

Anesthesiology

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CONTENTS

25A ■ HIGHLIGHTS

■ EDITORIAL VIEWS

- 637** Another Call for Patience Instead of Patients: Developing Novel Therapies for Chronic Pain

Kathleen M. Foley and Tony L. Yaksh

■ SPECIAL ANNOUNCEMENT

- 641** ASA Award: Kai Rehder

Duane K. Rorie

■ CLINICAL INVESTIGATIONS

- 644** Subarachnoid Adrenal Medullary Transplants for Terminal Cancer Pain: A Report of Preliminary Studies

Alon P. Winnie, George D. Pappas, Tapas K. Das Gupta, Hong Wang, John D. Ortega, and Jacqueline Sagen

Subarachnoid adrenal medullary transplants may provide analgesia in some patients with intractable chronic pain.

- 654** Diaphragmatic Shortening after Thoracic Surgery in Humans: Effects of Mechanical Ventilation and Thoracic Epidural Anesthesia

Marie-Dominique Fratacci, William R. Kimball, John C. Wain, Robert M. Kacmarek, David M. Polaner, and Warren M. Zapol

Thoracic epidural anesthesia, while not reversing the impairment of diaphragmatic function following thoracotomy, does improve other measures of ventilatory function.

- 666** The Effect of Tirilazad Mesylate (U74006F) on Cerebral Oxygen Consumption, and Reactivity of Cerebral Blood Flow to Carbon Dioxide in Healthy Volunteers

Karsten Skovgaard Olsen, Charlotte Videbaek, Niels Agerlin, Martin Krøll, Torben Bøge-Rasmussen, Olaf B. Paulson, and Flemming Gjerris

Tirilazad mesylate (U74006F), a 21-aminosteroid, has no effect on the cerebral blood flow or cerebral oxygen consumption of healthy humans.

CONTENTS

672 Epidural *Versus* Intravenous Fentanyl for Reducing Hormonal, Metabolic, and Physiologic Responses after Thoracotomy

Timo E. Salomäki, Juhani Leppäluoto, Jorma O. Laitinen, Olli Vuolteenaho, and Lauri S. Nuutinen

The epidural administration of fentanyl provides adequate pain relief and causes fewer unwanted endocrine, metabolic, and inflammatory responses to surgery than does intravenous fentanyl administration.

680 Fenoldopam Improves Renal Hemodynamics Impaired by Positive End-Expiratory Pressure

O. Poinot, J-A. Romand, H. Favre, and P. M. Suter

Changes in renal perfusion pressure and intrarenal blood flow caused by positive end-expiratory pressure ventilation can be treated with fenoldopam.

685 Dopamine, Dobutamine, and Dopexamine: A Comparison of Renal Effects in Unanesthetized Human Volunteers

Niels Vidiendal Olsen, Jørgen Lund, Per Fage Jensen, Kurt Espersen, Inge-Lis Kanstrup, Inger Plum, and Paul P. Leyssac

At doses of dopamine, dobutamine, and dopexamine producing similar increases in cardiac output, the renal vasodilating potency of dopexamine is less than that of dopamine (no change with dobutamine), and only dopamine increases sodium excretion by decreasing renal tubular reabsorption.

695 Absence of Nonshivering Thermogenesis in Anesthetized Adult Humans

James M. Hynson, Daniel I. Sessler, Azita Moayeri, and Joseph McGuire

Progressive hypothermia during isoflurane anesthesia triggered thermoregulatory vasoconstriction, but oxygen consumption continued to decrease at the rate of 9%/°C, indicating that nonshivering thermogenesis is not an important thermoregulatory response in anesthetized adults.

704 Effects of Sevoflurane on Cerebral Circulation and Metabolism in Patients with Ischemic Cerebrovascular Disease

Katsuyasu Kitaguchi, Hisatoshi Ohsumi, Masakazu Kuro, Toshito Nakajima, and Yukio Hayashi

Cerebral blood flow and cerebral metabolic rate for oxygen were measured during sevoflurane anesthesia in patients with ischemic cerebrovascular disease. Both carbon dioxide reactivity and cerebral autoregulation were well maintained.

CONTENTS

710 Minimum Alveolar Concentration of Desflurane in Patients Older Than 65 Yr

Martin I. Gold, David Abello, and Claire Herrington

Minimum alveolar concentration of desflurane in patients older than 65 yr is reduced to 5.17% with oxygen and 1.67% with nitrous oxide/oxygen.

715 Transcutaneous Cardiac Pacing during Thoracic Surgery: Feasibility and Hemodynamic Evaluation by Transesophageal Echocardiography

David Amar, Jay N. Gross, Michael Burt, Matthew E. Schwinger, Valerie W. Rusch, and Ruth A. Reinzel

Transcutaneous cardiac pacing was feasible in patients in the lateral decubitus and during one-lung ventilation and was associated with reversible decrements of mean arterial pressure, most likely due to the loss of AV synchrony.

724 Does Nitrous Oxide Antagonize Isoflurane-induced Suppression of Learning?

Ben S. Chortkoff, H. L. Bennett, and E. I. Eger II

Although nitrous oxide and isoflurane are slightly less than additive in suppressing both learning and response to command, this antagonism seems too small to materially influence intraoperative learning.

733 Disposition and Respiratory Effects of Intrathecal Morphine in Children

David G. Nichols, Myron Yaster, Anne M. Lynn, Mark A. Helfaer, Jayant K. Deshpande, Paul N. Manson, Benjamin S. Carson, Michael Bezman, Lynne G. Maxwell, Joseph D. Tobias, and Louise B. Grochow

Intrathecal morphine causes ventilatory depression in infants and children.

739 Dose-Response Relationships for Edrophonium and Neostigmine Antagonism of Rocuronium Bromide (ORG 9426)-induced Neuromuscular Blockade

Mohamed Naguib, Mohamed Abdulatif, and Abdulmohsin Al-Ghamdi

When the antagonism of rocuronium-induced neuromuscular block was attempted at 10% recovery of the first twitch height, 9.5 times as much edrophonium as neostigmine was required to achieve 50% first twitch recovery after 10 min, and 27.5 as much was needed to reach a train-of-four ratio of 0.5.

■ LABORATORY INVESTIGATIONS

746 Potentiation of Antinociceptive Effects of Morphine by Calcium-channel Blockers at the Level of the Spinal Cord

Kelichi Omote, Hajime Sonoda, Mikito Kawamata, Hiroshi Iwasaki, and Akiyoshi Namiki

Calcium channel blockers synergistically potentiate the analgesic effects of morphine at the level of the spinal cord.

Continued on page 15A

CONTENTS

753 Amrinone Enhances Myocardial Contractility and Improves Left Ventricular Diastolic Function in Conscious and Anesthetized Chronically Instrumented Dogs

Paul S. Pagel, Douglas A. Hettrick, and David C. Warltier

Amrinone, a cardiac phosphodiesterase inhibitor, improves global left ventricular function in systole and diastole during isoflurane and halothane anesthesia in dogs.

766 Specific Enhancement by Fentanyl of the Effects of Intrathecal Bupivacaine on Nociceptive Afferent But Not on Sympathetic Efferent Pathways in Dogs

Chen Wang, Mihir K. Chakrabarti, and James G. Whitwam

The effects of intrathecal bupivacaine on afferent pathways in dogs are enhanced by fentanyl.

774 Inhibition of Plasma Membrane Ca^{2+} -ATPase Activity by Volatile Anesthetics

Danuta Kosk-Kosicka and Grazyna Roszczynska

The human erythrocyte Ca^{2+} -ATPase, whose activity is significantly inhibited by four volatile anesthetics at clinically relevant concentrations, is shown to be a good model for investigating the mechanism of anesthetic action in integral membrane proteins.

781 Propofol Activates GABA_A Receptor-Chloride Ionophore Complex in Dissociated Hippocampal Pyramidal Neurons of the Rat

Manami Hara, Yoshihisa Kai, and Yoshimi Ikemoto

A patch clamp study shows that propofol directly activates the GABA_A receptor at clinically relevant concentrations and that the agent desensitizes the receptor at high concentrations.

789 Amrinone Attenuates Airway Constriction during Halothane Anesthesia

W. Casey Lenox and Carol A. Hirshman

Amrinone, a specific cAMP phosphodiesterase inhibitor, has direct beneficial effects on methacholine-induced airway responses in dogs.

795 Identification of Cytochrome P450 2E1 as the Predominant Enzyme Catalyzing Human Liver Microsomal Defluorination of Sevoflurane, Isoflurane, and Methoxyflurane

Evan D. Kharasch and Kenneth E. Thummel

Several clinical aspects of human metabolism are explained by the findings that cytochrome P450 2E1 is the principal if not sole human liver microsomal enzyme catalyzing the defluorination of sevoflurane, whereas P450 2E1 is the primary but not exclusive enzyme responsible for methoxyflurane metabolism, which is also catalyzed by P450s 1A2, 2C9/10, and 2D6.

CONTENTS

808 Thoracic Epidural Anesthesia Increases Diaphragmatic Shortening after Thoracotomy in the Awake Lamb

David M. Polaner, William R. Kimball, Marie-Dominique Fratacci, John C. Wain, and Warren M. Zapol

Diaphragmatic shortening after thoracic and upper abdominal surgery is increased by epidural lidocaine during quiet breathing and during rebreathing of end-tidal carbon dioxide.

817 Increased Pulmonary Perfusion Worsens Ventilation-Perfusion Matching

Karen B. Domino, Barbara L. Eisenstein, Tim Tran, and Michael P. Hlastala

Marked increases in lobar blood flow and pulmonary artery pressure impaired ventilation-perfusion matching in dogs.

827 Effect of Isoflurane and Halothane on *In Vivo* Ischemia-induced Dopamine Release in the Corpus Striatum of the Rat: A Study Using Cerebral Microdialysis

Robert Koorn, Ronald A. Kahn, Timothy S. Brannan, Julian Martinez-Tica, Jesse Weinberger, and David L. Reich

Isoflurane compared with chloral hydrate and halothane inhibits the ischemic release of the neurotransmitter dopamine from rat corpus striatum.

■ REVIEW ARTICLE

836 Left Ventricular Diastolic Function in the Normal and Diseased Heart: Perspectives for the Anesthesiologist (First of Two Parts)

Paul S. Pagel, William Grossman, J. Michael Haering, and David C. Warltier

■ CASE REPORTS

855 Spontaneous Ventilation and Epidural Anesthesia in a Patient with a Large Tracheoesophageal Fistula and Esophageal Cancer Undergoing Colon Interposition

G. Pittoni, G. Daviá, F. Toffoletto, and G. P. Giron

857 Vicodin-induced Fulminant Hepatic Failure

Marie Csete and Joanna Brown Sullivan

■ CORRESPONDENCE

861 Why We Should Use Pulse Oximetry

Neville W. Goodman

861 Reply *Fredrick K. Orkin, Marsha M. Cohen, and Peter G. Duncan*

862 Reply *John H. Eichhorn*

CONTENTS

- 863** On Evaluating the Efficacy of Anesthetic Practices: Need for Attention to Clinical Details
Alan R. Shapiro
- 864** Reply *Jakob Trier Moller*
- 865** Sympathetically Maintained Pain May Be Rekindled by Surgery under General Anesthesia
Angelo G. Rocco
- 866** Jet Venturi Ventilation *Via* the Bullard Laryngoscope
Duke B. Weeks, Kip B. Bland, and James A. Koufman
- 867** A New Method of Communication between Anesthesiologists
Keith J. Ruskin and Marc Tissot
- 867** A Rapid Method for Negative Inspiratory Pressure Measurement
Suzanne M. Nowak and Jeffrey B. Gross
- 868** Life for an Anesthesiologist in Sarajevo
Zeljka Rukavina
- 870** ■ BOOK REVIEWS
- 874** ■ ANNOUNCEMENT

GUIDE FOR AUTHORS

The Guide for Authors is published in the January and July issues. Please refer to the Guide for the preparation of any material for submission to ANESTHESIOLOGY.

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