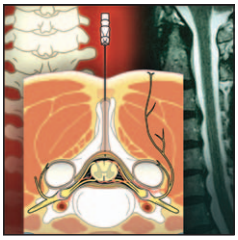
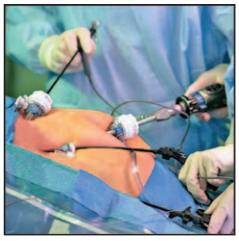
THIS MONTH IN

ANESTHESIOLOGY



1045 Epidural Steroid Injections, Conservative Treatment, or Combination Treatment for Cervical Radicular Pain: A Multicenter, Randomized, Comparative-effectiveness Study

Healthcare providers treating patients with cervical radicular pain often need to decide whether to treat them conservatively, refer them for interventions, or do both. To determine the relative effectiveness of nonsurgical treatments for cervical radicular pain, 169 patients were randomly assigned to receive pharmacotherapy with gabapentin and/or nortriptyline and physical therapy, at least one interlaminar epidural steroid injection, or both epidural steroid injection and pharmacotherapy plus physical therapy. Although the combination treatment group had better results for some outcome measures compared with the standalone treatments, most differences were not statistically significant, including that for the primary outcome measure of average arm pain at 1 month. *See the accompanying Editorial View on* ***page 919***. *(Summary: M.J. Avram. Image: J.P. Rathmell; G. Nelson; A. Johnson/Vivo Visuals.)*



937 Prehabilitation *versus* Rehabilitation: A Randomized Control Trial in Patients Undergoing Colorectal Resection for Cancer

Colorectal resection is associated with 20 to 40% reduction in postoperative physiological and functional capacity, even in the absence of complications. Seventy-seven patients scheduled for curative resection of nonmetastatic colorectal cancer were randomly assigned to a trimodal program consisting of moderate aerobic and resistance exercises, nutritional counseling, and anxiety reduction strategies beginning 4 weeks before surgery (prehabilitation) or to an identical program beginning after surgery (rehabilitation). The trimodal program was maintained in both groups for 8 weeks after surgery. Patients prepared for surgical resection of colorectal cancer with a preoperative trimodal program had better functional walking capacity before and after colorectal surgery than did those starting the program postoperatively. *(Summary: M.J. Avram. Photo: J.P. Rathmell.)*

922 Lack of Association between Carotid Artery Stenosis and Stroke or Myocardial Injury after Noncardiac Surgery in High-risk Patients

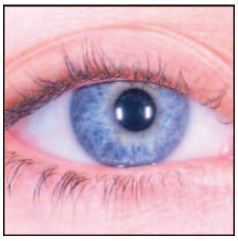
A retrospective study of 2,110 adults who underwent carotid duplex ultrasound scanning within 6 months before or 1 month after noncardiac, noncarotid surgery between 2007 and 2011 found 4.3% had either complete or nearly complete carotid artery occlusions and 13% had high-grade carotid stenosis. The incidence of the primary composite outcome, in-hospital stroke and/or 30-day all-cause mortality after noncardiac surgery, was 7.5% while that of the secondary outcome of postoperative myocardial injury was 8.8%. The degree of carotid artery stenosis was not associated with either the primary composite outcome or the secondary outcome after adjusting for potential confounding variables. *See the accompanying Editorial View on* ***page 911***. *(Summary: M.J. Avram. Photo: Thinkstock by Getty Images.)*

959 Effects of Neostigmine Reversal of Nondepolarizing Neuromuscular Blocking Agents on Postoperative Respiratory Outcomes: A Prospective Study

Anesthesiologists reverse residual neuromuscular blockade with acetylcholinesterase inhibitors to reduce residual paralysis because the latter increases the risk of respiratory complications and may increase hospital costs. In a prospective observational study of 2,893 patients, neostigmine reversal was not associated with either improved oxygenation at postanesthesia care unit (PACU) admission, the primary outcome, or with shorter hospital stays, but was associated with an increased incidence of postoperative atelectasis. High-dose neostigmine was associated with a higher incidence of atelectasis, longer time until PACU discharge readiness, and longer postoperative hospital length of stay. Neostigmine reversal of neuromuscular blockade without proper guidance by neuromuscular transmission monitoring increased the risk of postoperative respiratory complications. *(Summary: M.J. Avram. Image: electron micrograph of neuromuscular junction by National Institute of Mental Health; Wikimedia Commons [public domain].)*

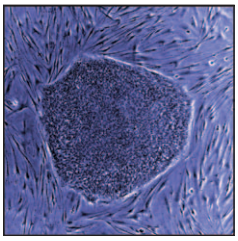
930 Vasoconstrictor Responses to Vasopressor Agents in Human Pulmonary and Radial Arteries: An *In Vitro* Study

In surgical patients with pulmonary hypertension, the ideal vasopressor will selectively cause systemic vasoconstriction but minimally affect pulmonary vascular tone. The contractile responses of isolated human pulmonary and radial artery ring segments, mounted in organ baths, to norepinephrine, phenylephrine, metaraminol, and vasopressin, were studied to compare the direct effects of vasopressors on systemic and pulmonary vessels. While all sympathomimetics constricted both radial and pulmonary arteries, vasopressin was a very potent constrictor of the radial artery but failed to contract the pulmonary artery. Thus, vasopressin may have some advantage over the other agents in patients with pulmonary hypertension. *See the accompanying Editorial View on* ***page 914***. *(Summary: M.J. Avram. Photo: Thinkstock by Getty Images.)*



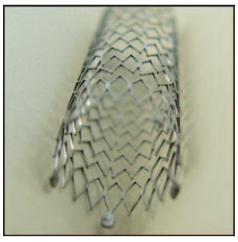
1037 Pupillary Effects of High-dose Opioid Quantified with Infrared Pupillometry

Pupillary constriction after opioid administration may be affected by opioid-induced respiratory depression and the resultant hypercarbia and hypoxia because these activate the sympathetic nervous system, leading to pupillary dilatation and inhibition of the light reflex. Remifentanil was administered to 10 volunteers until the resulting respiratory depression produced an oxyhemoglobin saturation of 85% or less to determine the effects of hypercarbia and hypoxia on the pupillary effects of high-dose opioids. Pupils constricted to a mean diameter of 2.5 mm and the quality of the light reflex measured by infrared pupillometry was essentially unchanged, despite significant hypercarbia and hypoxia. *(Summary: M.J. Avram. Photo: J.P. Rathmell.)*



1099 Cell-based Therapy for Acute Organ Injury: Preclinical Evidence and Ongoing Clinical Trials Using Mesenchymal Stem Cells (Review Article)

The care of patients with acute organ injuries leading to organ failure can be challenging because underlying mechanisms leading to organ injury are complex. Therapeutic use of mesenchymal stem cells may represent an innovative therapy for acute organ injury because they appear to migrate to the site of tissue damage in response to signals from injured and inflamed tissues and secrete a variety of soluble factors and exosomes/microvesicles that suppress the injury. The rationale for use of mesenchymal stem cells in acute respiratory distress syndrome, acute kidney injury, acute liver failure, acute brain injury, sepsis, and multiple organ dysfunction syndrome are reviewed, as are the limitations to their clinical use. *(Summary: M.J. Avram. Photomicrograph: stem cell among fibroblasts in culture by Id711 at en.wikipedia, Wikimedia Commons [public domain].)*



1093 Perioperative Management of the Patient with a Coronary Artery Stent (Clinical Concepts and Commentary)

Coronary artery stent placement necessitates use of antiplatelet therapy to prevent stent thrombosis. The safe timing of noncardiac surgery and the need for continuing chronic antiplatelet therapy to prevent a perioperative major adverse cardiac event in patients with coronary artery stents remains controversial. The pharmacology and pharmacogenomics of antiplatelet drugs, evolution of the coronary artery stent, pathophysiology and epidemiology of perioperative major adverse cardiac events, and existing as well as anticipated guidelines for the perioperative management of patients with coronary artery stents are reviewed to help address the challenges associated with their management. *(Summary: M.J. Avram. Photo: bare metal cardiac stent by Frank C. Müller, Wikimedia Commons [public domain].)*