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- Association between Epidural Analgesia and Cancer Recurrence after Colorectal Cancer Surgery** 27
Antje Gottschalk, Justin G. Ford, Cedric C. Regelin, Jing You, Edward J. Mascha, Daniel I. Sessler, Marcel E. Durieux, and Edward C. Nemergut
This retrospective analysis revealed no relationship between cancer recurrence and perioperative epidural analgesia, except possibly a lower cancer recurrence rate in patients older than 64 yr.
- Relationship between Anesthetic Depth and Venous Oxygen Saturation during Cardiopulmonary Bypass** 35
Erica J. Stein, David B. Glick, Mohammed M. Minhaj, Melinda Drum, and Avery Tung
In patients undergoing cardiopulmonary bypass, mixed venous oxygen saturation did not associate with anesthetic depth as measured by bispectral index.
- Fentanyl Does Not Reduce the Incidence of Laryngospasm in Children Anesthetized with Sevoflurane** 41
Thomas O. Erb, Britta S. von Ungern-Sternberg, Kathrin Keller, Gary L. Rosner, Damian Craig, and Franz J. Frei
In children anesthetized with sevoflurane, the incidence and severity of laryngospasm is not diminished after the administration of intravenous fentanyl.

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 CME Article

Activity Patterns in the Prefrontal Cortex and Hippocampus during and after Awakening from Etomidate Anesthesia 48

Sergejus Butovas, Uwe Rudolph, Rachel Jurd, Cornelius Schwarz, and Bernd Antkowiak

Etomidate-induced patterns of electrical brain activity during general anesthesia mostly involve γ -aminobutyric acid subtype A receptors containing $\beta 3$ subunits. One hour after awakening from anesthesia, slowed θ activity indicates ongoing anesthetic action.

◆ Rapid Chemical Antagonism of Neuromuscular Blockade by L-Cysteine Adduction to and Inactivation of the Olefinic (Double-bonded) Isoquinolinium Diester Compounds Gantacurium (AV430A), CW 002, and CW 011 58

John J. Savarese, Jeff D. McGilvra, Hiroshi Sunaga, Matthew R. Belmont, Scott G. Van Ornum, Peter M. Savard, and Paul M. Heerdt

Gantacuriums, CW 002, and CW 011 are neuromuscular blockers degraded by L-cysteine adduction. Rate of degradation in vitro correlates with duration in vivo. Exogenous L-cysteine intravenously abolishes complete block in 2–3 min, furnishing a novel chemical method of antagonism. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

◆ Phase II Study to Evaluate the Safety and Efficacy of the Oral Neurokinin-1 Receptor Antagonist Casopitant (GW679769) Administered with Ondansetron for the Prevention of Postoperative and Postdischarge Nausea and Vomiting in High-risk Patients 74

Neil K. Singla, Sonia K. Singla, Frances Chung, Demetrios J. Kutsogiannis, Linda Blackburn, Stephen R. Lane, Jeremy Levin, Brendan Johnson, and Joseph V. Pergolizzi, Jr.

This study evaluated whether the addition of an oral dose of the neurokinin-1 receptor antagonist casopitant improved the antiemetic efficacy of an intravenous dose of ondansetron. Female patients with known risk factors for postoperative nausea and vomiting were randomized to one of four treatment arms: standard ondansetron 4 mg with casopitant at 0 mg, 50 mg, 100 mg, or 150 mg. A greater proportion of patients in all of the active casopitant plus ondansetron groups achieved a complete response (i.e., no vomiting, retching, rescue medication, or premature withdrawal) during the first 24 h postoperatively versus ondansetron alone. Casopitant and ondansetron combination results in superior emesis prevention during the first 24 h after surgery compared with ondansetron alone.

Arterial and Plethysmographic Waveform Analysis in Anesthetized Patients with Hypovolemia 83

Reuven Pizov, Arie Edan, Dmitri Bystritski, Elena Kalina, Ada Tamir, and Simon Gelman

Arterial and plethysmographic waveform changes are sensitive indicators of small blood volume decreases in hemodynamically stable patients. Respiratory-induced plethysmographic waveforms accurately reflect arterial waveform changes with some delay and lower sensitivity.

■ CRITICAL CARE MEDICINE

◆ Supernatant of Aged Erythrocytes Causes Lung Inflammation and Coagulopathy in a “Two-Hit” In Vivo Syngeneic Transfusion Model 92

Alexander P. J. Vlaar, Jorrit J. Hofstra, Marcel Levi, Willem Kulik, Rienk Nieuwland, Anton T. J. Tool, Marcus J. Schultz, Dirk de Korte, and Nicole P. Juffermans

Aged erythrocytes cause mild lung inflammation in healthy lungs. In primed lungs, aged erythrocytes augment pulmonary injury by increasing coagulopathy, an effect that was abrogated by washing of red cells.

◆◆ Inhaled Hydrogen Sulfide Protects against Ventilator-induced Lung Injury 104

Simone Faller, Stefan W. Ryter, Augustine M. K. Choi, Torsten Loop, René Schmidt, and Alexander Hoetzel

Hydrogen sulfide, a suspended animation-inducing agent, can confer organ protective effects. In the current study, low-dose inhaled hydrogen sulfide exerts antiinflammatory and antiapoptotic effects during mechanical ventilation, thus preventing ventilator-induced lung injury.

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Hypercapnic Acidosis Reduces Oxidative Reactions in Endotoxin-induced Lung Injury

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Alistair D. Nichol, Donall F. O'Cronin, Finola Naughton, Natalie Hopkins, John Boylan, and Paul McLoughlin

Hypercapnic acidosis promptly reduces pulmonary oxidative reactions in the acutely injured lung in vivo (within minutes). This rapid onset antioxidant action is a mechanism by which hypercapnic acidosis could act even when acute lung injury is well established.

Thoracic Epidural Anesthesia Attenuates Endotoxin-induced Impairment of Gastrointestinal Organ Perfusion

126

Jörn Schäper, Raees Ahmed, Frank Holger Perschel, Michael Schäfer, Helmut Habazettl, and Martin Welte

Thoracic epidural anesthesia attenuated endotoxin-induced impairment of gastrointestinal organ perfusion and did not compromise blood flow to vital organs in the course of endotoxemia.

■ PAIN MEDICINE

◆ Calcium Signaling in Intact Dorsal Root Ganglia: New Observations and the Effect of Injury

134

Geza Gemes, Marcel Rigaud, Andrew S. Koopmeiners, Mark J. Poroli, Vasiliki Zoga, and Quinn H. Hogan

Recording cytoplasmic Ca^{2+} signals is critical in understanding sensory neuron function. The authors devised a technique that addresses limitations of prior methods, which provided novel findings showing distinct function of neuron types and effects of injury.

◆ Effects of Intrathecal Ketamine in the Neonatal Rat: Evaluation of Apoptosis and Long-term Functional Outcome

147

Suellen M. Walker, B. David Westin, Ronald Deumens, Marjorie Grafe, and Tony L. Yaksh

Bolus intrathecal ketamine in neonatal rats increases neuronal apoptosis in the spinal cord and alters long-term function at doses required for antihyperalgesic effects. The therapeutic ratio (toxic/analgesic dose) is less than one in early life.

Lidocaine, Carbamazepine, and Imipramine Have Partially Overlapping Binding Sites and Additive Inhibitory Effect on Neuronal Na^+ Channels

160

Ya-Chin Yang, Chen-Syuan Huang, and Chung-Chin Kuo

Anticonvulsants, local anesthetics, and tricyclic antidepressants bind to a common aromatic site, and the latter two also bind to an additional tertiary amine site, in the Na^+ channel, to have an additive rather than a synergistic inhibitory effect.

🌐 Skin Conductance Fluctuations Correlate Poorly with Postoperative Self-report Pain Measures in School-aged Children

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Eugene K. Choo, William Magruder, Carolyn J. Montgomery, Joanne Lim, Rollin Brant, and J. Mark Ansermino

Number of fluctuations of skin conductance per second are evaluated as an objective measure of postoperative pain in school-aged children. Measurement of the number of fluctuations of skin conductance per second is feasible but does not reliably indicate increases in postoperative pain intensity. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

◆ Validation of a Preclinical Spinal Safety Model: Effects of Intrathecal Morphine in the Neonatal Rat

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B. David Westin, Suellen M. Walker, Ronald Deumens, Marjorie Grafe, and Tony L. Yaksh

The authors evaluated toxicity and susceptibility to neuronal apoptosis in the spinal cord after intrathecal morphine in the neonatal rat. Single-dose intrathecal morphine has a high therapeutic ratio (toxic to antinociceptive dose) in early life.

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- Effect of Just-in-time Simulation Training on Tracheal Intubation Procedure Safety in the Pediatric Intensive Care Unit** 214
Akira Nishisaki, Aaron J. Donoghue, Shawn Colborn, Christine Watson, Andrew Meyer, Calvin A. Brown III, Mark A. Helfaer, Ron M. Walls, and Vinay M. Nadkarni
"Just-in-time" multidisciplinary simulation-based pediatric intensive care unit resident tracheal intubation refresher training did not improve the resident's overall success. Unwanted tracheal intubation-associated events did not increase despite an increase in resident participation in actual intubations.

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- Incidence of Epidural Catheter-associated Infections after Continuous Epidural Analgesia in Children** 224
Navil F. Sethna, David Clendenin, Umeshkumar Athiraman, Jean Solodiuk, Diana P. Rodriguez, and David Zurakowski
Incidence of epidural catheter-associated infections in children after short-term epidural infusions is very low. The incidence of infection is significantly higher in patients treated for chronic pain compared with acute postoperative pain.

- Preconditioning and Postinsult Therapies for Perinatal Hypoxic–Ischemic Injury at Term** 233
Robert D. Sanders, Helen J. Manning, Nicola J. Robertson, Daqing Ma, A. David Edwards, Henrik Hagberg, and Mervyn Maze
Perinatal hypoxic–ischemic injury is a devastating peripartum complication. Herein, the authors review the pathophysiology and current status of neuroprotective strategies for this disorder.

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- Positively Active: How Local Anesthetics Work** 250
Hugh C. Hemmings, Jr. and Paul Greengard
This article is a revisiting of original material published as: Ritchie JM, Greengard P: On the active structure of local anesthetics. J Pharmacol Exp Ther 1961; 133:241–5.

CASE REPORT

- Successful Airway Management with Combined Use of Glidescope® Videolaryngoscope and Fiberoptic Bronchoscope in a Patient with Cowden Syndrome** 253
Deepak Sharma, Louis J. Kim, and Basavaraj Ghodke

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