ANESTHESIOLOGY

ON THE COVER:

Acute kidney injury is a common complication after cardiac surgery with cardiopulmonary bypass (CPB). In this issue of ANESTHESIOLOGY, Lannemyr *et al*. evaluated the effects of CPB on renal oxygenation in patients undergoing cardiac surgery. They conclude that cardiopulmonary bypass impairs renal oxygenation due to renal vasoconstriction and hemodilution during and after CPB. In an accompanying Editorial View, Billings *et al*. explains the implications of these findings in the context of the complexities of oxygenation of the kidney.

- Lannemyr *et al.*: Effects of Cardiopulmonary Bypass on Renal Perfusion, Filtration, and Oxygenation in Patients Undergoing Cardiac Surgery, p. 205
- Billings *et al.*: Renal Oxygen Flux during Cardiopulmonary Bypass; Tubular Damage to Preserve Glomerular Filtration—What's a Kidney to Do? p. 199

◆ THIS MONTH IN ANESTHESIOLOGY

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◆ EDITORIAL VIEWS

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■ PERIOPERATIVE MEDICINE

CLINICAL SCIENCE

◇◆ **Effects of Cardiopulmonary Bypass on Renal Perfusion, Filtration, and Oxygenation in Patients Undergoing Cardiac Surgery** 205
L. Lannemyr, G. Bragadottir, V. Krumbholz, B. Redfors, J. Sellgren, and S.-E. Ricksten

Cardiopulmonary bypass impairs renal oxygenation due to renal vasoconstriction and hemodilution during and after cardiopulmonary bypass, accompanied by an increase in N-acetyl-β-d-glucosaminidase.

◇ Refers to This Month in Anesthesiology
◆ Refers to Editorial Views
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In a prospective, multicenter study of the incidence of connected consciousness in response to tracheal intubation in 260 anesthetized surgical patients, 4.6% had connected consciousness detected by the isolated forearm technique, none of whom had explicit recall. Connected consciousness was more common in younger patients and those less deeply anesthetized as detected by depth of anesthesia monitors.

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Safety of Perioperative Glucocorticoids in Elective Noncardiac Surgery: A Systematic Review and Meta-analysis 234
A. J. Toner, V. Ganeshanathan, M. T. Chan, K. M. Ho, and T. B. Corcoran

Glucocorticoids did not impact on any wound infection (odds ratio, 0.84; 95% CI, 0.62 to 1.15) or length of stay (weighted mean difference, −0.27 days; CI, −1.37 to 0.84). Glucocorticoids slightly increased peak postoperative glucose concentrations by 20 mg/dl (CI, 11 to 29; $P < 0.001$), an amount that is probably not clinically important. Single-dose steroid administration for prevention of nausea appears safe.

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In two essentially identical, randomized, double-blind, placebo-controlled, parallel-group phase III studies performed in adult inpatients undergoing elective surgery under general anesthesia and having at least two of the four Apfel risk factors for postoperative nausea and vomiting (PONV), a single 5-mg dose of amisulpride was safe and superior to placebo in reducing the incidence of PONV.

Perioperative Outcomes and Management in Pediatric Complex Cranial Vault Reconstruction: A Multicenter Study from the Pediatric Craniofacial Collaborative Group 276
P. A. Stricker, S. M. Goobie, F. P. Cladis, C. M. Haberkern, P. M. Meier, S. K. Reddy, T. T. Nguyen, L. Cai, M. Polansky, P. Szmuk, and the Pediatric Craniofacial Collaborative Group

The majority of patients received blood transfusion and were admitted to the intensive care unit postsurgery. Notable complications included cardiac arrest, hypotension, seizures, coagulopathy, and large-volume blood transfusion. There were significant variations in perioperative management practices and in-hospital outcomes. These results serve as a platform for future comparisons of management practice.

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Sevoflurane transiently increased excitatory transmission at 6 h post exposure in male but not in female mice. By contrast, inhibitory transmission was decreased in male mice but increased in female mice at 6 h post exposure. No changes in behavioral function were observed. The results suggest that the transient changes induced by sevoflurane in excitatory and inhibitory transmission do not impact long-term cognitive function.

■ CRITICAL CARE MEDICINE

BASIC SCIENCE

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L. Michalick, L. Erfinanda, U. Weichelt, M. van der Giet, W. Liedtke, and W. M. Kuebler

By using animal genetic models and pharmacologic approaches, the authors found attenuated ventilator-induced lung injury (VILI) by inhibition of transient receptor potential vanilloid (TRPV) 4 and involvement of serum glucocorticoid–regulated kinase (SGK) 1 in the TRPV4 Ca^{2+}-mediated VILI through molecular interaction and phosphorylation of TRPV4 at serine 824. The results of this study suggest TRPV4 and SGK1 as potential targets for the treatment of VILI.

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