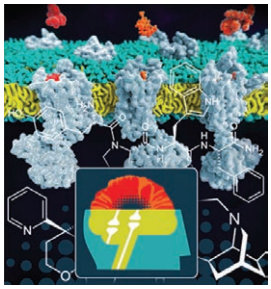
ANESTHESIOLOGY



ON THE COVER:

New scientific discoveries are emerging in the field of opioid pharmacology at the same time the United States is responding to a surge in prescription opioid misuse. "Frontiers in Opioid Pharmacology," the 2017 ANESTHESIOLOGY Journal Symposium held during the American Society of Anesthesiologists Annual Meeting, highlighted many of these new scientific discoveries. In this issue of ANESTHESIOLOGY, readers will find articles describing new original laboratory and clinical research, retrospective and population studies with practice and policy implications, and reviews on a number of topics related to the pharmacology and clinical use of opioid analgesics. Many of these are written by anesthesiologists that are leading clinician-scientists in our field. We invite you to read and learn more from the *Frontiers in Opioid Pharmacology*. Cover illustration by Sara Jarret, C.M.I.; opioid receptor illustration ©ThinkStock; Journal Symposium logo by Annemarie Johnson, Vivo Visuals.

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Review Articles

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SPECIAL ARTICLE

The acidic end-product of aerobic metabolism is generally accepted to be carbon dioxide, but it is instead entirely possible that hydrogen ion and bicarbonate may be produced initially by the several Krebs cycle decarboxylating enzymes in the mitochondria. The greater intracellular acidosis following inhibition of carbonic anhydrase by acetazolamide is argued by two experts in acid-base physiology and function of carbonic anhydrase to support either biochemistry. In the first instance, carbonic anhydrase catalyzes bicarbonate formation to codiffuse with carbon dioxide through the cell to speed carbon dioxide elimination and prevent hypercapnic acidosis or in the second scenario to immediately speed the formation of carbon dioxide from hydrogen and bicarbonate to lower the hydrogen ion concentration.

PERIOPERATIVE MEDICINE

CLINICAL SCIENCE

The National Readmission Database for 2013 and 2014 was analyzed to compare readmission rates in patients with or without opioid abuse or dependence undergoing major operating room diagnostic or therapeutic procedures. Patients with opioid abuse or dependence had higher 30-day readmission rates (11.1% *vs.* 9.1%). Readmissions for infection, opioid overdose, and acute pain were more common in patients with opioid abuse or dependence.

Using a Premier Perspective database of total hip and knee arthroplasties, patients were grouped into "opioids only" and 1, 2, or more than 2 additional modalities. There was a stepwise modality number-associated decrease in opioid patient-controlled analgesia use, opioid prescriptions, and some opioid-related side effects, but not cost of hospitalization. The strongest association was for cyclooxygenase-2 inhibitors and nonsteroidal antiinflammatory drugs.

Ambient operating room temperature has a negligible effect on core temperature for forced-air warmed patients, and only a small effect on unwarmed patients.

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