms and suggest an alternate treatment regimen.