This Month in ANESTHESIOLOGY
Science, Medicine, and the Anesthesiologist
Infographics in Anesthesiology
Editorial
Preoperative Frailty Assessment: An Opportunity to Add Value to Perioperative Care
D. I. McIsaac
Elimination Clearance of Dexmedetomidine: Cross-examining What the Data Say
T. K. Henthorn, T. C. Krejcie, M. J. Avram
Prolonging Sympathetic Blockade for Complex Regional Pain Syndrome: Is Botulinum Toxin the Answer?
V. Singh, S. P. Cohen

The Accreditation Council for Graduate Medical Education Special Report on Clinical Learners in Procedural Environments: Several Elephants in a Very Small Room
G. Martin, C. Flinton, K. Ulrich, A. D. Kirk

Perioperative Medicine

CLINICAL SCIENCE
Preoperative Point-of-Care Ultrasound to Identify Frailty and Predict Postoperative Outcomes: A Diagnostic Accuracy Study

Quadriceps depth defined using point-of-care ultrasound was able to predict frailty (defined using the Fried phenotype assessment) with good discrimination. Quadriceps depth was also a predictor of certain adverse postoperative outcomes including discharge to a skilled nursing facility and delirium. Additional studies with larger samples of patients are needed to confirm the clinical utility of this approach and determine whether these associations are independent of potential confounders such as surgery type.

Dexmedetomidine Clearance Decreases with Increasing Drug Exposure: Implications for Current Dosing Regimens and Target-controlled Infusion Models Assuming Linear Pharmacokinetics

The data of 48 subjects from two published pharmacokinetic studies were pooled to build a three-compartment pharmacokinetic model with nonlinear elimination clearance that successfully predicted plasma dexmedetomidine concentrations over a wide concentration range. Cardiac output did not explain between-subject or within-subject variability in dexmedetomidine elimination clearance. Dexmedetomidine elimination clearance may decrease with increasing plasma concentrations because it alters the liver blood flow-to-cardiac output ratio in a concentration-dependent manner.

SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

Critical Care Medicine

BASIC SCIENCE

Adverse Mechanical Ventilation and Pneumococcal Pneumonia Induce Immune and Mitochondrial Dysfunctions Mitigated by Mesenchymal Stem Cells in Rabbits

In a preclinical study, mesenchymal stem cell administration improved the outcome of rabbits with pneumonia and high-pressure mechanical ventilation by correcting immune and mitochondrial dysfunction. When combined with specific antibiotic therapy, the combination was synergistic in mitigating lung inflammation.

SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

ON THE COVER: Frailty is increasingly being recognized as a public health issue, straining healthcare resources and increasing costs to care for these patients. In this issue of ANESTHESIOLOGY, Canales et al. report the results of a pilot diagnostic accuracy study using point-of-care ultrasound to discriminate between frail and nonfrail patients before surgery. In an accompanying editorial, McIsaac discusses the strengths and limitations of currently validated measures for assessing frailty and the value for ultrasound assessment. Cover Illustration: A. Johnson, Vivo Visuals Studio.

• Canales et al.: Preoperative Point-of-Care Ultrasound to Identify Frailty and Predict Postoperative Outcomes: A Diagnostic Accuracy Study, p. 268
• McIsaac: Preoperative Frailty Assessment: An Opportunity to Add Value to Perioperative Care, p. 255
Botulinum Toxin Type A for Lumbar Sympathetic Ganglion Block in Complex Regional Pain Syndrome: A Randomized Trial
Y. Yoo, C.-S. Lee, J. Kim, D. Jo, J. Y. Moon

Lumbar sympathetic ganglion block with botulinum toxin type A caused a greater increase in temperature in the blocked limb at 1 month than did levobupivacaine. Botulinum toxin administration also provided better analgesia at 1 and 3 months after injection than did levobupivacaine, while no adverse events were observed. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

Heparin-induced Thrombocytopenia: Perioperative Diagnosis and Management
A. Koster, M. Nagler, G. Erdoes, J. H. Levy

Heparin-induced thrombocytopenia is a severe prothrombotic disease. Timely diagnosis and treatment are essential. Application of diagnostic algorithms based on validated clinical scoring tools and rapid, specific laboratory assays may improve outcomes.

REVIEW ARTICLE
Quantitative Neuromuscular Monitoring and Postoperative Outcomes: A Narrative Review
G. S. Murphy, S. J. Brull

Intraoperative quantitative neuromuscular monitoring reduces the risk of postoperative residual neuromuscular blockade. Studies show that quantitative (objective) intraoperative monitoring minimizes the risk of adverse clinical events associated with residual neuromuscular block.
Anesthesiology Reflections from the Wood Library-Museum

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