THIS MONTH IN *Anesthesiology*

Perioperative Strokes and β-Blockade (Special Article) 940

High-dose β-blocker therapy is associated with an increase in strokes.

Prevalence of Delirium with Dexmedetomidine Compared with Morphine-based Therapy after Cardiac Surgery: A Randomized Controlled Trial (DEXmedetomidine COmpared to Morphine [DEXCOM] Study) 1075

Dexmedetomidine reduced the duration but not the incidence of delirium.

Hemoglobin-based Oxygen Carriers: Current Status and Future Directions (Special Article) 946

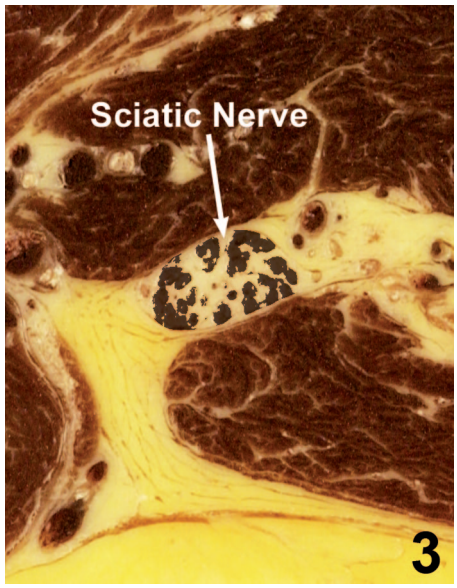
Toxicities for hemoglobin-based oxygen carriers are discussed.

Anaphylaxis and Anesthesia: Controversies and New Insights (Clinical Concepts and Commentary) 1141

Controversies and new insights for anaphylaxis are discussed.

Differences in Quantitative Architecture of Sciatic Nerve 1128

In sciatic nerve (SN) blocks, differences in the risk of nerve damage, minimum effective anesthetic volume, and onset time may be related to structural differences in neural:nonneural tissue ratios. Consecutive transversal sections were obtained from five cadavers and reconstructions of the SN made. The amount and relative percentage of neural tissue inside the epineurium decreased approximately 20% from the midfemoral to popliteal components. Outside the SN, the adipose compartment increased significantly toward the distal components. Greater neural density suggests a higher vulnerability for neurologic sequelae in the proximal SN, and may explain differences observed in minimum effective anesthetic volume and onset time between proximal and distal SN blocks.



Long-term Cognitive Decline in Older Subjects Was Not Attributable to Noncardiac Surgery or Major Illness 964

This retrospective study assessed whether long-term cognitive decline occurred after surgery or illness in three groups of patients, those undergoing noncardiac surgery, those hospitalized for illness, or those with neither. Of the 575 participants, 214 were nondemented and 361 had very mild or mild dementia at enrollment. Cognitive trajectories did not differ among the groups, although demented participants declined more markedly. Of the initially nondemented participants, 23% progressed to a clinical dementia rating greater than 0, but this was not more common after surgery or illness. The study did not detect long-term cognitive decline independently attributable to surgery or illness, nor were these events associated with accelerated progression to dementia. Therefore, the decision to proceed with surgery in elderly people should be made independently of persistent cognitive deterioration. *See the accompanying Editorial View on* **page 931**

Etomidate Targets $\alpha_5\gamma$-Aminobutyric Acid Subtype A Receptors (α_5GABA$_A$Rs) to Regulate Synaptic Plasticity and Memory Blockade 1025

Intraoperative awareness and postoperative cognitive dysfunction may occur with general anesthetics. To assess possible mechanisms, wild-type and null mutant mice for α_5GABA$_A$Rs (*Gabra5*−/− mice) were used to study the effects of etomidate and the α_5GABA$_A$R-preferring inverse agonist L-655,708. A decrease in function of α_5GABA$_A$Rs did not influence robust synaptic plasticity or memory performance. Etomidate inhibited long-term potentiation and memory performance that could be blocked by L-655,708. This is the first proof of concept that memory blockade by a general anesthetic can be reversed by inhibiting the function of α_5GABA$_A$Rs. The findings suggest a pharmacogenetic mechanism and preclinical model for awareness during anesthesia.

Mathematical Modeling of the Pain and Progress of the First Stage of Nulliparous Labor 1093

In this retrospective analysis of 100 sequential deliveries from each of five self-reported ethnic groups, demographic variables, cervical dilation, and pain scores were abstracted from automated medical records. Asian women had significantly slower active labor than other ethnicities and reported less pain. Epidural analgesia and greater maternal weight were significantly associated with slower labor, slower active labor, and slower onset of labor pain. Mathematical models can be used to detect subtle effects of patient covariates on the progress and pain of the first stage of labor. These effects were clinically modest compared with the substantial remaining unexplained patient-to-patient variability in labor progress and labor pain. *See the accompanying Editorial View on* **page 936**