

◆ THIS MONTH IN ANESTHESIOLOGY

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■ PERIOPERATIVE MEDICINE

- ◆ **Effects of Dexmedetomidine and Propofol on Lower Esophageal Sphincter and Gastroesophageal Pressure Gradient in Healthy Volunteers** 19
Alparslan Turan, John Wo, Yusuke Kasuya, Raghavendra Govinda, Ozan Akça, Jarrod E. Dalton, Daniel I. Sessler, and Stefan Rauch
Dexmedetomidine and propofol were found to have similar effects on lower esophageal sphincter pressure and gastroesophageal pressure gradient in healthy volunteers. Both of the drugs cause some decrease in lower esophageal sphincter pressure at high concentrations.

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 CME Article

- ◆◆ **Acute Surgical Anemia Influences the Cardioprotective Effects of β -Blockade: A Single-center, Propensity-matched Cohort Study** 25
 W. Scott Beattie, Duminda N. Wijeyesundera, Keyvan Karkouti, Stuart McCluskey, Gordon Tait, Nicholas Mitsakakis, and Gregory M. T. Hare
Perioperative β -blocker use reduces cardiac events, but increases stroke and overall mortality. The perioperative period is frequently associated with major blood loss and anemia; therefore, anemia may influence the risk-benefit profile of perioperative β -blocker use. In this retrospective observational study, the effects of anemia and β -blockade on adverse outcomes in propensity score-matched patients were compared. The primary outcome was the composite of myocardial infarction, nonfatal cardiac arrest, and in-hospital mortality (major acute cardiac events [MACE]). MACE occurred in 54 (6.5%) β -blocked patients and in 25 (3.0%) patients who did not receive β -blockers (relative risk 2.38; 95% confidence interval 1.43–3.96; P = 0.0009). Patients most at risk were those whose nadir hemoglobin was greater than 35% below the baseline value.
- ◆ **Antagonism of Low Degrees of Atracurium-induced Neuromuscular Blockade: Dose–Effect Relationship for Neostigmine** 34
 Thomas Fuchs-Buder, Claude Meistelman, François Alla, Arnaud Grandjean, Yann Wuthrich, and François Donati
Reduced doses (10–30 μ g/kg) of neostigmine are effective in antagonizing shallow atracurium block (train-of-four ratio, 0.4–0.6). For successful reversal within 10 min, as little as 20 μ g/kg neostigmine is sufficient.
- 🌐 **Predicting the Unpredictable: A New Prediction Model for Operating Room Times Using Individual Characteristics and the Surgeon’s Estimate** 41
 Marinus J. C. Eijkemans, Mark van Houdenhoven, Tien Nguyen, Eric Boersma, Ewout W. Steyerberg, and Geert Kazemier
Characteristics of operative session, the team, the patient, and the surgeon’s estimate predict the length of operative sessions and can readily be used in day-to-day planning of operating room capacity for a general surgery department. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT
- Cerebral Blood Flow, Blood Volume, and Mean Transit Time Responses to Propofol and Indomethacin in Peritumor and Contralateral Brain Regions: Perioperative Perfusion-weighted Magnetic Resonance Imaging in Patients with Brain Tumors** 50
 Mads Rasmussen, Niels Juul, Søren M. Christensen, Kristjana Y. Jónsdóttir, Carsten Gyldensted, Peter Vestergaard-Poulsen, Georg E. Cold, and Leif Østergaard
Propofol and indomethacin are not associated with different perfusion in the peritumoral and contralateral brain regions in patients with cerebral tumors.
- Effects of Prone and Reverse Trendelenburg Positioning on Ocular Parameters** 57
 Geordie P. Grant, Bernard C. Szirth, Henry L. Bennett, Sophia S. Huang, Rajesh S. Thaker, Robert F. Heary, and Roger E. Turbin
Prolonged prone positioning increases intraocular pressure, choroid layer thickness, and optic nerve diameter independent of anesthetics and intravenous fluid infusion. A small degree of reverse Trendelenburg may not be useful in attenuating these effects for over 5 h.
- Improving Efficiency and Patient Satisfaction in a Tertiary Teaching Hospital Preoperative Clinic** 66
 Miriam J. P. Harnett, Darin J. Correll, Shelley Hurwitz, Angela M. Bader, and David L. Hepner
By instituting operational changes in our Center for Preoperative Evaluation, waiting time was reduced, and patient satisfaction was improved with a minimal impact on cost per visit.
- Isoflurane Postconditioning Protects against Reperfusion Injury by Preventing Mitochondrial Permeability Transition by an Endothelial Nitric Oxide Synthase–dependent Mechanism** 73
 Zhi-Dong Ge, Danijel Pravdic, Martin Bienengraeber, Phillip F. Pratt, Jr., John A. Auchampach, Garrett J. Gross, Judy R. Kersten, and David C. Wartier
Isoflurane postconditioning protects mouse hearts from reperfusion injury by preventing mitochondrial permeability transition in an endothelial nitric oxide synthase–dependent manner. Nitric oxide functions as both a trigger and a mediator of cardioprotection produced by isoflurane postconditioning.

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- ⊕ **No Association between Intraoperative Hypothermia or Supplemental Protective Drug and Neurologic Outcomes in Patients Undergoing Temporary Clipping during Cerebral Aneurysm Surgery: Findings from the Intraoperative Hypothermia for Aneurysm Surgery Trial** 86
 Bradley J. Hindman, Emine O. Bayman, Wolfgang K. Pfisterer, James C. Torner, and Michael M. Todd;
 on behalf of the IHAST Investigators
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- Propofol Depresses Angiotensin II–induced Cell Proliferation in Rat Cardiac Fibroblasts** 108
 Tzu-Hung Cheng, Yuk-Man Leung, Chi-Wai Cheung, Cheng-Hsien Chen, Yen-Ling Chen, and Kar-Lok Wong
Propofol prevents cardiac fibroblast proliferation by interfering with the generation of reactive oxygen species and involves the activation of the Akt–endothelial nitric oxide synthase–nitric oxide pathway.

■ CRITICAL CARE MEDICINE

- Fluid Resuscitation Does Not Improve Renal Oxygenation during Hemorrhagic Shock in Rats** 119
 Matthieu Legrand, Egbert G. Mik, Gianmarco M. Balestra, Rene Lutter, Romain Pirracchio, Didier Payen, and Can Ince
The fluid resuscitation strategy for hemorrhagic shock remains controversial. The kidney is prone to hypoxia during shock. The authors show that fluid resuscitation does not result in improvement of renal oxygenation during hemorrhagic shock in rats.
- ⊕ **Perioperative Intravenous Amiodarone Does Not Reduce the Burden of Atrial Fibrillation in Patients Undergoing Cardiac Valvular Surgery** 128
 Yanick Beaulieu, André Y. Denault, Pierre Couture, Denis Roy, Mario Talajic, Eileen O’Meara, Michel Carrier, Pierre Pagé, Sylvie Levesque, Jean Lambert, and Jean-Claude Tardif
Patients undergoing valvular surgery were randomly assigned to intravenous amiodarone for 48 h starting intraoperatively or placebo in the prevention of postoperative atrial fibrillation. Atrial fibrillation occurred more frequently in the amiodarone group ($P = 0.035$). SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

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 Kenta Furutani, Miho Ikoma, Hideaki Ishii, Hiroshi Baba, and Tatsuro Kohno
Bupivacaine inhibited N-methyl-D-aspartate–induced currents in rat dorsal horn neurons. This inhibitory effect is not likely to block sodium channels.
- ⊕ **Randomized Study Assessing the Accuracy of Cervical Facet Joint Nerve (Medial Branch) Blocks Using Different Injectate Volumes** 144
 Steven P. Cohen, Scott A. Strassels, Connie Kurihara, Akara Forsythe, Chester C. Buckenmaier III, Brian McLean, Gerard Riedy, and Sharon Seltzer
Reducing the volume for cervical facet nerve blocks from 0.5 to 0.25 ml is likely to increase specificity without affecting sensitivity.

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Guarding Pain and Spontaneous Activity of Nociceptors after Skin *versus* Skin Plus Deep Tissue Incision 153

Jun Xu and Timothy J. Brennan

Incised deep tissue rather than skin caused guarding behavior and spontaneous activity of nociceptors. Skin and skin plus deep tissue incision caused similar mechanical and heat hyperalgesia.

Cerebrospinal Fluid and Spinal Cord Distribution of Hyperbaric Bupivacaine and Baclofen during Slow Intrathecal Infusion in Pigs 165

Sean H. Flack and Christopher M. Bernards

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Kenneth E. Nelson, Timothy T. Houle, and James C. Eisenach

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Sex-specific Mediation of Opioid-induced Hyperalgesia by the Melanocortin-1 Receptor 181

Aaron Juni, Minying Cai, Magda Stankova, Amanda R. Waxman, Caroline Arout, Gad Klein, Albert Dahan, Victor J. Hruby, Jeffrey S. Mogil, and Benjamin Kest

Morphine hyperalgesia is sex-dependently mediated by N-methyl-D-aspartate receptors in male mice and by melanocortin-1 receptors in female mice. This sex dependency is absent at a lower morphine infusion dose.

■ EDUCATION

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Jean Mantz, Hugh C. Hemmings, Jr., and Jacques Boddaert

Postoperative delirium is a frequent and serious complication occurring in older surgical patients. The use of diagnostic scales and the identification of risk factors can help to reduce morbidity and mortality in this growing patient subpopulation.

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◆ **Acquisition of Critical Intraoperative Event Management Skills in Novice Anesthesiology Residents by Using High-fidelity Simulation-based Training** 202

Christine S. Park, Lauryn R. Rochlen, Edward Yaghmour, Nicole Higgins, Jeanette R. Bauchat, Kyle G. Wojciechowski, John T. Sullivan, and Robert J. McCarthy

Event-specific simulation-based training improved novice anesthesiology residents' competence in the initial management of a critical intraoperative event compared with routine clinical exposure and simulation-based training in an alternate event.

◆ **Predicting Success on the Certification Examinations of the American Board of Anesthesiology** 212

Joseph C. McClintock and Glenn P. Gravlee

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Paul F. White and Henrik Kehlet

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Albert Dahan, Leon Aarts, and Terry W. Smith

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