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ANESTHESIOLOGY

Volume 135
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R. Penchev, R. A. Scheuring, A. T. Soto, D. M. Miletich, E. Kerstman, S. P. Cohen384

Space flight is anticipated to increase, both among astronauts and tourists. A majority of space travelers will experience back pain, with most cases being self-limited. This review discusses the epidemiology, pathophysiology, and preventative measures of space travel on back pain.


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S. J. Staffa, D. Zurakowski396

This article aims to educate anesthesiologists on key statistical concepts regarding validation of multivariable prediction models for binary outcomes, which is essential for assuring generalizability and reproducibility of the published clinical tool.

Perioperative Medicine

CLINICAL SCIENCE

◆ ◆ **Noninvasive Urine Oxygen Monitoring and the Risk of Acute Kidney Injury in Cardiac Surgery**
 *N. A. Silverton, L. R. Lofgren, I. E. Hall, G. J. Stoddard, N. P. Melendez, M. Van Tienderen, S. Shumway, B. J. Stringer, W.-s. Kang, C. Lybbert, K. Kuck*.....406

This prospective single-center observational pilot study measured urinary oxygen partial pressure and urine flow in 91 patients undergoing cardiac surgery using a novel device placed between the urinary catheter and collecting bag. Urinary oxygen partial pressure was successfully measured in 86 of these patients. Mean urinary oxygen partial pressure in the period after cardiopulmonary bypass was significantly lower in patients who subsequently developed acute kidney injury than in those who did not. Future studies are needed to validate these findings at other centers.

◆ ◆ **Epidural Anesthesia–Analgesia and Recurrence-free Survival after Lung Cancer Surgery: A Randomized Trial**
 *Z.-Z. Xu, H.-J. Li, M.-H. Li, S.-M. Huang, X. Li, Q.-H. Liu, J. Li, X.-Y. Li, D.-X. Wang, D. I. Sessler*.....419

In a randomized trial of adults scheduled for video-assisted thoracoscopic lung cancer resection comparing combined epidural–general to general anesthesia, there was no difference between groups in recurrence-free survival time. There was also no difference in overall survival. *SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT*

◇ Refers to This Month in ANESTHESIOLOGY

◆ Refers to Editorial

 This article has an Audio Podcast

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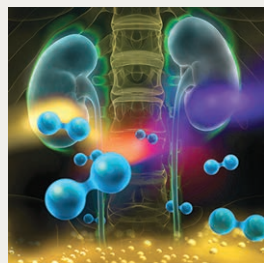
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 This article has a Visual Abstract

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ON THE COVER: Acute kidney injury (AKI) is a common complication of cardiac surgery. An intraoperative monitor of kidney perfusion is needed to identify patients at risk for AKI. In this issue of ANESTHESIOLOGY, Silverton *et al.* tested the value of a prototype device that measures urinary oxygen concentration and instantaneous urine flow in predicting AKI. In an accompanying editorial, Stafford-Smith discusses the limitations of current monitors and the potential value of urine oxygen monitoring for predicting AKI. Cover Illustration: A. Johnson, Vivo Visuals.

- Silverton *et al.*: Noninvasive Urine Oxygen Monitoring and the Risk of Acute Kidney Injury in Cardiac Surgery, p. 406
- Stafford-Smith: Could Trended Oxygen Partial Pressure in the Urine Be the “ST Segment” Kidney Monitor We’ve Been Looking For? p. 380

◇ **Anterior Quadratus Lumborum Block Does Not Provide Superior Pain Control after Hip Arthroscopy: A Double-blinded Randomized Controlled Trial**

S. C. Haskins, A. Tseng, H. Zhong, M. Mamic, S. I. Cheng, J. A. Nejm, D. S. Wetmore, S. H. Coleman, A. S. Ranawat, D. H. Nawabi, B. T. Kelly, S. G. Memtsoudis.....433

Anterior quadratus lumborum block along with acetaminophen and ketorolac did not improve postoperative analgesia in comparison to acetaminophen and ketorolac alone. Likewise, secondary outcomes including opioid consumption and patient satisfaction were not improved in subjects receiving quadratus lumborum blocks.

◇ **Pectoral Nerve Blocks for Breast Augmentation Surgery: A Randomized, Double-blind, Dual-centered Controlled Trial**



Y. Aarab, S. Ramin, T. Odonnat, O. Garnier, A. Boissin, N. Molinari, G. Marin, P.-F. Perrigault, P. Cuvillon, G. Chanques442

Patients undergoing breast augmentation who received pectoral nerve blocks in addition to multimodal analgesia experienced less pain in the first 6 h postoperatively and lower maximal pain scores between postoperative days 1 and 5. The use of pectoral nerve blocks also reduced opioid consumption up to 5 days after surgery.

◇ **Peripheral Nerve Blocks and Potentially Attributable Adverse Events in Older People with Hip Fracture: A Retrospective Population-based Cohort Study**



N. Melton, R. Talarico, F. Abdallah, P. E. Beaulé, S. Boet, A. J. Forster, S. M. Fernando, A. Huang, C. J. L. McCartney, B. Meulenkamp, J. Perry, B. Power, R. Ramlogan, M. Taljaard, P. Tanuseputro, C. van Walraven, D. N. Wijeyesundera, D. I. Mclsaac.....454

Among 91,563 surgical and nonsurgical hip fracture patients in Ontario between 2009 and 2017, 17.1% (15,631) received a peripheral nerve block. Administrative data demonstrate that 5.8% (5,321 of 91,563) of hip fracture patients experienced a nerve block-attributable adverse event (seizures, fall-related injuries, cardiac arrest, or nerve injury). Receipt of a nerve block was not associated with a higher rate of these adverse events (5.5% among patients receiving a block vs. 5.9% of patients without a block). *SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT*

BASIC SCIENCE

◆ **GABAergic Neurons in the Dorsal–Intermediate Lateral Septum Regulate Sleep–Wakefulness and Anesthesia in Mice**

D. Wang, Q. Guo, Y. Zhou, Z. Xu, S.-W. Hu, X.-X. Kong, Y.-M. Yu, J.-X. Yang, H. Zhang, H.-L. Ding, J.-L. Cao463

A combination of genetic and electrophysiologic techniques in male mice revealed that γ -aminobutyric acid–mediated neurons of the lateral septum are highly active during the awake state. Genetic activation of γ -aminobutyric acid–mediated neurons in the lateral septum promotes recovery from isoflurane anesthesia through the projection of these cells to the ventral tegmental area. These observations suggest a role for γ -aminobutyric acid–mediated neurons in the lateral septum to maintain wakefulness and to promote recovery from isoflurane anesthesia.

SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

Pain Medicine

BASIC SCIENCE

◆ **Functional Profile of Systemic and Intrathecal Cebranopadol in Nonhuman Primates**



H. Ding, C. Trapella, N. Kiguchi, F.-C. Hsu, G. Caló, M.-C. Ko.....482

In rhesus monkeys, it was observed that the analgesic activity of cebranopadol is mediated primarily through the μ -opioid receptor. While cebranopadol caused less scratching behavior and respiratory depression than morphine and fentanyl, it evinced clear reinforcing effects. *SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT*

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B. Patel, J. L. Diaz-Gomez, R. K. Ghanta, A. W. Bracey, S. Chatterjee 497

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G. M. T. Hare, C. D. Mazer520

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◇ **Rethinking Patient Surveillance on Hospital Wards**
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