



Anesthesiology



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◇ Sevoflurane *versus* Halothane: Postoperative Maladaptive Behavioral Changes: A Randomized, Controlled Trial 720

Zeev N. Kain, Alison A. Caldwell-Andrews, Megan E. Weinberg, Linda C. Mayes, Shu-Ming Wang, Dorothy Gaal, Haleh Saadat, and Inna Maranets

Sevoflurane use in children undergoing anesthesia and surgery is not associated with increased risk of emergence delirium or postoperative maladaptive behavioral or sleep changes as compared with halothane.

Tranexamic Acid Reduces Intraoperative Blood Loss in Pediatric Patients Undergoing Scoliosis Surgery 727

Navil F. Sethna, David Zurakowski, Robert M. Brustowicz, Julianne Bacsik, Lorna J. Sullivan, and Frederic Shapiro

Tranexamic acid administered before incision and continuous infusion significantly reduces blood loss during scoliosis surgery in children.

Tetanic Stimulation of the Peripheral Nerve before Transcranial Electrical Stimulation Can Enlarge Amplitudes of Myogenic Motor Evoked Potentials during General Anesthesia with Neuromuscular Blockade 733

Meiko Kakimoto, Masahiko Kawaguchi, Yuri Yamamoto, Satoki Inoue, Toshinori Horiuchi, Hiroyuki Nakase, Toshisuke Sakaki, and Hitoshi Furuya

The authors developed a new technique called "posttetanic motor evoked potentials," in which tetanic stimulation was applied on the peripheral nerve before transcranial stimulation during neuromuscular blockade. The results indicate that tetanic stimulation of the peripheral nerve can be intraoperatively applied as a method to augment myogenic motor evoked potentials during general anesthesia with neuromuscular blockade.

Does Preoperative Coronary Angioplasty Improve Perioperative Cardiac Outcome? 739

Gilles Godet, Bruno Riou, Michèle Bertrand, Marie-Hélène Fléron, Jean-Pierre Goarin, Gilles Montalescot, and Pierre Coriat

The authors analyzed a cohort of 1,152 patients after abdominal aortic surgery, using propensity score analysis and logistic regression models, and observed that preoperative percutaneous coronary intervention does not seem to limit postoperative cardiac risk and death significantly.

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Antioxidants Reverse Reduction of the Human Hypoxic Ventilatory Response by Subanesthetic Isoflurane

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Luc J. Teppema, Raymonda R. Romberg, and Albert Dahan

Antioxidants (a cocktail of ascorbic acid and α -tocopherol) fully reverse the profound inhibition of the hypoxic ventilatory response by low-dose isoflurane in humans. Because residual anesthetic may remain in the body for considerable time, this finding may have important clinical implications for postoperative patients who are prone to recurrent hypoxic episodes.

■ LABORATORY INVESTIGATIONS

◆ Does the Amygdala Mediate Anesthetic-induced Amnesia?: Basolateral Amygdala Lesions Block Sevoflurane-induced Amnesia

754

Michael T. Alkire and Sheila V. Nathan

The inhibitory avoidance memory assessment technique was used to demonstrate in rats that sevoflurane-induced amnesia is blocked with discrete bilateral lesions of the basolateral amygdala. This finding, coupled with extensive previous literature, suggests that the amygdala is a key neuroanatomical site involved with mediating anesthetic-induced amnesia.

◆ S-100 Protein and Neurohistopathologic Changes in a Porcine Model of Acute Lung Injury

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Michael Fries, Johannes Bickenbach, Dietrich Henzler, Stefan Beckers, Rolf Dembinski, Bernd Sellhaus, Rolf Rossaint, and Ralf Kuhlen

Hypoxia in an animal model of acute lung injury results in greater brain damage when compared with an animal model of hypoxia only.

Endotoxemia-induced Lymphocyte Apoptosis Is Augmented by a Hyperinsulinemic-Euglycemic Clamp

768

Jeppe Sylvest Nielsen, Anders Larsson, Vibeke Brix-Christensen, Jens Randel Nyengaard, Thomas Ledet, and Else Tønnesen

A porcine model of acute endotoxemia showed increased lymphocyte apoptosis during a hyperinsulinemic-euglycemic clamp.

Transcutaneous Fluorescence Dilution Cardiac Output and Circulating Blood Volume during Hemorrhagic Hypovolemia

774

Jean-Michel I. Maarek, Daniel P. Holschneider, Jun Yang, Sarah N. Pniak, and Eduardo H. Rubinstein

Cardiac output and circulating blood volume measured by transcutaneous fluorescence dilution technique closely approximated reference standard measurements in anesthetized rabbits during baseline and hypovolemic conditions.

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- ◇ Classic Benzodiazepines Modulate the Open-Close Equilibrium in $\alpha_1\beta_2\gamma_{2L}$ γ -Aminobutyric Acid Type A Receptors 783

Dirk Rüsç and Stuart A. Forman

Classic benzodiazepines alter the maximal efficacy of a partial agonist at $\alpha_1\beta_2\gamma_{2L}$ γ -aminobutyric acid type A receptors and directly modulate the gating activity of spontaneously open mutant receptors. A Monod-Wyman-Changeux allosteric coagonist mechanism accounts for these actions by linking high-affinity benzodiazepine binding to the open-close gating equilibrium.

- Differential Effects of Bupivacaine and Ropivacaine Enantiomers on Intracellular Ca^{2+} Regulation in Murine Skeletal Muscle Fibers 793

Wolfgang Zink, Goetz Missler, Barbara Sinner, Eike Martin, Rainer H. A. Fink, and Bernhard M. Graf

In murine skeletal muscle fibers, stereoselectivity was involved in alterations of intracellular Ca^{2+} regulation by the optical isomers of bupivacaine and ropivacaine, whereas specific effects of *S*-isomers seemed to be most pronounced in inducing Ca^{2+} release from the sarcoplasmic reticulum and in inhibiting reuptake. In addition, specific lipophilicity seemed to determine the extent of Ca^{2+} release by local anesthetics.

- Weak Polar Interactions Confer Albumin Binding Site Selectivity for Haloether Anesthetics 799

Renyu Liu and Roderic G. Eckenhoff

The authors measured the energetics of binding for the structural isomers, isoflurane and enflurane, with human serum albumin using isothermal titration calorimetry and correlated results with anesthetic molecular properties and binding site features. Data indicate two binding sites for these haloether anesthetics on albumin, but of different selectivities.

- ◇ Traumatic Brain Injury and Hemorrhagic Hypotension Suppress Neuroprotective Gene Expression in Injured Hippocampal Neurons 806

Helen Lee Hellmich, Jeanna M. Garcia, Megumi Shimamura, Syed A. Shah, Marcela A. Avila, Tatsuo Uchida, Margaret A. Parsley, Bridget A. Capra, Kristine A. Eidson, Deborah R. Kennedy, John H. Winston, Douglas S. DeWitt, and Donald S. Prough

The authors used laser capture microdissection to examine neuroprotective and apoptotic gene expression in injured and uninjured rat hippocampal neurons after traumatic brain injury and secondary ischemic injury. They found that uninjured neurons express significantly higher messenger RNA levels of neuroprotective genes than adjacent injured neurons.

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Magdi H. Hanna, Kate M. Elliott, and Michelle Fung

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Raymond S. Sinatra, Jonathan S. Jahr, Lowell W. Reynolds, Eugene R. Viscusi, Scott B. Groudine, and Catherine Payen-Champenois

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Mieczyslaw Finster and Margaret Wood

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