



Patient-Satisfaction Measures in Anesthesia: Qualitative Systematic Review (Review Article) **452**

Patient satisfaction is an important measure of healthcare quality. Few studies that assessed patient satisfaction with anesthesia as a measure of outcome used a multidimensional validated questionnaire. Instruments that can be used to evaluate patient satisfaction with anesthesia are reviewed. See the accompanying Editorial View on page 245

Muscle Weakness Predicts Pharyngeal Dysfunction and Symptomatic Aspiration in Long-term Ventilated Patients **389**

Twenty of 30 long-term ventilated patients had clinically meaningful muscle weakness based on the Medical Research Council sum-score. Symptomatic aspiration occurred in 70% of patients with weakness and 10% of those without it. Muscle weakness may increase symptomatic aspiration risk by affecting the pharyngeal muscles.

δ Opioid Receptor Antagonist, ICI 174,864, Is Suitable for the Early Treatment of Uncontrolled Hemorrhagic Shock in Rats **379**

The δ opioid receptor antagonist ICI 174,864 dose-dependently prolonged survival time and increased survival rate in a rat model of uncontrolled hemorrhagic shock. It improved hemodynamics and cardiac function and increased tissue blood flow. Its early administration could buy time until bleeding can be controlled. See the accompanying Editorial View on page 253

Surgical Treatment for Permanent Diaphragm Paralysis after Interscalene Nerve Block for Shoulder Surgery (Case Report) **484**

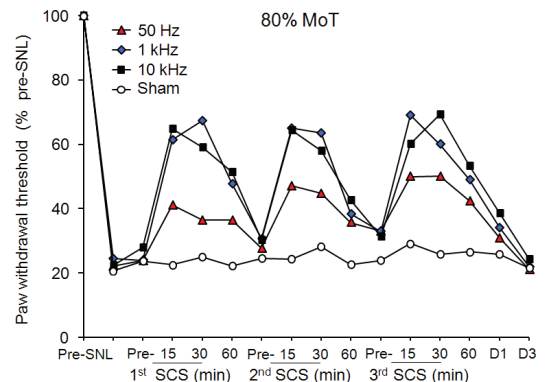
The cases of 14 patients treated for chronic diaphragmatic paralysis due to phrenic nerve damage after interscalene nerve blocks are summarized, three in some detail. Intraoperative findings were consistent with compression neuropathy. Surgical decompression, with or without nerve grafting, improved the conditions of most patients. See the accompanying Editorial View on page 250

Hypotonia in Infancy: Anesthetic Dilemma (Case Scenario) **443**

Choosing the appropriate anesthetic for a hypotonic infant without a confirmed diagnosis can be challenging. The case of an infant with hypotonia scheduled to undergo a muscle biopsy is presented. The basic science behind mitochondrial myopathy, its diagnosis, and anesthetic management are reviewed.

Conventional and Kilohertz-frequency Spinal Cord Stimulation Produces Intensity- and Frequency-dependent Inhibition of Mechanical Hypersensitivity in a Rat Model of Neuropathic Pain **422**

The effectiveness of spinal cord stimulation in the treatment of neuropathic pain depends on stimulation frequency and intensity. In a rat model of neuropathic pain, the intensity-dependent (20%, 40%, 80% of motor threshold) attenuation of pain by bipolar spinal cord stimulation at frequencies of 50 Hz, 1 kHz, and 10 kHz was studied on three consecutive



days after L5 spinal nerve ligation. At a stimulation intensity that was 80% of the motor threshold, 1-kHz spinal cord stimulation reduced mechanical hypersensitivity more than 50-Hz stimulation did, with an earlier onset of analgesic effect (day 1 vs. day 2). The effect of 1-kHz stimulation was observed even at 40% of the motor threshold. The C-fiber component of wide dynamic range neuronal wind-up was reduced only at a 50-Hz stimulation frequency. Pain relief by kilohertz level and 50-Hz stimulation may involve different peripheral and spinal segmental mechanisms. See the accompanying Editorial View on page 243

Postoperative B-type Natriuretic Peptide for Prediction of Major Cardiac Events in Patients Undergoing Noncardiac Surgery: Systematic Review and Individual Patient Meta-analysis **270**

The preoperative concentrations of B-type natriuretic peptides predict mortality and myocardial infarction in patients undergoing noncardiac surgery. A systematic review and individual patient level meta-analysis included data on 2,051 patients from 18 studies who had undergone noncardiac surgery to determine if B-type natriuretic peptide concentrations measured up to 7 days postoperatively are similarly predictive. The B-type natriuretic peptide concentration threshold of 245 pg/ml and the N-terminal proBNP threshold of 718 pg/ml independently predicted the composite primary outcome of mortality or nonfatal myocardial infarction at 30 days and at 180 days or more after noncardiac surgery. Patients identified as at high risk of adverse cardiac events may benefit from closer monitoring and more rigorous heart rate and fluid management postoperatively.

Acute Normovolemic Hemodilution in the Pig Is Associated with Renal Tissue Edema, Impaired Renal Microvascular Oxygenation, and Functional Loss **256**

Normovolemic hemodilution with crystalloid or colloid solutions is used to reduce allogeneic blood transfusion requirements. Hemodilution may be a risk factor for development of acute kidney injury in patients undergoing cardiopulmonary bypass. Acute normovolemic hemodilution with colloids or crystalloids was produced in 18 pigs in three 5% steps from a baseline hematocrit of 30% to a hematocrit of 15%. More fluid was required to reach the target hematocrit in the crystalloid group. Renal blood flow did not change in either group. Microvascular oxygenation and renal function were impaired in the crystalloid group at a hematocrit of 15%, resulting in renal tissue edema and activation of cellular hypoxia adaptation. The authors postulate profound hemodilution with crystalloid may reduce plasma colloid osmotic pressure enough to produce tissue edema, resulting in deterioration of microvascular function and oxygenation, leading to cellular hypoxia and metabolic adaptation with ultimate loss of function. See the accompanying Editorial View on page 248