

TABLE OF CONTENTS

ANESTHESIOLOGY

◇ **This Month in ANESTHESIOLOGY**5A
Science, Medicine, and the Anesthesiologist..... 15A
Infographics in ANESTHESIOLOGY..... 19A

◆ **Editorial Views**

Wake Up, Neurons! Astrocytes Calling
M. Perouansky, M. Bruce MacIver, R. A. Pearce.....361

Acute Respiratory Distress Syndrome: Biomarkers, Mechanisms, and Water Channels
W. M. Kuebler.....364



Readers' Toolbox

 **The American Society of Anesthesiologists Practice Parameter Methodology**
J. L. Apfelbaum, R. T. Connis.....367

The American Society of Anesthesiologists practice parameter methodology is described, including task force composition, identification of interventions and outcomes, literature review and analysis, convergence of scientific and opinion-based information, and review and adoption of the document.


Perioperative Medicine

CLINICAL SCIENCE

◇  **Driving Pressure during Thoracic Surgery: A Randomized Clinical Trial**
 *M. Park, H. J. Ahn, J. A. Kim, M. Yang, B. Y. Heo, J. W. Choi, Y. R. Kim, S. H. Lee, H. Jeong, S. J. Choi, I. S. Song*.....385

In a double-blinded, randomized trial (292 patients), minimized driving pressure compared with standard protective ventilation was associated with less postoperative pneumonia or acute respiratory distress syndrome.




BASIC SCIENCE

◇  **Automated Titration of Vasopressor Infusion Using a Closed-loop Controller: *In Vivo* Feasibility Study Using a Swine Model**
A. Joosten, A. Delaporte, B. Alexander, F. Su, J. Creteur, J.-L. Vincent, M. Cannesson, J. Rinehart.....394

In this study of pigs with normovolemic hypotension induced by administration of sodium nitroprusside, an automated closed-loop vasopressor administration device was able to maintain mean arterial pressure within 5 mmHg of 80 mmHg for 98% of the intraoperative period. This suggests that norepinephrine can be accurately titrated using an automated infusion device in order to maintain target blood pressure.

Critical Care Medicine

CLINICAL SCIENCE

◆   **Aquaporin 5 –1364A/C Promoter Polymorphism Is Associated with Pulmonary Inflammation and Survival in Acute Respiratory Distress Syndrome**
 *T. Rahmel, K. Rump, J. Peters, M. Adamzik*.....404

In acute respiratory distress syndrome attributable to bacterial pneumonia, the C-allele of the aquaporin-5 –1364A/C promoter polymorphism is associated with less pulmonary inflammation and greater survival. This may improve characterization of acute respiratory distress syndrome and ultimately facilitate individualized care.

◆   **Delays in Cardiopulmonary Resuscitation, Defibrillation, and Epinephrine Administration All Decrease Survival in In-hospital Cardiac Arrest**
 *N. G. Bircher, P. S. Chan, Y. Xu, for the American Heart Association's Get With The Guidelines–Resuscitation Investigators*.....414

Assessment of witnessed, pulseless cardiac arrests occurring at 538 hospitals during a 9-yr period indicates that cardiopulmonary resuscitation (CPR) did not occur immediately at 0 min in 5.7% of patients despite guidelines for instantaneous initiation. Delay in initiation of CPR was associated with significantly decreased survival. Time to initiation of CPR and subsequent time to initiation of administration of defibrillation shock (for shockable arrhythmias) and epinephrine were both associated with reduced patient survival.

◇ Refers to This Month in ANESTHESIOLOGY

◆ Refers to Editorial Views

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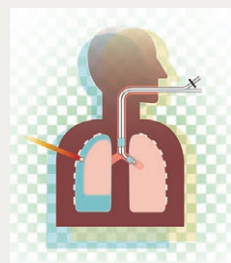
 CME Article

 This article has a Video Abstract

 Part of the Letheon writing competition

 This article has a Visual Abstract

 Readers' Toolbox





ON THE COVER: One-lung ventilation during thoracic surgery places patients at added risk of ventilator-induced lung injury. Recently studies have suggested that pulmonary complications are related to driving pressure more than any other ventilatory parameter. In this issue of ANESTHESIOLOGY, Park *et al.* compared driving pressure–guided ventilation with conventional protective ventilation in thoracic surgery in a double-blind randomized controlled study of 292 patients. Application of the driving pressure–guided ventilation during one-lung ventilation was associated with a lower incidence of postoperative pulmonary complications compared to conventional protective ventilation in thoracic surgery.

• Park *et al.*: Driving Pressure during Thoracic Surgery: A Randomized Clinical Trial, p. 385

Pain Medicine

BASIC SCIENCE

- ◆ ◆  **Mitochondrial Function in Astrocytes Is Essential for Normal Emergence from Anesthesia in Mice**
 *R. Ramadasan-Nair, J. Hui, L. S. Itsara, P. G. Morgan, M. M. Sedensky*.....423

In a tamoxifen-activated astrocyte-specific *Ndufs4(KO)* mouse, the induction EC50s for tail clamp in both isoflurane and halothane were similar between the control and astrocyte-specific *Ndufs4(KO)* mice at 3 weeks after 4-hydroxy tamoxifen injection. However, the emergent concentrations in both anesthetics for the astrocyte-specific *Ndufs4(KO)* mice were half that of the controls. Similarly, the induction EC50s for loss of righting reflex were similar between the control and astrocyte-specific *Ndufs4(KO)* mice; concentrations for regain of righting reflex in both anesthetics for the astrocyte-specific *Ndufs4(KO)* mice were much less than the control. Thus, mitochondrial complex I function within astrocytes is essential for normal emergence from anesthesia.

Education

CLASSIC PAPERS REVISITED

- Nitric Oxide Story**
W. M. Zapol.....435

IMAGES IN ANESTHESIOLOGY

- Esophageal Pressure Monitoring in the Critically Ill Obese Subject**
M. Lemyze, A. Guiot, M. Granier.....441
-  **Endovascular Retrieval of Broken Arterial Cannulas**
M. Béland, C. Lalonde, G. Garneau, M. Méthot.....442
-  **B-lines Visualization and Lung Aeration Assessment: Mind the Ultrasound Machine Setting**
S. Mongodi, Andrea Stella, A. Orlando, F. Mojoli.....444
- Propofol-associated Green Hair Discoloration**
B. P. Pulos, H. P. Sviggum, E. E. Sharpe.....445

CLINICAL FOCUS REVIEW


- ◆ **Acute Fatty Liver of Pregnancy: Pathophysiology, Anesthetic Implications, and Obstetrical Management**
E. E. Naoum, L. R. Leffert, H. V. Chitilian, K. J. Gray, B. T. Bateman.....446

A narrative review of the pathophysiology, diagnosis, management, delivery implications, obstetric anesthesia care, and potential critical care needs in patients presenting with acute fatty liver of pregnancy.

REVIEW ARTICLE

- ◆ **A Neurologic Examination for Anesthesiologists: Assessing Arousal Level during Induction, Maintenance, and Emergence**
E. R. Reshef, N. D. Schiff, E. N. Brown.....462

This article reviews the principal components of the neurologic examination that are most relevant to anesthesiologists for inferring a patient's level of brainstem function and arousal during induction, maintenance, and emergence from general anesthesia. The neurologic examination provides information about a patient's arousal level that is complementary to that provided by vital signs and electroencephalogram measures.

- ◆  **Effects of Thoracic Epidural Anesthesia on Neuronal Cardiac Regulation and Cardiac Function**
J. Wink, B. T. Veering, L. P. H. J. Aarts, P. F. Wouters.....472

This review provides a comprehensive update on the cardiovascular effects of high-thoracic epidural anesthesia and cardiac sympathectomy in healthy and diseased patients.

-  **Operating Room Fires**
T. S. Jones, I. H. Black, T. N. Robinson, E. L. Jones.....492

Operating room fires are rare but devastating events; their prevention and management require our understanding of the three ingredients of a fire (oxidizer, fuel, ignition source), an accurate preoperative assessment of risk, and teamwork to extinguish.

MIND TO MIND

-  **Morning in the Surgical Waiting Area**
D. Doyle.....502

- The Pager Goes Off**
D. A. Gutman.....503

- Down: Death through the Eyes of an Intern**
A. Zak.....505

Correspondence

- Other Factors Affect the Occurrence of Perioperative Respiratory Adverse Events**
L. Wang, L. Wei, X. Deng.....507

- Improving External Validity May Jeopardize Internal Validity**
M. Daoud.....508

- Is a Single Dose of Propofol Good Enough to Prevent Respiratory Complications beyond the Induction Phase?**
A. Subedi, K. Pokharel.....509

Does Intravenous versus Inhalational Induction of Anesthesia Only Decrease Perioperative Respiratory Events during the Induction Period?

T. T. Nguyen, H. V. Lam, T. M. Austin510

In Reply

A. Davidson511

In Reply

A. Ramgolam, G. L. Hall, G. Zhang, H. Mary, B. S. von Ungern-Sternberg511

Opiates and IV Acetaminophen

J. Steadman513

When Large Administrative Databases Provide Less Relevant Information than Randomized Studies

F. Aubrun, Y. Le Manach, B. Riou514

In Reply

J. Poeran, S. G. Memtsoudis, M. Mazumdar, A. B. Leibowitz515

Experimental Controls in Lipid Resuscitation Therapy

M. R. Fettiplace, G. Weinberg516

Metabolite Palmitoylcarnitine Mediates Intralipid Cardioprotection Rather Than Membrane Receptors

M. Zaugg, A. S. Clanachan, P.-H. Lou, E. Lucchinetti518

In Reply

S. Umar, M. Eghbali519

Reviews of Educational Material 522

Careers & Events 23A

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