This Month in

ANESTHESIOLOGY

Easing Refractory Cancer Pain

Refractory cancer pain often is unalleviated either by oral, parenteral, or intrathecal morphine or by combinations of epidural morphine and bupivacaine. In a recent study, Sjoberg *et al.* (page 284) found most patients experienced adequate pain relief (0–2 on the visual analog scale) with continuous intrathecal infusion of morphine (0.5 mg/ml) and bupivacaine (4.75 mg/ml). Fifty-three terminal cancer patients received morphine/bupivacaine in a ratio of $\approx$1:10, proportions that not only yielded a stable pattern of analgesia but improved sleep pattern scores and decreased daily nonopioid analgesic and sedative consumption. The continuous intrathecal infusion was not without side effects, such as late urinary retention, paresthesias, paresis, and gait impairment—primarily due to the bupivacaine—which must be weighed against pain relief for the patient.

Quicker Recovery with Desflurane in Children

Desflurane, a potent agent that, when inhaled, has a low blood solubility, allowing for both rapid induction and emergence from anesthesia, is not acceptable for induction in pediatric anesthesia because of its pungency. In a double-blind trial, Davis *et al.* (page 298) randomly assigned 45 children undergoing ambulatory surgery to maintenance anesthesia of either desflurane/nitrous oxide or halothane/nitrous oxide. Both groups (desflurane n = 22, halothane n = 23) received intranasal midazolam as premedication and induction of anesthesia with halothane and nitrous oxide *via* mask. The group receiving maintenance desflurane had a longer anesthesia time (52 $\pm$ 12 min *vs.* 42 $\pm$ 10 min for the halothane/nitrous oxide group), but their recovery-room time was less than for the halothane group. However, emergence delirium was associated with recovery in 50% of those in the desflurane group, as opposed to 21% of the halothane group. In addition, the authors point out, institutions may differ *vis a vis* their criteria for ambulatory surgical patient discharge, in which case desflurane may or may not affect overall hospitalization time.

Mivacurium: A Succinycholine Alternative in Children?

The use of succinycholine in infants and children may be associated with adverse side effects. Cauldwell *et al.* (page 320) evaluated the neuromuscular effects of an intramuscular injection of mivacurium, a new nondepolarizing muscle relaxant, in infants and children. After induction of anesthesia with nitrous oxide/halothane, 20 infants and children (aged 3 months to 5 yr) then received an intramuscular injection of mivacurium. The dose of mivacurium ranged from 250 μg/kg to a maximum of 800 μg/kg, in an attempt to bracket the mivacurium dose that could produce adequate twitch depression of the adductor pollicis muscle within 5 min of drug administration. None of the patients achieved more than 80% twitch depression within that time frame. Results indicate that onset is too slow to use intramuscular injection of mivacurium to treat laryngospasm or facilitate routine tracheal intubation in infants and children.

Hypotension Correlates with ANS Dysfunction

Diabetics with reflex dysfunction of the autonomic nervous system (ANS) are at increased risk of hypotension after induction of anesthesia. Other known causes of ANS dysfunction include older age, hypertension, altered ventricular function, myocardial infarction, coronary artery disease, and various drug therapies, including β-adrenergic blockers and ACE inhibitors. Latson *et al.* (page 326) find that *any* preexisting ANS reflex dysfunction may be associated with higher risk of postinduction hypotension. A generalized group of 26 ambulatory surgery patients, aged 39–75, were evaluated preoperatively for autonomic function, using the Valsalva maneuver, change in heart rate with forced breathing, change in heart rate and blood pressure with standing, and spectral analysis of heart rate variability. The incidence of hypotension (mean blood pressure less than 70 mmHg) was 67–83% in the 12 patients found to have ANS dysfunction preoperatively, as compared to 9–17% in the other 14 patients. Further study is needed to evaluate whether these tests are more specifically predictive of anesthetic hypotension than is a patient history of medical conditions associated with ANS dysfunction.

Coagulation Monitoring: Laboratory *Versus* On-site

Can the limitations of laboratory-based testing for coagulation factors be circumvented? Despotis *et al.* (page 338) assessed the effectiveness of laboratory *versus* on-site screening of PT (prothrombin time), aPTT (activated partial thromboplastin time), thrombin time, and platelet count (PLT) from blood specimens collected pre-CPB,

post-CPB, and pre-ICU of 362 adult patients undergoing cardiopulmonary bypass (CPB). Normal range values of PT:aPTT were determined from blood samples of patients not receiving heparin or warfarin preoperatively. Results demonstrated that on-site PT and PLT measurements correlated well with those from the laboratory. However, the trial demonstrated a disparity between whole blood and laboratory aPTT measurements, perhaps due to different normal distribution curves and/or an increased sensitivity of the whole blood assay to Factor deficiency. Nevertheless, on-site whole blood PT, aPTT, and PLT assays could enable physicians to rapidly and accurately assess etiology of microvascular bleeding, contributing to cost containment and lower usage of blood transfusion postoperatively.

Role of Anesthesiologist in Neuroradiology

In a comprehensive review article, Young *et al.* (page 427) review basic concepts in treating neurologic disease processes and describe the interactive nature of the anesthesiologist/neuroradiologist partnership during long (4–5 h) neuroradiologic procedures. Therapeutic embolization of intracranial arteriovenous malformations, treatment of spinal cord lesions, therapeutic carotid occlusion, balloon angioplasty of cerebral vasospasm from aneurysmal subarachnoid hemorrhage, and aneurysm ablation are highlighted. The complex care of these patients provides an opportunity for the anesthesiologist to contribute to therapeutic advances in this rapidly expanding field. Traditional concepts of "conscious sedation" and "monitored anesthesia care" will have to be modified to allow rapid changes in sensorium in patients with unsecured airways while simultaneously providing manipulation of systemic arterial pressure and other physiologic functions.

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