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Talmage D. Egan, Harry J. M. Lemmens, Pierre Fiset, David J. Hermann, Keith T. Muir, Donald R. Stanski, and Steven L. Shafer

Based on its pharmacokinetic profile in healthy male volunteers, remifentanil (GI87084B) appears to be a short-acting opioid with promising clinical potential.

893 Pharmacokinetics of Remifentanil (GI87084B) and Its Major Metabolite (GI90291) in Patients Undergoing Elective Inpatient Surgery
Cheryl L. Westmoreland, John F. Hoke, Peter S. Sebel, Carl C. Hug, Jr., and Keith T. Muir

In patients undergoing elective surgery, the pharmacokinetics of remifentanil and its major metabolite are independent of the dose of remifentanil and consistent with rapid hydrolysis of remifentanil by blood and tissue esterases.

904 Mechanisms of Incomplete Cardioplegia Distribution during Coronary Artery Surgery: An Intraoperative Transesophageal Contrast Echocardiography Study
Paolo Voci, Federico Bilotta, Quintilio Caretta, Flavia Chiarotti, Corrado Mercanti, and Benedetto Marino

Transient aortic regurgitation during cardioplegia delivery in patients undergoing coronary artery surgery results in incomplete cardioplegia distribution to the myocardium.

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913 Comparison of Rocuronium, Succinylcholine, and Vecuronium for Rapid-sequence Induction of Anesthesia in Adult Patients

Toni Magorian, K. B. Flannery, and Ronald D. Miller

The brief onset time of rocuronium suggests that it is an acceptable alternative to succinylcholine for rapid-sequence induction of anesthesia, provided the longer clinical duration is considered.

919 Pharmacodynamic and Hemodynamic Effects of Mivacurium in Infants Anesthetized with Halothane and Nitrous Oxide

Nishan G. Goudsouzian, William Denman, Ann Schwartz, George Shorten, Vicky Foster, and Basil Samara

In 90 infants (aged 2–11 months) anesthetized with 1% halothane and nitrous oxide/oxygen, the dose of mivacurium resulting in 50% depression of twitch response was 44–50 μg/kg.

926 Efficacy of Oral Clonidine Premedication in Children

Katsuya Mikawa, Nobuhiro Maekawa, Kahoru Nishina, Yumiko Takao, Hideaki Yaku, and Hidefumi Obara

The combination of 4 μg/kg oral clonidine and 0.03 mg/kg atropine in children provided better preoperative sedation, separation from parents, and quality of mask acceptance than 0.4 mg/kg diazepam, with attenuation of increases in blood pressure and heart rate associated with tracheal intubation.

932 The Predictive Performance of a System Model for Enflurane Closed-circuit Inhalational Anesthesia

J. G. C. Lerou, P. M. Vermeulen, R. Dirksen, L. H. D. J. Booij, and G. F. Borm

A clinical study demonstrates that the introduction of nonpulmonary elimination of enflurane into a simulation model improves its accuracy.

943 Arrythmogenic Doses of Epinephrine Are Similar during Desflurane or Isoflurane Anesthesia in Humans

Mark A. Moore, Richard B. Weiskopf, Edmond I. Eger II, Charles Wilson, and Grace Lu

Patients anesthetized with desflurane or isoflurane did not differ in their arrhythmogenic responses to submucosal injections of epinephrine.

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948 Succinylcholine Increases Intraocular Pressure in the Human Eye with the Extraocular Muscles Detached

Robert E. Kelly, Miles Dinner, Liebert S. Turner, Barrett Haik, David H. Abramson, and Peter Daines

Intraocular presure changes in the human eye following the administration of intravenous succinylcholine were similar regardless whether the extraocular muscles were attached, bringing into question the mechanism of action of increased intraocular pressure following the use of succinylcholine.

953 The Dose of Propofol Required to Prevent Children from Moving during Magnetic Resonance Imaging

David D. Frankville, Robert M. Spear, and John B. Dyck

Children undergoing magnetic resonance imaging can be effectively prevented from moving by using a 2-mg/kg loading dose and an infusion of 100 $\mu g \cdot kg^{-1} \cdot min^{-1}$ of propofol following the induction of anesthesia.

959 Isoflurane Minimum Alveolar Concentration Decreases during Anesthesia and Surgery

Steen Petersen-Felix, Alex M. Zbinden, Michael Fischer, and Dick A. Thomson

Individual MAC measurements performed before and after surgery showed a decrease in isoflurane MAC of almost 20% between the two measurements.

966 Diaphragmatic Function before and after Laparoscopic Cholecystectomy

Filippo Erice, Gordon S. Fox, Youssef M. Salib, Ezio Romano, Jonathan L. Meakins, and Sheldon A. Magder

Diaphragmatic dysfunction still occurs after laparoscopic cholecystectomy but not after laparoscopic hernia repair and most likely is due to reflex inhibition of diaphragmatic contraction.

976 Thoracic Intravascular and Extravascular Fluid Volumes in Cardiac Surgical Patients

Thomas Hachenberg, Arne Tenling, Hans-Ulrich Rothen, Sven-Olov Nyström, Hans Tyden, and Göran Hedenstierna

A clinical study on alterations of intrathoracic blood volume, pulmonary blood volume, and extravascular lung water shows that lung water decreases rapidly after cardiac surgery despite elevated thoracic intravascular fluid volumes.

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985 Sevoflurane and Halothane Reduce Focal Ischemic Brain Damage in the Rat: Possible Influence on Thermoregulation

David S. Warner, Claude McFarlane, Michael M. Todd, Paula Ludwig, and Alice M. McAllister

Rats anesthetized with either sevoflurane or halothane during 90 min of middle cerebral artery occlusion had similar histologic and neurologic outcomes, although rats anesthetized with either anesthetic eperienced improved outcome when compared to rats undergoing the same insult while awake.

993 Role of the Injury Discharge in the Development of Thermal Hyperesthesia after Sciatic Nerve Constriction Injury in the Rat

Tatsuo Yamamoto, Naohito Shimoyama, and Tadanobu Mizuguchi

Following sciatic nerve damage, injury discharge may induce spinal dorsal horn neuron facilitation that promotes the development of thermal hyperesthesia.

1003 Microdialysis of the Pontine Reticular Formation Reveals Inhibition of Acetylcholine Release by Morphine

R. Lydic, J. C. Keifer, H. A. Baghdoyan, and L. Becker

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1013 Cerebral Blood Flow and Metabolism in Dogs with Chronic Diabetes

Frederick E. Sieber, Phillip R. Brown, Ying Wu, Raymond C. Koehler, and Richard J. Traystman

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1022 Dexmedetomidine Alters the Hemodynamic Effects of Desflurane and Isoflurane in Chronically Instrumented Dogs

Judy Kersten, Paul S. Pagel, John P. Tessmer, David L. Roerig, William T. Schmeling, and David C. Warltier

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1033 Barbiturate Action Is Dependent on the Conformational State of the Acetylcholine Receptor
Alberto J. de Armendi, Peter H. Tonner, Birgitte Bugge, and Keith W. Miller

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1042 Effects of FK224, a Novel Cyclopeptide NK1 and NK2 Antagonist, and CP-96,345, a Nonpeptide NK1 Antagonist, on Development and Maintenance of Thermal Hyperesthesia Evoked by Carrageenan Injection in the Rat Paw
Tatsuo Yamamoto, Naohito Shimoyama, and Tadanobu Mizuguchi

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1051 Effect of Propofol Infusion on Splanchnic Hemodynamics and Liver Oxygen Consumption in the Rat: A Dose-Response Study
Frederick J. Carmichael, Mark W. Crawford, Naiyar Khayyam, and Victor Saldivia

The maintenance of anesthesia in rats with propofol results in an increased liver oxygen consumption that is fully compensated for by an increase in oxygen delivery to the liver.

1061 Effect of Halothane on Hypoxic Toxicity and Glutathione Status in Cultured Rat Hepatocytes
M. E. Johnson, J. C. Sill, C. B. Uhl, and R. A. Van Dyke

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1072 Activation of Brain Noradrenergic Neurons during Recovery from Halothane Anesthesia: Persistence of Phasic Activation after Clonidine
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Ahmet S. Tütüncü, Kutay Akpir, Paul Mulder, Wilhelm Erdmann, and Burkhard Lachmann

Intratracheal perfluorocarbon administration in combination with volume-controlled PEEP ventilation improves pulmonary gas exchange in respiratory distress syndrome at relatively low airway pressures.

1094 Tolerance to Sodium Nitroprusside: Studies in Cultured Porcine Vascular Smooth Muscle Cells

L. M. Zhang, M. R. Castresana, S. Stefansson, and W. H. Newman

Porcine coronary smooth muscle cells pretreated with sodium nitroprusside (SNP) or nitroglycerine became tolerant to the action of SNP on intracellular cGMP, whereas the cGMP response to atrial natriuretic peptide was potentiated.

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