

◆ THIS MONTH IN ANESTHESIOLOGY

9A

◆ EDITORIAL VIEWS

To Beat or Not to Beat: Is Timing the Only Question? Survival after Delayed Defibrillation 765

Aman Mahajan and Nir Hoftman

CME Challenges of β -Blockade in Surgical Patients 767

Pierre Foëx and John W. Sear

Sevoflurane and QTc Prolongation: An Interesting Observation, or a Clinically Significant Finding? 772

Phillip E. Scuderi

Pros and Cons of Composite Endpoints in Anesthesia Trials 776

Paul S. Myles and Philip J. Devereaux

Equivalence and Noninferiority Testing in Anesthesiology Research 779

Edward J. Mascha

■ PERIOPERATIVE MEDICINE

◆◆ Delayed Time to Defibrillation after Intraoperative and Periprocedural Cardiac Arrest 782

Jill M. Mhyre, Satya Krishna Ramachandran, Sachin Kheterpal, Michelle Morris, and Paul S. Chan, for the American Heart Association National Registry for Cardiopulmonary Resuscitation Investigators

Although delayed defibrillation was associated with lower rates of survival after cardiac arrests in periprocedural areas, the current analysis failed to confirm an association between delayed defibrillation and survival for cardiac arrests in the operating room.


CME ◆◆ Association of the Pattern of Use of Perioperative β -Blockade and Postoperative Mortality 794

Arthur W. Wallace, Selwyn Au, and Brian A. Cason

The present study analyzed the association of the pattern of use of perioperative β -blockade with perioperative mortality. Epidemiologic analysis of the operations performed at the San Francisco Veterans Administration Medical Center since 1996 was performed. The pattern of use of perioperative β -blockade was divided into four groups: None, Addition, Withdrawal, and Continuous. Logistic regression, survival analysis, and propensity analysis were performed. In patients meeting Perioperative Cardiac Risk Reduction indications for perioperative β -blockade, Addition is associated with a reduction in 30-day (odds ratio [OR], 0.52; 95% confidence interval [CI], 0.33 to 0.83) and 1-yr mortality (OR, 0.64; 95% CI, 0.51 to 0.79). Continuous is also associated with a reduction in 30-day (OR, 0.68; 95% CI, 0.47 to 0.98) and 1-yr mortality (OR, 0.82; 95% CI, 0.67 to 1.0). Withdrawal is associated with an increase in 30-day (OR, 3.93; 95% CI, 2.57 to 6.01) and 1-yr mortality (OR, 1.96; 95% CI, 1.49 to 2.58).

Continued on page 16A

◆ Refers to This Month in Anesthesiology
◆◆ Refers to Editorial Views

 See Supplemental Digital Content
CME CME Article

- ◆ **Modeling the Effect of Sevoflurane on Corrected QT Prolongation: A Pharmacodynamic Analysis** 806
 Dong Woo Han, Kyungsoo Park, Seong Bok Jang, and Steven E. Kern
Corrected QT value was prolonged by an average of 29 ms with 2.5% sevoflurane anesthesia. The relationship between effect-site sevoflurane concentration and corrected QT interval was adequately described with a sigmoid E_{max} model.
- Sitting Posture Decreases Collapsibility of the Passive Pharynx in Anesthetized Paralyzed Patients with Obstructive Sleep Apnea** 812
 Yugo Tagaito, Shiroh Isono, Atsuko Tanaka, Teruhiko Ishikawa, and Takashi Nishino
Postural change from supine to sitting significantly improves collapsibility of passive pharyngeal airway. Sitting is an advantageous posture over supine posture during induction of anesthesia.
- ◇ **Prediction of Pediatric Endotracheal Tube Size by Ultrasonography** 819
 Masayuki Shibasaki, Yasufumi Nakajima, Sachiyo Ishii, Fumihiro Shimizu, Nobuaki Shime, and Daniel I. Sessler
Measuring subglottic upper airway diameter with ultrasonography facilitates selection of appropriately sized cuffed and uncuffed endotracheal tubes for pediatric patients.
- Relationship between Normalized Adductor Pollicis Train-of-four Ratio and Manifestations of Residual Neuromuscular Block: A Study Using Acceleromyography during Near Steady-state Concentrations of Mivacurium** 825
 Tom Heier, James E. Caldwell, John R. Feiner, Luke Liu, Theresa Ward, and Peter M.C. Wright
Normalized acceleromyographic train-of-four ratios greater than 0.3 were not associated with critical respiratory events. Lung vital capacity decreased linearly with decreasing train-of-four ratio. None experienced significant effects of neuromuscular block at normalized train-of-four ratio ≥ 0.90 .
- Propofol Modulates Agonist-induced Transient Receptor Potential Vanilloid Subtype-1 Receptor Desensitization via a Protein Kinase C ϵ -dependent Pathway in Mouse Dorsal Root Ganglion Sensory Neurons** 833
 Peter J. Wickley, Ryo Yuge, Mary S. Russell, Hongyu Zhang, Michael A. Sulak, and Derek S. Damron
Propofol restores sensitivity of transient receptor potential vanilloid subtype-1 receptors after agonist-induced desensitization and attenuates agonist-induced desensitization via a protein kinase C ϵ -dependent signaling pathway in mouse dorsal root ganglion neurons.
- 🌐 **Acute Anemia Elicits Cognitive Dysfunction and Evidence of Cerebral Cellular Hypoxia in Older Rats with Systemic Hypertension** 845
 Min Li, Jessica A. Bertout, Sarah J. Ratcliffe, Maryellen F. Eckenhoff, M. Celeste Simon, and Thomas F. Floyd
Acute isovolemic anemia in the spontaneously hypertensive rat resulted in an age-dependent cognitive impairment that was matched by an age-dependent cellular sensitivity to anemic hypoxia. These data offer support for a possible link between anemic hypoxia and postoperative cognitive dysfunction in humans. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT
- Perioperative Outcomes among Patients with the Modified Metabolic Syndrome Who Are Undergoing Noncardiac Surgery** 859
 Laurent G. Glance, Richard Wissler, Dana B. Mukamel, Yue Li, Carol Ann B. Diachun, Rabi Salloum, Fergal J. Fleming, and Andrew W. Dick
Previous studies have demonstrated that obesity is associated with lower mortality after noncardiac surgery. We find that patients with the modified metabolic syndrome undergoing noncardiac surgery are at substantially higher risk of complications.

Continued on page 18A

A Two-handed Jaw-thrust Technique Is Superior to the One-handed “EC-clamp” Technique for Mask Ventilation in the Apneic Unconscious Person

873

Aaron M. Joffe, Scott Hetzel, and Elaine C. Liew

The use of a two-hand jaw-thrust mask technique during mask ventilation after induction of anesthesia improves air exchange compared with the one-hand “EC-clamp” technique.

🌐 **A Mouse Model of Ischemic Spinal Cord Injury with Delayed Paralysis Caused by Aortic Cross-clamping**

880

Hamdy Awad, Daniel P. Ankeny, Zhen Guan, Ping Wei, Dana M. McTigue, and Phillip G. Popovich

We report the development of a new murine model of ischemic spinal cord damage caused by transient aortic cross-clamp. Using optimal parameters, this model produces higher than 95% survival and results in delayed paralysis and neuropathology. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

Development and Feasibility of a Scale to Assess Postoperative Recovery: The Post-operative Quality Recovery Scale

892

Colin F. Royse, Stanton Newman, Frances Chung, Jan Stygall, Rachel E. McKay, Joachim Boldt, Frederique S. Servin, Ignacio Hurtado, Raafat Hannallah, Buwei Yu, and David J. Wilkinson

The Post-operative Quality Recovery Scale was developed by anesthesiologists and neuropsychologists to measure postoperative recovery in six domains and for multiple time periods. The Post-operative Quality Recovery Scale can discriminate recovery in multiple domains at multiple times.

🌐 **Isoflurane Preconditioning Elicits Competent Endogenous Mechanisms of Protection from Oxidative Stress in Cardiomyocytes Derived from Human Embryonic Stem Cells**

906

Ana Sepac, Filip Sedlic, Karim Si-Tayeb, John Lough, Stephen A. Duncan, Martin Bienengraeber, Frank Park, Jinhee Kim, and Zeljko J. Bosnjak

Anesthetic-induced preconditioning elicits competent protective mechanisms against oxidative stress in human embryonic stem cell–derived cardiomyocytes, suggesting the feasibility to use these cells as an experimental model of human cardiomyocytes for studying preconditioning. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

■ **CRITICAL CARE MEDICINE**

Lymphocyte-based Determination of Susceptibility to Malignant Hyperthermia: A Pilot Study in Swine

917

Saïd Bina, John Capacchione, Sheila Muldoon, Munkhuu Bayarsaikhan, and Rolf Bunker

Development of a relatively simple blood test for malignant hyperthermia diagnosis.

Neurally Adjusted Ventilatory Assist in Critically Ill Postoperative Patients: A Crossover Randomized Study

925

Yannael Coisel, Gerald Chanques, Boris Jung, Jean-Michel Constantin, Xavier Capdevila, Stefan Matecki, Salvatore Grasso, and Samir Jaber

Neurally adjusted ventilatory assist, in comparison with pressure-support ventilation, improved oxygenation and ventilatory variability in critically ill postoperative patients when applied for a 24-h period of mechanical ventilation.

■ **PAIN MEDICINE**

Effect of Stellate Ganglion Block on the Cerebrovascular System: Magnetic Resonance Angiography Study

936

Chang-Ki Kang, Seung-Taek Oh, Rack Kyung Chung, Hyon Lee, Chan-A Park, Young-Bo Kim, Jeong Hyun Yoo, Dong Yeon Kim, and Zang-Hee Cho

We examined cerebrovascular effects by stellate ganglion block using 1.5T magnetic resonance angiography. The result suggests that extracranial vessels were the most sensitive to blood flow change by stellate ganglion block rather than intracranial vessels.

Continued on page 20A

Caspase-1 Modulates Incisional Sensitization and Inflammation

945

De-Yong Liang, XiangQi Li, Wen-Wu Li, Dennis Fiorino, Yanli Qiao, Peyman Sahbaie, David C. Yeomans, and J. David Clark

Caspase-1 is a key enzyme that cleaves prointerleukin-1 β to its active form. The current study demonstrates that inhibition of its activity with specific inhibitors significantly reduced postsurgical sensitization and inflammation through a caspase-1/interleukin-1 β -dependent mechanism.

■ CLASSIC PAPERS REVISITED

The American Society of Anesthesiologists Closed Claims Project: The Beginning

957

Frederick W. Cheney

This article is a revisiting of original material published as: Caplan RA, Ward RJ, Posner K, Cheney FW: Unexpected cardiac arrest during spinal anesthesia: A closed claims analysis of predisposing factors.

ANESTHESIOLOGY 1988; 68:5–11.

■ EDUCATION

IMAGES IN ANESTHESIOLOGY

🌐 Thyroid Cancer Invading the Trachea

961

Tyken C. Hsieh and Jeffrey A. Katz

SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

ANESTHESIA LITERATURE REVIEW

962

REVIEW ARTICLES

Efficacy and Safety of Melatonin as an Anxiolytic and Analgesic in the

Perioperative Period: A Qualitative Systematic Review of Randomized Trials

968

Farhanah Yousaf, Edwin Seet, Lashmi Venkatraghavan, Amir Abrishami, and Frances Chung

Melatonin premedication is effective in ameliorating preoperative anxiety, but its analgesic effects remain controversial.

Smoking and Pain: Pathophysiology and Clinical Implications

977

Yu Shi, Toby N. Weingarten, Carlos B. Mantilla, W. Michael Hooten, and David O. Warner

Although nicotine can produce analgesia, chronic exposure to nicotine produces profound changes in physiology that could change pain perception, and cigarette smoking is a risk factor for chronic painful conditions.

CASE REPORT

Laryngoscopy Complicated by Thyroid Cartilage Fracture

993

Allan P. Reed

■ CORRESPONDENCE

Where Is the Impact?

995

Ira J. Rampil and Linda S. Rampil

In Reply

Andreas Taenzer, Joshua Pyke, Susan McGrath, and George Blike

■ ANESTHESIOLOGY REFLECTIONS

The 1847 Murphy Chloroform Inhaler

778

George S. Bause

The Lazare Anaesthesia Apron

781

George S. Bause

Continued on page 22A

The 20-cent Virginia Apgar Stamp

George S. Bause

944

Dr. David Crary's Calling Card

George S. Bause

956

■ REVIEWS OF EDUCATIONAL MATERIAL

997

■ CLASSIFIED ADS

A45

INSTRUCTIONS FOR AUTHORS

The most recently updated version of the Instructions for Authors is available at www.anesthesiology.org. Please refer to the Instructions for the preparation of any material for submission to ANESTHESIOLOGY.

Manuscripts submitted for consideration for publication must be submitted in electronic format. The preferred method is via the Journal's Web site (<http://www.anesthesiology.org>). Detailed directions for submissions and the most recent version of the Instructions for Authors can be found on the Web site (<http://www.anesthesiology.org>). Books and educational materials should be sent to Michael J. Avram, Ph.D., Department of Anesthesiology, Northwestern University Feinberg School of Medicine, Ward Memorial Building, Room 13-199, 303 East Chicago Avenue, Chicago, IL 60611-3008. Requests for permission to duplicate materials published in ANESTHESIOLOGY should be submitted in electronic format, to the Permissions Department (journalpermissions@lww.com). All articles accepted for publication are done so with the understanding that they are contributed exclusively to this Journal and become the property of the American Society of Anesthesiologists, Inc. Statements or opinions expressed in the Journal reflect the views of the author(s) and do not represent official policy of the American Society of Anesthesiologists unless so stated. Advertising and related correspondence should be addressed to Advertising Manager, ANESTHESIOLOGY, Lippincott Williams & Wilkins, Two Commerce Square, 2001 Market Street, Philadelphia, Pennsylvania 19103 (Web site: <http://www.lww.com/advertisingratecards/>). Publication of an advertisement in ANESTHESIOLOGY does not constitute endorsement by the Society or Lippincott Williams & Wilkins, Inc. of the product or service described therein or of any representations made by the advertiser with respect to the product or service.