



Anesthesiology



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American Society of Critical Care Anesthesiologists
Society for Obstetric Anesthesia and Perinatology



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Roman Kluger, David J. Olive, Andrew B. Stewart, and Carolyn M. Blyth
 Epsilon-aminocaproic acid is equally efficacious when administered prior to skin incision or following heparin in primary coronary artery bypass graft surgery.
- ◇ **Reliability and Validity of a Simulation-based Acute Care Skills Assessment for Medical Students and Residents** **1270**
John R. Boulet, David Murray, Joe Kras, Julie Woodhouse, John McAllister, and Amitai Ziv
 Simulation-based exercises can be used to assess the acute care skills of medical students and residents.
- Mechanism of Pupillary Reflex Dilation in Awake Volunteers and in Organ Donors** **1281**
Laura L. Yang, Claus U. Niemann, and Merlin D. Larson
 Pupillary reflex dilation involves supraspinal pathways.
- Tissue Factor and Platelet Glycoprotein Ib- α Alleles Are Associated with Age at First Coronary Bypass Operation** **1287**
Brian S. Donahue, Daniel W. Byrne, David Gailani, and Alfred L. George Jr.
 Age is a known risk factor for perioperative complications, but the genetic reasons why some patients present earlier for coronary bypass surgery are unexplored. Both the number of tissue factor -1208 insertion alleles and the total number of glycoprotein Ib- α repeats were found to have independent linear relations with age at first coronary bypass surgery. These data help to define the genetic differences between the younger and older first-time coronary artery bypass populations.
- ◇ **Sleep Arousal after Lower Abdominal Surgery and Relation to Recovery from Respiratory Obstruction** **1295**
Aihua Wu and Gordon B. Drummond
 Because sleep disturbance and hypoxemia have been related to episodic airway obstruction during sleep, arousals from sleep were measured in gynecologic patients receiving morphine by patient control over the first night after lower abdominal surgery. Sleep was abnormal, and arousals from sleep were frequent. Most episodes of arousal from sleep were not related to respiratory disturbances.

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■ LABORATORY INVESTIGATIONS

- Halothane Enhances γ -Aminobutyric Acid Receptor Type A Function but Does Not Change Overall Inhibition in Inspiratory Premotor Neurons in a Decerebrate Dog Model** **1303**

Astrid G. Stucke, Edward J. Zuperku, Viseslav Tonkovic-Capin, Mirko Krolo, Francis A. Hopp, John P. Kampine, and Eckehard A. E. Stuth

A decerebrate dog model shows that halothane greatly enhances γ -aminobutyric acid receptor type A function in inspiratory premotor neurons in the ventral respiratory group but does not change overall synaptic inhibition. Therefore, halothane seems to reduce presynaptic inhibitory input to these neurons.

- Setting Mean Airway Pressure during High-frequency Oscillatory Ventilation According to the Static Pressure-Volume Curve in Surfactant-deficient Lung Injury: A Computed Tomography Study** **1313**

Thomas Luecke, Juergen P. Meinhardt, Peter Herrmann, Gerald Weisser, Paolo Pelosi, and Michael Quintel

High-frequency oscillatory ventilation leads to greater lung recruitment than that obtained by application of a static pressure equal to the mean airway pressure during high-frequency oscillatory ventilation. This recruitment is sufficient to increase lung volume equal to that at the equivalent pressure on the deflation pressure-volume curve.

- Acid-induced Lung Injury: Role of Nuclear Factor- κ B** **1323**

Lilly Madjdpour, Sita Kneller, Christa Booy, Thomas Pasch, Ralph C. Schimmer, and Beatrice Beck-Schimmer

These data show for the first time a biphasic expression pattern of the transcriptional factor NF- κ B in acid aspiration.

- Mild Hypercapnia Induces Vasodilation *via* Adenosine Triphosphate-sensitive K⁺ Channels in Parenchymal Microvessels of the Rat Cerebral Cortex** **1333**

Katsutoshi Nakahata, Hiroyuki Kinoshita, Yusei Hirano, Yoshiki Kimoto, Hiroshi Iranami, and Yoshio Hatano

In parenchymal microvessels of the rat cerebral cortex, adenosine triphosphate-sensitive K⁺ channels, but not nitric oxide derived from endothelial as well as neuronal enzymes, play a major role in vasodilator responses produced by mild hypercapnia.



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Halothane Inhibits an Intermediate Conductance Ca^{2+} -activated K^+ Channel by Acting at the Extracellular Side of the Ionic Pore **1340**

Mitsuko Hashiguchi-Ikeda, Tsunehisa Namba, Takahiro M. Ishii, Taizo Hisano, and Kazuhiko Fukuda

Molecular mechanism of halothane inhibition of a Ca^{2+} -activated K^+ channel was investigated. Halothane blocks the ionic pore from the extracellular side.

Isoflurane Enhances the Expression and Activity of Glutamate Transporter Type 3 in C6 Glioma Cells **1346**

Yueming Huang and Zhiyi Zuo

Isoflurane dose and time dependently increased the expression and activity of glutamate transporter type 3 in C6 glioma cells. These isoflurane effects may be due to the improved stability of mRNA and proteins of this transporter and may not be dependent on protein kinase C and phosphatidylinositol 3 kinase.

■ **PAIN AND REGIONAL ANESTHESIA**

Relative Analgesic Potencies of Levobupivacaine and Ropivacaine for Epidural Analgesia in Labor **1354**

Linda S. Polley, Malachy O. Columb, Norah N. Naughton, Deborah S. Wagner, Cosmas J. M. van de Ven, and Kathryn H. Goralski

Levobupivacaine and ropivacaine are of similar potency for epidural analgesia in labor as determined by comparison of the minimum local analgesic concentrations.

Influence of Age and Sex on the Position of the Conus Medullaris and Tuffier's Line in Adults **1359**

Jin-Tae Kim, Jae-Hyon Bahk, and Joohon Sung

During spinal block, there seems to be a safety margin of 2-4 vertebral bodies and intervertebral spaces between the conus medullaris and Tuffier's line, regardless of sex or presence of transitional vertebra. However, the conus medullaris and Tuffier's line become closer with age.

Plastic Change of N-type Ca Channel Expression after Preconditioning Is Responsible for Prostaglandin E_2 -induced Long-lasting Allodynia **1364**

Kazuaki Yokoyama, Takashi Kurihara, Koshi Makita, and Tsutomu Tanabe

The up-regulation of N-type Ca channel expression in dorsal root ganglia and the spinal cord was observed after apparent resolution of carrageenan-induced acute inflammation at the hind paw. Prostaglandin E_2 induced long-lasting allodynia in the preconditioned rats, which was attenuated by the N-type Ca channel blocker.

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Tumescent Local Anesthesia for the Surgical Treatment of Burns and Postburn Sequelae in Pediatric Patients **1371**

Leonardo Bussolin, Paolo Busoni, Letizia Giorgi, Massimo Crescioli, and Andrea Messeri

This study evaluated tumescent local anesthesia for regional anesthesia and postoperative analgesia of burned children using infiltration of large volumes of local anesthetics. Tumescent local anesthesia seemed to be safe and the sole possible effective locoregional anesthesia technique for the surgical treatment of noncontiguous pediatric burns.

◇ Dural Tissue Trauma and Cerebrospinal Fluid Leak after Epidural Needle Puncture: Effect of Needle Design, Angle, and Bevel Orientation **1376**

Pamela J. Angle, Jean E. Kronberg, Dorothy E. Thompson, Cameron Ackerley, John Paul Szalai, James Duffin, and Peter Faure

The effect of epidural needle design, angle, and bevel orientation on cerebrospinal fluid leak were examined after puncture of fresh human cadaveric dura. A large, statistically significant reduction in leak was found between the 20-gauge Tuohy needle and all of the other epidural needles studied.

A Randomized Sequential Allocation Study to Determine the Minimum Effective Analgesic Concentration of Levobupivacaine and Ropivacaine in Patients Receiving Epidural Analgesia for Labor **1383**

Dan Benhamou, Caroline Ghosh, and Frédéric J. Mercier

Using the minimum local analgesic concentrations methodology in women who were in labor, levobupivacaine was 19.3% more potent than ropivacaine (difference not statistically significant) and provided similar safety results.

Cervical and High Thoracic Ligamentum Flavum Frequently Fails to Fuse in the Midline **1387**

Philipp Lirk, Christian Kolbitsch, Guenther Putz, Joshua Colvin, Hans Peter Colvin, Ingo Lorenz, Christian Keller, Lukas Kirchmair, Josef Rieder, and Bernhard Moriggl

The cervical and upper thoracic ligamenta flavum constitutes an important landmark in epidural anesthesia. This study demonstrates mid-line discontinuities that are frequent at cervical levels but decrease in frequency toward thoracic levels.



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A Novel Neuroimmune Mechanism in Cannabinoid-mediated Attenuation of Nerve Growth Factor-induced Hyperalgesia **1391**

W. Paul Farquhar-Smith and Andrew S. C. Rice

Cannabinoids attenuate a nerve growth factor-induced hyperalgesia by a neuronal action and a novel neuroimmune mechanism.

◇ **Development of Neuropathic Pain in the Rat Spared Nerve Injury Model Is Not Prevented by a Peripheral Nerve Block** **1402**

Marc R. Suter, Michael Papaloizos, Charles B. Berde, Clifford J. Woolf, Nicolas Gilliard, Donat R. Spahn, and Isabelle Decosterd

A peripheral preinjury block with bupivacaine-loaded microspheres lasting for 6 to 10 days had no detectable effect on the development of allodynia or hyperalgesia in the spared nerve injury model.

Antinociceptive Effect of Morphine, but not μ Opioid Receptor Number, Is Attenuated in the Spinal Cord of Diabetic Rats **1409**

Shao-Rui Chen and Hui-Lin Pan

The antinociceptive effect of intrathecal morphine was significantly reduced in a rat model of diabetic neuropathic pain. However, both the number and the binding affinity of the μ opioid receptor in the spinal cord, measured with immunocytochemistry labeling and radioligand binding, were not significantly different between normal and diabetic rats.

■ **REVIEW ARTICLE**

Pulmonary Arterial Hypertension: Pathophysiology and Anesthetic Approach **1415**

Gilbert Blaise, David Langleben, and Bernard Hubert

The anesthetic approach to primary and secondary hypertension is reviewed, with special emphasis on physiopathologic mechanisms and the interaction of anesthetic drugs with mechanisms of pulmonary hypertension. Anesthetic procedures for special types of surgery are presented and reviewed.

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■ SPECIAL ARTICLE

- ◆ **Current Transfusion Practices of Members of the American Society of Anesthesiologists: A Survey** **1433**
Gregory A. Nuttall, Linda C. Stehling, Christopher M. Beighley, Ronald J. Faust, and the American Society of Anesthesiologists Committee on Transfusion Medicine

This survey demonstrates that there have been considerable changes in transfusion practices since 1981. Current transfusion practices are, in general, consistent with the American Society of Anesthesiologists Guidelines.

■ CLINICAL CONCEPTS AND COMMENTARY

- Vaginal Birth after Cesarean Delivery** **1444**
Brenda A. Bucklin

Uterine rupture occurs in approximately 1% of vaginal birth attempts after previous cesarean delivery. Studies suggest that major morbidity and mortality can be minimized with close maternal and fetal monitoring and the immediate availability of all necessary personnel to perform an emergency cesarean delivery.

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- ◆ **Cardiac Arrest after Injection of Ropivacaine for Posterior Lumbar Plexus Blockade** **1451**
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- Severe Airway Obstruction during Arthroscopic Shoulder Surgery** **1455**
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