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- ◆◆ **Dynamic Interaction of Craniofacial Structures during Head Positioning and Direct Laryngoscopy in Anesthetized Patients with and without Difficult Laryngoscopy** 875
Yuji Kitamura, Shiroh Isono, Noriko Suzuki, Yumi Sato, and Takashi Nishino
Increase in submandibular space and vertical arrangement of the mandible, tongue base, and the larynx improve laryngeal view during head positioning and direct laryngoscopy. Failure of these structural arrangements results in difficult laryngoscopy.
- ◆🌐 **Craniocervical Motion during Direct Laryngoscopy and Orotracheal Intubation with the Macintosh and Miller Blades: An *In Vivo* Cinefluoroscopic Study** 884
Scott A. LeGrand, Bradley J. Hindman, Franklin Dexter, Julie B. Weeks, and Michael M. Todd
Orotracheal intubation with a Miller laryngoscope blade was associated with a statistically significant but quantitatively small (3°-5°) decrease in cervical extension compared with the Macintosh blade.
- ◆◆ **Predictors of Postoperative Acute Renal Failure after Noncardiac Surgery in Patients with Previously Normal Renal Function** 892
Sachin Kheterpal, Kevin K. Tremper, Michael J. Englesbe, Michael O'Reilly, Amy M. Shanks, Douglas M. Fetterman, Andrew L. Rosenberg, and Richard D. Swartz
Acute renal failure after noncardiac surgery is associated with several cardiovascular risk factors. In addition, intraoperative vasopressor and diuretic administration is an independent predictor.

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CME CME Article

- ◆ **Monitoring of Neuromuscular Blockade at the P6 Acupuncture Point Reduces the Incidence of Postoperative Nausea and Vomiting** 903
Michael Arnberger, Karin Stadelmann, Petra Alischer, Regina Ponert, Andrea Melber, and Robert Greif
 The authors demonstrated that intraoperative electrical stimulation of the P6 acupuncture point with a conventional nerve stimulator to monitor neuromuscular blockade significantly reduced the incidence of postoperative nausea over 24 h by 25%.
- A Facilitated Survey Instrument Captures Significantly More Anesthesia Events Than Does Traditional Voluntary Event Reporting** 909
Andrew Oken, Mark D. Rasmussen, Jason M. Slagle, Sonia Jain, Tod Kuykendall, Nelda Ordonez, and Matthew B. Weinger
 An active surveillance method whereby a trained nonclinician administers a brief structured event survey to anesthesia providers in the recovery room detects significantly more anesthesia events and patient injuries than does traditional voluntary event reporting.
- Treatment of Iron Deficiency Anemia in Orthopedic Surgery with Intravenous Iron: Efficacy and Limits—A Prospective Study** 923
Oliver M. Theusinger, Pierre-François Leyvraz, Urs Schanz, Burkhardt Seifert, and Donat R. Spahn
 Intravenous iron increases the hemoglobin concentration in preoperative iron deficiency anemia. The most efficacious treatment starts 2 weeks before surgery.
- Quantification of Epileptiform Electroencephalographic Activity during Sevoflurane Mask Induction** 928
Mika O. K. Särkelä, Miiikka J. Ermes, Mark J. van Gils, Arvi M. Yli-Hankala, Ville H. Jäntti, and Anne P. Vakkuri
 The authors developed a novel electroencephalogram-derived quantity for the monitoring of epileptiform electroencephalogram in sevoflurane anesthesia. The method may help to minimize the occurrence of epileptiform activity and seizures and to recognize misleading readings of depth-of-anesthesia monitors.
- Monitoring of the Sublingual Microcirculation in Cardiac Surgery Using Orthogonal Polarization Spectral Imaging: Preliminary Results** 939
Andreas Bauer, Sieglinde Kofler, Manfred Thiel, Sandra Eifert, and Frank Christ
 Orthogonal polarization spectral imaging revealed a slightly reduced microvascular perfusion during uncomplicated hypothermic cardiopulmonary bypass, with a rapid recovery to its initial value 1 h after reperfusion.
- Comparison of Catheter-related Infection and Tip Colonization between Internal Jugular and Subclavian Central Venous Catheters in Surgical Neonates** 946
Christian Breschan, Manuela Platzer, Robert Jost, Florian Schaumberger, Haro Stettner, and Rudolf Likar
 The internal jugular venous catheters were associated with a higher catheter-associated infection rate compared with the subclavian venous catheters in surgical neonates. Significantly more catheter tips in the internal jugular vein were contaminated by pathogens.

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■ LABORATORY INVESTIGATIONS

Nitrosative Stress and Myocardial Sarcoplasmic Endoreticular Calcium Adenosine Triphosphatase Subtype 2a Activity after Lung Resection in Swine 954

Paul M. Heerdt, Paul Lane, Brian Y. Pan, Ulrich Schaefer, Mark Crabtree, Roger Hong, Andrew A. M. Singer, Roberto Levi, and Bernard J. Park

Results of this study indicate that lung resection is associated with significant left ventricular nitrosative stress, impaired myocardial calcium cycling, and loss of intrinsic heart rate-related contractile reserve.

Isoflurane Preconditioning Improves Long-term Neurologic Outcome after Hypoxic-Ischemic Brain Injury in Neonatal Rats 963

Ping Zhao, Longyun Peng, Liaoliao Li, Xuebing Xu, and Zhiyi Zuo

Preexposure of neonatal rats to isoflurane improved the neurologic outcome assessed 1 month after brain hypoxia-ischemia. Inducible nitric oxide synthase may be involved in this neuroprotection.

◇ **An Evolutionarily Conserved Presynaptic Protein Is Required for Isoflurane Sensitivity in *Caenorhabditis elegans*** 971

Laura B. Metz, Nupur Dasgupta, Christine Liu, Stephen J. Hunt, and C. Michael Crowder

Mutations in *unc-13*, which encodes an evolutionarily conserved presynaptic protein, abolish isoflurane sensitivity. Genetic and cell biologic evidence indicate that isoflurane blocks membrane targeting of the UNC-13 protein, thereby inhibiting its promotion of neurotransmitter release.

Burst Activation of the Cerebral Cortex by Flash Stimuli during Isoflurane Anesthesia in Rats 983

Anthony G. Hudetz and Olga A. Imas

In rats under isoflurane anesthesia at burst suppression level, discrete flashes evoke long-latency bursts of field potentials in the frontal cortex that resemble the spontaneous bursts, suggesting that the anesthetized cortex remains responsive to visual stimuli.

Sevoflurane Directly Excites Locus Coeruleus Neurons of Rats 992

Yutaka Yasui, Eiji Masaki, and Fusao Kato

Sevoflurane activated a robust excitatory inward current in locus coeruleus neurons in rat brain slices in which synaptic transmission was suppressed. This effect might play a role in the known paradoxical excitatory effect of sevoflurane.

■ PAIN AND REGIONAL ANESTHESIA

◇◆ **Return-to-duty Rates among Coalition Forces Treated in a Forward-deployed Pain Treatment Center: A Prospective Observational Study** 1003

Ron L. White and Steven P. Cohen

This study outlines the diagnoses, treatment, and return-to-duty rates of coalition forces treated in the first forward-deployed pain clinic.

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Neurokinin-1 Receptor Antagonists Inhibit the Recruitment of Opioid-containing Leukocytes and Impair Peripheral Antinociception

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Heike L. Rittner, Christian Lux, Dominika Labuz, Shaaban A. Mousa, Michael Schäfer, Christoph Stein, and Alexander Brack

Neurokinin-1 receptor antagonists can augment inflammatory pain by inhibiting peripheral endogenous antinociception. They impair neurokinin-1 receptor-mediated chemotaxis of opioid-containing macrophages and reduce stress-induced antinociception.

CLINICAL CONCEPTS AND COMMENTARY

CME New Frontiers in the Evaluation of Cardiac Patients for Noncardiac Surgery 1018

Ronit Lavi, Shahar Lavi, Elena Daghini, and Lilach O. Lerman

Clinical evaluation before noncardiac surgery is an important component of routine anesthesia practice. The authors describe the progress made in new cardiac imaging techniques, and their potential utility considering recent guidelines for perioperative cardiac risk reduction.

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