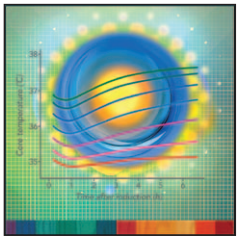
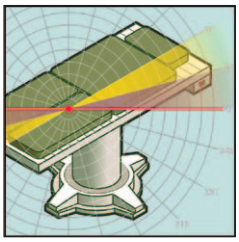
THIS MONTH IN

ANESTHESIOLOGY



276 Intraoperative Core Temperature Patterns, Transfusion Requirement, and Hospital Duration in Patients Warmed with Forced Air

Redistribution of body heat from the core to the periphery reduces core temperature in the hour after induction of anesthesia even in actively warmed patients. Core temperature was evaluated retrospectively in 58,814 actively warmed noncardiac surgical patients. The mean lowest core temperature during the initial hour of anesthesia was 35.7°C, suggesting the magnitude of redistribution hypothermia was approximately 1°C. After the first hour core temperature increased progressively. Transfusion requirements in the 45,866 patients admitted on the day of surgery increased with an increase in the area above the core temperature–*versus*–time curve and below a threshold of 37°C. Hospital stay was not prolonged to a clinically meaningful extent. *See the accompanying Editorial View on* **page 229**. *(Summary: M.J. Avram. Image: A. Johnson/Vivo Visuals.)*



286 Effect of Lateral Tilt Angle on the Volume of the Abdominal Aorta and Inferior Vena Cava in Pregnant and Nonpregnant Women Determined by Magnetic Resonance Imaging

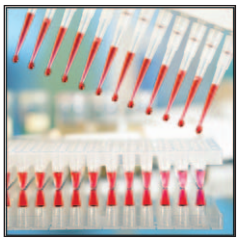
Aortocaval compression by the gravid uterus can cause hemodynamic disturbances and uterplacental hypoperfusion. The assumption that the left lateral tilt position can decrease aortocaval compression has never been morphologically validated. The effects of the supine position and 15°, 30°, and 45° lateral tilt angles on abdominal aorta and the inferior vena cava (IVC) volumes between L1/2 disc and L3/4 disc levels were determined in 10 singleton parturients at full term and 10 healthy, nonpregnant women using magnetic resonance imaging. Aortic volume did not differ between parturients and nonpregnant women in any position. Parturient IVC volume was compromised in the supine and 15° tilt positions but increased significantly in the 30° and 45° tilt positions. *See the accompanying Editorial View on* **page 231**. *(Summary: M.J. Avram. Image: A. Johnson/Vivo Visuals.)*

294 Sodium Bicarbonate and Renal Function after Cardiac Surgery: A Prospectively Planned Individual Patient Meta-analysis

A pilot randomized controlled trial found a reduced incidence of acute kidney injury in cardiac surgery patients after sodium bicarbonate infusion. Two trials were conducted to confirm these findings and facilitate a prospectively planned individual patient data meta-analysis (IPDMA). IPDMA uses individual patient data instead of summary data to facilitate more informative statistical analysis. This IPDMA of these three studies included 877 patients undergoing cardiac surgery with cardiopulmonary bypass and identified to be at increased risk for cardiac surgery–associated acute kidney injury who were randomly assigned to receive 24-h infusions of sodium bicarbonate or sodium chloride. The proportion of patients developing postoperative kidney injury did not differ between the treatment groups. *See the accompanying Editorial View on* **page 233**. *(Summary: M.J. Avram. Image: ©Thinkstock.)*

399 Effect of Minocycline on Lumbar Radicular Neuropathic Pain: A Randomized, Placebo-controlled, Double-blind Clinical Trial with Amitriptyline as a Comparator

Minocycline attenuates mechanical allodynia and thermal hyperalgesia in rodent models of neuropathic pain. Fifty-one patients with lumbosacral pain radiating into the leg below the knee caused by disc herniation, spinal canal stenosis, or failed back surgery syndrome were randomly assigned to receive either placebo, amitriptyline 25 mg, or minocycline 100 mg once daily for 2 weeks. After 2 weeks of treatment, amitriptyline and minocycline reduced pain intensity by 1.41 and 1.47 points, respectively, on the 11-point numerical rating scale. These small effect sizes are less than the decrease of 2 or more points that is considered to be moderately clinically meaningful. *(Summary: M.J. Avram. Image: J.P. Rathmell.)*

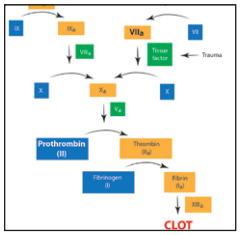


325 Discovery of a Novel General Anesthetic Chemotype Using High-throughput Screening

Newer, safer general anesthetics have generally been discovered as a result of both empiricism and serendipity. The last major new anesthetic class, the alkylphenols, was discovered in the 1970s. A high-throughput assay based on competitive binding with apoferritin, a soluble protein to which anesthetics bind in proportion to anesthetic potency, was used to screen a library of more than 350,000 compounds for anesthetic-like binding activity. A novel chemotype with general anesthetic activity, the 6-phenylpyridazin-3(2H)-ones, was identified by further testing the activity of compounds identified by high-throughput screening using isothermal titration calorimetry, a tadpole model, and a mouse model. *(Summary: M.J. Avram. Image: ©Shutterstock.)*

241 Practice Guidelines for Perioperative Blood Management: An Updated Report by the American Society of Anesthesiologists Task Force on Perioperative Blood Management (Practice Parameters)

These Practice Guidelines update "Practice Guidelines for Perioperative Blood Transfusion and Adjuvant Therapies: An Updated Report by the American Society of Anesthesiologists Task Force on Perioperative Blood Transfusion and Adjuvant Therapies" adopted by the American Society of Anesthesiologists in 2005 and published in 2006. They provide new evidence obtained from recent scientific literature along with findings from new surveys of expert consultants and randomly selected ASA members. The new evidence presented includes more emphasis on the preoperative assessment of the patient, assessment of the risk for transfusion, and the use of adjunct medications to prevent or treat bleeding. *(Summary: M.J. Avram. Image: J.P. Rathmell.)*



353 Reversal of Dabigatran Effects in Models of Thrombin Generation and Hemostasis by Factor VIIa and Prothrombin Complex Concentrate

Dabigatran is a specific high-affinity thrombin inhibitor. Rather than reversing the effects of dabigatran, prothrombin complex concentrate (PCC) and factor VIIa (FVIIa) overcome its effects by enhancing thrombin generation. Thus, although neither PCC nor FVIIa normalized all thrombin generation parameters in the presence of dabigatran, each was able to restore hemostasis in a mouse bleeding model in the presence of therapeutic dabigatran concentrations. Their ability to normalize hemostasis depended on both the dose of reversal agent and the dabigatran concentration, with the effects of FVIIa being much more dependent on dabigatran concentrations than were the effects of PCC. *See the accompanying Editorial View on* ***page 236****. (Summary: M.J. Avram. Illustration: J.P. Rathmell.)*

448 Acute and Perioperative Care of the Burn-injured Patient (Review Article)

Physicians providing early resuscitation and perioperative care to patients with severe burn injury must understand the pathophysiologic changes associated with such injury, their time course, and their consequences. For example, cardiac output is reduced and systemic and pulmonary vascular resistances are increased initially and a hyperdynamic and hypermetabolic state develops over 48 to 72 h after injury. Rapid and effective intravascular volume replenishment is crucially important for lessening the severity of burn shock. Inhalation injury increases the morbidity and mortality associated with severe burns. Drug pharmacokinetics and pharmacodynamics can be profoundly altered in burn injury patients. Pathophysiologic changes are reviewed as are initial patient evaluation and management, fluid resuscitation, preoperative evaluation, intraoperative and postoperative care, and pain management. *(Summary: M.J. Avram. Photo: ©Shutterstock.)*