



Anesthesiology



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Society for Obstetric Anesthesia and Perinatology



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Irène A. Iselin-Chaves, Sylvie J. Willems, Françoise C. Jermann, Alain Forster, Stéphane R. Adam, and Martial Van der Linden
 During general anesthesia for elective surgery, implicit memory persists even at adequate hypnotic states, to a comparable degree as in nonanesthetized subjects.

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◆ Detection of Consciousness by Electroencephalogram and Auditory Evoked Potentials 934

Gerhard Schneider, Regina Hollweck, Michael Ningler, Gudrun Stockmanns, and Eberhard F. Kochs

In 40 surgical patients, electroencephalogram and auditory evoked potentials were recorded from induction to emergence from general anesthesia, including a period of intended responsiveness. A set of parameters from the electroencephalogram and auditory evoked potentials was identified that differentiates between responsive and unresponsive patients.

● High-frequency Components of Auditory Evoked Potentials Are Detected in Responsive but Not in Unconscious Patients 944

Bertram Scheller, Gerhard Schneider, Michael Dauserer, Eberhard F. Kochs, and Bernhard Zwissler

Midlatency auditory evoked potentials were investigated perioperatively in a time-frequency space. High-frequency components of the auditory evoked potential were significantly suppressed by general anesthesia. Time-frequency representation of the signal gives evidence that these high-frequency components may in part be of muscular origin. Further investigations of underlying mechanisms are required before these components can be used to monitor depth of hypnosis.

◇ What Is the Driving Performance of Ambulatory Surgical Patients after General Anesthesia? 951

Frances Chung, Leonid Kayumov, David R. Sinclair, Reginald Edward, Henry J. Moller, and Colin M. Shapiro

Ambulatory surgical patients showed lower alertness levels and impaired driving skills preoperatively and 2 h postoperatively. Based on driving simulation performance and subjective assessments, patients can resume driving at 24 h after general anesthesia.

Oxygen and Carbon Dioxide in the Cerebral Circulation during Progression to Brain Death 957

Nino Stocchetti, Elisa Roncati Zanier, Rita Nicolini, Emelie Faegersten, Katia Canavesi, Valeria Conte, and Luciano Gattinoni

Progression to brain death is characterized by cerebral blood flow reduction and energy failure leading to widening of the venoarterial difference in carbon dioxide tension. The adequacy of cerebral perfusion at the bedside could be better disclosed by combining cerebral perfusion pressure with arteriojugular oxygen content difference and venoarterial difference in carbon dioxide tension.

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- ◇ Does the Investing Layer of the Deep Cervical Fascia Exist? 962

Lance Nash, Helen D. Nicholson, and Ming Zhang

Using sheet plastination and confocal microscopy techniques, this study demonstrates that the so-called investing layer of the deep cervical fascia does not exist, and deep cervical potential spaces are directly continuous with the subcutaneous tissue in the neck.

■ LABORATORY INVESTIGATIONS

- Effects of Dexmedetomidine on Hippocampal Focal Adhesion Kinase Tyrosine Phosphorylation in Physiologic and Ischemic Conditions 969

Souhayl Dahmani, Danielle Rouelle, Pierre Gressens, and Jean Mantz

Dexmedetomidine increases phosphorylation of hippocampal focal adhesion kinase *via* stimulation of α_2 -adrenoceptor-adenylate cyclase pathway and exerts a preconditioning effect by attenuating both neuronal death and the decrease in focal adhesion kinase phosphorylation induced by oxygen glucose deprivation. Also, it decreases caspase-3 activation.

- Effect of Nutritional Status on Oxidative Stress in an *Ex Vivo* Perfused Rat Liver 978

Michaela Stadler, Vincent Nuyens, Laurence Seidel, Adelin Albert, and Jean G. Boogaerts

Overnight fasting increases hepatocytes injury after both prolonged continuous perfusion and ischemia-reperfusion in an *ex vivo* rat liver model. Reduced glycogen store in hepatocytes may explain reduced tolerance.

- Isoflurane Postconditioning Prevents Opening of the Mitochondrial Permeability Transition Pore through Inhibition of Glycogen Synthase Kinase 3β 987

Jianhua Feng, Eliana Lucchinetti, Preeti Ahuja, Thomas Pasch, Jean-Claude Perriard, and Michael Zaugg

Volatile anesthetics applied during reperfusion ("anesthetic postconditioning") inhibit glycogen synthase kinase 3β *via* activation of protein kinase B/Akt, prevent opening of the mitochondrial permeability transition pore, and thereby decrease postischemic reperfusion damage in the heart.

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Waheedullah Karzai, Xizhong Cui, Norbert Heinicke, Christian Niemann, Eric P. Gerstenberger, Rosaly Correa, Steven Banks, Bjoern Mehlhorn, Frank Bloos, Konrad Reinhart, and Peter Q. Eichacker

In a rat model of ventilator-induced lung injury, neutrophil stimulation by granulocyte colony-stimulating factor increased lung dysfunction and worsened survival rates.

Isoflurane Inhibits Cardiac Myocyte Apoptosis during Oxidative and Inflammatory Stress by Activating Akt and Enhancing Bcl-2 Expression 1006

Marina Jamnicki-Abegg, Dorothee Weihrauch, Paul S. Pagel, Judy R. Kersten, Zeljko J. Bosnjak, David C. Warltier, and Martin W. Bienengraeber

Isoflurane protects cardiac myocytes against apoptotic cell death induced by oxidative or inflammatory stress *in vitro*. These data suggest that an attenuation of apoptosis contributes to the cardioprotective effects of isoflurane.

Effect of Halothane on $G\alpha_{i3}$ and Its Coupling to the M_2 Muscarinic Receptor 1015

Fang Jin, Shuyan Wang, Joshua D. Spencer, Sumedha G. Penheiter, John H. Streiff, Alan R. Penheiter, David O. Warner, and Keith A. Jones

Halothane inhibits the biochemical coupling of the M_2 muscarinic receptor to the G_{i3} heterotrimer without directly inhibiting guanosine nucleotide exchange at the α subunit.

Experimental Conditions Are Important Determinants of Cardiac Inotropic Effects of Propofol 1026

Noriaki Kanaya, Brad Gable, Peter J. Wickley, Paul A. Murray, and Derek S. Damron

The extent to which propofol exerts a negative inotropic effect in rat cardiomyocytes depends on stimulation frequency and temperature.

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■ PAIN AND REGIONAL ANESTHESIA

- ◆ Continuous Peripheral Nerve Blocks in Hospital Wards after Orthopedic Surgery: A Multicenter Prospective Analysis of the Quality of Postoperative Analgesia and Complications in 1,416 Patients 1035

Xavier Capdevila, Philippe Pirat, Sophie Bringuier, Elisabeth Gaertner, François Singelyn, Nathalie Bernard, Olivier Choquet, Hervé Bouaziz, Francis Bonnet, and the French Study Group on Continuous Peripheral Nerve Blocks

Continuous peripheral nerve blocks are efficient techniques for pain relief after orthopedic surgery. The incidence of neural lesions was 0.21%, and despite the high rate of catheter bacterial colonization, the incidence of infection was low (0.07%).

- ◇ Dural Puncture with a 27-Gauge Whitacre Needle as Part of a Combined Spinal-Epidural Technique Does Not Improve Labor Epidural Catheter Function 1046

John A. Thomas, Peter H. Pan, Lynne C. Harris, Medge D. Owen, and Robert D'Angelo

Dural puncture by a 27-gauge Whitacre needle without spinal drug administration did not improve the quality of epidural labor analgesia or epidural catheter replacement or manipulation rates.

- Physiologic and Antinociceptive Effects of Intrathecal Resiniferatoxin in a Canine Bone Cancer Model 1052

Dorothy Cimino Brown, Michael J. Iadarola, Sandra Z. Perkowski, Hardam Erin, Frances Shofer, Karai J. Laszlo, Zoltan Olah, and Andrew J. Mannes

Single-dose, intrathecal resiniferatoxin administration elicited a profound and sustained blockade of thermal stimuli in normal control animals in a dose-dependent fashion. Similar administration in companion animals with bone cancer produced a prolonged antinociceptive response, with effects often lasting until the death of the animal.

- Adenosine Reduces Glutamate Release in Rat Spinal Synaptosomes 1060

Xinhui Li and James C. Eisenach

Capsaicin-evoked glutamate release from dorsal spinal cord synaptosomes was unaffected by previous peripheral nerve injury and was inhibited by adenosine *via* actions on A₁ adenosine receptors. Although these data confirm adenosine-mediated inhibition of glutamate release into the spinal cord, they do not explain the selective analgesic effect of intrathecal adenosine in a setting of sensory hypersensitivity.

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Markus W. Hollmann, Danja Strumper, Susanne Herroeder, and Marcel E. Durieux

Recent developments in the understanding of G-protein signaling are reviewed. The unexpected complexity suggests a number of potential targets for anesthetic action.

GME Efficacy of Postoperative Patient-controlled and Continuous Infusion Epidural Analgesia *versus* Intravenous Patient-controlled Analgesia with Opioids: A Meta-analysis 1079

Christopher L. Wu, Seth R. Cohen, Jeffrey M. Richman, Andrew J. Rowlingson, Genevieve E. Courpas, Kristin Cheung, Elaina E. Lin, and Spencer S. Liu

The authors performed a meta-analysis of available randomized controlled trials and found that epidural analgesia provided significantly superior analgesia compared with intravenous patient-controlled analgesia with opioids.

■ SPECIAL ARTICLE

◆ Government Account for Relief in Occupied Area: A Japanese Physician's Journey to a New Medical Specialty 1089

Shigemasa Ikeda

At the end of World War II, not a single full-time anesthesiologist was in Japan. To address this dearth of anesthesiologists, a little known U.S. government program, Government Account for Relief in Occupied Area, played a significant role initiating the specialization of anesthesiology in Japan. This article examines the lasting impact of the projects on the development of anesthesiology in Japan.

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