THIS MONTH IN *Anesthesiology*

Incidence of Intraoperative Hypotension as a Function of the Chosen Definition 213

There is no widely accepted definition for intraoperative hypotension leading to different incidences and associations to adverse outcomes. *See the accompanying Editorial View on* **page 198**

The Novel Hemoglobin-based Oxygen Carrier HRC 101 Improves Survival in Murine Sickle Cell Disease. 281

A blood substitute improved survival in acute hypoxic stress.

Assessment of the Accuracy of Procalcitonin to Diagnose Postoperative Infection after Cardiac Surgery. 232

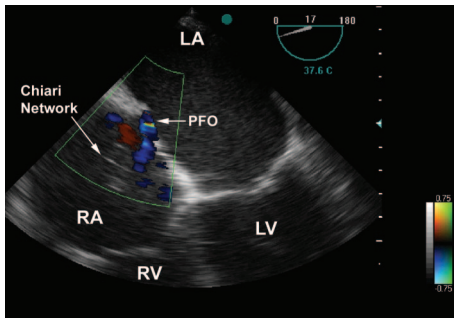
Procalcitonin is a marker of bacterial infections after cardiac surgery.

CME

Avoidance of Nitrous Oxide for Patients Undergoing Major Surgery: A Randomized Controlled Trial 221

This article has been selected for the ANESTHESIOLOGY CME Program. *See the accompanying Editorial View on* **page 200**

Use of Transesophageal Echocardiography in the Perioperative Period (Review Article) 333



In this issue, Tan and Fraser review the perioperative uses of transesophageal echocardiography. Patients receiving anesthesia and those in the intensive care unit may be at risk of systemic embolism from various cardiovascular sources, and the authors summarize the use of transesophageal echocardiography to detect intracardiac lesions, such as thrombi, vegetations, and tumors; cardiac anomalies; and vascular disease such as aortic atheroma. The authors also review the current literature showing transesophageal echocardiography's efficacy to provide stratification of patients at risk for perioperative thrombosis, influence medical therapy, and refine clinical decision making, thus contributing to improved patient outcomes.

Our Kingdom for a Standard Terminology (Editorial View) 198

In their editorial this month, Warner and Monk applaud the efforts of Bijker *et al.* (page 213), whose study addresses the huge variations in definitions of hypotension used in clinical studies. This lack of standard definitions—prevalent in anesthesiology as well as other specialties—hampers investigators' ability to compare outcomes and assess perioperative events. Widely disparate definitions can also lead to inappropriate conclusions in the public and medicolegal sectors. The authors urge their colleagues to support international standardized terminology efforts, especially in the new pay-for-performance era.

Anesthetic Action at Cortical and Subcortical Levels 202

Velly *et al.* recorded electroencephalograms—cortical (EEG) and subcortical (ESCoG) in 25 Parkinson disease patients treated with implanted deep-brain stimulating electrodes. In their nonrandomized, prospective, open-label study, the team performed EEG and ESCoG spectral analysis during induction of anesthesia with either propofol (n = 13) or sevoflurane (n = 12). Both anesthetics decreased EEG and ESCoG activity in a dose-related fashion. EEG values decreased dramatically at loss of consciousness, whereas ESCoG values were more predictive of movement in response to laryngoscopy. This suggests that consciousness may involve the cortical brain, but that suppression of movement is mediated through anesthetic agents' effects on subcortical structures.

Role of the Thalamic Cholinergic Arousal System in Producing Unconsciousness 264

It has been theorized that anesthetic-induced unconsciousness may involve direct antagonism of nicotinic receptors that are densely expressed in the thalamus. To test this theory, Alkire *et al.* induced loss of righting reflex in rats using sevoflurane, and then administered increasing doses of nicotine to determine an optimal arousal dose. They found that particular doses of nicotine (delivered in microinjections directly to the central medial thalamus) temporarily restored righting and mobility in the rats, even when sevoflurane administration continued. Intrathalamic mecamylamine pretreatment prevented the nicotine arousal response. These results suggest that suppression of the midline thalamic cholinergic arousal system is part of the mechanism by which anesthetics produce unconsciousness.