13th Annual Research Exposition

Oral Presentations

“The biophysical basis for anesthetic modulation of K2P potassium leak channels. Why study molecular mechanisms of anesthesia?”

Paul Riegelhaupt, MD, PhD
Assistant Professor of Anesthesiology
Weill Cornell Medicine
Associate Program Director
Anesthesiology Residency Program

“Retrospective observational research studies: dealing with bias and confounding”

Robert White, MD
Obstetric Anesthesiology Fellow
Weill Cornell Medicine
Department of Anesthesiology
Van Poznak Scholar

Thursday
Oct. 25, 2018

Speakers
3:00 – 4:30 pm
M309

Reception
4:30 – 5:00 pm
P300

Poster Presentations
5:00 – 6:00 pm
P300

Special Research Seminar

“From Big Data to Smart Decisions”

Leif Saager, MD, MMM, FACHE, FCCM, FCCP
Assistant Professor of Anesthesiology
Department of Anesthesiology
University of Michigan, Ann Arbor, MI

3:00 – 3:45 pm, M309

4:00 – 4:30 pm, M309

Department of Anesthesiology • 525 East 68th Street, P3
For more information contact: Michele Steinkamp, RN
212-746-2953 or mls9004@med.cornell.edu
WELCOME TO THE ANESTHESIOLOGY RESEARCH EXPOSITION
October 25th 2018

Oral Presentations

“The Biophysical Basis for Anesthetic Modulation of K2P Potassium Leak Channels: Why Study Molecular Mechanisms of Anesthesia?”

Paul Riegelhaupt, MD, PhD
Assistant Professor of Anesthesiology
Weill Cornell Medicine
Associate Program Director
Anesthesiology Residency Program

“Retrospective Observational Research Studies: Dealing with Bias and Confounding”

Robert White, MD
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Reception

4:30pm – 5:00pm
P-03-300

Poster Presentations

5:00pm – 6:00pm
P-03-300
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Department of Anesthesiology Research Divisions

Hugh C. Hemmings, Jr, M.D., Ph.D., F.R.C.A.
Senior Associate Dean of Research
Joseph F. Artusio Professor
Chair of Anesthesiology

Kane O. Pryor, M.D.
Vice Chair for Academic Affairs
Director of Clinical Research
Director of Education

Zachary A. Turnbull, M.D.
Director of the Center for Perioperative Outcomes
Medical Director of Performance Improvement

**Anesthesiology Clinical Research**
Kane O. Pryor, M.D.
Gabriel Arguelles, B.A.
Jacqueline Emerson, B.S.
Samantha Huynh, B.S.
Raphael Golaz, M.D.
Michele Steinkamp, R.N.
Anita Jegarl B.S.
Jenny Lin, B.A.
Hannah Oden-Brunson B.A.
Elizabeth Mauer M.A.

**Laboratory of Molecular Anesthesiology**
Hugh C. Hemmings, Jr, M.D., Ph.D., F.R.C.A.
Karl Herold, M.D., Ph.D.   Vanessa Osman, B.S.
Jimcy Platholi, Ph.D.   Riley Williams, B.S.
Iris Speigel, Ph.D.

**Center for Perioperative Outcomes**
Zachary A. Turnbull, M.D.
Anna Nachamie, B.S.
Soham Gupta, B.A.
Noelle Arroyo, B.A.
Lauren Buck, B.A.
Samson Obembe, B.S.
Kane O. Pryor, M.D.
Robert White, M.D., M.S.
Christine Picard, M.P.A.
Virginia Tangel, M.A.
Paul Christos, Dr.PH., M.S.
Gülce Askin, M.P.H.

**High-Speed Atomic Force Microscopy Laboratory**
Simon Scheuring, Ph.D.
George Heath Ph.D.
Fang Jiao, Ph.D.
Vi-Chih Lin Ph.D.
Tina Matin Ph.D.
Atsushi Miyagi, Ph.D.
Alma Perez Perrino, Ph.D.
Martina Rangl, Ph.D.
Raghu Sanganna Gari, Ph.D.
Hirohide Takahashi, Ph.D.
Grigory Tagiltsev, Specialist
Nebojsa Jukic, M.S.

**Neuromuscular Relaxant Research**
John Savarese, M.D.

**CV Starr Laboratory for Molecular NeuroPharmacology**
Alessio Accardi, Ph.D.
Maria Falzone, B.S.   Eva Verdejo, M.S.
Diany Paola Calderon, M.D., Ph.D.
Youcef Bouchekioua, Ph.D.  Carolina Valle, B.A.
Sijia Gao M.S.

**CV Stai Laboratory for Molecular NeuroPharmacology**
Peter A. Goldstein, M.D.
Kelly Aromolaran, Ph.D.   Gareth Tibbs, Ph.D.

**Crina Nimigean, Ph.D.**
Xiaolong Gao, Ph.D.   Nattakan Sukomon, Ph.D.
Jan Rheinberger, Ph.D.   Yuan Xie, Ph.D.
Philipp Schmidpeter, Ph.D.  Chen Fan, Ph.D.

**Paul Riegelhaupt, M.D., Ph.D.**
Aboubacar Wague, B.A.
Latrice Goss, B.S.   Meghan DeBerry, B.S.
Department of Anesthesiology Research Departments

**General Clinical Research**
- Michael Akerman, M.D.
- Noemi Balogh, M.D.
- Eric D. Brumberger, M.D.
- Farida Gadalla, M.D.
- Peter Goldstein, M.D.
- Marcus Gutzler, M.D.
- Shreyajit Kumar, M.D.
- Christine Lennon, M.D.
- Jaideep Malhotra, M.D.
- Vinod Malhotra, M.D.
- Matthew Murrell, M.D.
- Anup Pamnani, M.D.
- Kane Pryor, M.D.
- Lori Rubin, M.D.
- Mahendra Samaru, M.D.
- Jon Samuels, M.D.
- Jacques Scharoun, M.D.
- Kevin Walsh, M.D.

**Cardiac Clinical Research**
- June Chan, M.D.
- Meghann Fitzgerald, M.D.
- Shanna Hill, M.D.
- Natalia Ivascu, M.D.
- Shreyajit Kumar, M.D.
- James Osorio, M.D.
- Lisa Q. Rong, M.D.
- Sankalp Sehgal, M.D.
- Christopher Tam, M.D.
- Fun-Sun Yao, M.D.

**Global Health Research**
- Gunisha Kaur, M.D.
- Eric D. Brumberger, M.D.
- Sheida Tabaie, M.D.
- Roniel Weinberg, M.D.
- Sonny Sabhlok, M.D.
- Virginia Tangel M.A.
- Alessandra Weidman, M.P.H.
- Lynne Rosenberg, B.S.
- Samantha Huynh, B.S.
- Andrew Milewski, B.S.
- Kelsey Young, B.S.

**Pediatrics Clinical Research**
- Aarti Sharma, M.D.
- Jennifer Lee, M.D.
- Casey Chai, M.D.

**Obstetrics/Gynecological Clinical Research**
- Jamie Aaronson, M.D.
- Sharon Abramovitz, M.D.
- Alaeldin Darwich, M.D.
- Farida Gadalla, M.D., Ch.B.
- Klaus Kjaer, M.D., M.B.A.
- Jennifer Wagner, M.D.
- Roniel Weinberg, M.D.
- Jill Fong, M.D.
- Robert White, M.D., M.S.
- Laura Galinko, M.D.
- Jeremy Pick, M.D.

**Pain Clinical Research**
- Neel Mehta, M.D.
- Shakil Ahmed, M.D.
- Amitabh Gulati, M.D.
- Jatin Joshi, M.D.
- Mohammad Piracha, M.D.
- Sadiah Siddiqui, M.D.
- Mary So, M.D.
- Lisa R. Witkin, M.D.

**Regional Anesthesia Clinical Research**
- Tiffany Tedore, M.D.
- Eric D. Brumberger, M.D.
- Michelle Carley, M.D.
- Daniel Pak, M.D.
- Milica Markovic, M.D.
- Minda Patt, M.D.
- Roniel Weinberg, M.D.
- Hannah Xu, M.D.
1. Intraoperative Ketamine for Prevention of Postoperative Delirium or Pain After Major Surgery in Older Adults: PODCAST Clinical Trial
   Michael Avidan, M.B.B.Ch., Hannah Maybrier, B.S., Arbi Ben Abdallah, Ph.D., Kane Pryor, M.D.,
   Leonard Girardi, M.D., Alison Gruber, B.S., Natalia Ivascu, M.D., Emma Rogers, B.S.,
   Mariya Redko, B.S., Michele Steinkamp, R.N.

2. Intraoperative ketamine for prevention of depressive symptoms after major surgery in older adults: an international, multicenter, double-blind, randomized clinical trial
   G. A. Mashour, A. Ben Abdallah, Kane O. Pryor, M.D., Robert A. Veselis, M.D.

3. Chronic Pain in Refugee Torture Survivors
   Gunisha Kaur, M.D., M.A., Roniel Weinberg, M.D., Andrew Milewski, B.A., Kelsey Young, B.A.,
   Nicole Calautti, B.S., Michele Steinkamp, R.N., Elizabeth Mauer, M.S., Samantha Huynh, B.S.

4. Restrictive versus Liberal Fluid Therapy for Major Abdominal Surgery
   Paul Myles, M.P.H., D.Sc., Rinaldo Bellomo, M.D., Tomas Corcoran, M.D., Kane Pryor, M.D.,
   Stephen Marcott, B.S., Lindsay Pharmer, M.D.,

5. Introducing Objective Standardized Examination of Communication and Professional Behaviors in an Anesthesiology Residency Program
   June M. Chan, MB BS FANZCA, Albert C. Yeung, MD, Lorri A. Rubin, MD, Eric D. Brumberger, MD,
   Kane O. Pryor, MD

6. Medical Mission Location as compared to Country Need: A Systematic Review
   Keerteshwarya Mishra, B.S., Gunisha Kaur, M.D., M.S.

7. Left Ventricular Chamber Dilation Predicts Therapeutic Response to MitraClip – Impact of Adverse LV Remodeling on Mitral Regurgitation Recurrence following Percutaneous Repair
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8. Characterization of the factitious drop in pulse oximetry reading after intraoperative administration of methylene blue in open thoracoabdominal aortic repairs
   Lisa Q. Rong, Elizabeth Mauer, Taylor L. Mustapich, Rob S. White, Leonard N. Girardi,
   Mario Gaudino, Kane O. Pryor

9. Aortic Symmetry Index – Initial Validation of a Novel Preoperative Predictor of Recurrent Aortic Insufficiency after Valve Sparing Aortic Root Reconstruction
   Lisa Q. Rong, Antonino Di Franco, Monica Munjal, Jonathan W. Weinsaft, Jiwon Kim, Francesco Sturla, Leonard N. Girardi, Mario Gaudino

10. Impact of Anesthesiologist’s Fellowship Status and Experience on the Risk of General Anesthesia For Cesarean Delivery in Patients Receiving Labor Epidural Analgesia
    Jennifer L. Wagner, M.D., Robert S. White M.D., Elizabeth A. Mauer M.S., Kane O. Pryor M.D. and
    Klaus Kjaer, M.D.

11. Optimizing Patient Access During Emergencies While Using Intraoperative Computed Tomography
    Maria A Bustillo, MD, Cynthia A Lien, MD, Patricia Fogarty Mack, MD, David J. Kopman, MD,
    Paul M. Riegelhaupt, MD, PhD, Lori Rubin, MD, David Stein, MD, Jaroslav Usenko, MD,
    Christine Lennon, MD, Seyed A. Safavynia, MD, PhD, Peter Goldstein, MD
12. Discrepancies in International Neuromodulation Training & Education
   Neel Mehta M.D., Daniel Pak M.D., Jesse Gruber B.A., Timothy Deer M.D., Simon Thomson M.B.B.S.

13. Airway Challenges in Patients with Retinoblastoma Caused by Chromosome 13q Deletions
   Chai, Casey, MD, Christ, Elena, MD, Abramson, David, MD, Afonso, Anoushka, MD

14. Immediate feedback is superior to delayed feedback at reducing documentation errors by anesthesia clinicians: An error reduction and performance improvement strategy
   Nicole Hitti, MSN, Colleen DiStefano, BA, Virginia Tangel, MA, Paulette Eng, PharmD,
   Carrie Bregman, PharmD, Nhan Cho PharmD, Patricia Mack, MD

15. Improving Paravertebral Block Workflow Efficiency
   Chawla, Kashmira PGY3; Lee, Christina PGY3; Nadav, Danielle PGY3; Rubin, John PGY3;
   Hitti, Nicole; O’Hara, Emir; Lee, Jason; Riegelhaupt, Paul; Tedore, Tiffany

16. Drug Toxicology Screening in Cancer Pain
   Dustin Liebling MD, Neel Mehta MD, Ruth Eisenberg MS, Amitabh Gulati MD

17. Perioperative Torsades de Pointes in a Radical Neck Resection
   Thomas Ng, M.D., Jon D. Samuels, M.D.

18. The Effect of Obstructive Sleep Apnea on Readmissions and Atrial Fibrillation after Cardiac Surgery
   T. Robert Feng, M.D., Robert S. White, M.D., Gulce Askin, M.P.H., Kane Pryor, M.D.

19. Cardiac Tamponade in Patients with Cancer: Intraoperative Management Strategies & Perioperative Outcomes
   Chu, Iris, MD, Chai, Casey, MD, Seier, K, MS, Tan, Kay See, PhD, Afonso, Anoushka, MD

20. Outcomes Research Utilizing the Healthcare Cost and Utilization Project State Inpatient Database
   Zachary A. Turnbull, MD, Robert S. White, MD, MS

21. Medicaid insurance as primary payer is associated with increased mortality after valve surgery in the state inpatient databases of California, Florida, New York, Maryland, and Kentucky, 2007-2014
   Lisa Q. Rong, Rob S. White, Kathleen J. Sullivan, Gulce Askin, Christopher W. Tam

22. The Association of Race with Utilization of Antiemetic Prophylaxis in the Multicenter Perioperative Outcomes Group (MPOG)
   Robert S. White, MD

23. Hospital Readmissions in Sickle Cell Disease Patients Undergoing Cholecystectomy, Appendectomy and Hysterectomy
   Harmandeep Singh, MD, Robert S. White, MD, John Brumm, MD, Noelle S. Arroyo, BA, Licia K.
   Gaber-Baylis, BA, Zachary A. Turnbull, MD, and Neel Mehta, MD

24. Automated Email Reminders Significantly Improve Faculty Compliance with Resident Evaluations
   Anna Nachamie, Zachary A. Turnbull, MD, Virginia Tangel, MA, Kane O. Pryor, MD

25. Using Machine Learning and Natural Language Processing to Understand Patients’ Experience of Pain
   Soham Gupta, Anna S. Nachamie, Stephen B. Johnson, PhD, Robert S. White, MD, Richard Evans, & Neel Mehta, MD
1. In Monkeys, Reversal of the Ultra-Short Acting NMBA 1759-50 by Either D- or L-Cysteine is Equally Rapid. Glutathione (GSH) is also a Rapidly-Acting and Effective Antagonist
John J. Savarese, M.D., Jeff D. McGilvra, Ph.D., Hiroshi Sunaga, M.D., Farrell E. Cooke, B.S., Paul M. Heerdt, M.D., Ph.D.

2. Gigantocellular neurons awaken the brain from deep Pharmacologically-induced coma
Sijia Gao, Alex Proket, Nicolas Renier, Donald W. Pfaff, Diany Paola Calderon

3. The Effect of Isoflurane on Axonal Endoplasmic Reticulum Ca2+ Dynamics in Hippocampal Neurons
Vanessa Osman, B.S., Hugh C. Hemmings, M.D., Ph.D., F.R.C.A.

4. Molecular Mechanisms of Phospholipid Scrambling
Maria Falzone, Jan Rheinberger, Ashleigh Raczkowski, Edward Eng, Crina Nimigean, Alessio Accardi

5. Backbone Amides are Conserved Determinants of Inter-anion Selectivity in CLCs
Eva Fortea, Lilia Leisle, Kin Lam, Tao Jiang, Jason D. Galpin, Emad Tajkhorshid, Christopher A. Ahern & Alessio Accardi

6. The Annexin-V Transmembrane Channel
Yi-Chih Lin, Atsushi Miyagi, Simon Scheuring

George R Heath, Yi-Chih Lin, Simon Scheuring

8. Voltage Modulation of the Cyclic Nucleotide-gated Channel SthK
Xiaolong Gao and Crina M. Nimigean

9. Lipid-dependent Desensitization Mechanism of MTHK
Nattakan Sukoman and Crina M. Nimigean

10. Structural and Functional Characterization of a Cyclic Nucleotide-gated Ion Channel
Jan Rheinberger, Philip Schmidpeter, Xiaolong Gao, Crina Nimigean

11. Functional Characterization of the Cyclic Nucleotide-gated channel SthK
Philip A.M. Schmidpeter, Xiaolong Gao, Jan Rheinberger, and Crina M. Nimigean
Research Presented at Anesthesiology Conferences, 2017-2018

American Pain Society (APS)
1. Drug Toxicology Screening in Cancer Pain
   Dustin Liebling MD, Neel Mehta MD, Ruth Eisenberg MS, Amitabh Gulati MD

American Society of Anesthesiologists (ASA)
1. Pierre Robin Sequence - Airway Challenges and Changes Before and After Mandibular Distraction in a Critically-ill Neonate
   Casey M. Chai, MD, Franklin Chiao, MD
2. Sickle Cell Pain Crisis During Twin Pregnancy
   Casey M. Chai, MD, Robert S. White, MD, Alexandra Niarhos, BS, Noemi C. Balogh, MD
3. Primary payer status as a predictor for mortality after colectomy
4. Readmission Rates Following Total Hip and Knee Arthroplasty in Patients with Sickle Cell Disease
5. Cardiac Tamponade in Patients with Cancer: Intraoperative Management Strategies & Perioperative Outcomes
   Chu Iris, MD, Chai Casey, MD, Seier K, MS, Tan Kay See, PhD, Afonso Anoushka, MD
6. The Effect of Obstructive Sleep Apnea on Readmissions and Atrial Fibrillation after Cardiac Surgery
   T. Robert Feng, M.D., Robert S. White, M.D., Gulce Askin, M.P.H., Kane Pryor, M.D.
7. Wellness Initiative - Resident Driven!
   Lauren Licina M.D., Zachary A. Turnbull M.D., Grace Shih M.D., June Chan M.B., B.S., FANZCA
8. Medical Mission Location as compared to Country Need: A Systematic Review
   Keerteshwrya Mishra, B.S., Gunisha Kaur, M.D., M.S.
9. Perioperative Outcomes for Liver Transplant or Hepatectomy Based on Race, Insurance Status, and Socioeconomic Status
   John E. Rubin, MD; Iris Chu, MD; Robert S. White, MD; Gulce Askin, MPH; Zachary A. Turnbull, MD; Christine M. Lennon, MD
10. Racial and ethnic disparities in maternal outcomes and the disadvantage of peripartum black women: A multistate analysis, 2007-2014
    Virginia Tangel, MA, Robert S. White, MD, MS, Anna S. Nachamie, BS, Jeremy S. Pick, MD

American Society of Regional Anesthesia (ASRA)
1. Postoperative Complications, hospital length of stay, and cost in sickle cell patients undergoing cholecystectomy, appendectomy, and hysterectomy
   John Brumm, MD, Robert S. White, MD, Harmandeep Singh, MD, Noelle S. Arroyo, BA, Licia K. Gaber-Baylis, BA, Zachary A. Turnbull, MD, and Neel Mehta, MD
   Brian Like, MD, MBA, Robert S. White, MD, Kathleen J. Sullivan, MD, Noelle S. Arroyo, BA, Virginia Tangel, MA, Jeffrey B. Stambough, MD, Hannah Xu, MD, Zachary Turnbull, MD
3. Primary payer status is associated with increased readmission rates and resource utilization after inpatient rotator cuff repair: a multistate analysis, 2007-2014
   Ryan Lippell, M.D., Kathleen J. Sullivan, M.D., Robert S. White, M.D., Noelle S. Arroyo, B.A.,
   Virginia Tangel, M.A., Jeffrey B. Stambough, M.D., Zachary A. Turnbull, M.D.

   Selaiman Noori, MD and Neel Mehta, MD

5. Hospital Readmissions in Sickle Cell Disease Patients Undergoing Cholecystectomy, Appendectomy and Hysterectomy
   Harmandeep Singh, MD, Robert S. White, MD, John Brumm, MD, Noelle S. Arroyo, BA,
   Licia K. Gaber-Baylis, BA, Zachary A. Turnbull, MD, and Neel Mehta, MD

6. Readmission Diagnoses Following Total Hip Replacement in Relationship to Insurance Payer Status
   Harmandeep Singh, MD, Robert S. White, MD, Noelle S. Arroyo, BA, Licia K. Gaber-Baylis, BA, and
   Zachary A. Turnbull, MD

Eastern Pain Association (EPA)
1. Using Machine Learning and Natural Language Processing to Understand Patients’ Experience of Pain
   Soham Gupta, Anna S. Nachamie, Stephen B. Johnson, PhD, Robert S. White, MD, Richard Evans, &
   Neel Mehta, MD

International Anesthesia Research Society (IARS)
1. Immediate feedback is superior to delayed feedback at reducing documentation errors by anesthesia clinicians: An error reduction and performance improvement strategy
   Nicole Hitti, MSN, Colleen DiStefano, BA, Virginia Tangel, MA, Paulette Eng, PharmD,
   Carrie Bregman, PharmD, Nhan Cho PharmD, Patricia Mack, MD

International Neuromodulation Society (INS)
1. Discrepancies in International Neuromodulation Training & Education
   Neel Mehta M.D., Daniel Pak M.D., Jesse Gruber B.A., Timothy Deer M.D., Simon Thomson M.B.B.S.

Medical Education Subway Summit
1. Introducing Objective Standardized Examination of Communication and Professional Behaviors in an Anesthesiology Residency Program
   June M. Chan, MB BS FANZCA, Albert C. Yeung, MD, Lori A. Rubin, MD, Eric D. Brumberger, MD,
   Kane O. Pryor, MD

New York Academy of Medicine (NYAM)
1. Goal-directed correction of DIC in severe antepartum hemorrhage using ROTEM
   John Brumm M.D., Selaiman Noori M.D., and Jon D. Samuels M.D.

2. Improving Paravertebral Block Workflow Efficiency
   Chawla, Kashmira PGY3; Lee, Christina PGY3; Nadav, Danielle PGY3; Rubin, John PGY3;
   Hitti, Nicole; O’Hara, Emir; Lee, Jason; Riegelhaupt, Paul; Tedore, Tiffany

3. Successful Treatment of CRPS with Continuous Labor Epidural
   Timothy M. Connolly, MD, Mohammed Piracha, MD

4. Severe Hypothermia after Intrathecal Morphine and Reversal with Lorazepam
   Laura Galinko M.D., Jennifer Wagner M.D., Sharon Abramovitz M.D.

5. Opioid-free analgesia after motor vehicle accident in resource scarce India
   Melvin La, M.D., James Osorio, M.D.
6. Perioperative Torsadesde Pointes in a Radical Neck Resection  
   Thomas Ng, M.D., Jon D. Samuels, M.D.

7. A Case of Opioid-Free Anesthesia for Urological Surgery in Punjab, India  
   Grace Shih, MD and James Osorio MD

8. Vanishing Twin Syndrome—An Uncommon Etiology of Third Trimester Hemorrhage  
   Sebastian Specks MD, Seyed A. Safavynia MD, PhD, Jon D. Samuels MD

9. Airway Management of a Patient with Severe Ankylosing Cervical Spondylitis via the King VisionTM Video Laryngoscope  
   Daniel Thomson, M.D., Jon D. Samuels, M.D.

10. An Acute Dystonic Reaction to Propofol  
    Hannah Xu, MD and Jon D. Samuels, MD

**New York State Conference for Anesthesiology Residents and Fellows (NYSCARF)**

1. Novel Perioperative Antiplatelet Therapy Management Communication Tool  
   Kashmira Chawla, MD, MSc, Zahra Malik, MD, Christina Dinapoli, DNP, FNP-BC, Natalia Ivascu, MD

2. Unilateral Pulmonary Edema Due to Acute Severe Mitral Regurgitation  
   Daryl Banton, MD; Zahra Malik, MD; Daniel Lahm, MD

**New York State Pain Society (NYSPS)**

1. Medically Challenging Case: The utility of interventional pain procedures in a patient with Hermansky-Pudlak syndrome, a disorder causing platelet dysfunction, who is also taking Coumadin  
   Nitin Bansal, MD, Mary So, MD

**PostGraduate Assembly in Anesthesiology (PGA)**

1. Hospital surgical volume does not affect readmissions and resource utilization after isolated CABG when examining socioeconomic disparities: a multistate analysis, 2007-2011  
   Noelle S. Arroyo, BA; Robert S. White, MD; Taoyuan Feng, MD; Anna S. Nachamie, BS;  
   Licia K. Gaber-Baylis, BA; Lisa Q. Rong, MD; Zachary A. Turnbull, MD

2. Choroidal Infarction Following Ophthalmic Artery Chemotherapy  
   Kelley J. Bohm MD, Y. Pierre Gobin MD, Jasmine H. Francis MD, Gabrielle Musci MD,  
   Anahita Dabo-Trubelja MD, Paul H Dalecki MD, Brian P Marr MD, David H Abramson MD

3. Anesthetic Management of Duodenal Atresia and Aorto-Enteric Fistula Secondary to Vascular Prosthesis Infection  
   Andrew Fisher, M.D., Jon D. Samuels, M.D.

   Jimmy Lin MD, Brett Weiner MD

5. Double Disparity for Low Socioeconomic Status Patients in Postoperative Morbidity Following Total Hip Arthroplasty  
   Matthew D. Perlstein (MD), Kathleen J. Sullivan (MD), Robert S. White (MD), Noelle S. Arroyo (BA),  
   Dahnien L. Sastow (BA), Licia K. Gaber-Baylis (BA), Jeffrey B. Stambough (MD),  
   Mahendranauth Samaru (MD), Zachary A. Turnbull (MD)

6. Hyperkalemia Management in the Oncology Patient: A case of kayexalate-induced bowel perforation  
   Kathleen J. Sullivan (MD), Elena Mead (MD), Meaghen Finan (MD), Jinru Shia (MD)
**Society of Cardiovascular Anesthesiologists (SCA)**

1. Cerebral Oximetry Used as a Sentinel Monitor to Diagnose Acute Superior Vena Cava Outflow Obstruction During Robotic Cardiac Surgery
   Patrick Baker, T. Sloane Guy, Lisa Q. Rong

2. Left Atrial Myxoma Resection with Post Cardiopulmonary Bypass (CPB) Left Ventricular Failure Requiring Intra-Aortic Balloon Pump (IABP)
   Daryl Banton, MD; Adam Lichtman, MD

3. The Anesthetic Management of Uncorrected Congenital Heart Disease
   Diana Khatib MD, Aarti Sharma MD, Meghann Fitzgerald MD, Cindy Wang MD

4. Left Ventricular Chamber Dilation Predicts Therapeutic Response to MitraClip – Impact of Adverse LV Remodeling on Mitral Regurgitation Recurrence following Percutaneous Repair
   Lisa Q. Rong, Javid Alakbarli, Meridith P Pollie, Richard B Devereux, Shing-Chiu Wong, Geoffrey Bergman, Omar Khaliq, Antonino Di Franco, Robert A Levine, Mark Ratcliffe, Jonathan Weinsaft, Jiwon Kim

5. Aortic Symmetry Index – Initial Validation of a Novel Preoperative Predictor of Recurrent Aortic Insufficiency after Valve Sparing Aortic Root Reconstruction
   Lisa Q. Rong, Antonino Di Franco, Monica Munjal, Jonathan W. Weinsaft, Jiwon Kim, Francesco Sturla, Leonard N. Girardi, Mario Gaudino

6. Characterization of the factitious drop in pulse oximetry reading after intraoperative administration of methylene blue in open thoracoabdominal aortic repairs
   Lisa Q. Rong, Elizabeth Mauer, Taylor L. Mustapich, Rob S. White, Leonard N. Girardi, Mario Gaudino, Kane O. Pryor

7. Medicaid insurance as primary payer is associated with increased mortality after valve surgery in the state inpatient databases of California, Florida, New York, Maryland, and Kentucky, 2007-2014
   Lisa Q. Rong, Rob S. White, Kathleen J. Sullivan, Gulce Askin, Christopher W. Tam

**Society for Neuroscience in Anesthesiology and Critical Care (SNACC)**

1. Optimizing Patient Access During Emergencies While Using Intraoperative Computed Tomography
   Maria A Bustillo, MD, Cynthia A Lien, MD, Patricia Fogarty Mack, MD, David J. Kopman, MD, Paul M. Riegelhaupt, MD, PhD, Lori Rubin, MD, David Stein, MD, Jaroslav Usenko, MD, Christine Lennon, MD, Seyed A. Safavynia, MD, PhD, Peter Goldstein, MD

**Society for Obstetric Anesthesia and Perinatology (SOAP)**

1. Anesthetic Management of Parturient with Spinal Muscular Atrophy
   Alaeldin Darwich, M.D. and Sharon Abramovitz, M.D.

2. Is antiphospholipid syndrome a contraindication to the use of rotational thromboelastometry (ROTEM) guided therapy during cesarean section?
   R Feldman, MD, J Landon, MD, RA DeSimone, MD, MM Cushing, MD, J Samuels, MD

3. Management of a Parturient with Autoimmune Autonomic Ganglionopathy
   Jennifer Landon, M.D., Jaime Aaronson, M.D., and Sharon Abramovitz, M.D.

4. Anterior Mediastinal Mass in a Pregnant Patient: The importance of multidisciplinary delivery planning
   Jennifer L. Wagner, M.D., Jaime Aaronson, M.D., and Sharon Abramovitz, M.D.

5. Impact of Anesthesiologist’s Fellowship Status and Experience on the Risk of General Anesthesia For Cesarean Delivery in Patients Receiving Labor Epidural Analgesia
   Jennifer L. Wagner, M.D., Robert S. White M.D., Elizabeth A. Mauer M.S., Kane O. Pryor M.D. and Klaus Kjaer, M.D.
Society for Pediatric Anesthesia (SPA)
1. Airway Challenges in Patients with Retinoblastoma Caused by Chromosome 13q Deletions
   Chai, Casey, MD, Christ, Elena, MD, Abramson, David, MD, Afonso, Anoushka, MD

Society for Technology in Anesthesia (STA)
1. Automated Email Reminders Significantly Improve Faculty Compliance with Resident Evaluations
   Anna Nachamie, Zachary A. Turnbull, MD, Virginia Tangel, MA, Kane O. Pryor, MD

Departmental Posters
1. Intraoperative Ketamine for Prevention of Postoperative Delirium or Pain After Major Surgery in Older Adults: PODCAST Clinical Trial
   Michael Avidan, M.B.B.Ch., Hannah Maybrier, B.S., Arbi Ben Abdallah, Ph.D., Kane Pryor, M.D.,
   Leonard Girardi, M.D., Alison Gruber, B.S., Natalia Ivascu, M.D., Emma Rogers, B.S., Mariya Redko, B.S.,
   Michele Steinkamp, R.N.

2. Chronic Pain in Refugee Torture Survivors
   Gunisha Kaur, M.D., M.A., Roniel Weinberg, M.D., Andrew Milewski, B.A., Kelsey Young, B.A.,
   Nicole Calautti, B.S., Michele Steinkamp, R.N., Elizabeth Mauer, M.S., Samantha Huynh, B.S.

3. Intraoperative ketamine for prevention of depressive symptoms after major surgery in older adults: an international, multicenter, double-blind, randomized clinical trial
   G. A. Mashour, A. Ben Abdallah, Kane O. Pryor, M.D., Robert A. Veselis, M.D.

4. Restrictive versus Liberal Fluid Therapy for Major Abdominal Surgery
   Paul Myles, M.P.H., D.Sc., Rinaldo Bellomo, M.D., Tomas Corcoran, M.D., Kane Pryor, M.D.,
   Stephen Marcott, B.S., Lindsay Pharmer, M.D.

5. Outcomes Research Utilizing the Healthcare Cost and Utilization Project State Inpatient Database
   Zachary A. Turnbull, MD, Robert S. White, MD, MS

6. The Association of Race with Utilization of Antiemetic Prophylaxis in the Multicenter Perioperative Outcomes Group (MPOG)
   Robert S. White, MD
Clinical Posters Presented in Conferences, 2017-2018

American Pain Society (APS)

Drug Toxicology Screening in Cancer Pain

Introducion

- Despite the risk of opioid abuse and the growing use of opioids to treat cancer pain, no clear guidelines currently exist on monitoring opioid compliance at the cancer setting.

- While the use of urine drug screening as a diagnostic tool to guide physicians' therapeutic decisions has been described in chronic non-cancer pain, the use of urine drug screening in patients with cancer pain has not been appropriately discussed.

- Prior to considering the development of clinical practice guidelines for the vigilant monitoring of opioids in the cancer setting, that study was carried to evaluate the current practices and attitudes physicians have towards screening, monitoring and prescribing opioids in patients with active cancer and in cancer survivors.

Methods

A 24-item survey was completed by 106 pain management physicians (25.7% responder rate) to assess how clinicians screen, monitor and prescribe opioids to patients with active cancer, cancer survivors, and patients with no history of cancer.

Results

- Of the respondents, 74.4% were male and 25.6% were female.
- The majority (72.3%) of physicians were males, and 27.5% were females.
- In terms of pain management practice, 64.8% (91/140) of respondents reported being involved in pain management.
- Among those, 10.1% reported working in an academic setting, and 26.7% reported working in a private practice setting.

Discussion

Pain management physicians generally require similar toxicology screening for cancer patients, cancer survivors, and patients with chronic non-cancer pain. However, cancer pain plays a role in the clinician's decision-making in the following scenarios:

- Prior to initiating opioid therapy, baseline toxicology screening is more often required in patients with a history of cancer and cancer survivors, as they are at higher risk of developing opioid-related adverse effects compared to patients with no history of cancer.

- For active cancer patients who refuse a toxicology screen, clinicians are more likely to prescribe opioids, while for patients with no cancer history who fail a toxicology screen, clinicians are more likely to refuse a prescription refill, and are almost twice as likely to eliminate opioids from the treatment regimen.

Conclusion

For patients with active cancer, clinicians are more likely to prescribe opioids despite patient refusal for toxicology screens as well as history of substance abuse.

For patients with no history of cancer, clinicians are more likely to adhere to prescription refill and eliminate opioids from treatment regimens.

Further education and consensus is needed to ensure the safe management of opioids when treating cancer pain.

References

American Society of Anesthesiologists (ASA)

Pierre Robin Sequence - Airway Challenges and Changes Before and After Mandibular Distraction in a Critically-ill Neonate

Cassy M Chai, MD, Franklin Chiu, MD
Department of Anesthesiology, New York Presbyterian/Weill Cornell Medicine, New York, New York.

Introduction
- Pierre Robin Sequence (PRS) is a congenital condition of facial anomalies.
- Airway issues can be challenging in a neonate who is already on ventilators and sedatives.

Case Description
- A 3-month-old male was admitted to the ICU for respiratory failure in the setting of pneumonia infection (Table 1).
- PRS is a rare congenital anomaly that presents with micrognathia, small airway distortion, and upper airway obstruction, which can lead to respiratory distress.
- The neonate was intubated immediately after birth due to respiratory distress.

Literature Review
- Managing airway issues in neonates with PRS can be challenging.
- The airway can be severely distorted, making intubation and ventilation difficult.

Conclusion
- PRS is a rare condition that requires a multidisciplinary approach to manage airway issues.
- Early intervention with airway management strategies can improve outcomes.

Reference:

Sickle Cell Pain Crisis During Twin Pregnancy

Cassy M Chai, MD, Robert S White, MD, Alexandra Niarhos, BS, Noemi O Salem, MD
Department of Anesthesiology, New York Presbyterian/Weill Cornell Medicine, New York, New York.

Introduction
- Sickle cell disease (SCD) is a genetic disorder that affects the ability of red blood cells to flow through small blood vessels.
- Pregnancy can be a significant challenge for women with SCD.

Case Description
- A 37-year-old female with SCD was admitted to the hospital at 32 weeks gestation due to abdominal pain and uterine tenderness.
- Sickle Cell Disease Crisis
Her sickle cell disease crisis was managed with hydration, opioid analgesia, and supplemental oxygen.

Literature Review
- Sickle cell pain crises during pregnancy can be managed with hydration, analgesia, and supplemental oxygen.
- Management of pain crises during pregnancy is necessary to prevent complications such as stroke and organ failure.

Conclusion
- Sickle cell pain crises during pregnancy can be managed with hydration, analgesia, and supplemental oxygen.
- Early intervention with pain management strategies can improve outcomes.

Reference:

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Primary payer status as a predictor for mortality after colectomy
Department of Anesthesiology, Weill Cornell Medical College, New York, NY

RESULTS
• Total 444,877 eligible colectomy procedures included.
  • 38% were robotic, 27% laparoscopic, and 35% open colorectal surgery.
  • Mean age was 56.4 years (SD 16.7 years) and 57% were females.
  • Medicare patients were older, more likely to live in areas with the lowest median household income, and have some form of cancer.
  • Adjusted models showed that Medicare patients had higher odds ratios for hospital mortality, post-operative complications, and 30- and 90-day readmissions, longer LOS, and higher total hospital charges.

ADVANTAGES AND LIMITATIONS
• Number of inpatient records included from all national hospitals, enhancing generalizability across hospital types and primary payer types.
• Unable to account for all potential confounders including education level, race, socioeconomic status, and patient choice of hospital.

CONCLUSIONS
• Primary payer status serves as either an indicator of morbidity or mortality of discharge.
• Medicare status could be viewed as a post-operative risk factor for poor post-operative outcomes.

REFERENCES

Well Cornell Medicine
New York-Presbyterian

Readmission Rates Following Total Hip And Knee Arthroplasty In Patients With Sickle Cell Disease

BACKGROUND
• Osteonecrosis of the femoral head and knee are common complications in sickle cell disease (SCD).
• Neutrophils of SCD patients may be more susceptible to oxidative stress, leading to a higher incidence of osteonecrosis.

OBJECTIVES
• To compare clinical outcomes between SCD and non-SCD patients undergoing total hip and knee arthroplasty.
• To identify factors associated with readmission rates.

STUDY DESIGN
• Retrospective analysis of a multi-center database comparing outcomes in patients with SCD and those without SCD following THA and TKA.

ADVANTAGES AND LIMITATIONS
• Most up-to-date alerts of healthcare outcomes in SCD patients undergoing major lower-extremity orthopedic procedures.
• Large number of important recollections included from a multi-center database, enhancing generalizability across hospitals and primary payer types.
• Control for a wide range of potential confounders.
• Limited information on direct causes of readmissions.

Acknowledgments: This poster presentation is funded by the Ameras of the New York-Presbyterian Hospital and the Weill Cornell Medical College.

METHODS
• Comprehensive literature review
• Data from the National Healthcare Discharge Survey (NHDS), a national probability sample of hospital discharges from U.S. short-term hospitals.
• Outcomes of interest include mortality, post-operative complications, and readmission rates.

RESULTS
• Total 3,496,451 adult hip and knee arthroplasty patients included.
• 30% were SCD patients.
• Median age was 55.4 years (SD 16.7 years) and 57% were females.
• SCD patients were more likely to be black, have Medicaid insurance, and have worse pre-operative outcomes, including higher rates of primary and secondary outcomes.
• Sensitivity analysis, subgroup analysis in black patients.
• All stratified by procedure type.

REFERENCES

Well Cornell Medicine
New York-Presbyterian
**Cardiac Tamponade in Patients with Cancer: Intraoperative Management Strategies & Perioperative Outcomes**

Chiu, Hsi, MD, CH Cha, Casey, MD, SL Sener, K, MS, Tan, Kay Sze, PhD, A Moro, Annaluisa, MD

Departments of Anesthesiology, General Surgery Center (New York, NY); Department of Medicine, New York Presbyterian Hospital - Weill Cornell Medicine (New York, NY)

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**Background**

- **Incidence:** Cardiac tamponade is seen in up to 12% of patients with breast malignancies.
- **Pathophysiology:**
  - **Tamponade:** Malignant pericardial effusions can lead to cardiac tamponade due to increased intrapericardial pressure.
  - **Hemodynamic Effects:** Increased venous return, decreased cardiac output, and hypotension are typical findings.

**Pathophysiology of Cardiac Tamponade**

**Aim**

- To review the role of anesthetic management in perioperative cardiac tamponade management and its impact on outcomes in oncologic surgery.

**Methods**

- Management of single-center study of 133 cancer patients with cardiac tamponade with malignant pericardial effusions between 2010-2015.
- Outcomes measured:
  - Length of stay
  - Incidence of complications
  - Time to discharge

---

**Results**

**Surgical Approach**

- **Left Minithoracotomy:** Preferred in cases where the tumor is accessible.
- **Anticoagulation:** Partial anticoagulation is commonly used to minimize bleeding risks.

**Anesthetic Management**

- **Preoperative Management:** Use of vasopressors to maintain hemodynamic stability.
- **Intraoperative Management:** Early intervention with pericardiocentesis or epicardial pulmonary artery catheter placement.

**Complications:**

- **Hypotension:** Common in the initial phases of tamponade treatment.
- **Arrhythmias:** Prolonged tamponade treatment can lead to the development of arrhythmias.

**Conclusion:**

- Early detection and prompt intervention are crucial in improving outcomes for patients with cardiac tamponade.

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**The Effect of Obstructive Sleep Apnea on Readmissions and Atrial Fibrillation after Cardiac Surgery**

T. Robert Feng (MD), Robert S. White (MD), Guice Askin (MPH), Ken Przybry (MD)

Department of Anesthesiology, New York-Presbyterian/Columbia University Medical Center, New York, NY

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**Introduction**

- Obstructive sleep apnea (OSA) is a common disorder with high prevalence and a wide spectrum of severity, with evidence that even mild disease can be associated with significant patient morbidity.
- Effect on the cardiovascular system is particularly interesting with both clinical and animal studies demonstrating a predisposition to developing atrial fibrillation.

**Methods**

- *Retrospective cohort study* on 20,000 patients aged 65 years or older from four large government databases: National Inpatient Sample, Medicare, Veterans Affairs, and HealthPartners.
- **Patient Inclusion:** Patients undergoing noncardiac surgery who were not on anticoagulation therapy and who did not have atrial fibrillation before surgery.
- **Main Outcome Measures:** Postoperative readmissions and atrial fibrillation.

**Results**

- **Sample size:** 20,000 patients, 10,000 with and without OSA.
- **30-day readmission rate:** 3.1% (OSA: 4.1%, non-OSA: 2.8%, p=0.03).
- **Atrial fibrillation:** 1.6% (OSA: 2.5%, non-OSA: 1.8%, p=0.04).

**Conclusions**

- **OSA** was independently associated with higher readmission rates and atrial fibrillation among patients undergoing noncardiac surgery.
- **Importance:** Identifying and addressing OSA preoperatively may reduce postoperative complications and hospital stays.

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**Limitations**

- OSA may be undiagnosed or untreated in the general population, which may contribute to the heterogeneity of the study population.
- Study is cross-sectional and based on administrative data; causality of results is limited by lack of clinical information that would provide insight into a patient's OSA status or treatment.

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References

Medical Mission Location as compared to Country Need: A Systematic Review

Keerteshwary Mishra, BS, Wayne State University School of Medicine
Gunishha Kaur, MD, FAIA, Department of Anesthesiology, Weill Cornell Medicine

**Background**
- Medical mission trips occur around the world, with the popularity of such trips continuing to grow yearly.
- More than 90,000 offices in the United States spend over $250,000 on medical trips annually.
- However, no study has looked at where these mission trips occur and how frequently.
- In addition, no analysis of human development or poverty index has been conducted about the countries that are being visited by health care providers.
- Unfortunately, no official database or central monitoring agency exists with regard to all trips occurring.

**Methods**

**Part 1:**
- Medicine and Embrace were used to gather published articles (between 2013 and 2017), to serve as a surrogate marker of academic healthcare provider participation in a country.
- Key points from these articles were extracted (country visited, type of trip conducted, and clinical specialty of personnel participating) and data were segregated based on country visited. The number of articles for each country was tallied.

**Part 2:**
- Universal Mortality Ratio, Life Expectancy, and Human Development Index (2013–2016) from the World Bank, United Nations, and World Health Organization were calculated for a list of the top 25 most disadvantaged countries made for each. Three lists were compiled to create a collection of countries considered by composite data to be the most in need.
- The total list of countries most in need was compared and compared to the list of countries visited most frequently by medical missions.

**Results**

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Times Visited</th>
<th>Human Development Index</th>
<th>Life Expectancy</th>
<th>Mortality</th>
<th>Mortality Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burundi</td>
<td>2</td>
<td>0.425</td>
<td>55.609</td>
<td>716.328</td>
<td></td>
</tr>
<tr>
<td>Central African Republic</td>
<td>3</td>
<td>0.349</td>
<td>55.819</td>
<td>705.659</td>
<td></td>
</tr>
<tr>
<td>Chad</td>
<td>2</td>
<td>0.362</td>
<td>52.185</td>
<td>679.320</td>
<td></td>
</tr>
<tr>
<td>Democratic Republic of the Congo</td>
<td>4</td>
<td>0.420</td>
<td>55.779</td>
<td>716.687</td>
<td></td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>1</td>
<td>0.466</td>
<td>55.321</td>
<td>666.096</td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>3</td>
<td>0.476</td>
<td>57.724</td>
<td>671.308</td>
<td></td>
</tr>
<tr>
<td>Guinea</td>
<td>2</td>
<td>0.413</td>
<td>59.535</td>
<td>687.290</td>
<td></td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>0</td>
<td>0.421</td>
<td>55.599</td>
<td>522.095</td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>1</td>
<td>0.437</td>
<td>51.251</td>
<td>659.322</td>
<td></td>
</tr>
<tr>
<td>Mozambique</td>
<td>0</td>
<td>0.481</td>
<td>57.599</td>
<td>607.667</td>
<td></td>
</tr>
<tr>
<td>Niger</td>
<td>0</td>
<td>0.350</td>
<td>59.297</td>
<td>374.370</td>
<td></td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>0</td>
<td>0.420</td>
<td>55.325</td>
<td>1410.599</td>
<td></td>
</tr>
<tr>
<td>South Sudan</td>
<td>1</td>
<td>0.420</td>
<td>55.011</td>
<td>617.667</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

- Countries such as Haiti and the Comoros Republics are frequently visited, whereas places such as Burundi or South Sudan are not receiving the same amount of attention.
- Countries with increased visits due to disasters: Haiti, Sierra Leone, Philippines, and Nepal.
- These statistics that while academic medical missions are taking place in areas of need, other regions that may need assistance aren’t being neglected.
- This is the first study of its kind to elucidate that such a gap may exist.
- However, these data are limited to publications on medical mission trips because there is no collective resource of information regarding medical missions.

**Further research should be done to include more databases and a wider timeline.**

**Acknowledgments:**
I would like to give my sincerest thanks to Dr. Kaur and Dr. Patel for their assistance on how to format a systematic review for academic publishing. I am also thankful for the time and help put into this manuscript by my advisor for the writing and formatting for this manuscript and for the feedback and support I received during my time.

**References:**
Perioperative Outcomes for Liver Transplant or Hepatectomy Based on Race, Insurance Status, and Socioeconomic Status

John E. Rubin, MD; Iris Chu, MD; Robert S. White, MD; Gulce Akin, MPH; Zachary A. Turnbull, MD; Christine M. Lennon, MD

Department of Anesthesiology, NewYork-Presbyterian Hospital-Weill Cornell Medicine, New York, NY; Center for Perioperative Outcomes, Weill Cornell Medicine, New York, NY

INTRODUCTION

• Hepatobiliary disease (BD) is a leading cause of mortality and morbidity in the United States.
• Liver transplant or hepatocellular carcinoma (HCC) is often the only treatment.
• In 2019, the Model for End-stage Liver Disease (MELD) scoring system was adopted to better evaluate the severity of BD and its utility for liver transplant.
• The MELD-National database studies reveal disparities in outcomes for patients with HCC or undergoing a liver transplant based on age, race, sex, insurance status, and socioeconomic status.

WHY RE-EXAMINE THE TOPIC?

• Despite adoption of the MELD-N liver, evidence suggests that disparities persist for surgical outcomes.
• Since the last comprehensive analysis about 10 years ago, these have been important system advancements: adoption of the MELD score for optimal patient selection.
• Improvements in surgical technique.
• Improvements in perioperative anesthetic management.
• There is a need for a comprehensive reassessment of the perioperative care outcomes for liver transplant and hepatocellular carcinoma in the post-MELD era.

ADVANTAGES AND LIMITATIONS

• Most up-to-date and comprehensive analysis of the MELD-N database for liver transplant and hepatocellular carcinoma.
• Not a cohort study.
• Population cohort included in the analysis represents 32% of the US population.
• Care costs are consistently assessed for a wide range of outcomes.
• Disease, quality of care, and outcomes are tracked between 2006-2015.
• The MELD-N database does not provide us with a MELD score for each patient, the ability to test database accuracy.

METHODS

• We conducted a retrospective analysis of liver transplant and hepatocellular carcinoma between 2006 and 2015 in the S. Florida, New York, Kentucky, and Atlanta using the State Inpatient Databases (SID), HealthCare Cost Containment, Inc., and Medicare Project (a private payer).
• Patients aged 18 and older were included.
• The primary outcome was mortality.
• Secondary outcomes were length of stay (LOS), 30-day readmission, 90-day medical, and all-cause charges.
• A multivariate generalized estimating equations model was used to assess the independent effect of payer status and race on outcomes, including postoperative complications and readmissions, as well as perioperative care outcomes.

RESULTS

For Liver Transplant patients:
• Medication insurance status was independently associated with a higher odds of mortality compared to private payer status.
• Most medication patients were associated with increased 90-day and 30-day readmission rates, length of stay, and total medical costs.
• Medicare, outpatient, and non-white race patients were associated with increased 30-day medical and all-cause charges.
• Medicaid patients that were associated with increased 30-day hospital, total medical, and all-cause charges.
• Medicaid and non-white race patients had a significantly lower level of mortality.

CONCLUSIONS

• The MELD-N database in the S. Florida, New York, Kentucky, and Atlanta reported a significant level of disparities.
• Insurance status had the greatest burden of disparities.
• Medicaid and non-white race patients were associated with increased 30-day hospital, total medical, and all-cause charges.
• Medicaid and non-white race patients had a significantly lower level of mortality.

Racial and ethnic disparities in maternal outcomes and the disadvantage of peripartum black women: A multistate analysis, 2007-2014

Vigina Talus M., Robert S. White, MD, MSc, Diane S. Nashaden, NP, Jennifer B. Pick, MD, MPH

Weiss-Corvary Outpatient Center for Perioperative Outcomes, Department of Anesthesiology, Weill Cornell Medicine, New York, NY; Department of Anesthesiology, New York-Presbyterian Hospital-Weill Cornell Medicine, New York, NY

Introduction

• Maternal mortality disparities in the US can produce significant healthcare disparities, which may be associated with pregnancy and hospitalizations associated with pregnancy than other race/ethnicity groups.
• In the United States, black and Asian women are 2-3 times more likely to die from maternal morbidity than other race/ethnicity groups.
• In addition, the additional risk in maternal death is associated with a higher risk of preterm birth and low birthweight, as well as the highest rate of pregnancy and delivery-associated mortality.

Objective

• The objective is to examine maternal disparities in pregnancy outcomes and to examine these disparities in terms of pregnancy and delivery outcomes.

Results

• The results show that the black and Asian women are at a higher risk of pregnancy and delivery-associated mortality.
• These disparities may be related to the lack of access to healthcare services and the differences in healthcare access and quality.

Conclusions

• The study highlights the need for improvements in maternal healthcare services, particularly in terms of healthcare access and quality.
• Health policy interventions and programs that target these disparities are necessary to improve maternal health outcomes.
American Society of Regional Anesthesia (ASRA)

Weill Cornell Medicine
NewYork-Presbyterian
Postoperative Complications, hospital length of stay, and cost in sickle cell patients undergoing cholecystectomy, appendectomy, and hysterectomy

2018 World Congress on Regional Anesthesia & Pain Medicine

Table 1: Unadjusted sample of patients undergoing appendectomy, cholecystectomy, or hysterectomy

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Cholecystectomy</th>
<th>Appendectomy</th>
<th>Hysterectomy</th>
<th>Total (n=334)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34.0 (21.5-80.9)</td>
<td>43.5 (21.5-80.9)</td>
<td>45.0 (21.5-80.9)</td>
<td>42.6 (21.5-80.9)</td>
</tr>
<tr>
<td>Gender</td>
<td>149 (45.5%)</td>
<td>119 (36.4%)</td>
<td>108 (35.0%)</td>
<td>376 (56.6%)</td>
</tr>
<tr>
<td>Race</td>
<td>261 (77.9%)</td>
<td>212 (63.6%)</td>
<td>181 (59.0%)</td>
<td>654 (98.8%)</td>
</tr>
<tr>
<td>BMI</td>
<td>30.0 (18.0-45.0)</td>
<td>32.0 (18.0-45.0)</td>
<td>30.0 (18.0-45.0)</td>
<td>31.0 (18.0-45.0)</td>
</tr>
</tbody>
</table>

Table 2: Unadjusted outcome measure for patients undergoing appendectomy, cholecystectomy or hysterectomy procedure

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cholecystectomy (n=203)</th>
<th>Appendectomy (n=232)</th>
<th>Hysterectomy (n=331)</th>
<th>Total (n=766)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalization costs (in $)</td>
<td>20,567</td>
<td>23,567</td>
<td>30,567</td>
<td>64,661</td>
</tr>
<tr>
<td>Length of stay (in days)</td>
<td>3.0</td>
<td>2.0</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Morbidity rate</td>
<td>15.0%</td>
<td>15.0%</td>
<td>15.0%</td>
<td>15.0%</td>
</tr>
</tbody>
</table>

Methods
- We conducted a retrospective analysis of patients, aged >18, undergoing appendectomy, cholecystectomy, or hysterectomy over the State Inpatient Database (SIDD), Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality from 2007-2014.
- The primary outcomes of our study were hospital length of stay and hospital charges, compared separately between SCD and non-SCD patients as indicated by the unadjusted rate and adjusted odds ratio (OR). Secondary outcomes were rates and odds of blood transfusion, major complications, and minor complications.

Results
- Compared to the overall study population, SCD patients were younger, more likely to be black, have Medicaid, and have lower median household income; they have an emergency room payer; hospitalization, and 36% more complications present on admission.
- SCD patients received a 100% increase in the odds of blood transfusion, 10% increase in the odds of major complications, and a 25% increase in the odds of a major complication.

Conclusions
- SCD patients undergoing abdominal surgery have complicated and prolonged hospital courses. This knowledge may be invaluable for the management of surgical and medical complications.

References

Medicaid Payer Status is Associated with Increased Mortality and Morbidity after Inpatient Shoulder Arthroplasty: A Multistate Analysis 2007 - 2014

Ryan Lee, MD, MSc, Robert S. White, MD, Kathleen J. Ballmer, MO, Neville S. Amers, SA, Virginia Seager, MA, Jeffrey B. Stembergh, MD, Hannah Xu, MD, Zachary Turnbull, MD

Background
- Medicaid encompasses a wide range of Medicaid and marketplace insurance programs established by every state, the District of Columbia, the Territories of Guam, the Northern Mariana Islands, American Samoa, the U.S. Virgin Islands, the Commonwealth of Puerto Rico, the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau.
- Our objective was to examine the association between Medicaid payer status and complications and mortality after inpatient shoulder arthroplasty.

Methods
- We analyzed discharge records of 80,460 patients from the nationwide inpatient sample (NIS), part of the Healthcare Cost and Utilization Project (HCUP) database for the years 2005-2014.

Results
- Multivariate Adjusted Outcomes by Payer after Inpatient Shoulder Arthroplasty

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Medicaid</th>
<th>Medicare</th>
<th>Private Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality (OR)</td>
<td>4.06 (1.73-9.79)</td>
<td>0.97 (0.64-1.57)</td>
<td>1.00</td>
</tr>
<tr>
<td>Infection (OR)</td>
<td>3.21 (1.39-7.38)</td>
<td>1.07 (0.87-1.32)</td>
<td>1.00</td>
</tr>
<tr>
<td>Cardiac event (OR)</td>
<td>0.02 (0.01-0.92)</td>
<td>0.91 (0.76-1.11)</td>
<td>1.00</td>
</tr>
<tr>
<td>30 Day Rehospitalization (OR)</td>
<td>2.20 (1.74-2.75)</td>
<td>1.94 (1.49-2.54)</td>
<td>1.00</td>
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<tr>
<td>90 Day Rehospitalization (OR)</td>
<td>1.89 (1.55-2.30)</td>
<td>1.56 (1.20-2.01)</td>
<td>1.00</td>
</tr>
<tr>
<td>Length of Stay (days)</td>
<td>5.6 (4.0-7.3)</td>
<td>3.9 (2.9-4.9)</td>
<td>3.0 (2.0-4.0)</td>
</tr>
</tbody>
</table>

Conclusions
- Our results support the hypothesis that non-Medicaid patients are subjected to higher risk of mortality and complications and higher hospital costs, and lower hospital readmission rates compared to Medicaid and Medicare patients.

References

20
Primary payer status is associated with increased readmission rates and resource utilization after inpatient rotator cuff repair: a multivariate analysis, 2007-2014

American Society of Regional Anesthesia and Pain Medicine (ASRA) – 2013 World Congress

Introduction

In a landmark study, the American College of Surgeons states that 30-day readmission rates are associated with the operation performed, the provider, and the hospital. However, these relationships are not always captured in the existing literature. This study aimed to determine the association between primary payer status and 30-day readmission rates after inpatient rotator cuff repair.

Methods

We conducted a retrospective review of 20,000 Medicare patients who underwent rotator cuff repair from 2007 to 2014. The primary outcome was 30-day readmission. Multivariate logistic regression was used to control for confounders. The primary payer status was categorized as Medicare, Medicaid, and private insurance.

Results

After adjusting for confounders, primary payer status was significantly associated with 30-day readmission rates. Patients with Medicare as their primary payer had a 2.3 times higher readmission rate compared to those with private insurance.

Conclusions

Primary payer status is a significant predictor of 30-day readmission rates after inpatient rotator cuff repair. Future studies should explore the underlying mechanisms and develop strategies to reduce readmission rates for patients with Medicare as their primary payer.

References


Management of Refractory Central Post-Stoke Pain Using High-Frequency Spinal Cord Stimulation (HF-SCS) at 10 kHz

Selaman Noor, MD and Reet Metta, MD

Introduction

Central post-stroke pain, also known as phantom limb pain, refers to chronic neuropathic pain resulting from lesions to the brain or spinal cord. The pathophysiology of post-stroke pain is complex and includes both central and peripheral mechanisms. High-frequency spinal cord stimulation (HF-SCS) is a minimally invasive procedure that can be used to manage central post-stroke pain. This study aimed to evaluate the effectiveness of HF-SCS at 10 kHz in patients with refractory central post-stroke pain.

Methods

A total of 20 patients with refractory central post-stroke pain were enrolled in the study. HF-SCS was performed using a Medtronic InterStim® Neurostimulation System. The stimulation parameters were set at 10 kHz, 100 µA, and 50% duty cycle. The outcomes were measured using the Numerical Rating Scale (NRS) before and after the intervention.

Results

After 4 months of follow-up, the mean NRS score decreased from 8.5 to 3.2, indicating significant pain improvement. The patients reported increased pain relief, improved quality of life, and reduced medication use.

Discussion

HF-SCS at 10 kHz is an effective and safe treatment option for refractory central post-stroke pain. Further studies are needed to explore the long-term effectiveness and safety of this approach.

References


Pain is a disorder that is often difficult to manage. There are various treatments available, including opioids and non-opioid medications. An effective treatment for pain is necessary to improve patients’ quality of life. SCS is a minimally invasive procedure that can be used to manage central post-stroke pain. The SCS electrode is placed in the epidural space, and the pulse generator is implanted under the skin. The SCS provides a direct current stimulus to the spinal cord, which can help to reduce pain.
Introduction

Hospitalizations and readmissions are increasingly becoming a major area of focus for healthcare systems. The Affordable Care Act established the Hospital Readmissions Reduction Program, which imposes penalties on hospitals with high rates of readmissions for specific conditions. This has led to increased interest in understanding the factors contributing to readmissions and potential strategies to reduce them.

Methods

This study analyzed data from the Medicare Hospital Readmissions Reduction Program for the years 2012 to 2014. The data included information on hospital discharges for 15 conditions, including readmission rates and payer mix. The analysis was performed using descriptive statistics and regression models to identify factors associated with readmissions.

Results

The study found that readmission rates varied significantly across hospitals, with some hospitals having rates as high as 20% compared to others with rates as low as 10%. The highest rates were observed for conditions such as heart failure, pneumonia, and chronic obstructive pulmonary disease (COPD). The analysis also showed that readmission rates were higher for patients with Medicare coverage compared to those with private insurance.

Discussion

The findings of this study highlight the need for targeted interventions to reduce readmissions, particularly for high-risk patients. The results also underscore the importance of improving care transition processes and enhancing communication between inpatient and outpatient settings.

References

International Anesthesia Research Society (IARS)

Immediate feedback is superior to delayed feedback at reducing documentation errors by anesthesia clinicians: An error reduction and performance improvement strategy

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Introduction

Accurate documentation of controlled substance use is a priority for the Department of Anesthesiology and Pharmacy as well as a regulatory requirement. 4 Reconciliation between the anesthesia record and the pharmacy Controlled Substance Reconciliation (CSR) form is monitored to ensure compliance. Correlation of documentation errors is time consuming and diverts pharmacy resources from clinical tasks. Studies have shown individual feedback and education improves clinical performance; however, the efficacy of feedback has not been tested with regard to controlled substance documentation. 5, 6 We hypothesized that individualized feedback will reduce the number of documentation errors among clinicians. We tested two methods of providing this feedback: immediate (daily) and delayed (monthly).

Methods

Data on documentation errors and case volumes from September 2017, February 2018, and April 2018 were acquired from pharmacy and anesthesia records. Prior to October, the pharmacy provided the Anesthesia Quality and Patient Safety (QPS) Director with a monthly report detailing the number of documentation errors per practitioner. In October, a program of immediate daily feedback was initiated. The pharmacy reported documentation errors daily to the Anesthesia QPS Director, who contacted each clinician individually for correction. In November and December, only delayed feedback was provided, at the end of the month. Clinicians were sent an email with a de-identified graph comparing their performance against others in the department. In January and February, immediate daily feedback was reinstated via a new process whereby clinicians were notified by the pharmacy to correct any discrepancies. Due to the variation in methods of feedback, we identified two distinct periods: “immediate feedback” via the QPS Director or the pharmacy, and “delayed feedback” provided through monthly reports. Descriptive statistics on the number of errors by provider were calculated. In both groups, providers had at least one documentation error at any point in the study, paired Student’s t-tests were conducted to assess differences in mean number of errors between immediate and delayed feedback periods. This comparison was repeated for a subset of this population who had two or more errors in the delayed feedback period.

Results

In a sample of providers who had at least one error at any time, the mean number of errors by provider was 2.28 errors (95% CI: 1.78-2.78) during delayed feedback periods and 1.96 errors (95% CI: 1.28-2.65) during immediate feedback periods, p < 0.01 (Figure 1) Among clinicians with two or more errors in the delayed feedback periods, mean number of errors decreased from 3.94 (95% CI: 3.13-4.75) to 1.73 (95% CI: 1.26-2.19) in the immediate feedback period, p < 0.001 (Figure 2). Only after sustained immediate feedback did the number of clinicians with one or more errors decrease as shown in the table above.

Discussion

A limitation of this study is the interruption in the methods of feedback. In addition, not all clinicians had documentation errors in both time periods and thus were not provided with both methods of feedback. We assume in this analysis that the two time periods are distinct. Immediate feedback is more effective than delayed feedback in reducing documentation errors among clinicians. This effect is more pronounced with clinicians who have more frequent documentation errors. This reduction in mean errors justifies the resources necessary to provide immediate feedback education for anesthesia clinicians.

References:

International Neuromodulation Society (INS)

Discrepancies in International Neuromodulation Training & Education

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Introduction

Spinal Cord Stimulation (SCS) is a globally utilized treatment for chronic back and leg pain. There exists, however, discrepancies in the training requirements for the free and proliferation of SCS devices internationally. Knowledge of these discrepancies may help the neuromodulation community implement standard and best practices to facilitate improved outcomes for patients.

Methods

This is a cross-sectional observational study, using descriptive data from a survey sent out through the International Neuromodulation Society’s listserv to members practicing outside of the United States addressing various aspects of neuromodulation education.

Results

We received 60 responses from 18 different countries: Australia (AU, 7), United Kingdom (UK, 7), Italy (IT, 5), Canada (CA, 3), Germany (DE, 2), Sweden (SE, 2), Spain (ES, 2), Brazil (BR, 1), Mexico (MX, 1), Colombia (CO, 1), France (FR, 1), Poland (PL, 1), Slovenia (SI, 1), Switzerland (CH, 1), and Turkey (TR).

Conclusions

There is a wide variation in training requirements for neuromodulation internationally.

There also exists a lack agreement among respondents from the same country, indicating an absence of a national organization overseeing neuromodulation within these countries, or lack of awareness of such organization.

These results, including the fact that 22% believe standardization of SCS procedures is possible, present opportunities for organizations such as the INS to coordinate training at a national and global level.

Medical Education Subway Summit

Introducing Objective Standardized Examination of Communication and Professional Behaviors in an Anesthesiology Residency Program

June M. Chan, MB BS FANZCA, Albert C. Young, MD, Lori A. Rubin, MD, Eric D. Bramberger, MD, Kane O, Pryor, MD

The Communication and Professionalism Educators (CAPE) Group was established in 2011 to promote non-technical skills and behaviors that exemplify the effective and empathic anesthesiologist through:

1. Interactive workshops on managing professional encounters for residents with simulation tools.
2. Objective Structured Communication Examinations (OSCEs).
3. Encourage Self-Reflection of Professional Conduct and Behaviors.

Resident Survey Responses

98.4% found the experience useful.

100% found the experience challenging.

51.5% discovered hidden strengths (Day 1, 2).

81.8% discovered hidden weaknesses (Day 2).

Assessment vs Year of Training

References

New York Academy of Medicine (NYAM)

Goal-directed correction of DIC in severe antepartum hemorrhage using ROTEM

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Department of Anesthesiology, Weill Cornell Medicine, New York, NY

Introduction
Obstetric hemorrhage is a leading cause of maternal mortality and morbidity and often requires an anesthesiologist-directed resuscitation and correction of associated coagulopathy. Both the supraphysiologic activation of the coagulation cascade and the depletion of clotting agents by blood loss likely contribute to disseminated intravascular coagulopathy (DIC) in obstetric hemorrhage. Driven by literature supporting its use in trauma surgery resuscitations, point-of-care rotational thromboelastometry (ROTEM) has caught on in obstetrics, mostly in managing postpartum hemorrhage (PPH) and predicting which cases will progress to severe PPH.2,3 However, little evidence is available in the literature for its use in antepartum hemorrhage.

Case
29-year-old G4P1 at 20 weeks gestation presented with life-threatening hemorrhage requiring emergent cesarean hysterectomy and massive resuscitation guided by point-of-care ROTEM. On the day prior to surgery, the patient was admitted for observation due to a low in utero anatomy vaginal bleed. On hospital day 2, the patient went into hypovolemic shock after a second bleed of 2 liters and was taken emergently to the operating room for exploration and eventual cesarean hysterectomy with activation of massive transfusion protocol. Simultaneously, the patient lost an additional 7 liters of blood. Initial heme, INR, and PTT were 1:1:1, respectively. The first intraoperative ROTEM revealed prolonged clotting time (Fig 1a) requiring fresh frozen plasma. The second ROTEM demonstrated decreased alpha angle and maximum clot firmness (Fig 1b) requiring cryoprecipitate and platelets. A third ROTEM demonstrated normal clotting time and alpha angle and improved maximum clot firmness (Fig 1c). At the conclusion of the procedure, the patient had received PRBCs, FFP, gP2, Plts, Cryo, and 1 gram tranexamic acid. The patient was transferred to the MICU intubated, sedated, and off all vasopressors. She was extubated on postoperative day 1 and discharged home on postoperative day 5. The final pathology was placenta previa accreta.

Discussion
Our case study demonstrates goal-directed correction of coagulopathy in severe antepartum hemorrhage using ROTEM. We recommend that the use of point-of-care ROTEM be expanded to the treatment of antepartum DIC.

References
2. edu/medicinell/Manuscript-1.pdf
3. edu/medicinell/17891772
4. edu/medicinell/5/2018/10/17/2012

Successful Treatment of CRPS with Continuous Labor Epidural

Timothy M. Connolly, MD, Mohammed Piracha, MD
New York-Presbyterian Hospital/Weill Cornell Medicine

Introduction
Complex regional pain syndrome (CRPS) is a phenomenon characterized by persistent disproportionate pain following a trauma or lesion. It is most commonly seen in the 2nd-4th decades of life with up to 4 X female preponderance. We present a unique case of CRPS in a patient presenting for neuraxial anesthesia for labor and delivery.

Case
A 34-year-old full-term primigravida presented in labor. She had CRPS of her left foot following a trauma 15 years prior with significant deformity and dystrophic changes, requiring excisional and ambulatory bracing. She was noncompliant with anti-inflammatory agents, physical therapy, and gabapentin. However, she had not used this during the pregnancy. This patient was consented for placement of a continuous epidural catheter for control of labor pain. At 01/05/2018, the patient was placed in the LC Leotripede without complication, and a baselines hemoglobin of 9.0 mg/dL, hematocrit 29%, and platelet count of 213,000. At 1030h, the patient had an epidural on 10 cc of normal saline. She had mild pain control at her labor contractions and maximally decreased pain of her left leg. On exam, her lower extremities had edema with 5+ pitting edema. The left foot and ankle had swelling but no ulceration. This patient was an unassisted labor and delivery. On follow-up, the patient reported continued improvement of her CRPS symptoms and pain, ambulating without crutches even at 3 weeks postpartum.

Discussion
CRPS is a condition often seen with dystrophic sympathetic symptoms of the affected area. While the prodrome pathogenesis remains uncertain, there is a disruption of the CNS mechanisms with central sensitization and an increase in the excitability of CNS neurons. Currently, there are limited successful treatment modalities for CRPS. Mono, there is a non-surgical treatment that alleviates pain and improves mobility. Newer therapies have been shown to be a promising factor in the development for relief of CRPS, with surgical mechanisms. Vertebral: Those that work on a surgical level for pain management, obstructing intakes and anti-inflammatory drugs. A successful surgical technique in CRPS has been described.

References

Figure 11 Image of patient’s bilateral lower extremities demonstrating dystrophic sympathetic appearance of the left foot and ankle.

Figure 1. ROTEM in patient with DIC in severe antepartum hemorrhage: A) First ROTEM drawn post-induction. B) ROTEM after administration of fresh frozen plasma. C) Final ROTEM after cryoprecipitate and platelet administration with correction of coagulopathy.
Improving Paravertebral Block Workflow Efficiency

Chawla, Kashmira PGY3¹; Lee, Christina PGY3²; Nadav, Danielle PGY3³; Rubin, John PGY3⁴; Hitti, Nicole⁵; O'Hara, Emir⁶; Lee, Jason⁷; Riegelhaupt, Paul⁸; Tedore, Tiffany⁹

Department of Anesthesiology
New York Presbyterian Hospital – Weill Cornell Medicine

Introduction

Approximately 81% of patients scheduled for robotic cardiac surgery at New York Presbyterian - Weill Cornell Medical Center (NYP-WCMC) experienced a delay in paravertebral block (PVB) start time, subsequently affecting OR start time. We sought to understand and improve patient care and workflow in the pre-operative period.

Prior to the start of the project, we generated a flowsheet of the steps each party undertook during the process for data collection, as well as documenting the flow of information and various inefficiencies that were currently obvious in the process. We utilized six sigma principles to make stepwise improvements to the process.

Methods

A data tool was created to record the timing of all workflow steps, from patient arrival to OR start over the course of seven months. We performed a value stream analysis using the collected data, tracked activity processes, and conducted informal interdisciplinary team focus groups to further elucidate the potential causes of delay in OR start time.

Results

- A total of 22 patients were evaluated over a period of 7 months
- The block process is prolonged by gathering supplies and medications from stock room and Omnicell when block areas are not fully stocked
- A majority of delays were due to necessary nursing activities that took place from patient arrival to start of the PVB block
- Time required for these activities ranged from 0-68 minutes
- Time required for nursing admission was prolonged when nurses experienced multiple interruptions by surgical and anesthesia teams
- Once block time out occurred, the paravertebral block took place quickly and predictably

Conclusions

A multidisciplinary team approach, with input from all medical personnel involved in the conduct of peri-operative activities, is needed to create lasting and meaningful change to patient care and efficient workflow. Improvements for the future involve working with the Pharmacy to ensure Omnicell and block carts are stocked with adequate supplies. We will also be working with the nursing staff in the pre-operative holding area to optimize their workflow and minimize disruptions during the patient intake process.
Severe Hypothermia after Intrathecal Morphine and Reversal with Lorazepam

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Department of Anesthesiology, New York Presbyterian-Weill Cornell Medicine, New York, NY

Introduction:
Intrathecal narcotic is the analgesic of choice for post-operative pain control for neonates and infants due to its duration and spasticity efficacy. Several case reports have described severe hypothermia following intrathecal morphine administration in children and non-critical patient populations. We report a case of severe hypothermia following intrathecal morphine administration to a 6-year-old patient and its treatment with intravenous lorazepam.

Case Report:

- A 6-year-old female patient weighing 25 kg presented with a GSPN at 6:00 AM. NTU; age: 6 years.
- The patient was found unresponsive and cyanotic.
- The patient was intubated and transferred to the ICU for further management.
- Laboratory investigations revealed normal hemoglobin, hematocrit, and platelet counts.
- Sodium, potassium, and chloride levels were within the normal range.
- Blood glucose level was 70 mg/dL.
- Blood loss was estimated to be approximately 200 mL.
- Intravenous fluid resuscitation was initiated with 2 L of normal saline.
- Intravenous lorazepam 2 mg was administered over 5 minutes.
- The patient started responding to verbal commands and was able to follow simple commands.
- The patient's body temperature decreased to 35.5°C despite rewarming with a warm blanket and warm air blower.
- The patient was transferred to the ICU for further management.

Discussion:

- Hypothermia during surgery is a known phenomenon and can occur due to a 10-15°C decrease in temperature over the first 30 minutes despite active warming.
- The rewarming from surgical stress contributes to hypothermia by causing increased metabolism, resulting in heat loss to the operating room environment.
- The rewarming from surgical stress, increased metabolism, and decreased in temperature can usually increase and accompanied by shivering. Hypothermia related to IT morphine can severely impair the thermoregulatory response, possibly through activation of the hypothalamus, which has a paradoxical effect on hypothermia.
- Treatment of hypothermia has included restoration of core temperature to normal. Core causes increased temperature and reduces temperature in thermoregulatory mechanisms. In the hypothermic state, the patient's temperature increases andlorazepam without rewarming or warming the patient can reduce warm, mild, and severe hypothermia.
- Treatment of hypothermia has included restoration of core temperature to normal. Core causes increased temperature and reduces temperature in thermoregulatory mechanisms. In the hypothermic state, the patient's temperature increases andlorazepam without rewarming or warming the patient can reduce warm, mild, and severe hypothermia.

Opioid-free analgesia after motor vehicle accident in resource scarce India

Melvin La, M.D., James Osorio, M.D.
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Introduction:

- Nearly 25 to 30 million people annually are injured in road traffic accidents worldwide, and the management of these patients represents a significant burden on developing healthcare systems. Opioids are commonly used to provide analgesia to these patients but are associated with multiple side effects, including gastrointestinal dysmotility, urinary retention, and respiratory depression. Adequate regulations intended to curb the sale of opioids in these patients have decreased the availability of opioids in hospitals and pharmacies in India. For example, in certain cases, physicians in India are required to maintain up to six separate licenses in order to legally prescribe morphine.
- Here we present the use of opioid-free analgesia in a patient injured in a motor vehicle accident in India.

Case:

- A 40-year-old man with no significant past medical history was brought to a regional hospital in Amritsar, a city in the northern province of Punjab, India, after being injured in a motor vehicle accident. He has sustained a right clavicular humerus fracture and multiple right rib fractures. While awaiting definitive management of his orthopaedic injuries, the patient reported significant pain in his right arm and right chest wall, which he rated on a numeric scale 10 out of 10. The anesthesia team formulated a pain management plan with the goal of utilizing regional anesthesia techniques and minimal opioids given the difficulty in obtaining morphine or fentanyl.

Discussion:

- This case highlights the importance of a multi-modal approach to pain management, which has been evidenced for avoidance of opioid induced side effects. In the United States, nearly 80% of patients report inadequate postoperative pain relief, which shows that adequate postoperative analgesia is not cost related to the developing world. While the limitation on opioid use in this case was a result of government restriction in India, the use of opioids in the hospital setting has increased. Successful pain control has improved the quality of life in the United States, given the opioid abuse epidemic and the shortage of injectable opioids commonly used in anesthesia and surgery. These recent issues have caused us to rethink our strategies when it comes to analgesia and the liberal use of opioids in the United States. Effective pain management can employ a multi-modal strategy as a way to decrease opioid consumption and improve surgical outcomes by limiting opioid associated side effects.

References:


Figure 1: Placement of the local anesthetic.
Figure 2: Intravenous lorazepam, a non-opioid analgesic.

Figure 3: Placement of an intravenous catheter for intravenous fluid administration.
Perioperative Torsades de Pointes in a Radical Neck Resection

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Department of Anesthesiology, Weill Cornell Medicine, New York, NY

Recognition and Treating Torsades de Pointes

- In the perioperative period, TdP may present as a variant of TdP, characterized by multiple, fragmented, and prolonged T waves. However, it is less common to see a complete TdP pattern in this period, especially during anesthesia.

- Patients with TdP may have a history of cardiac disease, including hypertension, coronary artery disease, or recent cardiac surgery.

- Patients on medications that may prolong QT, such as antiarrhythmics, calcium channel blockers, and some anti-epileptic drugs, should be closely monitored.

- Electrocardiogram monitoring is essential, and immediate intervention is required for any prolongation of QT or T wave changes.

- Inotropic agents and other medications that may prolong QT should be avoided or used with caution.

- In cases of severe TdP, electrical cardioversion may be necessary.

Discussion

The incidence of TdP in the perioperative setting is unknown, but it is presumed to be rare. However, the risk factors for TdP are similar to those in the general population, including diabetes, hypertension, and recent cardiac surgery.

The management of TdP in the perioperative setting includes early recognition, avoidance of QT-prolonging medications, and prompt treatment with anti-arrhythmic drugs or electrical cardioversion if necessary.

Vanishing Twin Syndrome—An Uncommon Etiology of Third Trimester Hemorrhage

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Department of Anesthesiology, Weill Cornell Medicine, New York-Presbyterian, NY

Introduction

Vanishing twin syndrome is a rare condition that occurs in the first trimester of pregnancy. It is characterized by the loss of one of the fetuses, resulting in a single surviving twin. The cause of this condition is not well understood, but it is believed to be associated with genetic factors and placental abnormalities.

The incidence of vanishing twin syndrome is estimated to be between 1% and 2% of all pregnancies. However, the clinical significance of this condition is not well established, and it is often diagnosed postnatally.

Case Report

A 36-year-old G4P1 had been diagnosed with pre-eclampsia at 32 weeks of gestation. She was admitted to the hospital due to severe headache and visual disturbances. On examination, she was found to have a preeclamptic toxemia score of 10, with a systolic blood pressure of 160 mmHg and a diastolic blood pressure of 100 mmHg.

The patient was started on antihypertensive therapy and was transferred to the intensive care unit for close monitoring. On further investigation, the patient was found to have a single surviving twin, with the other twin having vanished.

The maternal blood transfusion was performed successfully, and the patient was discharged on postoperative day 5.

Conclusion

Vanishing twin syndrome is a rare but important condition that should be recognized in the prenatal period. Early identification and management can improve the outcomes for both the mother and the surviving twin.

References


A Case of Opioid-Free Anesthesia for Urological Surgery in Punjab, India

New York Academy of Medicine: Case Report Presentation
Grace Shih, MD and James Osorio MD | 22 May 2018

Background
- As part of our global health residency curriculum, small groups of residents with a supervising attending visit established hospitals in Punjab, India to learn firsthand how the local culture and environment plays a direct role in how a patient receives medical care. A prime example of this is how the opioid crisis has affected the approach to acute pain management for surgical procedures.

- Over 200 million persons worldwide are affected by acute post-operative pain after surgery.1 Opioids frequently are the primary pharmacological means to treat moderate to severe internally intraoperative and post-operative pain.1 2 However, there has been some emerging data for increasing chronic opioid use after surgery for both the opioid-naïve patients, as well as those who were on opioids preoperatively.2 3 Thus, a great concern is how can perioperative pain be adequately controlled to implement the optimal usage of opioids in order to reduce the amount leftover unused opioids that had been prescribed for postoperative pain, since that may become a source for misuse and diversion.4

- Since the opioid epidemic is a global problem—opioids accounted for 70% of the negative effects of drug abuse affecting 29.5 million people in 2015 per the 2017 World Drug Report.—countries around the world have subsequently developed use different strategies to address this problem. For example, India has strictly limited the production, possession, and use of narcotics through their National Policy on Narcotic Drugs and Psychotropic Substances5 which resulted in creation of different strategies to treat operative and postoperative pain. Here we describe a case where non-narcotic pain management was used for transurethral resection of bladder cancer in Sri Guru Ram Das Hospital, Amritsar, Punjab, India.

Method
- Anesthetic Plan: bupivacaine spinal anesthesia placed awake, plus bilateral obturator nerve blocks placed under nerve stimulation.

Results
- Throughout the procedure and during postoperative period the patient remained hemodynamically stable. Postoperative pain was well controlled as evident by pain scores in range 1-4 on scale of 1-10. There were no complications spinal or nerve blocks.

Discussion
- While this case used solely regional anesthesia to eliminate narcotic use, a multi-model strategy involving non-narcotic medications such as peripheral nerve blocks (single shot with an adjuvant and/or infusion catheter), non-steroidal analgesics and medications that address neuropathic pain pathways can be used to treat operative and post-operative pain successfully. It would be interesting to see if sticking to an opioid-free plan for the entirety of the perioperative period does in the later post-operative period, if there is more or less persistent post-surgical pain and if so, how that is managed.

- Recent data suggests that new persistent opioid use after surgery may be related more to behavioral and pain disorders than to the type of surgical procedure.1 3 Therefore, a closer look at these social factors like anxiety and depression and a better understanding of the development of persistent post-surgical pain (such as neuropathic pain after thoracotomy) may help with the development of multimodal options in treatment of the source of this pain.1

- In conclusion, finding ways to reduce or eliminate perioperative opioids is an approach that a promise at peri-operatively addressing the opioid epidemic both globally and nationally.

References:
Airway Management of a Patient with Severe Ankylosing Cervical Spondylitis via the King Vision™ Video Laryngoscope
Daniel Thompson, M.D.¹, Jon D. Samuels, M.D.¹

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Introduction: The optimal method by which to secure the airway of a patient with a myelopathic spondylitis (MS) remains unchangeable and inoperable. Aiming to introduce a novel technique, we present a case of a patient with severe ankylosing cervical spondylitis (ACS) who was managed with the King Vision™ video laryngoscope. The patient’s airway was secured using a novel technique of direct laryngoscopy with maximal reduction of craniocaudal motion.

Methods: We report the case of a 75-year-old male with a history of severe ACS who presented with difficulty with deglutition and dyspnea. The patient had undergone multiple surgeries for cervical decompression and had residual myelopathy. On examination, the patient was found to have significant craniocaudal motion of the cervical spine. A video laryngoscope was used to facilitate intubation, with the goal of minimizing motion and maximizing stability.

Results: The patient was successfully intubated using the King Vision™ video laryngoscope. The maneuver allowed for maximal reduction of craniocaudal motion, enabling successful intubation and stabilization of the airway.

Conclusions: The King Vision™ video laryngoscope offers a novel technique for airway management in patients with severe ACS, providing a stable and secure airway despite significant craniocaudal motion.

References:

An Acute Dystonic Reaction to Propofol
Hannah Xu, MD and Jon D. Samuels, MD
New York Presbyterian–Weill Cornell Medicine

Introduction: Dystonias reactions to propofol are rare (4 cases reported in PubMed as of Aug 2021). We describe a case of a transient dystonic reaction to propofol.

Case: A 75-year-old patient with a history of Parkinson’s disease was scheduled for outpatient surgery. During the procedure, the patient developed a dystonic reaction, characterized by involuntary movements affecting the face, limbs, and trunk. The reaction was managed with benzodiazepines, and the patient was discharged after resolution of symptoms.

Discussion: Dystonic reactions to propofol are rare and can be challenging to manage. Timely recognition and appropriate treatment are crucial to ensure patient safety.

References:
Unilateral Pulmonary Edema Due to Acute Severe Mitral Regurgitation

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Abstract
A 56-year-old with known moderate mitral regurgitation (MR) in the past presented with an enlarged neck veins, dyspnea on exertion, and chest pain. On physical examination, the patient had a blood pressure of 85/50 mmHg and a heart rate of 120 bpm. A grade IV/VI holosystolic murmur was audible along the left sternal edge. Chest X-ray showed prominent cardiomegaly with bilateral pulmonary edema. Transthoracic echocardiography (TTE) showed a dilated left atrium (5.7 cm), a dilated left ventricle (6.0 cm), a severely regurgitant mitral valve with a regurgitant fraction of 0.7, and a severely reduced ejection fraction (EF) of 27%. The patient was diagnosed with acute severe mitral regurgitation (ASM) and was immediately referred to the operating room for emergent mitral valve replacement.

Pulmonary Edema in MR
- Pulmonary edema in MR is a clinical diagnosis that can be difficult to differentiate from left-sided heart failure.
- MR leads to left atrial hypertension, which results in increased pulmonary venous pressure and left atrial enlargement.
- The clinical presentation of pulmonary edema in MR can be non-specific and can include dyspnea on exertion, orthopnea, and paroxysmal nocturnal dyspnea.

Precedence for Right Pulmonary Vein
- The initial valve repair is performed on the right side of the heart, which is less complex and less likely to cause significant hemodynamic compromise.
- Currarino et al. reported that 55% of patients with MR have severe or critical regurgitation on the right side.

Left sided pulmonary edema in acute MR
- While rare, there are cases of left-sided pulmonary edema due to severe MR.
- A recent case report described a patient with a large left atrium and a severely regurgitant mitral valve who developed left-sided pulmonary edema after aortic valve replacement.

Case Overview
- The patient was a 56-year-old male with a history of known mitral regurgitation. He presented with dyspnea on exertion, chest pain, and low blood pressure.
- On examination, he had an enlarged neck veins, a grade IV/VI holosystolic murmur, and bilateral pulmonary edema.
- TTE revealed a dilated left atrium, a dilated left ventricle, a severely regurgitant mitral valve, and a reduced ejection fraction.
- The patient was diagnosed with acute severe mitral regurgitation and was referred to the operating room for immediate intervention.

Discussion
- The management of MR is challenging, and decisions regarding surgical intervention are based on a combination of clinical factors, including the severity of regurgitation and the presence of comorbidities.
- The choice of surgical technique and strategy depends on the size and severity of the regurgitation, the patient’s comorbidities, and the surgeon’s expertise.
- Percutaneous mitral valve repair is an alternative to surgical mitral valve replacement in selected patients with severe MR.

References

Novel Perioperative Antiplalet Therapy Management Communication Tool

Kashmira Chawla, MD, MSc, Zahra Malik, MD, Christina Dinapoli, DNP, FNP-BC, Natalia Ivasce, MD
NYSCARF | December 9, 2017

Introduction
The evolving role of anesthesiologists has expanded to include improvement of patient safety practices and the perioperative experience. One area that requires strengthening is communication regarding continuation of anti-platelet therapy for patients with coronary stents in the setting of non-cardiac surgery.

There is mounting evidence that patients with coronary stents have a significant perioperative risk of in-stent thrombosis which may become fatal (Fermani-Gonzalez et al., 2010). The 2016 AHA/ASA guidelines reflect the recommendation that discontinuing dual anti-platelet therapy prior to surgery should be minimized, and when possible, aspirin should be continued. While the potential of bleeding complications is increased on anti-platelet therapy, it must be weighed against the risk of a major adverse cardiac event.

These patients are often referred to the cardiologist for perioperative risk stratification prior to surgery. However, this physician may presume that the procedure requires the patient to cease anti-platelet therapy completely. This results in unnecessary discontinuation of anti-platelet medications and ultimately, inappropriate perioperative care.

Methods
A novel communication tool regarding the management of perioperative anti-platelet therapy in patients with coronary artery stents has developed. It has been implemented for patients with coronary artery stents who present for elective, non-cardiac procedures to New York Presbyterian Hospitals starting in 2015. The three components of this form include surgical assessment of bleeding risk, details of the type and date of internal stent placement, and cardiologist recommendation regarding continuation of anti-platelet therapy. It also includes patient characteristics, details of the surgeon, and the expected date of the procedure. The surgeon completes the form with the assessment of bleeding risk, and then the cardiologist is able to complete the form based on the surgeon recommendations. The completed form is then scanned into the EHR and made visible to all providers.

Feedback from surgical providers
- "Thanks for the clarification and excellent initiative that will help improved communication between providers. We will be sure to follow the procedure going forward.
- "Thank you for bringing these guidelines to our attention. Will keep in mind moving forward.
- "I think there should be one more option stating that we can do these procedures on this stent in a similar way if deemed necessary by cardiologist. This probably is important and therefore incorporates the input of the cardiologist as the current choices are a bit too black and white.

Conclusion
- A novel communication tool that facilitates accurate and timely passage of information regarding the risk of perioperative anti-platelet therapy.
- Improves communication between multiple perioperative physicians to provide consistent recommendations to patients with coronary stents.
- Further the ASA’s Perioperative Surgical Home model (ASA 2014)

Next Steps
- Obtain further feedback from surgeons and cardiologists regarding possible improvements to the communication tool.
- The pre and post-intervention periods should be rigorously studied. Assessments may include: status of perioperative antiplatelet therapy, correlation between surgical and cardiologist antiplatelet therapy recommendations, documentation of recommendations for antiplatelet therapy, and adverse cardiac outcomes.
New York State Pain Society (NYSPS)

Medically Challenging Case: The utility of interventional pain procedures in a patient with Hermansky-Pudlak syndrome, a disorder causing platelet dysfunction, who is also taking Coumadin

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INTRODUCTION
Thrombocytopenia is a feared complication of neuraxial anesthesia in patients with underlying esophageal disease or those who are taking anticoagulant therapy. We present a case discussing the utility of interventional pain procedures in a chronic pain patient with Hermansky-Pudlak syndrome, a rare disorder causing platelet dysfunction, who is also taking Coumadin for history of DVT/PE.

Hermansky-Pudlak Syndrome
• Rare, autosomal recessive disorder characterized by exocytosis abnormity, a bleeding diathesis, and other systemic symptoms, such as granulomatous colitis or pulmonary fibrosis
• Due to mutations in a gene encoding four proteins involved in lysosome and lysosome-related organelles
• These patients have an absence of platelet dense bodies, which play a role in secondary platelet aggregation
• Increased bleeding time
• Normal PT, PTT, and platelet count
• May exhibit subtle bruising, epistaxis, gingival bleeding, and prolonged bleeding during menstruation, after tooth extraction or other surgeries

CASE REPORT
40 yo male with past medical history of Hermansky-Pudlak syndrome. DVT/PE currently on coumadin, hypertension and diabetes. Who presents with moderate, progressive bilateral low back pain for four years.

Pain Description:
• Nociceptive
• Numbness and tingling in thighs
• Subduing weakness that limits walking after two blocks
• 7/10 pain at rest increasing to 10/10 with activity including bending, twisting and standing

Physical Exam:
• Bilateral facet tenderness
• Worsening pain with facet loading

MRI (6 months prior):
• L5/S1 and L4/5 disc herniations deforming the thecal sac, as well as significant bilateral facet hypertrophic changes throughout the lumbar spine

A previous pain management physician had attempted multiple epidural steroid injections without improvement in symptoms. Given this patient’s comorbidities of Hermansky Pudlak syndrome and DVT/PE on coumadin should he undergo further interventional pain procedures for low back pain secondary to degenerative spine disease and facet arthropathy?

DISCUSSION
Despite the concern of bleeding post epidural herniation in patients with Hermansky-Pudlak syndrome, the patient in this case had previously undergone a series of epidural steroid injections without complication.

Interestingly, his case was further complicated by DVT/PE requiring long-term Coumadin therapy. To our knowledge, DVT/PE has only been documented once in literature in patients with Hermansky-Pudlak syndrome. Given this patient’s propensity to develop thrombosis despite abnormal platelet function, it appeared high risk to take him off of his anticoagulation. Additionally, he had a poor response to epidurals in the past. Therefore, a plan was made to forsake further interventional pain procedures and instead to focus on optimizing the patient’s medication regimen.

REFERENCES
Postgraduate Assembly in Anesthesiology (PGA)

Hospital surgical volume does not affect readmissions and resource utilization after isolated CABG when examining socioeconomic disparities: a multistate analysis, 2007-2011

Noelle S. Arroyo, BA; Robert S. White, MD; Taoyuan Feng, MD; Anna S. Nachamie, BS; Licia K. Gaber-Baylis, BA; Lisa Q. Rong, MD; Zachary A. Turnbull, MD

Background

- Patients treated at hospitals with low coronary artery bypass grafting (CABG) surgical volume were shown to have increased all-cause in-hospital mortality.
- However, those from low socioeconomic status (SES) areas were shown to have higher mortality at high CABG volume hospitals compared to those from higher SES areas.
- Higher 30-day post-CABG readmission rates have been associated with African American race & Medicare or Medicaid.
- There is a gap in the literature about racial & payer disparities in CABG non-mortality outcomes with respect to hospital volume.
- We examined the association between risk of 30-day readmission rates, length of stay (LOS), & hospital charges with race & payer status across hospital volumes.

Methods

- "Race" variable includes ethnicity.
- Isolated CABG patients > 18 years included.
- Bivariate analysis performed based on race & primary insurance payer-type (data not shown).
- Multivariate logistic regression analyses for 30-day readmission, LOS, & hospital charges were re-run with statistical stratification by hospital surgical volume quartiles.

Results

- 194,912 patients included in analysis.
- 30-day readmission: higher risk associated with Medicaid payers, blacks, & Hispanics across all volumes.
- LOS: higher risk for increased LOS associated with Medicaid payers, blacks, & Hispanics (except Quartile 3).
- Hospital charges: higher risk for increased hospital charges associated with Medicaid payers (except Quartile 1), blacks, & Hispanics.

Conclusion

- CABG patients with Medicaid & those who identify as black or Hispanic are more likely to have a higher risk of 30-day readmissions, increased LOS, & higher hospital charges.
- These payer-type & racial disparities are largely consistent across hospital surgical volumes.
- This study contributes to identifying healthcare disparities in CABG surgical outcomes other than mortality.
- It is important to address the reasons for these disparities to improve patient outcomes & reduce the associated higher healthcare cost.

References

Anesthetic Management of Duodenal Atresia and Aorto-Enteric Fistula Secondary to Vascular Prosthesis Infection

PostGraduate Assembly in Anesthesiology
Andrew Fisher, M.D., Jon D. Samuels, M.D. | December 10, 2017

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Introduction
- Aorto-enteric (AEF) fistulas are either primary (PAEF), only 250 cases described, or secondary (SAEF), occurring as a late complication of aortic reconstructive surgery, or rarely, as a complication of an untreated aortic aneurysm.
- Vascular prosthesis infection rate: global <8% intra-abdominal 0.4-0.7%, ax-fem 6-8%. Early infections (~4 months post implantation) are distinguished from more common late infections (70 to 80% of cases).
- Early infection <4 months: highly virulent: S. Aureus; Pseudomonas, Proteus. Late infection: Biofilm-producing S. Epidermidis, Enteroabacter.
- Ddx: vascular prosthesis infection vs. enteroprosthetic fistula often difficult.

Case Report
- 37M with PMH of HTN, middle aortic syndrome (MAS) s/p bypass graft from aortic arch to bifurcation (1986). Aorticenteric Fistula s/p endovascular repair
- This admission: bilateral axillary-femoral bypass, aortic stent-graft explant and primary repair of posterior duodenum defect x 2 (D3), pyloric exclusion, gastrojejunostomy, feeding jejunostomy, omental flap.
- Presented with temp 38.3 C, intermittent rigors and infected aortic graft for closure of aortic-enteric fistula and repair of duodenal atresia, excision of infected aortic graft, gastrojejunostomy, axillary-femoral-femoral bypass.
- Left sided Ax-fem bypass followed by laparotomy and resection of abdominal aortic graft. Surgeons noted multiple duodenal injuries secondary to adherence to the graft, requiring pyloric exclusion, gastrojejunostomy and placement of feeding jejunostomy. Distal aortic pulses found to be dampened and showing evidence of distal malperfusion without radiographic evidence of graft stenosis, determined to be due to clamp effect. Right side axillary-femoral bypass placed with resolution of proximal-distal pressure gradients and markers of distal malperfusion.
- Post op course: difficult pain control, delayed return of bowel function, marginal anastomotic ulcer, TPN nutrition.

Diagnostic and Therapeutic Considerations of AEF
- Diagnosis: GI hemorrhage, abdominal pain, and a pulsatile abdominal mass.
- Time interval between initial herald bleeding and massive GI hemorrhage: 1h - 2d.
- Dx: Abdominal CT, Spiral CT. Technetium-labelled red blood cells. Peri-aortic air bubbles (80%), bowel wall edema around the aorta, loss of a fatty plane between the aorta and GI tract, and visualization of the fistula.
- Bleeding control at the time of initial diagnosis. Prevention of late complications associated with bleeding and infection.
- Early diagnosis prior to major bleeding, prompt bleeding control by control of the proximal aorta, closure of the enteric fistula without spilling of the bowel contents, arterial reconstruction, prevention of postoperative complications (graft infection, limb loss).
- Surgical procedures: aortic resection followed by an axillo-bifemoral bypass (AxBFB), in situ aortic reconstruction using a prosthetic graft; antibiotic-impregnated prosthetic graft, autogenous femoral vein graft, or cryopreserved aortic allograft.
- Timing and sequence unimportant.
- 30-d mortality 26%, Survival rates 12-m 60%, 24-m 50%. Re-intervention rate 18%.

Discussion
- Anesthetic considerations in this case included proper and adequate access, point of care testing utilization, appropriate transfusion goals, and presence of both SAEF and a vascular prosthesis infection.

Close coordination with surgeons regarding implications of intraoperative surgical reassessments guide proper arterial and central access. Arterial access should be on the anticipated non-bypass upper extremity (allowing surgical access) and should be as distal as possible (to preserve native arterial anatomy if bilateral bypass grafts are necessary). Additionally, central access should be place in the internal jugular vein, as both subclavian and femoral sites are within the sterile field.
- Point of care testing was effectively utilized throughout this case. bedside activated clotting times were used to assure adequate heparinization throughout bypass implantation. Epoprostanol analysis system was utilized for goal directed red blood cell transfusions. Transfusing with the anticipation of large volume blood loss preserved hemodynamic stability throughout the case. ROTEM was utilized to assure adequate coagulation in light of the 1.5 L EBL and 6L crystalloid resuscitation in conjuction with 6 units of red blood cells and one unit of platelets.

With regard to the patient’s SAEF/infection graft, we anticipated of septic state on manipulation of infected graft. Shivering of bacteria, found to be infected with veillonella and klebsiella pneumonieae, resulted in significant vasoplegic and increased hemodynamic support requirements.

Conclusions
- Our case shows that with meticulous anesthetic care and close communication with the surgeon, it is possible to have a successful outcome in these cases.
Introduction
Lung isolation is a crucial aspect of many thoracic surgery procedures. Typically, this can be accomplished with either a double lumen endotracheal tube or a single lumen endotracheal tube with a bronchial blocker. However, this may prove to be difficult in a patient with a known difficult airway. Extensive planning in consultation with the surgical service must take place with consideration for surgical needs in order to optimize operating conditions as well as patient safety. We present a case of a patient with a known difficult airway for a right-sided pneumonectomy where lung isolation was critical due to scarring from tuberculosis destroyed lung with new fungal cavity disease.

Discussion
This proved to be a challenging and educational case requiring somewhat unconventional anesthetic care. During the preoperative evaluation of patients with known difficult airways for lung isolation surgery, the first step in planning is to determine how to secure the airway. Typically, this would be accomplished with a single-lumen endotracheal tube while the patient is awake. In our present case, we had a patient who already had a secured airway where a decision had to be made on how to achieve lung isolation. The concern with using a bronchial blocker was due to these being high maintenance devices with the possibility for frequent dislodgement and need for repositioning, specifically in a right-sided procedure. In a patient at risk for massive blood loss with obscuration of the surgical field, we opted for the method which would provide the most optimal operating conditions with full lung collapse. Adequate thought also had to be given regarding post-operative pain management as it is crucial for recovery. Thoracic epidural analgesia has long been considered the gold standard for thoracic surgical pain relief as it provides optimal dynamic pain relief and has been shown to be beneficial in preventing postoperative pulmonary complications and facilitating rehabilitation. In consultation with the surgeon and the patient’s wife, the benefit of having a thoracic epidural catheter was believed to outweigh the risks which is why we opted for placement.

The Patient
A 48 year-old male with past medical history significant for nasopharyngeal carcinoma status post radiation treatment and two episodes of mycobacterium tuberculosis infection status post antibiotic management presented with a two day history of hemoptysis. Following admission from the emergency department, the patient’s hospital course was complicated by respiratory failure requiring intubation which was difficult requiring the use of the fiberoptic bronchoscope following multiple failed attempts with the McGrath video laryngoscope. Follow-up computed tomography angiography of the chest showed a large cavity lesion in his right upper lobe suspicious for necrotic secondary to prior mycobacterium tuberculosis infections versus chronic necrotizing pulmonary aspergillosis. The thoracic surgery service was then consulted and decision was made for the patient to have a right pneumonectomy following a ventilation/perfusion scan showing little to minimal function of the right lung.

Prior Anesthetic History
- Mallampati class 4 airway and mouth opening of only one finger breadth.
- Paralysis during these anesthetics had minimal to no effect on the patient’s limited neck extension and minimal mouth opening.
- During his most recent surgery, the covering anesthesiologist was unable to get a McGrath size 3 blade into the patient’s mouth necessitating the emergent use of the fiberoptic bronchoscope. This anesthetic was further complicated by rupture of the balloon cuff from the patient’s teeth due to his small oral opening requiring emergent endobronchial tube exchange using a cook catheter

The Anesthetic Plan and Considerations
- Advance the 7.0 endotracheal tube in the left mainstem bronchus under direct visualization using a flexible fiberoptic bronchoscope instead of exchanging the endotracheal tube out for a double lumen tube given the patient’s known difficult airway
- A bronchial blocker was considered, however, given that this was a right-sided pneumonectomy, positioning of the blocker would have proved more difficult and likely not provided optimal operating conditions.
- Place right subclavian central venous catheter for rapid fluid resuscitation given the possibility of large blood loss

Pain Management Challenges
- Surgery team requested a thoracic epidural catheter placement to aid in weaning from ventilator dependence
- Need to remain in the lateral decubitus position → more difficult placement and increase risk of intracranial placement
- Unable to communicate with the anesthesia provider → increasing the risk of nerve injury
- Our Method:
  - Right-sided paramedian approach and entered the T6-7 interspace with a 17 gauge Tuohy needle
  - Loss of resistance to air was achieved at 0.5 cm and no CSF or blood was observed
  - The epidural catheter was passed easily and no CSF or blood was observed on aspiration of the catheter
  - A test dose was not given in the operating room due to blood pressure lability

Outcome
- Epidural tested in the ICU prior to use
- Recovered well with excellent pain control without any complications
- Post-operative day 6, the epidural catheter was removed without issue and patient successfully weaned off the ventilator

References
Choroidal Infarction Following Ophthalmic Artery Chemotherapy

Gabrielle Musci, MD | NYSSA-PGA 9 December 2017
Kelley J. Bohm MD,1 Y. Pierre Gobin MD,1 Jasmine H. Francis MD,1 Gabrielle Musci MD,2 Anahita Dabo-Trubelja MD,4 Paul H Dalecki MD,4 Brian P Marr MD,4 David H Abramson MD4
1 Ophthalmic Oncology Service, Memorial Sloan Kettering Cancer Center, New York, NY
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Background
Methylenetetrahydrofolate reductase (MTHFR) genetic mutations and intraoperative inhaled nitrous oxide (N2O) independently increase blood levels of homocysteine, a compound associated with thrombosis.

Patients with MTHFR mutations who receive N2O may have a heightened thrombotic risk.

Methods
Single-center retrospective review of patients with advanced retinoblastoma (RB) and at least one mutated copy of MTHFR gene who developed choroidal infarcts after receiving inhaled N2O during induction of anesthesia for ophthalmic artery chemotherapy (OAC).

Case Series
- Patient 1: 4yoM with bilateral RB, homozygous for C677T polymorphism. Six uneventful doses of OAC. First received N2O during seventh OAC treatment, followed by new choroidal ischemia in R eye.
- Patient 2: 13moF with bilateral RB, heterozygous for A1298C polymorphism. Two uneventful doses of OAC. First received N2O during third cycle of OAC, followed by new infarction.
- Patient 3: 2yoM with unilateral RB, heterozygous for C677T and A1298C polymorphisms. One uneventful dose of OAC. First received nitrous oxide at second dose, followed by choroidal infarction.
- Patient 4: 4yoF with unilateral RB, heterozygous for C677T polymorphism. Nine uneventful OAC treatments. First received N2O during tenth OAC treatment, followed by R sided choroidal ischemia.

Each patient had previously received at least one of the three previous anesthesias for OAC administration; all without use of N2O. Infarction occurred following first exposure to N2O in each patient.

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>MTHFR mutation</th>
<th>Max ET N2O (%)</th>
<th>N2O exposure (min)</th>
<th>OAC Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Homozygous C677T</td>
<td>60.2</td>
<td>24</td>
<td>Carboplatin, topotecan, melphalan</td>
</tr>
<tr>
<td>2</td>
<td>Heterozygous A1298C</td>
<td>65.6</td>
<td>47</td>
<td>Carboplatin</td>
</tr>
<tr>
<td>3</td>
<td>Heterozygous C677T/A1298C</td>
<td>31.9</td>
<td>58</td>
<td>Carboplatin, melphalan</td>
</tr>
<tr>
<td>4</td>
<td>Heterozygous C677T</td>
<td>54.4</td>
<td>17</td>
<td>Carboplatin, topotecan, melphalan</td>
</tr>
</tbody>
</table>

Acknowledgement: This research was funded in part through the NIH/NCI Cancer Center Support Grant P30 CA008748 and the Fund for Ophthalmic Knowledge, Inc.

Discussion
- MTHFR mutations: increase in homocysteine → endothelial dysh → thromboembolism
- N2O inhibits methionine synthase → increase in homocysteine → increased clotting propensity

Potential synergistic effect of at least one MTHFR allele and N2O on blood levels of homocysteine.

Conclusions
Choroidal infarction in eyes treated with OAC developed in children who were both deficient in at least one working allele of the MTHFR gene (heterozygous or homozygous) and received N2O during OAC.

Figure 1: Homocysteine biochemical pathway and the effect of N2O.

Figure 2: RetCam fundus photographs and ocular coherence tomography (OCT) from patients 2 and 3.

References:
Double Disparity for Low Socioeconomic Status Patients in Postoperative Morbidity Following Total Hip Arthroplasty
Matthew D. Perlstein (MD), Kathleen J. Sullivan (MD), Robert S. White (MD), Noelle S. Arroyo (BA), Dahniel L. Sastow (BA), Licia K. Gaber-Baylis (BA), Jeffrey B. Stambough (MD), Mahendranauth Samaru (MD), Zachary A. Turnbull (MD)

Background
- Prior studies reveal a strong relationship between case volume and surgical outcomes across multiple disciplines, including cardiothoracic, gastrointestinal, orthopedic, and vascular surgery (1).
- It has also been shown that low socioeconomic status (SES), as measured by uninsured or Medicaid primary insurance status, racial minorities and low-income groups are more likely to obtain care at low volume hospitals (3).
- The present study aims to examine the association between race, income, primary payer status and hospital surgical volume and evaluate disparities in hospital readmission rates following total hip arthroplasty (THA).

Methods
- We conducted a retrospective analysis using hospitalization and discharge records of patients ≥18 years of age from the State Inpatient Databases (SID) of New York, Florida, and California, Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality.
- Records from the SID were retrospectively identified from January 2007 to December 2011 for patients who underwent THA. Bivariant and multivariate logistic regression analyses were run to evaluate the unadjusted rate and odds ratios for readmission.
- Variables of interest included insurance payer, race, and median income by geographic location as well as hospital surgical volume.

References

Results
- 274,851 patients met inclusion criteria in our analysis. Black, Native American, and Hispanic patients were more likely to be readmitted after both 30 and 90 days when compared to White patients following THA.
- Patients living in the highest geographical income quartile were least likely to be readmitted, and those in the poorest income quartile were at highest risk. Medicare and Medicaid patients were more likely to be readmitted as compared to patients with private insurance.
- Patients treated at high volume centers experienced lower risk for readmission when compared to patients treated at low volume centers. Risk adjusted outcomes for age also showed the greatest risk for 30 and 90 day readmission in low volume centers, and analysis of elective THA revealed a lower readmission risk for higher volume centers as well.

30 and 90 Day Readmissions After THA

<table>
<thead>
<tr>
<th></th>
<th>Black (vs White population)</th>
<th>Native American (vs White population)</th>
<th>First income quartile (vs fourth income quartile)</th>
<th>Medicaid (vs privately insured)</th>
<th>Medicare (vs privately insured)</th>
<th>High Volume Center (vs low volume center)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Days (OR w/ 95% CI)</td>
<td>1.20 (1.11-1.29)</td>
<td>1.54 (1.07-2.21)</td>
<td>0.90 (0.85-0.95)</td>
<td>1.18 (1.14-1.23)</td>
<td>1.22 (1.17-1.29)</td>
<td>0.76 (0.72-0.80)</td>
</tr>
<tr>
<td>90 Days (OR w/ 95% CI)</td>
<td>1.09 (1.02-1.14)</td>
<td>1.16 (0.81-1.61)</td>
<td>0.91 (0.87-0.95)</td>
<td>1.22 (1.14-1.30)</td>
<td>1.26 (1.16-1.35)</td>
<td>0.82 (0.78-0.86)</td>
</tr>
</tbody>
</table>

* ORs: Adjusted for age

Conclusions
- Our results demonstrate a double disparity in THA in these populous states. Patients with lower SES have higher rates of postoperative morbidity after THA.
- Furthermore, such patients are more likely to be treated at a low volume surgical center, which is independently associated with worse outcomes (3).
- Given the increasing cost burden of healthcare delivery in the US, it is therefore important to consider SES (as measured by payer status, race, and income) in preoperative risk stratification models. Future studies may help to elucidate the causative factors that contribute to such disparities.
Hyperkalemia Management in the Oncology Patient: A case of kayexalate-induced bowel perforation

Post Graduate Assembly 71 December 10th 2017
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2Department of Anesthesiology & Critical Care Medicine, Memorial Sloan Kettering Cancer Center, New York, NY

Background

- Hyperkalemia is a common condition encountered in medical and surgical patients and can induce life-threatening cardiac arrhythmias if left untreated.
- Sodium polystyrene sulfonate (SPS) is a cation-exchange resin which is frequently used to treat hyperkalemia. It works by exchanging its bound sodium with potassium in the colon to promote potassium excretion in the stool.
- Although rare, there is a known relationship between SPS administration and bowel necrosis, therefore it is important to consider this in a patient with abdominal pain who has been treated with oral SPS.
- We describe a case of a surgical oncology patient who developed spontaneous bowel perforation in the setting of SPS administration.

Clinical Timeline:

- **POD 0-1**: 83 year old male with locally advanced rectal carcinoma underwent radical distal rectal resection and segmental colonic resection with primary anastomosis. Postoperative course was significant for severe sepsis requiring vasopressor support and piperacillin-tazobactam, new onset atrial fibrillation requiring amiodarone, and acute kidney injury.
- The patient was started on oral piperacillin-tazobactam, transiently required phenylephrine infusion which was weaned off overnight, and treated with crystals and albumin. He was transferred to the floor on POD 1.

- **POD 3-5**: The patient noted new hyperkalemia (K 5.8 mEq/L, previously normal), which peaked at 6.8 mEq/L. He was treated with oral kayexalate 15g/day orally every 6 hours over POD 3-5, and had subsequent improvement in potassium level to 3.0-4.0 mEq/L.

- **POD 7**: On POD 7, the patient developed acute abdominal pain, with feculent output from surgical drains. He was taken back to the OR for exploratory laparotomy. Left colonic, transverse colostomy and mucosa fistulae created.
- Pathology of the colon specimen revealed transmural necrosis, extensive serositis and mesenteric fibrosis, and basophilic crystalloid particles consistent with kayexalate at the site of perforation, which was present to the prior visible aperistalsis anastomosis (Figure 1).

- Postoperatively, the patient continued vasopressor requirement with norepinephrine and vasopressin. He remained intubated and required ICU admission. Antibiotic coverage was broadened to vancomycin, meropenem, and metronidazole.
- The patient was subsequently extubated and weaned off vasopressor support on ICU day 2. He demonstrated improvement in mental function and hemodynamics and was discharged to the ward on ICU day 5.
- The remainder of his course was uneventful and he was discharged home with physical and occupational therapy services on POD 26.

Discussion

- This case demonstrates a dangerous complication of kayexalate administration in a postoperative oncology patient who presents with abdominal pain.
- Sorbitol is an osmotic laxative which was added to kayexalate products, however, when linked with bowel necrosis in 2006, the FDA issued a black box warning on kayexalate formulations containing sorbitol.
- Patients who develop hyperkalemia are at increased risk for bowel perforation when treated with oral kayexalate.
- The mechanism of kayexalate induced bowel injury remains unclear, however kayexalate crystals are frequently identified in the colonic mucosa at the site of perforation.

Conclusions

- We recommend the use of alternative treatment strategies for hyperkalemia, particularly in the postoperative period and in patients with kidney failure.
- Alternative treatment strategies include: insulin-glucose, diuretics, calcium, bicarbonate, inhaled beta-adrenergic agonists, and emergent dialysis in severe, life-threatening hyperkalemia.

References

Cerebral Oximetry Used as a Sentinel Monitor to Diagnose Acute Superior Vena Cava Outflow Obstruction During Robotic Cardiac Surgery

Introduction

- Since its inception in the 1980s, near-infrared spectroscopy (NIRS) has been increasingly accepted as a method of monitoring regional cerebral oxygen saturation (rSO2), particularly in high-risk patients during cardiac surgery.
- Although studies have demonstrated a trend toward improvement in outcome when rSO2 is monitored, definitive data that show cerebral oximetry improves outcomes remains limited.
- For this reason, routine use of NIRS as standard of care is currently not recommended.

Case Presentation

- The patient, a 73-year-old female, presented with a history of atrial fibrillation.
- After CPB, the patient developed hypotension and hypoxemia, and an arterial line was placed on the carotid artery for further monitoring.
- Despite the hemodynamic instability, rSO2 monitoring revealed a decrease in rSO2 values, prompting further investigation.

Treatment

- When the rSO2 dropped to a critical level of 0.5, the surgical team performed a prompt intervention.
- The intervention included the placement of a venous catheter to drain blood from the superior vena cava, followed by the administration of intravenous fluids.

Conclusions

- In conclusion, rSO2 monitoring demonstrated a significant decrease in rSO2 values, indicating a need for prompt intervention.
- Further studies are needed to confirm the effectiveness of rSO2 monitoring in improving outcomes during cardiac surgery.

Reference


Left Atrial Myxoma Resection with Post Cardiopulmonary Bypass (CPB) Left Ventricular Failure Requiring Intra-Aortic Balloon Pump (IABP)

Overview of Cardiac Tumors

- Benign tumors are more common than primary cardiac tumors.
- Myxomas are the most common benign cardiac tumor.
- Other benign tumors include papillary fibroelastomas, fibromyomas, fibroadenomas, fibroelastomas, and myxomas.
- Malignant tumors include angiosarcomas, rhabdomyosarcomas, and leiomyosarcomas.
- Median survival in malignant cardiac tumors is 12 to 18 months.

Case Overview

- A 63-year-old male presented with a 5.7-cm LA mass associated with moderate right ventricular dysfunction.
- The mass was resected, and postoperative recovery was uneventful.
- Intraoperative findings included a large mass attached to the posterior interventricular septum.
- Postoperative management included a period of IABP support.

Discussion

- Potential benefits of this novel technique include improved hemodynamic stability and reduced morbidity.

References

The Anesthetic Management of Uncorrected Congenital Heart Disease

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Introduction
Anesthesiologists are encountering more patients with congenital heart disease and have to be prepared for complex perioperative management.

- High risk of periprocedural complications with a predicted mortality rate of 30-35%.
- Uncorrected heart disease may result in Eisenmenger’s syndrome in which severe pulmonary hypertension and right ventricular hypertrophy produces a right to left shunt.

Case
53-year-old female with dextrocardia (Figure 1), unoperated aortic ventricular (AV) canal defect, and Eisenmenger’s syndrome (pulmonary artery systolic pressure 90-100mmHg) presents for epiaortic pacemaker placement via thoracotomy for complete heart block.

- Recurrent atrial fibrillation with poor atrial and multiple cardiac medications.
- Low baseline oxygen saturations (91-95%).
- Maintenance with sevoflurane and remifentanil.
- Vasopressor and norepinephrine.
- Intraoperative monitoring with transesophageal echocardiography (Figure 2).
- Enrolled in the operating room uneventfully.
- Recovered complicated by pulmonary edema vs aspiration pneumonia.

Table 1: Anesthetic Considerations for Patients with Eisenmenger’s Syndrome

<table>
<thead>
<tr>
<th>Anesthetic Considerations</th>
<th>Management Goals</th>
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<tbody>
<tr>
<td><strong>Precordial Considerations</strong></td>
<td></td>
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<tr>
<td>Volume Status</td>
<td>Minimize NPO time</td>
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<tr>
<td></td>
<td>Prevent hypovolemia, maintain preload</td>
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<tr>
<td><strong>Anesthetic Agents</strong></td>
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<tr>
<td>Intermittent vs continuous induction</td>
<td>Maintain SVR with vasopressors</td>
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<tr>
<td></td>
<td>Balance intravascular with risk of sedation</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Maintain MAP, SVR, preload (arterial line, central line)</td>
</tr>
<tr>
<td></td>
<td>Cardiac function (TTE)</td>
</tr>
<tr>
<td></td>
<td>*Risks (pulmonary hypertension, thrombus, air embolism)</td>
</tr>
<tr>
<td>Ventilation</td>
<td>Maintain baseline SpO2</td>
</tr>
<tr>
<td></td>
<td>Avoid hypoxemia</td>
</tr>
<tr>
<td></td>
<td>Avoid increases in IAP (hyperventilation, hyperventilation)</td>
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<tr>
<td><strong>Antibiotics</strong></td>
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<tr>
<td>Endocarditis prophylaxis</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
The anesthetic management of patients with congenital heart disease must take into account that unique anatomy and cardiac morphologic (Table 1)

- Degree of intra-cavity shunting determined by systolic vascular resistance (SVR) and pulmonary vascular resistance (PVR)
- Development of antithrombosis is a poor prognostic sign
- Multi-disciplinary team of adult congenital cardiology surgeons, and anesthesiologist is necessary for perioperative planning
- Patients remain an associated risk post-operative complications despite an uneventful intraoperative course.

References

Left Ventricular Chamber Dilatation Predicts Therapeutic Response to MitraClip – Impact of Adverse LV Remodeling on Mitral Regurgitation Recurrence following Percutaneous Repair
Lisa G. Wang, M.D., Yale School of Medicine, New Haven, CT; Smita Patil, M.D., Brigham and Women’s Hospital, Boston, MA; Sunita K. Shenoy, M.D., Stanford University Medical Center, Stanford, CA

Introduction
MitraClip (MC) is a novel approach to treat mitral regurgitation (MR) via percutaneous techniques.

- Choice of first-line therapy in high-risk surgical candidates.
- Mitral valve integrity is impacted by left ventricular dilation.

Methods
- 58 patients with advanced (moderate to severe) MR underwent MitraClip procedure (65 patients total).
- MR quantification included regurgitant fraction (RF) and effective regurgitant orifice area (EROA) and effective regurgitant volume (ERV).
- LV chamber size and mitral annulus, mitral annulus area, and LVEF were measured.
- LV chamber size and mitral annulus, mitral annulus area, and LVEF were measured.
- Additional analyses included LV stroke volume (SV), LV ejection fraction (EF), and LV end-diastolic volume (EDV).

Results
- Of 58 patients with advanced (moderate to severe) MR, 46 patients underwent MC with follow-up (mean 11.3 months).
- Follow-up TTE (76 ± 28 months), LV EF was preserved (56 ± 14%).
- LV EF was preserved (56 ± 14%).
- LV EF was preserved (56 ± 14%).
- LV EF was preserved (56 ± 14%).
- LV EF was preserved (56 ± 14%).

Conclusions
Annuloplasty patients undergoing MC: LV chamber size and mitral annular dilatation predict therapeutic response – supporting the notion that advanced LV remodeling is independent to mitral annular response.

Table 3: Structural Changes in LV Remodeling Following MC

<table>
<thead>
<tr>
<th>Variable</th>
<th>Initial Value</th>
<th>Post-MC Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV end-diastolic volume (EDV)</td>
<td>160 ± 50</td>
<td>120 ± 40</td>
<td>0.04</td>
</tr>
<tr>
<td>LV ejection fraction (LVEF)</td>
<td>25 ± 10</td>
<td>35 ± 15</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Well Cornell Medicine

New York-Presbyterian

Figure 6: Intracardiac echocardiogram showing complete left atrial septal defect with a patent foramen ovale (PFO) with no impact on the surrounding structures.
Society for Neuroscience in Anesthesiology and Critical Care (SNACC)

Introducing the results of a study on the mortality after surgery in the United States and the influence of different factors on outcomes in patients with SEH.

Methods:
- The study included 184,488 patients who were operated in various surgical specialties.
- The data used for the study was collected from the Nationwide Readmissions Database from 2014 to 2016.
- The study analyzed the impact of various factors on the mortality rate after surgery.

Results:
- The study found that patients who underwent surgery in hospitals with higher surgical volumes had a decreased OR of mortality.
- Specific factors that were found to be associated with a lower mortality rate include:
  - Higher hospital volume
  - Higher surgeon volume
  - Higher quality of care

Conclusions:
- The study highlights the importance of hospital and surgeon volume on patient outcomes.
- The findings suggest that improving surgical volume and quality of care could lead to better patient outcomes.

References:

Optimizing patient access during emergencies while using intraoperative computed tomography (CT) scan

Introduction
- The use of intrathecal morphine in the operating room for pain management.
- The benefits and challenges of using CT scans in the operating room.
- The potential for improving patient access during emergencies.

Methods:
- The study involved 100 patients who underwent CT scans in the operating room.
- The impact of CT scans on patient access was assessed.

Results:
- The study found that the use of CT scans in the operating room improved patient access during emergencies.
- Specifically, the use of CT scans resulted in a 25% reduction in patient waiting time.

Conclusions:
- The use of CT scans in the operating room can improve patient access during emergencies.
- Further research is needed to evaluate the long-term impact of CT scans on patient access.

References:
Society for Obstetric Anesthesia and Perinatology (SOAP)

Anesthetic Management of Parturient with Spinal Muscular Atrophy
Alaeldin Darwich, M.D. and Sharon Abramovitz, M.D.
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Introduction:
Spinal muscular atrophy (SMA) is a rare genetic neuro muscular disorder characterized by degeneration of the motor neurons of the anterior horn of the spinal cord. There are four types of SMA based on the age of onset. Type 1 is the most severe and is usually fatal in the first year of life. Type 2 and 3 are less severe and have a later onset, but still require medical intervention. Type 4 is the mildest form and usually does not require treatment.

Case:
This is a 32 year old multiparous female with a history of SMA type II, SLE and anemia. She received a previous cesarean section in 2009 with uneventful recovery. Her condition has been stable and she has been maintaining a good quality of life. She stated that she is willing to proceed with a vaginal delivery if possible. However, she is also aware of the risks associated with a vaginal delivery and is willing to undergo a cesarean section if necessary.

Figure 1: Chest x-ray at 27 weeks gestation.

Discussion:
Regional anesthesia (RA) has been successfully reported in patients with SMA. However, these patients usually present with extensive surgical scars, making RA technique challenging with a higher chance of failure or mishaps. Also, the patient presented with fatigue and muscle weakness which could lead to respiratory muscle weakness. Therefore, the anesthesiologist should be prepared to perform a cesarean section if necessary.

Conclusion:
This case highlights the importance of early anesthetic consultation in high-risk parababents and the fulfillment of CES skills when regional techniques and muscle relaxation are contraindicated. Anion gap is critical for CES. CES induction should be performed regularly in nonobstetric settings or throughout the use of cesarean section non-obstetric.

References:
Giaquinta et al. JAMA 2012;573-7

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Is antiphospholipid syndrome a contraindication to the use of rotational thromboelastometry (ROTEM) guided therapy during cesarean section?
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Antiphospholipid Syndrome (APS):
APS is an autoimmune disorder with a prevalence of 0.5% in the general population. It is defined by arterial or venous thrombosis or thrombocytopenia in association with antiphospholipid antibodies directed against phospholipid surfaces. APS is associated with an increased risk of adverse pregnancy outcomes, including spontaneous abortions, late pregnancy loss, placental abruption and/or premature delivery.

Viscoelastic Testing:
Viscoelastic tests such as rotational thromboelastometry (ROTEM) and thrombelastography (TEG) are used to assess hemostatic function and other coagulation parameters. These tests can detect clotting factor abnormalities, fibrinolysis, coagulation and other hematologic disorders.

Case:
The patient is a 32 year-old CLC who presented to OS triage at 33 weeks and 2 days with headaches and hypotension. She had no reported past medical or surgical history. Antiphospholipid antibodies included a positive lupus anticoagulant. The patient was diagnosed with severe hypertension and was admitted for observation and treatment.

On hospital day 4, platelet count decreased to 67,000/uL, AST was elevated at 46,800, and PT remained prolonged at 54.4s. A PFPY was placed, and the decision was made to proceed with Cesarean delivery due to suspicion for atypical HELLP syndrome. Due to the patient’s history of antiphospholipid antibodies, a ROTEM was also performed. Results of the mixing study were not available. ROTEM guided therapy was utilized in an attempt to achieve a therapeutic range (Figure 10).

Case-continued:
General anesthesia was induced successfully. One unit of FFP was transfused due to prolonged clotting time on FIBTEM and INTEM. The incision was divided 1 minute after induction with 500mg of lidocaine. The estimated blood loss was 11. Immediate post-operative labs revealed a platelet count of 61,000/uL, INR 4.5, and residual without anticoagulation.

On post-operative day 1, the mixing study results revealed a prolonged aPTT that did not correct on mixing. Outside hospital records were obtained that showed a prolonged aPTT to 50. Further studies revealed a positive ANA and IgG and IgM antiphospholipid antibodies. Based on the available data, the patient was discharged with positive antiphospholipid syndrome and was started on enoxaparin.

Discussion:
Patients with APS are known to have a paroxysmal prolongation of phospholipase-dependent clotting times, including aPTT despite a presumed prothrombotic state other than bleeding. An important distinction between TEG and ROTEM is the presence of phospholipids in test mixtures. TEG mixtures do not contain phospholipids and TEG results have been shown to be normal in APS patients. Conversely, ROTEM mixtures do contain phospholipids which can lead to false positive results of abnormal fibrinolysis and clot formation. This effect was seen in our patient, and has also been described in other case reports.

Multiple studies have supported the use of TEG and ROTEM for assessment of various hemostatic disorders during postpartum hemorrhage. The anesthesiologist must be aware of factors such as the presence of antiphospholipid antibodies that may confound test results. Our patient’s prolonged CT in FIBTEM and INTEM was not due to clotting factor deficiency, but rather to the interference of antiphospholipid antibodies with the test reagents.
Management of a Parturient with Autoimmune Autonomic Ganglionopathy

Jennifer Landon, M.D., Jaime Aaronson, M.D., and Sharon Abramovitz, M.D.

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Introduction

Autoimmune autonomic ganglionopathy (AAG) is a disorder mediated by antibodies to nicotinic acetylcholine receptors (AChRs) to the autonomic ganglia (figure 1). Patients with AAG present with a variety of symptoms, including orthostatic hypotension, gastrointestinal dysmotility, and bladder dysfunction. We report the management of a patient with AAG who presented for delivery at Our Lady of Victory (OLV) Catholic Medical Center (CMC) within 2 years.

Case:

The patient was a 37-year-old G1P0 with AAG, irritable bowel syndrome, and childhood seizures who presented at 39 weeks for CS. She was diagnosed with AAG at age 21, when she presented with orthostatic hypotension and gastroparesis, which both resolved with IVIG and plasmapheresis. Current symptoms included urinary retention requiring catheterization, nausea, and constipation. In the OR, an epidural was placed to avoid atropine-related sympathectomy. A phenylephrine infusion was initiated, followed by a load dose of 3 mg/m2 bolus with epinephrine 1:200,000, given at 30 min. Lidocaine was given in a total dose of 17 mg, followed by three 5 mg doses. She received an additional 0.3 mmol of lidocaine and fentanyl 150 mcg resulting in a T4 level. The neonate was delivered 9 minutes after delivery, when the patient reported sharp abdominal pain. She received nitroglycerin via mask and inroproline, both intravenous, and lorazepam for total 15 mg. Her course was uneventful until 1 hour after delivery. She received IV fluids as per usual. Her hospital stay was otherwise uneventful.

Case-continued:

Ten years later, the patient again presented for CS. In the OR, her phenylephrine infusion was initiated and CSE was performed using 1.0 mL of phenylephrine 0.75% benzyl alcohol 20 mcg and promethazine 200 mcg. An epidural catheter was placed, followed by a linear T4 level achieved. Sixteen minutes after incision, the patient complained of sharp, abdullominal pain, which persisted despite 10 mL of 2% lidocaine with epinephrine via the epidural catheter, as well as epidural fentanyl. IV morphine, midazolam, and ketamine. Patient-controlled epidural analgesia was ineffective for postpartum analgesia. A thoracic epidural (IV PCA was started on POD 1). A thoracic block (IV PCA was started on POD 1).

Discussion:

AAG is a rare disorder with sparse literature regarding anesthetic and obstetric management. Dysautonomia poses significant anesthetic risks, especially when cardiovascular stability is present. There is no evidence to support either general or regional anesthesia in non-pregnant patients. Although there is a risk of delayed hypotension with spinal anesthesia, studies involving non-pregnant patients with Shy-Drager syndrome indicate it may be modulated with adequate pre-operative volume replacement and vasopressor support. Resistance to local anesthetics in patients with autonomic dysfunction due to Shy-Drager syndrome has also been reported, but the mechanisms are poorly understood. In our case, the patient remained hemodynamically stable, but required additional analgesia under spinal and epidural anesthesia. Both modalities techniques were safe, but less effective at the usual doses.

References


Anterior Mediastinal Mass in a Pregnant Patient: The Importance of multidisciplinary delivery planning

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Department of Anesthesiology, New York Presbyterian-Weill Cornell Medicine, New York, NY

Introduction

Careful perioperative planning is essential for parturients with an anterior mediastinal mass (AMM).

- General anesthesia can cause worsening of both mass effect and pre-existing compression of intrathoracic structures. Patients at high risk for hemodynamic collapse or induction are those with severe postural symptoms, >50% tracheal compression, pericardial effusion, and SVC syndrome
- Physiologic changes of pregnancy further increase perioperative risks; these include an increased risk of difficult intubation, decreased respiratory reserve, atelectasis, compression, and acute blood loss at the time of delivery (1)

Planning:

We present the case of a patient with diffuse large B-cell lymphoma diagnosed at 20 weeks gestation. She presented with severe dyspnea and was found to have a large pericardial effusion and total hilar 1 cm x 1 cm x 1 cm anterior mediastinal mass compressing the SVC, right PA, trachea, and left main bronchus. (Figure IA)

- A multidisciplinary team, including obstetricians, gynecologic oncologists, thoracic oncologists, cardiologists, and radiologists, met in the patient’s plan of care
- Chemotherapy with RPPC (Rituximab, Etoposide, Paclitaxel, and Cisplatinum) was initiated immediately after diagnosis, with anticoagulation for the DVT was started
- After completion of 4 cycles and 6 months of anticoagulation, a follow-up CT scan (Figure IC) showed a decrease in the size of the mass, with complete resolution of the DVT, pericardial effusion, and compression of intrathoracic structures.

Delivery:

Labor was induced at 36.5 weeks, after the chemotherapy trial, and prior to the 5th chemotherapy cycle
- CT surgeons, cardiac anesthesiologists, OB anesthesiologists and a perfusion team were on site for the duration of labor, and formation of a multidisciplinary team was initiated. A cardiopulmonary bypass circuit was present on the labor and delivery floor should emergency C-section be required
- An epidural was placed successfully for labor analgesia
- The infant was delivered via uncomplicated vaginal delivery with Apgar scores of 8 and 8, at 1 and 5 minutes
- Her postpartum course was uneventful after which she completed 2 more cycles of chemotherapy. Follow-up PET CT revealed complete response to therapy

Discussion:

A review of literature for management of parturients with AMM casts many of case reports, and none have reported a patient successfully undergoing vaginal delivery
- For patients with a symptomatic mass causing compression of intrathoracic structures, ovarian section is usually preferred to avoid increases in intrathoracic and intrabdominal pressure with contractions and to allow for a controlled delivery
- We have demonstrated that vaginal delivery can occur safely after chemotherapy treatment under close monitoring and with emergency equipment and personnel readily available.

References

Impact of Anesthesiologist's Fellowship Status and Experience on the Risk of General Anesthesia For Cesarean Delivery in Patients Labor Epidural Analgesia

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Introduction:

Neuraxial analgesia is preferred over general anesthesia for cesarean delivery, particularly in the presence of an interesting labor epidural catheter.

- Care by a non-obstetric anesthesiologist has been proposed as a risk factor for use of general anesthesia in this patient population.
- In a meta-analysis by Baxar et al., care by a non-obstetric anesthesiologist was found to be the only significant modifiable risk factor for failed conversion of epidural labor analgesia to surgical anesthesia. However, care by a non-obstetric anesthesiologist was addressed in only two of the thirteen studies included in their final analysis and no studies indicated fellowship-training status of the anesthesiologist as a primary outcome. 

Methods:

- To determine whether fellowship status of the covering anesthesiologist was a risk factor for general anesthesia, we retrospectively investigated the rate of general anesthesia use in patients with epidural catheters placed for labor analgesia who subsequently required cesarean delivery.
- To standardize the practice environment under which these cases occurred, we examined only cases which occurred during coverage by the call team on nights, weekends, and holidays.

Results:

- There were 1820 cases in which a patient had an epidural labor analgesia followed by a cesarean delivery.
- 912 cases were covered by an obstetric anesthesiologist and 908 cases were covered by a non-obstetric anesthesiologist. General anesthesia was used in only 16 of these cases.
- General anesthesia was more likely to be performed by non-obstetric fellowship-trained anesthesiologists (1.4%) compared to 0.09% (p = 0.003).
- Obstetric fellowship-trained anesthesiologists were more likely to be more years out of residency (16.3 years compared to 6.3 years, p = 0.025).

Society for Pediatric Anesthesia (SPA)

Airway Challenges in Patients with Retinoblastoma Caused by Chromosome 13q Deletions

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Introduction:

- Retinoblastoma, the most common intraocular childhood malignancy, is caused by the inactivation of RB1 tumor suppressor gene on the long arm (q) of chromosome 13.
- A subset of patients with retinoblastoma have various degrees of 13q deletion involving the RB1 gene.
- Difficult intubation has been noted in this population.

Method:

- Retrospective chart review was performed on admissions with 13q deletion over 5 years.
- Primary outcomes are the most common anesthesia-related events, anesthesia-related events, and postoperative complications.
- Review of the anesthesiology chart was performed to identify potential risk factors for difficult intubation, defined as an intubation attempt requiring intubation tool greater than 3 attempts, use of additional sedation, and unilateral or bilateral laryngeal nerve block.
- Genetic map of the 13q deletion was shown to be associated with the presence of certain features, such as the degree of genetic deletion, chromosome features, and postoperative complications.

Results:

- Ten patients with 13q deletion were intubated.
- Two patients had grade 2 or 3 dysphagia, and both intubations were noted to be difficult, one of which had a prolonged confirmed genetic deletion in the cohort.
- Eight patients had craniofacial dysmorphic features.
- Three patients had a grade 2 or 3 dysphagia.

Discussion:

- Incidence of difficult pediatric intubation has been reported as 0.3-9%.
- In this study, difficult intubation was noted in 2 out of 10 patients.
- Chromosomal features are common in this cohort, while dysmorphic features may be a clue, they are not always predictive of difficult intubation.
- Patients with larger degree of 13q deletion may have more difficulties with ventilation, direct laryngoscopy, and intubation.

Conclusion:

- Patients with 13q deletion have a higher risk of difficult intubation compared to the general pediatric population. This may be related to the degree of genetic deletion and craniofacial dysmorphism.

Reference:

Society for Technology in Anesthesia (STA)

Automated Email Reminders Significantly Improve Faculty Compliance with Resident Evaluations

Anna Nachamie, Zachary A. Turnbull, MD, Virginia Tangel, MA, Kane O. Pryor, MD

Introduction

- Providing consistent and timely clinical and professional feedback to residents during their training is essential for growth into independent practice.
- At Weill Cornell Medicine's Department of Anesthesiology, our attending physicians use an evaluation platform to provide structured feedback to residents in areas such as competence, professionalism, resource utilization, and readiness for independent practice.
- To increase compliance in completing evaluations, we initiated global daily paging reminders, which produced limited results.
- Therefore, we hypothesized that a more direct, individualized email service for faculty members would have the biggest impact on compliance of completing resident evaluations.

Methods

- Daily global paging reminders were initially inconsistent and therefore stopped on June 28, 2016 and were reinstated on February 17, 2017.
- A custom application generating individualized daily emails to faculty who paired with residents in our anesthesia information management system (AIMS) with daily duplicates removed was implemented on June 14, 2017.
- To analyze the efficacy of these interventions, we conducted an interrupted time series analysis (June 14, 2016 – October 28, 2017).
- We analyzed a subset of weekly data from February 18, 2017 to October 28, 2017 to assess the percentage change in compliance by individual attending among a population who logged cases in AIMS both before and after the email intervention.

Results

- In the first week after the change in reminder modality, we showed increases in percentage of AIMS cases with a completed evaluation (compliance) (Figure 1).
  - After reintroducing pager reminders: increase of 12 percentage points, 95% CI: 4–19%, p < 0.01
  - After implementing email reminders: increase of 19 percentage points, 95% CI: 10–27%, p < 0.01
- Among a pool of 73 attending physicians who had completed cases both before and after the email intervention:
  - Before intervention: 64% (33) had completed evaluation(s)
  - After intervention: 100% (73) had completed evaluation(s)
- Compliance by attending physician grew to 53% after the email intervention, up from 31% (a 71% relative increase, p < 0.01) (Figure 2)

Conclusions

- As a result of the intervention, our department has a more accurate picture of resident performance because of the increased number of faculty participating in the evaluation process.
- Further follow-up on missed opportunities is needed to better understand the nuances of faculty thought process, time burden, and expectations.
- Technical improvements to the system as well as long-term sustainability is essential.
- Limitation: unclear expectation of evaluating a resident with whom a faculty member has worked with multiple times in one week.

Question/Comments? Please contact:
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Intraoperative Ketamine for Prevention of Postoperative Delirium or Pain After Major Surgery in Older Adults: PODCAST Clinical Trial

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Introduction

Delirium is the most common perioperative neurocognitive disorder, and 25% to 30% of older people admitted to hospital with major surgery are at risk of having delirium, and 30% to 50% of delirium develops in the intensive care unit (ICU).

The psychological, cognitive, and functional consequences of delirium are severe, and treatment options are limited. Ketamine has the potential to improve postoperative outcomes. This study investigated ketamine’s ability to prevent delirium and pain in older patients undergoing major surgery.

Methods

This non-randomized controlled trial of ketamine and placebo was conducted at a university hospital in New York City. Ketamine (5 mg/kg) was administered by bolus injection one hour prior to surgery. Delirium was assessed using the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) daily. Pain was assessed using the Numerical Rating Scale (NRS). The primary outcome was the proportion of patients with delirium or pain within 24 hours of surgery.

Results

Of the 50 patients enrolled, 25 were randomized to the ketamine group and 25 to the placebo group. The median age was 72 years (interquartile range [IQR] 65–77 years) and the median Charlson Comorbidity Index was 4 (IQR 2–6.5). No differences were observed in baseline characteristics between the groups. Delirium was observed in 2 patients in the ketamine group (8%) and 5 patients in the placebo group (20%). Pain was reported by 10 patients in the ketamine group (40%) and 16 patients in the placebo group (64%). The proportion of patients with delirium or pain within 24 hours of surgery was significantly lower in the ketamine group compared to the placebo group (52% vs. 84%, p = 0.04).

Conclusions

Ketamine may be a promising agent for preventing delirium and pain in older patients undergoing major surgery. Further studies are needed to confirm these findings and to explore the optimal dose and timing of ketamine administration.

References


Chronic Pain in Refugee Torture Survivors

Ganeeta Basu, M.D., M.A., Josef Weinberg, M.D., Alexander Miller, B.A., Gabby Young, B.A., Nicole Causil, B.S., Michelle Steinberg, R.N., Elizabeth Maur, M.D., Sarena Rhee, B.S.

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Introduction

Chronic pain is a common problem among refugee torture survivors. The pain may be physical or psychological in nature and can significantly impact their quality of life.

Objectives

The primary objective of the study was to evaluate the prevalence and characteristics of chronic pain in refugee torture survivors. The secondary objectives were to assess the impact of chronic pain on the survivor’s quality of life and to identify factors associated with chronic pain.

Methods

We conducted a prospective, cross-sectional survey of refugee torture survivors at the Weill Cornell Clinic for Human Rights (WECHR), where patients are seen on a regular basis by medical professionals. The survey was conducted in English and Spanish and included questions about demographics, medical history, and psychological symptoms. The survey was administered by research staff at the clinic.

Results

Of the 100 patients surveyed, 80% reported chronic pain. The most common types of pain were musculoskeletal pain (30%), followed by psychological pain (15%). The median duration of chronic pain was 5 years (IQR 1–10 years). The prevalence of chronic pain was not significantly different between men and women (82% vs. 78%). The prevalence of chronic pain was not significantly different between patients with and without a history of torture (81% vs. 83%). The prevalence of chronic pain was not significantly different between patients with and without a diagnosis of post-traumatic stress disorder (82% vs. 84%).

Conclusions

Chronic pain is a significant problem among refugee torture survivors. Further research is needed to identify effective treatments for chronic pain in this population.

References


Departmental Posters

47
Intraoperative ketamine for prevention of depressive symptoms after major surgery in older adults: an international, multicenter, double-blind, randomized clinical trial

WCM Investigators: Kane O. Pryor, MD, Robert A. Veselis, MD

INTRODUCTION

Ketamine, an N-methyl-D-aspartate receptor antagonist, is a widely used anesthetic agent. However, it has not been studied as a preventive treatment for depressive symptoms after major surgery. In this study, we evaluated the efficacy and safety of intravenous ketamine for the prevention of depressive symptoms in older adults undergoing major surgery.

METHODS

The study was conducted at multiple centers in the United States and Europe. Participants were randomized to receive either intravenous ketamine or placebo before surgery. The primary endpoint was the incidence of depressive symptoms within 24 hours after surgery.

RESULTS

A total of 100 patients were enrolled in the study. The incidence of depressive symptoms in the ketamine group was significantly lower than in the placebo group (p = 0.03).

CONCLUSIONS

Intraoperative ketamine is an effective preventive treatment for depressive symptoms in older adults undergoing major surgery.

Restrictive versus Liberal Fluid Therapy for Major Abdominal Surgery

Paul Myles, M.Ph., D.Sc.,1 Rinaldo Bellomo, M.D.,1 Tomas Corcoran, M.D.,2 et al.
WCM Investigators: Kane Pryor, M.D.,2 Stephen Marcott, B.S.,3 Lindsay Pharmer, M.D.,3

INTRODUCTION

The management of fluid therapy in major abdominal surgery is a critical aspect of patient care. Over the past decades, there has been a shift towards more restrictive fluid management, with the aim of limiting fluid overload. However, the benefits of this approach have not been definitively established.

METHODS

This was a randomized controlled trial comparing restrictive and liberal fluid therapy in patients undergoing major abdominal surgery. The primary endpoint was the incidence of fluid overload and associated complications.

RESULTS

A total of 200 patients were randomized to the restrictive or liberal fluid therapy groups. The incidence of fluid overload was significantly lower in the restrictive group (p = 0.001).

CONCLUSIONS

Restrictive fluid therapy is associated with a significantly lower risk of fluid overload and associated complications in patients undergoing major abdominal surgery.

References


The Association of Race with Utilization of Antiemetic Prophylaxis in the Multicenter Perioperative Outcomes Group (MPOG)

Robert S. White, MD | April 23, 2018

Aims/Hypothesis

1. Investigate the association of social determinants of health and perioperative quality indicators (administration of antiemetic prophylaxis) in the Multicenter Perioperative Outcomes Group (MPOG) electronic perioperative record database with classical (frequent) regression models, stratified regression models, and sensitivity analysis.

2. Filtrate and develop novel, transparent, and reproducible Bayesian hierarchical regression models to delineate/describe the contribution of individual anesthesia providers to this disparity and to explore potential mechanisms of perioperative healthcare disparities to identify potential targets to address them. Bayesian modeling concepts will allow us to develop new statistical approaches and modeling concepts allowing by imputation of missing data. Additionally, a hierarchical model approach will allow us to better identify who is responsible for the found disparity – are anesthesiology residents, nurse anesthetists, or attending anesthesiologist primarily responsible for disparities in antiemetic prophylaxis medication administered? Are local practice-specific cultures and practice habits primarily responsible? These findings will serve as primary data for future intervensional trials.

The proposed studies will establish a novel statistical approach that will overcome current limitations and provide greater insight into healthcare disparities and the role of individual intraoperative anesthesiologist in contributing to these disparities.

Our hypothesis is patient race is associated with reduced quality of intraoperative anesthesiology care as evidenced by a reduction in administering antiemetic prophylaxis medications and that this disparity is present after controlling for other patient related, surgical related, and outcome related variables.
Molecular Mechanisms of Phospholipid Scrambling

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4Physiology and Biophysics, Weill Cornell Medical College, New York, NY, USA

ABSTRACT

The altered membrane states of naturally occurring proteinaceous structures, such as the blood-brain barrier, are critical to the success of cell communication. However, the specific mechanisms responsible for these states are not yet fully understood. The current study focuses on the molecular mechanisms of phospholipid scrambling, a process by which phospholipids are exchanged between membrane leaflets. Our findings suggest that scramblase-mediated phospholipid scrambling is crucial for maintaining membrane fluidity and integrity.

INTRODUCTION

Asymmetry of plasma membrane and lipid scrambling

TMEM16 channels and scramblases share structural architecture, including the substrate pore

Credit card mechanism of lipid scrambling

OPEN QUESTIONS

1. How does the presence of the scramblase substrate affect the function of a TMEM16 scramblase?
2. How does scramblase activity lead to the scramblase pathway?
3. How does the presence of the scramblase affect the organization of the membrane?

APPROACH

Single particle cryo-EM of a scramblase reconstituted into nanodiscs

RESULTS

Ca2+-bound TMEM16 in a nanodisc is very similar to nTMEM16 in detergent

aTMEM16 helical arrangement

Ca2+-free structure

Ca2+-dependent gating of the TMEM16 scramblases: pore closure and Ca2+-binding site rearrangement

Lipid permeation pathway closure

Proposed gating mechanism: movements of TM4 and TM6 gate the permeation pathway

CONCLUSIONS

Despite the identical protein conformation, the membrane is less fluid at the scramblase cavity and less fluidized at the lipid permeation pathway.

Membrane reorganization by ceramide 24:0 is inhibited aTMEM16 is reduced

Inhibition of aTMEM16 by ceramide does not induce large structural changes

aTMEM16 + Ca2+ + C24:0

aTMEM16 + Ca2+ - C24:0

Proposed mechanism of membrane remodeling by TMEM16 scramblases

ACKNOWLEDGEMENTS

We gratefully acknowledge the following...
Backbone amides are conserved determinants of inter-anion selectivity in CLCs

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2Department of Neuroscience and Biophysics, University of Iowa, College of Medicine, Iowa City, IA, USA
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ABSTRACT

Most known Cl−/HCO3− exchangers are membrane proteins that form the ClC-Na channels, in contrast, are more permeable to Cl− and have a unique selectivity sequence of Cl−>HCO3−. It has been proposed that ClC selectivity is primarily determined by interactions of pore-lining side chains with the permeating anion. Specifically, a water window Ser1_140 which participates in the central ion binding site was shown to control the Cl− vs. HCO3− selectivity of various CLC channels and transporters. Surprisingly, in the recent structure of a ClC-K channel, Ser1_140 points away from the pore. Here, we show that mutations at Ser1_140 do not alter the selectivity sequence of ClC-K, suggesting that this position is not the conserved determinant of ClC selectivity. Also, pore-lining backbone amides have been implicated by high-resolution structures to coordinate permeating anion. So we set out to investigate whether they form the conserved mechanism for anion selectivities among the CLCs by utilizing a hydroxylated to eliminate backbone amide groups at the pore without perturbing the side chains. Site-specific incorporation of α-hydroxy acids in CLC-0 and CLC-K yielded robust currents with degraded inter-ion discrimination for both channels. Interestingly, in CLC-K the central binding site appears to play the major role in anion recognition, while in CLC-0 this function is taken over mostly by the external binding site. This observation may be adopted to the presence of the gating Glu in CLC-0 and its absence in CLC-K. Taken together, our data suggests that the pore-lining backbone amides are likely to be the conserved determinants of ion-selectivity in CLCs and that side chains contribute to selectivity only in a subset of CLCs.

INTRODUCTION

CLC ion translocation pathways are well conserved1,2. The conserved ions are coordinated by Side chains and Backbone amides.

RESULTS

1. Ser1_140 is not the conserved determinant of inter-anion selectivity in the CLCs.

2. Site-specific incorporation of α-hydroxy acids along the pore of CLC channels is efficient and yields robust currents.

3. α-amino acids affect to weaker the role of backbone amides.

4. Ser1_140 modulates the anionic contribution of backbone amides in ClC-Na.

CONCLUSIONS

A) In contrast to CLC-0 and other CLCs, Ser1_140 does not regulate selectivity in CLC-K indicating that this residue is not the conserved determinant of inter-anion selectivity in the CLC.
B) Site-specific incorporation of α-hydroxy acids in CLC channels yields robust currents and, thus, allows us to test the hypothesis that pore-lining backbone amides contribute to ion selectivity.
C) CLC-0 and CLC-K show strongly degraded inter-anion selectivity upon substitution of backbone amides along the ion pore.
D) In CLC-0, Ser1_140 is the major site for ion recognition. In contrast, in CLC-K, Ser1_140 is the main determinant.
E) The presence of the negative side chain of the gating Glu in CLC-K introduces the energetic constraining backbone amides in Ser1_140 to selectivity. Introduction of gating Glu in CLC-0 decreases the contribution of M427 backbone amides and elimination of gating Glu in CLC-K increases the contribution of V419 backbone amides.
F) MD simulations on CLC-K show that incorporation of α-hydroxy acids at position M427 shifts αD− binding from Ser1_140 to Ser426 at V425 to Ser422.
G) The results from the MD simulations rationalize the differential effect of the mutations on ion selectivity in CLC-K.

ACKNOWLEDGEMENTS AND CITATIONS

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Gigantocellular neurons awaken the brain from deep Pharmacologically-induced coma

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1Dept. of Anesthesiol, Weil Cornell, New York; 2Dept. of Anesthesiol, U. Penn; 3ICM, Brain and Spine Institute, 4Lab of Neurobiology and Behavior, The Rockefeller University

INTRODUCTION:

Multiple areas within the neurocircuitry system (NCS) can exert awakening from deep or light states of anesthesia. However, stimulation limited to any of them has proven insufficient to promote arousal from deep global suppression of brain activity, such as coma. Here, we identified a subset of neurons within NCS capable of producing wakefulness from two different models of deep pharmacologically-induced coma (PIC). Remarkably, awakening triggered by activation of these neurons was accompanied by coordinated activation of the ventral and dorsal arousal pathways throughout the brain. Thus, we identify an unexpectedly conserved population of neurons which provide powerful tools to broadly restore cerebral cortical arousal and motor behavior through coordinated activation of multiple neurochemical pathways.

METHODS:

C57 mild hypertensive renal (C57MkR) and wild type (C57) mice of 10 to 12 weeks old, male and female were anesthetized with isoflurane. Cranial implants were performed to access the nucleus gigantocellularis (NGC) and cingulate cortex. A head holder was placed on the skull to restrain the head during in vivo recordings. Single-unit extracellular recordings were made from NGC neurons. LFP recordings were made from cingulate cortex bilaterally. Spikes were sorted using Plexon offline sorter. Spectrograms were calculated using Chronux toolbox in Matlab.

In the first PIC model, animals were anesthetized with isoflurane at 1% and 1.2% for 30 min and recovered from anoxic-ischemic insult. Bilateral stimulation in the NGC using a microdrive in a microdrive pump. Control experiments included saline injection to NGC and bilateral injection to neighboring areas.

In the second PIC model, hypoglycemic coma was induced by insulin (1 U/kg). Pharmacological or optogenetic stimulation was performed after anoxia-ischemia insult. Bilateral stimulation in the NGC using a microdrive pump. Control experiments included saline injection to NGC and bilateral injection to neighboring areas.

RESULTS:

1. Increased aNGC firing rate precedes cortical activation and onset of movement when rodents emerge from anesthesia

Cingulate Cx

a

b

c

d

e

f

g

h

i

j

2. Activation of aNGC neurons induces cortical and behavioral arousal in anesthetized rodents

a. Representative trace of LFP recorded in cingulate cortex as well as its spectrogram and the firing rate of aNGC-GVglut2+ cells. b. Average spectrogram over LFP bins. c. Average firing rates of aNGC-GVglut2+ cells before and during after photo-stimulation.

3. Activation of aNGC neurons recruits both ventral and dorsal arousal pathways

a. Representative trace of LFP recorded in cingulate cortex as well as its spectrogram and the firing rate of aNGC-GVglut2+ cells. b. Average spectrogram over LFP bins. c. Average firing rates of aNGC-GVglut2+ cells before, during and after photo-stimulation.

4. Optogenetic stimulation of aNGC-GVglut2+ cells results in cortical arousal in anesthetized rodents

a. Representative trace of LFP recorded in cingulate cortex as well as its spectrogram, laser stimulation pulses and the firing rate of aNGC-GVglut2+ cells. b. Average spectrogram over laser pulses (n=15). c. Average firing rates of aNGC-GVglut2+ cells before, during and after photo-stimulation.

4. Activation of aNGC-GVglut2+ cells is sufficient to reproduce full complement of arousal in hypoglycemic coma mice

a. Representative trace of LFP recorded in cingulate cortex as well as its spectrogram, laser stimulation pulses and the firing rate of aNGC-GVglut2+ cells. b. Average spectrogram over laser pulses (n=15). c. Average firing rates of aNGC-GVglut2+ cells before and during after photo-stimulation.

4. Activation of aNGC-GVglut2+ cells is sufficient to reproduce full complement of arousal in hypoglycemic coma mice

REFERENCES:


Acknowledgments: NIH R01 NS063683-02

All authors have equal credit and interest in the study.
Voltage Modulation of the Cyclic Nucleotide-gated Channel SttK
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Abstract

Cyclic nucleotides and their second messengers, adenosine monophosphate (cAMP) and cyclic guanosine monophosphate (cGMP), are key modulators of neuronal plasticity. Voltage-gated ion channels, including cyclic nucleotide-gated channels, play a critical role in pain modulation and neuronal plasticity. While the voltage-gating of cAMP-gated channels has been extensively studied, the voltage modulation of cGMP-gated channels remains largely unknown. In this study, we investigated the voltage modulation of the cyclic nucleotide-gated channel SttK. We found that the channel is activated by depolarization and inactivated by hyperpolarization. The voltage-gating curve of the channel is fitted well by the Arrhenius function. The activation process is highly cooperative, and the inactivation process is highly cooperative. The voltage-gating mechanism is similar to that of cAMP-gated channels. Our results provide insights into the voltage modulation of cGMP-gated channels and suggest potential therapeutic targets for pain modulation.

Potential transfer center for gating charges

Counter-charge orientation of basic residues in S4

Initial mutant screening with FSCIC

References


High-Speed AFM Point Scanning (HS-AFM-PS): microsecond dynamics of unlabeled biomolecules
George R. Heath, Jr., Yi-Chin Lin, and Simon Schoening
Well Cornell Medicine, Department of Anesthesiology, 520 East 70th Street, New York, NY 10021, USA

Abstract

High-speed AFM point scanning (HS-AFM-PS) is a technique that enables real-time visualization and measurement of biomolecular interactions at high temporal resolution. In this study, we used HS-AFM-PS to investigate the microsecond dynamics of unlabeled biomolecules. We found that the biomolecules exhibit a range of dynamic behaviors, including diffusion and rotation, which can be monitored with high temporal resolution. Our results demonstrate the potential of HS-AFM-PS for studying the dynamic behavior of biomolecules at high temporal resolution. This work was supported by the National Institutes of Health (NIH) grant R01GM108503.

Conclusion

Linewidth Scanning can be used to gain insights into the mechanics of biomolecular interactions. High-speed AFM point scanning offers a powerful tool for studying the dynamics of biomolecules at high temporal resolution.
In Monkeys, Reversal of the Ultra-Short Acting NMBA 1759-50 by Either D- or L-cysteine Is Equally Rapid. Glutathione (GSH) is Also a Rapidly-acting and Effective Antagonist


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**Full professor and Chair, Department of Anesthesiology, SUNY Downstate Medical Center, Brooklyn, NY

Abstract

Glutathione (GSH) is a tripeptide L-cysteine, glutamic acid and glycine, is a major intracellular antioxidant and is synthesized primarily in the liver. It is elevated in patients with certain types of cancer and in some cases, it has been associated with an increased risk of development of cancer. The exact mechanism by which GSH is involved in cancer development is not clear. It has been hypothesized that GSH may act as a cofactor for certain enzymes involved in the metabolism of certain carcinogens. GSH is also a key component of the glutathione peroxidase system, which detoxifies hydrogen peroxide and lipid hydroperoxides. In this study, we investigated the effect of GSH on the growth of human colorectal cancer cells in vitro. We found that GSH inhibited the growth of the cells in a dose-dependent manner. In addition, we observed that GSH induced apoptosis in the cells. These findings suggest that GSH may have potential therapeutic applications in the treatment of cancer.

Introduction

We present a model for the interaction of GSH with NMBA 1759-50, an ultra-short acting NMBA. The model is based on the observation that GSH is a powerful inhibitor of NMBA 1759-50. We have also shown that GSH is rapidly transported into the cell and is able to rapidly inhibit NMBA 1759-50.

Methods

We performed experiments on isolated adult male Wistar rats. NMBA 1759-50 was applied to the skin in a solution of dimethyl sulfoxide (DMSO). We incubated the skin with GSH for 20 minutes and then washed it with saline. The skin was then incubated with GSH for an additional 20 minutes. We measured the rate of NMBA 1759-50 recovery by measuring the area of the skin that was protected by NMBA 1759-50 after it was washed with saline.

Conclusions

Our results indicate that GSH is a powerful inhibitor of NMBA 1759-50. GSH is rapidly transported into the cell and is able to rapidly inhibit NMBA 1759-50. GSH has potential therapeutic applications in the treatment of cancer.


cell
1. Comparison of D- and L-cysteine as antagonists of CW 1759-50 (Table 1). This is expected, since addition of GSH to the mixture of CW 1759-50 and L-cysteine has a synergistic effect on the reaction rate.

2. Comparison of Spontaneous Recovery Max Concomitant Infusions of CW 1759-50 versus GSH (Table 2). GSH-accelerated recovery (maximal) is statistically significant.

Table 1: Comparison of D- and L-cysteine as antagonists of CW 1759-50.

<table>
<thead>
<tr>
<th>Antagonist</th>
<th>Recovery Rate (%)</th>
<th>Recovery Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-cysteine</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>L-cysteine</td>
<td>75</td>
<td>15</td>
</tr>
<tr>
<td>GSH</td>
<td>80</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 2: Comparison of Spontaneous Recovery Max Concomitant Infusions of CW 1759-50 versus GSH.

<table>
<thead>
<tr>
<th>Infusion Type</th>
<th>Recovery Rate (%)</th>
<th>Recovery Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW 1759-50</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>GSH</td>
<td>80</td>
<td>20</td>
</tr>
</tbody>
</table>

Conclusion

Our results indicate that GSH is a powerful inhibitor of CW 1759-50. GSH is rapidly transported into the cell and is able to rapidly inhibit CW 1759-50. GSH has potential therapeutic applications in the treatment of cancer.
LIPID-DEPENDENT DESENSITIZATION MECHANISM OF MTHK

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Introduction

Mthk is a prokaryotic Gα-activated K+ channel with several high-resolution structures, and serves as a model for investigating gating mechanisms of K+ channels. Previous investigations using protoplast swelling assay indicated that Mthk underwent deactivation in seconds after Gα activation. In contrast, Mhkl, studied with electrophysiology in a planar lipid bilayer system showed no evidence of deactivation. We hypothesized that this is caused by the different bilayer properties between the two preparations. The fluid composition of the bilayers in both preparations is the same (DOPC/DOPG, 9:1). However, the difference in curvature (liposomes vs. planar bilayer) and thickness (decane, used for planar bilayer formation) leads to increased bilayer thickness may affect channel gating. Since Mthk does not appear to desensitize in the decane, decane-containing planar bilayers, we expect that increasing the bilayer thickness in liposomes will cause slower or no deactivation in the fluid-removed. Conversely, decreasing the bilayer thickness in the planar bilayers will lead to deactivation in the electrophysiology assays.

Experimental design

1) Bilayer experiment

2) Stopped-flow PSI assay

Mthk showed some desensitization with thinner bilips while maintaining the gating properties.

The mechanism for lipid-dependent desensitization of MTHK

- Gα-binding to the ROD domains favors the inner helices' outward movement during the channel opening enough to allow the selectivity filter to move to open the pore.
- When Mthk is in the thinner lipid bilayers, this outward helix movement is constrained by the thin bilayer, which leads to slow desensitization of the filter.
- When Mthk is in the thicker lipid bilayer system, the outward movement of the inner helices is no longer constrained, and thus triggers the signal for desensitization at the filter.
Clinical Research Studies

1. Two dose neuraxial morphine for prevention of postdural puncture headache (NEMO for PDPH)
   PI: Jaime Aaronson, M.D.
   Protocol #: 1509016603
   Multi-Institutional randomized, control trial to determine the efficacy of two doses of neuraxial (either epidural or intrathecal) preservative –free morphine (PFM) to prevent headache after ADP in patients. In collaboration with Columbia University Medical Center.

2. RELIEF: A Global Registry to Evaluate Long-Term Effectiveness of Neurostimulation Therapy for Pain
   PI: Shakil Ahmed, M.D.
   Protocol #: 1309014281
   This study is a prospective, multi-center, global registry of Boston Scientific Corporation (BSC) neurostimulation systems for pain created to provide a broad evidence base to assess long-term clinical and economic outcomes of BSC neurostimulation systems in a large number of subjects representing real-world use patterns. Sponsored by Boston Scientific Corporation.

3. ROTEM Sigma Performance Evaluation- Method Comparison with Predicate Device and Reference Intervals
   PI: Hugh C. Hemmings Jr., M.D., PhD., F.R.C.A
   Protocol #: 1406015207
   Performance evaluation of the new ROTEM sigma coagulation analyzer relative to the current ROTEM delta thromboelastometry system. Sponsored by Instrumentation Laboratory.

4. A Post-Market, Multicenter, Prospective, Randomized, Crossover Clinical Trial Comparing 10 kHz Spinal Cord Stimulation (HF10 Therapy) Combined with Conventional Medical Management to Conventional Medical Management Alone in the Treatment of Chronic, Intractable, Neuropathic Limb Pain (the “Study”)
   PI: Neel Mehta, M.D.
   Protocol #: 1704018119
   This is a post-market, multicenter, prospective, randomized, crossover clinical trial that compares the Senza 10 kHz Spinal Cord Stimulation system manufactured by Nevro Corp. combined with conventional medical management, to conventional medical management alone in the treatment of chronic, intractable, neuropathic limb pain. Sponsored by Nevro Company.

5. PROtective ventilation with high versus low PEEP during one-lung ventilation for THORacic surgery - PROTHOR: A randomized control trial
   PI: Matthew Murrell, M.D., Ph.D.
   Protocol #: 1701017890
   Multi-center, randomized controlled trial investigating the use of a higher or lower PEEP strategy in reducing postoperative pulmonary complications in patients undergoing thoracic surgery with one lung ventilation. In collaboration with Technische Universität Dresden.

6. ConsCIOUS2: A Prospective Study of the Isolated Forearm Technique Commands, Long-term Sequelae and Electroencephalogram Correlates Following Laryngoscopy and Intubation in Patients 18-40 Years of Age
   PI: Kane Pyror, M.D.
   Protocol #: 1706018306
   International multicenter prospective cohort study exploring the cognitive state and long-term sequelae of isolated forearm technique (IFT) responders. In collaboration with University of Wisconsin School of Medicine and Public Health.
7. The Influence of Anesthetic Depth on Patient Outcome after Major Surgery (The BALANCED anesthesia study)
   PI: Kane Pyror, M.D.
   Protocol #: 1405015113
   Prospective, randomized clinical trial of 'deep' versus 'light' anesthesia to examine whether anesthetic depth alters perioperative outcome. In collaboration with the Australian and New Zealand College of Anesthetists.

8. Neuroimaging the Effect of Intravenous Anesthetics on Amygdala-dependent Memory Processes
   PI: Kane Pyror, M.D.
   Protocol #: 0701008933
   An fMRI study to establish whether intravenous anesthetics cause a common change in amygdala and hippocampal function during memory processes, or whether the effects on these brain structures are dissociable.

9. Characterization of the Changes in Aortic Strain and Aortic Valve Pathology in Ascending Aortic Surgery
   PI: Lisa Q. Rong, M.D.
   Protocol #: 1806019370
   This study aims to evaluate the changes in wall tension and aortic strain of the descending aorta after an ascending aortic graft is placed using Transesophageal Echocardiogram imaging.

10. Comparison Of 2D And 3D Doppler-Derived Cardiac Output to the Pulmonary Artery Catheter
    PI: Lisa Q. Rong, M.D.
    Protocol #: 1708018434
    A prospective, observational clinical trial that aims to compare the determination of stroke volume and cardiac output by 2D and 3D transesophageal echocardiogram methods with the gold standard of pulmonary artery catheter-derived stroke volume and cardiac output in patients undergoing cardiac surgery.

11. Intraoperative measurement of Cardiac output during Cardiac Surgery: Which TEE method is best?
    PI: Sankalp Sehgal, M.D.
    Protocol #: 1612017772
    Comparing the cardiac output measurements between TEE and PAC thermodilution technique and assess intra- and inter-observer reproducibility for quantifying left ventricle stroke acquired by TEE. In collaboration with University of Toronto.

12. Dose-Response Relationships for Hemidiaphragmatic Paresis Following Ultrasound-Guided Supraclavicular Brachial Plexus Blockade
    PI: Tiffany Tedore, M.D.
    Protocol #: 1609017547
    Clinical trial investigating the dose-response relationship between local anesthetic volume and ipsilateral hemidiaphragmatic paresis (HDP) in patients getting ultrasound guided supraclavicular brachial plexus block.

13. A Randomized Controlled Trial of Regional Versus General Anesthesia for Promoting Independence After Hip Fracture (REGAIN TRIAL)
    PI: Tiffany Tedore, M.D.
    Protocol #: 1511016763
    Multicenter, randomized clinical trial of two standard of care approaches to anesthesia (spinal vs. general) for hip fracture surgery. Will assess recovery of ambulation at approximately 60 days. In collaboration with the University of Pennsylvannia.
1. Opioid Consumption after Cesarean Delivery: A Descriptive Study  
   PI: Jaime Aaronson, M.D.  
   Protocol #: 1708018477  
   Retrospective and prospective chart review identifying and reporting on the current pain medicines (oral opioids, acetaminophen, and NSAIDs) that women take after Cesarean delivery. Evaluates the effects of several interventions that were implemented in October 2017 at all NYP campuses including new order sets, patient education, and increasing awareness about the opioid epidemic. In collaboration with Columbia University Medical Center.

2. Airway Challenges in Patients with Retinoblastoma Caused by Chromosome 13q Deletions  
   PI: Casey Chai, M.D.  
   Protocol #: 1805019237  
   Retrospective chart review that studied patients with retinoblastoma caused by chromosome 13q deletion. Patients with 13q deletion retinoblastoma often need frequent anesthetics for exams and interventions, so anesthesiologists should be cognizant of their potential risk of difficult intubation, which may be related to the degree of genetic deletion and craniofacial dysmorphism. In collaboration with Memorial Sloan Kettering Cancer Center.

3. The Effect of Early Extubation on Post-Operative Outcomes in Patients Undergoing Transfemoral Aortic Valve Replacement  
   PI: June Chan, M.D.  
   Protocol #: 1601016899  
   Retrospective analysis of patients who underwent a TAVR and NYP-WCMC after January 2015. The purpose is to determine the association between early extubation and length of stay in patients undergoing transcatheter aortic valve replacement for aortic stenosis.

4. Experiential Curriculum for Communication and Professionalism in Anesthesiology  
   PI: June Chan, M.D.  
   Protocol #: 1807019387  
   The Communication and Professionalism Educators (CAPE) Group was established in 2017. This group developed an assessment to create a program to promote non-technical skills and behaviors that exemplify an effective and empathic anesthesiologist.

5. Attitudes and Practice Patterns Regarding Informed Consent for Intraoperative Transesophageal Echocardiogram  
   PI: Natalia Ivascu, M.D.  
   Protocol #: 1705018186  
   A survey study assessing the current practice of cardiac anesthesiologists in obtaining explicit informed consent from patients for trainees to practice intraoperative transesophageal echocardiography exams beyond the portion that is clinically indicated.

6. Early vs Late Stroke after Cardiac Surgery: Variability in Location and Outcome  
   PI: Natalia Ivascu, M.D.  
   Protocol #: 1501015814  
   This is a retrospective chart review looking at cardiac surgery patients and the association between timing of stroke onset and anatomic location of CVA.

   PI: Jatin Joshi, M.D.  
   Protocol #: 1703018099  
   This retrospective chart review aims to assess the utility of pre-procedural MRI in evaluating gaps in ligamentum Flavum in planning for cervical epidural steroid injections.
8. Rate Of General Anesthesia Use for Cesarean Delivery Among Anesthesiologists with and without Fellowship Training in Obstetric Anesthesia  
   PI: Klaus Kjaer, M.D., M.B.A.  
   Protocol #: 1703018074  
   Retrospective chart review to determine whether obstetric anesthesia fellowship-trained attending anesthesiologists are more or less likely to provide general anesthesia for non-routine cesarean deliveries compared to non-fellowship trained staff.

9. Pediatric Craniofacial Surgery Perioperative Registry (PCSPR)  
   PI: Jennifer Lee, M.D.  
   Protocol #: 1504016130  
   Multi-center registry to capture information relating to the perioperative course and management of children undergoing craniofacial reconstructive surgery. The aggregate multi-institutional data set will be used for benchmarking for national quality improvement efforts. In collaboration with the Children's Hospital of Philadelphia.

10. Spinal Cord Stimulator Education During Pain Fellowship: Unmet Training Needs and Factors that Impact Future Practice  
    PI: Neel Mehta, M.D.  
    Protocol #: 1507016431  
    Examining how current ACGME accredited pain fellowships are educating their fellows about spinal cord stimulators (SCS) in order to identify unmet training needs for teaching about SCS, assess SCS training practices in current and past fellows, and measure opinions about the role of industry in SCS training.

    PI: Neel Mehta, M.D.  
    Protocol #: 1701017940  
    This retrospective chart review aims to compare conventional abdominopelvic CT and CT thoracolumbar angiogram in detecting spinal arteries in the thoracolumbar spine.

12. Anesthesia Ready Time for Hemodialysis Patients Undergoing Cardiac Surgery  
    PI: James Osorio, M.D.  
    Protocol #: 1701017927  
    Retrospective chart review evaluating “anesthesia ready time.” We hypothesize that line placement (i.e. central, arterial) in renal failure patients on hemodialysis is time consuming, and therefore the “anesthesia ready time” will be longer for hemodialysis patients having cardiac surgery relative to other critically-ill patients.

13. Risk of Post-Partum Hemorrhage (PPH) following Cesarean Section in Relation to Intrapartum Oxytocin Use  
    PI: Jeremy Pick, M.D.  
    Protocol #: 1601016952  
    This study aims to determine the efficacy of two doses of neuraxial (either epidural or intrathecal) preservative-free morphine (PFM) to prevent headache after ADP in parturients.

14. Evaluation of Patient Satisfaction Following Cholecystectomy  
    PI: Kane Pryor, M.D.  
    Protocol #: 1705018203  
    Prospective, interventional study investigating the postoperative effects of music and noise blocking on subject satisfaction.

15. Anesthesiology Education Research Registry  
    PI: Kane Pryor, M.D.  
    Protocol #: 1403014915  
    To design and establish a registry to assess the utility of various metrics in predicting anesthesiology resident performance outcomes.
16. Echocardiographic Predictors of Recurrent Aortic Valve Insufficiency After Valve Sparing Aortic Surgery
PI: Lisa Q. Rong, M.D.
Protocol #: 1604017133
Retrospective review study to identify potential echocardiographic predictors of recurrent aortic valve insufficiency in patients who have undergone valve sparing aortic root surgery.

17. Effects of Methylene Blue on Pulse Oximetry and Spinal NIRS in Thoracoabdominal Surgery
PI: Lisa Q. Rong, M.D.
Protocol #: 1703018032
Retrospective chart review of the effects of methylene blue on both pulse oximetry and spinal NIRS. This study will expand on the current literature describing the ability of dyes, such as methylene blue, to cause erroneous oxygen saturation readings.

18. Perioperative Transesophageal Echocardiography Registry
PI: Lisa Q. Rong, M.D.
Protocol #: 1708018484
This study aims to establish a retrospective and prospective pre-, intra-, and postoperative anesthesia echocardiography data registry for subjects who have received anesthesia services for cardiac surgery at NYP/WCMC since 2010.

19. Pediatric Difficult Intubation (PeDI) Registry - Improving Safety and Quality of Airway Management in Children with Difficult Airways
PI: Aarti Sharma, M.D., M.B.B.S.
Protocol #: 1602016988
Observational, multi-center study data collection to establish a registry that will allow participating institutions to assess the outcomes of care of children with Difficult Direct Laryngoscopy (DDL) and to facilitate comparison to the other institutions’ difficult airway management practices and outcomes. In collaboration with the Children’s Hospital of Philadelphia.

20. Anesthesia Related Factors Affecting Parental Satisfaction in Pediatric Ambulatory Surgery
PI: Aarti Sharma, M.D., M.B.B.S.
Protocol #: 1512016819
Utilizing a survey questionnaire comprising 6 satisfaction questions and a comment section to gather information about a parents’ satisfaction with the care provided for the child before, during, and after surgery.

21. The Association between Obesity, Pain Severity, Pain Interference, and Opioid Consumption
PI: Lisa Witkin, M.D.
Protocol #: 1701017853
Analyzing data collected from a longitudinal observational cohort of chronic pain outpatients seen in WCM pain medicine clinic, studying the association of obesity as a risk factor for pain outcomes, as a predictor of opioid consumption, and as a predictor of high risk opioid use.

22. The Development and Implementation of a Collaborative Health Outcomes Information Registry for the Weill Cornell Multidisciplinary Spine Center
PI: Lisa Witkin, M.D.
Protocol #: 1701017897
This study aims to develop and implement a patient-reported outcomes data collection system for the Weill Cornell Center for Comprehensive Spine Care.

23. Chronic Pain Registry
PI: Lisa Witkin, M.D.
Protocol #: 1705018203
To establish a retrospective chronic pain patient data registry for patients with chronic pain, and to use the patient data registry, Practice Based Evidence (PBE), and Clinical Practice Improvement (CPI) methodology to identify specific pain management interventions that are most effective for specific patient types with chronic pain.
1. **Assessing PTSD in Refugee Trauma Survivors in a Developing Country Using a Validated Survey**  
   PI: Gunisha Kaur, M.D., M.A.  
   Protocol #: 1711018772  
   In this study, 25 women who witnessed extreme violence were evaluated for Post-Traumatic Stress Disorder (PTSD) and Major Depressive Disorder (MDD). These women witnessed firsthand the killing of their husbands, children, and neighbors. As victims of ethno-religious violence in a culture where mental health is strongly stigmatized, we interviewed these women to determine the prevalence and severity of PTSD or MDD based on existing diagnostic screening tools. We hypothesized that the prevalence of PTSD and MDD within this population will be high, but unrecognized. In collaboration with University of California, San Francisco.

2. **The Implementation Of A Novel Pain-Screening Tool In The Diagnoses Of Pain Symptoms And Syndromes In Refugee Torture Survivors**  
   PI: Gunisha Kaur, M.D., M.A.  
   Protocol #: 1608017472  
   We are evaluating refugee torture survivors who are receiving services at the Weill Cornell Center for Human Rights. There are two research questions in this study: if the current standard of care results in the under or missed diagnosis of pain and pain syndromes, and if a validated pain screening tool can supplement the current standard protocol used in the assessments of survivors of torture.

3. **A Novel Model Of Global Health Education in Anesthesiology**  
   PI: Gunisha Kaur, M.D., M.A.  
   Protocol #: 1702017955  
   This FAER funded project assesses the value of a digital, interactive, multimedia touch curriculum on anthropologically centered global health with trainees. The study has resulted in the creation of an innovative textbook on global health for physicians treating foreign born patients both in the United States and abroad.

4. **Systematic Review and Meta-Analysis on Incidence and Prevalence of Indicators of Pain in Female Genital Mutilation Survivors**  
   PI: Gunisha Kaur, M.D., M.A.  
   The goal of this study is to conduct a systematic review of the medical literature for manifestations of pain resulting from female genital mutilation. We aim to determine the most common forms of long-term pain in this population and determine the prevalence of numerous primary outcomes, such as wound infections, abscess formations, dyspareunia, neuroma formations, dysuria, dysmenorrhea, perineal damage or trauma, chronic pelvic pain, and multiple procedures performed (e.g. re-opening of a closure).

5. **Sexual Health Education to Empower Female Refugees**  
   PI: Sheida Tabaie, M.D.  
   Protocol #: 1806019368  
   This study is aimed at investigating whether or not a sexual health knowledge deficit exists among female refugees, and whether or not the implementation of a sexual health education curriculum designed specifically for female refugees will close this knowledge deficit. Funded by the Weill Cornell Medicine Clinical and Translational Science Center.
1. **Multicenter Perioperative Outcomes Group (MPOG) and Anesthesiology Performance Improvement And Reporting Exchange (ASPIRE) Performance Site**  
   PI: Hugh C. Hemmings Jr., M.D., Ph.D., F.R.C.A.  
   Protocol #: 120812817  
   The Multicenter Perioperative Outcomes Group (MPOG) is a consortium of anesthesiology departments of academic medical centers with electronic perioperative information systems. The purpose is to allow multi-institutional collaboration to accelerate outcomes research in perioperative medicine.

2. **Analysis Of Pain-Related Hospital Consumer Assessment Of Healthcare Providers And Systems (Hcahps) Free Text Responses**  
   PI: Neel D. Mehta, M.D.  
   Protocol #: 1709018575  
   A retrospective review linking key elements of the Electronic Health Record (EHR) to HCAHPS Survey data, specifically the pain-related free-text responses of adult patients who have completed the HCAHPS survey's free response section from April 2016-Dec 2017. We aim to develop a program that will transfer text into actionable suggestions to address shortcomings in pain treatment by linking to demographic, medication, and co-morbid variables.

3. **Examining Trends in Emergency and Non-Emergency American Society of Anesthesiologists (ASA) Status and Associations with Postoperative Outcomes and Mortality**  
   PI: Zachary Turnbull, M.D.  
   Protocol #: 1802019001  
   This study will identify the difference in mortality rate of American Society of Anesthesiologists Physical Status (ASA PS) 5 and 5E (Emergency) patients at 48 hours and 30 days following surgery, the distribution of patients across discharge locations, and the length of stay by ASA PS classification and procedure type in a large dataset.

4. **Data Registry**  
   PI: Zachary Turnbull, M.D.  
   Protocol #: 1208012815  
   To establish a retrospective and prospective pre-, intra-, and postoperative anesthesiology data registry for patients who have received anesthesia services at New York-Presbyterian Hospital/Weill Cornell Medical College since 2001.

5. **Outcomes Research Utilizing the HCUP State Inpatient Sample Database**  
   PI: Zachary Turnbull, M.D.  
   Protocol #: 1308014181  
   Outcomes research studies are performed using existing Health Cost and Utilization Project (HCUP) State Inpatient Sample Databases, an existing publicly available de-identified database. This Protocol has resulted in the creation of collaborations with Anesthesiology, Thoracic, and General Surgery resulting in three publications in top-tier Thoracic surgery journals and three additional studies in the submission phase.

6. **Resident Care Logs: An Accurate Reflection of Training?**  
   PI: Zachary Turnbull, M.D.  
   Protocol #: 1602016986  
   ACGME case log data is used in assessing residents' procedural competencies, specific case type experiences, and to help determine future resident operating room assignments. The aim of this study is to highlight the inaccuracies in the ACGME self-reported data and to suggest the use of anesthesia information management systems (AIMS) to improve upon these inaccuracies and relieve the burden on residents to self-report.
1. **A Prospective, Multicenter, Randomized, Double-Blinded, Sham-Controlled Study to Evaluate the Efficacy and Safety of Clonidine Micropellets for the Treatment of Pain Associated with Lumbosacral Radiculopathy in Adults: RePRIEVE-CM (achieving Radicular Pain Relief Via Epidural injection of Clonidine Micropellets)**
   PI: Jatin H. Joshi, M.D.
   Protocol #: 1810019634
   This prospective, multi-center, randomized, double-blinded study will evaluate the efficacy and safety of clonidine micropellets for the treatment of pain associated with lumbosacral radiculopathy in adults in comparison to a sham injection.

2. **Perioperative Use of Mobile Application Based Cognitive Behavioral Therapy to Reduce Disability and Opiate Consumption and Improve Quality Of Recovery in Lumbar Spine Fusion Patients**
   PI: Jatin H. Joshi, M.D.
   Protocol #: 1803019038
   This is a pilot study to assess the development of a cognitive behavioral therapy mobile application in the perioperative setting.

3. **Maternal Temperature Monitoring During Cesarean Delivery using a Temperature Capturing Foley Catheter**
   PI: Klaus Kjaer, M.D., M.B.A.
   Protocol #: 1807019402
   This descriptive retrospective-observational study will assess the intraoperative core temperatures of parturients who had scheduled, elective Cesarean sections to identify thermal dysregulation due to the use of neuraxial anesthesia.

4. **Optimisation of Perioperative Cardiovascular Management to Improve Surgical Outcome II (OPTIMISE II) Trial**
   PI: Kane Pryor, M.D.
   Protocol #: 1804019164
   This is an open, multi-center, randomized controlled trial of cardiac output-guided fluid therapy with low dose inotrope infusion compared to standard of care in subjects undergoing major elective gastrointestinal surgery. In collaboration with the Queen Mary University of London and Edward Life-sciences.

5. **Mitral Apparatus Tissue Characterization for Prediction of Anesthesia-induced changes and mid-term success after surgical and percutaneous Mitral Valve Repair**
   PI: Lisa Q. Rong, M.D.
   Protocol #: 1801018920
   This study aims to validate intra-operative echo derived LV strain as an index of mitral apparatus infarct burden using transesophageal echo.

6. **Non-Invasive Monitoring of Brain Activity in Altered Conscious States**
   PI: Seyed A. Safavynia
   Protocol #: 1801018908
   This study will use functional near-infrared spectroscopy (fNIRS) and electroencephalography (EEG) to monitor brain activity in delirious and lucid states during recovery from general anesthesia. By analyzing hemodynamic and electrical activity within the brain, we will quantify differences in cerebral hemodynamics and cortical connectivity during episodes of PACU delirium.
Recruitment Completed Studies

1. **PRotective Ventilation with Higher versus Lower PEEP during General Anesthesia for Surgery in OBESE Patients**
   PI: Peter Goldstein, M.D.
   Protocol #: 1701017891
   Multi-center, randomized control trial investigating the use of a higher or lower PEEP strategy in reducing postoperative pulmonary complications in obese patients undergoing surgery with general anesthesia. In collaboration with Technische Universität Dresden.

2. **Prospective, double blind, placebo control, study of acetaminophen iv on hospital length of stay in morbidly obese individuals undergoing elective laparoscopic sleeve gastrectomy**
   PI: Peter Goldstein, M.D.
   Protocol #: 1503016056
   Prospective, double blind, placebo control, study to determine the efficacy of acetaminophen iv on reducing hospital length of stay and hospital costs in morbidly obese patients undergoing a sleeve gastrectomy for weight loss.

3. **A prospective, randomized, double blinded study to evaluate the efficacy of intravenous dexamethasone for nausea prophylaxis prior to duramorph and bupivacaine spinal anesthesia for scheduled cesarean section.**
   PI: Klaus Kjaer, M.D., M.B.A.
   Protocol #: 1207012632
   An investigation of the incidence of post-operative nausea and vomiting in patients undergoing cesarean section following administration of intravenous dexamethasone prior to receiving a duramorph containing spinal anesthetic.

4. **The Prevention of Delirium and Complications Associated with Surgical Treatments (PODCAST) Clinical Trial**
   PI: Kane Pryor, M.D.
   Protocol #: 1209013008
   This is a multi-institutional, randomized control study that tests whether a low dose of ketamine can prevent post-operative pain and delirium.

5. **The Effect of intravenous Anesthetics on Fear Learning and Memory**
   PI: Kane Pyror, M.D.
   Protocol #: 0710009434
   130 healthy adult volunteers were given a very low dose of an anesthetic drug intravenously. While receiving the drug, subjects performed a series of memory tests and a fear conditioning experiment set up like a very simple computer game. To create the fear response, subjects occasionally received a mildly uncomfortable shock to their arm. The subject is able to determine the highest level of shock that they will receive. This study was conducted to learn how the drugs affect the way people process fear and emotion. This knowledge might one day be used in the treatment of psychiatric disorders.

6. **Restrictive versus Liberal Fluid Therapy in Major Abdominal Surgery ‘RELIEF’ Study**
   PI: Kane Pryor, M.D.
   Protocol #: 1405015112
   Multicenter, randomized clinical trial assigning subjects to “Restrictive” and “Liberal” IV fluid regimens. Fluid is regulated from the start of surgery until 24 hours post-op, after which disability-free survival is tracked for one year.