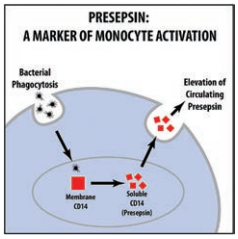
THIS MONTH IN

ANESTHESIOLOGY

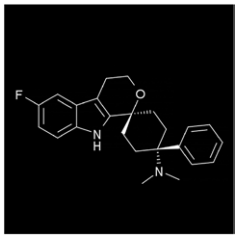
602 Association of the Hospital Volume of Frail Surgical Patients Cared for with Outcomes after Elective, Major Noncardiac Surgery

Frailty is an independent risk factor for postoperative morbidity and mortality. Given the association between improved postoperative outcomes and higher procedural volumes, the hypothesis that frail patients having elective surgery at hospitals caring for a higher volume of similarly frail patients would have improved 30-day postoperative survival was tested in 63,381 frail patients who had major, elective noncardiac surgery. Sixty hospitals that had cared for at least 10 frail surgical patients in the previous year were divided into quintiles based on the number of elective frail surgical patients cared for in the year before the index surgery. After multivariable adjustment, frail patients in all but the second lowest volume quintile had a reduced risk of 30-day death compared to the lowest frailty volume quintile. No difference in death risk was found among the three highest frailty volume quintiles. *See the accompanying Editorial View on* **page 575**. *(Summary: M. J. Avram. Photo: © ThinkStock.)*



631 Presepsin (sCD14-ST) Is a Novel Marker for Risk Stratification in Cardiac Surgery Patients

Presepsin (soluble cluster-of-differentiation 14 subtype, sCD14-ST) is an indicator of monocyte activation. Plasma presepsin concentrations are associated with the severity of sepsis and its outcome. The hypothesis that increased preoperative presepsin concentrations are associated with increased overall mortality after elective cardiac surgery was tested prospectively in 856 patients. Median preoperative plasma presepsin concentrations were higher in patients who died within 30 days (842 *vs.* 160 pg/ml), 6 months (468 *vs.* 157 pg/ml), and 2 yr (352 *vs.* 156 pg/ml). Preoperative presepsin concentrations had a high discrimination for prediction of 30-day mortality (optimal threshold of 293 pg/ml, C statistic 0.88, sensitivity 82%, and specificity 83%), 6-month mortality (C statistic of 0.87), and 2-yr mortality (C statistic of 0.81). Presepsin concentrations remained an independent risk predictor for mortality even after adjustment for the European System of Cardiac Operative Risk Evaluation 2. *(Summary: M. J. Avram. Illustration: J. P. Rathmell.)*



697 Respiratory Effects of the Nociceptin/Orphanin FQ Peptide and Opioid Receptor Agonist, Cebranopadol, in Healthy Human Volunteers

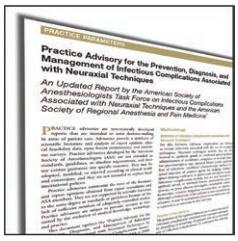
Cebranopadol coactivates nociceptin/orphanin FQ and μ-opioid receptors. Nociceptin/orphanin FQ receptor activation reduces μ-opioid receptor–induced respiratory depression, probably due to a functional interaction of the two receptor systems. In a Phase 1 clinical trial, 12 healthy male volunteers ingested an oral dose of 600 μg cebranopadol, and ventilation was measured for the next 11 h as were antinociceptive and pupil diameter responses. Cebranopadol produced typical opioid-like effects, including miosis, analgesia, and respiratory depression. Its potency for respiratory depression was three times that for analgesia measured by an experimental electrical pain model. The blood-effect site equilibration half-life for respiratory depression was 1.2 h, while that for analgesia was 8.1 h, indicating a more rapid onset and offset of the respiratory effect and a much slower onset and longer duration of analgesia. The model estimate for minimum ventilation was more than zero. *(Summary: M. J. Avram. Illustration: Cebranopadol chemical structure Meodipt [own work; public domain]* via *Wikimedia Commons.)*

718 Standard Setting for Clinical Performance of Basic Perioperative Transesophageal Echocardiography: Moving beyond the Written Test

Establishing a valid, reliable, and credible minimum passing score for assessment of clinical competency in basic perioperative transesophageal echocardiography is an important step in the evolution of echocardiography training and evaluation. A two-stage Angoff standard-setting procedure was performed by seven certified subject matter experts to determine the minimum passing score for 21 itemized assessments and the global percentage of correct assessments. The first standard-setting session established initial minimum passing scores without the subject matter experts having access to resident performance data. The follow-up session reviewed and calibrated the initial minimum passing score standards in a setting in which the subject matter experts had the opportunity to review the performance of 12 anesthesiology residents who performed 371 basic perioperative transesophageal echocardiography exams. The study produced a credible itemized and global minimum passing score for basic perioperative transesophageal echocardiography competency assessment. *See the accompanying Editorial View on* **page 582**. *(Summary: M. J. Avram. Image: J. Fox/S. Shernan, Brigham Health.)*

653 Anesthetic Neuroprotection in Experimental Stroke in Rodents: A Systematic Review and Meta-analysis

The specific aims of this meta-analysis were to quantify the effects of study quality, publication bias, and timing of anesthetic administration on neurologic outcomes in the middle cerebral artery filament occlusion model of focal ischemia in rats or mice reported in 80 publications. The primary outcome measures were infarct volume and/or neurologic deficit score. Exposure to anesthetics, regardless of drug or timing, was associated with a 28% (95% CI, 24 to 32%) reduction in neurologic injury. The neuroprotection observed was not significantly enhanced by publication bias, small study effects, or poor study design. Study quality was the only predefined covariate that influenced the extent of neuroprotection: more neuroprotection was observed in better quality studies. *Post hoc* analysis found that the neuroprotective effect evident in young male animals was not observed in either female animals or animals with comorbidity. *See the accompanying Editorial View on* **page 579**. *(Summary: M. J. Avram. Photo: © ThinkStock.)*

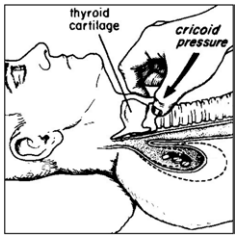


585 Practice Advisory for the Prevention, Diagnosis, and Management of Infectious Complications Associated with Neuraxial Techniques: An Updated Report by the American Society of Anesthesiologists Task Force on Infectious Complications Associated with Neuraxial Techniques and the American Society of Regional Anesthesia and Pain Medicine (Practice Parameter)

This Practice Advisory updates "Practice Advisory for the Prevention, Diagnosis, and Management of Infectious Complications Associated with Neuraxial Techniques, A Report by the American Society of Anesthesiologists Task Force on Infectious Complications Associated with Neuraxial Techniques," adopted by American Society of Anesthesiologists in 2009 and published in 2010. It summarizes the state of the literature and reports opinions obtained from expert consultants and members of the American Society of Anesthesiologists. The purposes of this updated Advisory are to reduce the risk of infectious complications associated with neuraxial techniques by identifying or describing patients who are at increased risk of infectious complications as well as techniques for reducing infectious risk, to facilitate diagnosis of infectious complications associated with neuraxial techniques and to improve outcomes after infectious complications through appropriate management or treatment. *(Summary: M. J. Avram. Image: ANESTHESIOLOGY.)*

729 Perioperative Use of Intravenous Lidocaine (Clinical Concepts and Commentary)

There is an increased interest in the use of nonopioid analgesic adjuncts in the perioperative period because of concerns about the adverse effects of opioids. Intravenous lidocaine can be administered intra- and/or postoperatively to decrease postoperative pain and improve other outcomes. This Clinical Concepts and Commentary provides a brief overview of the mechanisms that could explain a prolonged postoperative benefit of perioperative lidocaine infusion and then reviews the clinical literature on perioperative intravenous lidocaine use, providing information to clinicians as to when, and when not, to consider its use for their patients. While perioperative lidocaine infusion can be effective, its clinical effectiveness may vary by surgical procedure, although there is no obvious mechanistic reason its reported effectiveness differs between relatively similar procedures. Such perceived differences may be due to differences in study design or sample size considerations. *(Summary: M. J. Avram. Image: J. P. Rathmell.)*



738 Cricoid Pressure Controversies: Narrative Review (Review Article)

Aspiration of gastric contents is still the most common cause of deaths associated with airway anesthetic management and remains a significant cause of anesthetic-related morbidity. Sellick described the use of cricoid pressure to control regurgitation of gastric contents during induction of anesthesia in 1961. However, since its introduction, clinicians have raised questions about its effectiveness and safety and some have even suggested abandoning the maneuver. The lack of randomized controlled trials comparing the incidence of aspiration with and without cricoid pressure has been an obstacle to widespread acceptance of the use of cricoid pressure. In this review, controversial issues are identified and addressed, including its effectiveness and potential complications associated with its use. Because a large percentage of operators apply cricoid pressure inappropriately, techniques of cricoid pressure application and methods of training in those techniques are also reviewed. *(Summary: M. J. Avram. Illustration: Reproduced with permission from* Anesth Analg *1990; 70:109–11.)*