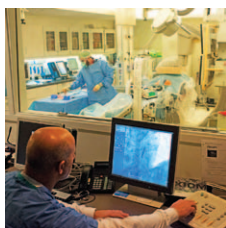


ANESTHESIOLOGY



Jean Mantz, M.D., Ph.D., Editor



Risk of major adverse cardiac events following noncardiac surgery in patients with coronary stents. JAMA doi:10.1001/jama.2013.278787.

Guidelines recommend delaying noncardiac surgery in patients after coronary stent procedures for 1 yr after drug-eluting stents (DES) and for 6 weeks after bare metal stents, but the evidence supporting this statement is limited and conflicting. In this national, retrospective cohort study enrolling 40,000 patients, it was shown that risk factors for postoperative major cardiac adverse events included nonelective surgical presentation and conditions associated with advanced ischemic cardiac disease. Neither the time between coronary stent implantation and surgery nor discontinuation of antiplatelet therapy had significant (if any) explanatory importance. Guidelines recommending prolonged delay and continued use of antiplatelet therapy for patients with DES should be reevaluated.

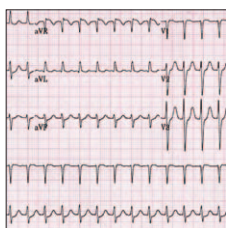
Photo: J.P. Rathmell.



Complications of daytime elective laparoscopic cholecystectomies performed by surgeons who operated the night before. JAMA 2013; 310 doi:10.1001/jama.2013.280372.

Sleep deprivation is assumed detrimental to physician performance. Restrictions were imposed in 2011 by the Accreditation Council for Graduate Medical Education, limiting interns to a 16-h workday and upper-level residents to no more than 28 continuous work hours. Further, limited data suggesting an increased rate of postoperative complications in elective patients operated by surgeons who operated the night prior to surgery have called for regulation of elective surgical activities. The present population-based study compared outcomes in 100,000 patients undergoing elective laparoscopic cholecystectomy with surgeons having operated or not the night before within 6 h of the onset of cholecystectomy. Primary outcome was conversion to laparotomy; secondary endpoints were complication rates and death. No significant difference was found between the two groups. These negative findings should not prompt to revise regulation of surgical activities, and indirectly support the prominent role of anesthesiologists to ensure patient's safety in the operating room.

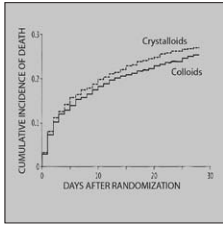
Photo: J.P. Rathmell.



Effect of heart rate control with esmolol on hemodynamic and clinical outcomes in patients with septic shock: A randomized clinical trial. JAMA 2013; 310:1683-91.

β -blocker therapy may control heart rate and attenuates some of the deleterious effect of β -adrenergic receptor stimulation in septic shock. However, β -blockers may worsen cardiovascular decompensation through negative inotropic effects. The present open-label, randomized phase 2 study was thus aimed to determine whether esmolol, a short-acting β -blocker, could maintain a heart rate of less than 95/min without increase in adverse events in 154 patients with septic shock requiring norepinephrine infusion to maintain a mean arterial pressure of 65 mmHg. The results indicate that esmolol administration was associated with reductions in heart rates to achieve target levels without increase in adverse events, but also with a significant decrease in mortality and in length of stay in the intensive care unit that warrant further investigation.

Article selection and summary: J.F. Pittet. Image: J.P. Rathmell.



Effects of fluid resuscitation with colloids vs crystalloids on mortality in critically ill patients presenting with hypovolemic shock: The CRISTAL randomized trial. *JAMA* 2013; 310:1809-17.

There is accumulating evidence that colloids increase mortality in patients with septic shock, but the evidence supporting the choice of intravenous colloid *versus* crystalloid solutions for management of hypovolemic shock remains unclear. This international multicenter, prospective, randomized, open-label, clinical trial stratified by case mix (sepsis, trauma, or hypovolemic shock without sepsis or trauma) compared colloids *versus* crystalloids for all fluid intervention other than maintenance throughout the intensive care unit stay between 2003 and 2012. Primary endpoint was 28-day mortality. No significant difference was found between colloid and crystalloid groups in the primary outcome. Owing to the limitations of this study (open-label design and prolonged duration of inclusion) and the negative primary goal, further investigation is required before these findings can be considered other than exploratory.

Image: Redrawn from original publication.



Effect of statin therapy on mortality in patients with ventilator-associated pneumonia (VAP). *JAMA* 2013; 310:1692-1700.

Observational studies have reported that treatment with statins may be associated with improved outcome of various infections. In particular, a previous meta-analysis identified 20 studies including 1 randomized controlled trial and found lower mortality (including pneumonia-related mortality) with statin use. The present multicenter study performed in 26 intensive care units (ICU) was the first to be aimed to determine the effect of simvastatin or placebo on day-28 mortality in ICU patients with ventilator-associated pneumonia (VAP). Statin or placebo were started at the same time as antibiotic therapy and given until ICU discharge. The results indicate that in adults with suspected VAP, simvastatin therapy compared with placebo did not improve day-28 survival. These findings do not support the use of statins to improve VAP outcomes.

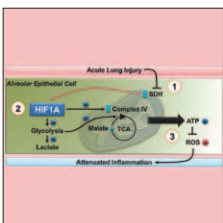
Article selection and summary: J.F. Pittet. Image: J.P. Rathmell.



“Best practice” for patient-centered communication: A narrative review. *J Grad Med Educ* 2013; doi: <http://dx.doi.org/10.4300/JGME-D-13-00072.1>.

Effective communication with patients is an Accreditation Council for Graduate Medical Education core competency that physicians must be able to develop and demonstrate. The American Board of Anesthesiology APPLIED Examination (formerly the Part 2 Oral Examination) places emphasis upon the anesthesiologist's ability to effectively communicate. King and Hoppe present a comprehensive review of the scientific evidence base that exists defining effective *patient-centered* communication skills. They focus on and summarize the research demonstrating that better patient outcomes are associated with *patient-centered* communication. This knowledge base is recommended for expansion and enhancement of the communication curriculum for medical students, residents, and fellows and ongoing assessment and maintenance of the communication skills of practicing clinicians.

Article selection and summary: A.J. Schwartz. Image: J.P. Rathmell.



HIF1A reduces acute lung injury by optimizing carbohydrate metabolism in the alveolar epithelium. *PLOS Biol* 2013; 11:e1001665.

Acute lung injury (ALI) is among the leading causes of perioperative morbidity and mortality. In the present study, it was hypothesized that stretch conditions—such as those that occur during mechanical ventilation—may result in transcriptional adaptation of alveolar epithelial cells. A genome-wide screen revealed a transcriptional response of pulmonary epithelia to cyclic mechanical stretch condition (an *in vitro* model resembling mechanical ventilation) similar to hypoxia signaling. Surprisingly, stabilization of hypoxia-inducible factor 1A (HIF1A) during stretch conditions *in vitro* or during ventilator-induced ALI *in vivo* was observed together with improved tricarboxylic acid cycle function. These preclinical findings highlight the potential for pharmacological HIF1A stabilization in the treatment of ALI.

Article selection and summary: H. Eltzschig. Image: Used with permission of PLOS Biology.



Voltage-gated sodium channel in grasshopper mice defends against bark scorpion toxin. *Science* 2013; 342:441-6.

The sting of the bark scorpion causes a painful response in most mammals. The toxin activates the Nav1.7 sodium ion channel expressed on afferent neurons ultimately leading to the sensation of intense pain. Why then can grasshopper mice eat the scorpions without suffering from the stings? Rowe *et al.* provide the answer by showing that evolution granted the grasshopper mice the unique ability to bind the venom to neighboring Nav1.8 channels thus blocking them. This counteracts the activating effects of the toxin on Nav1.7, and prevents the experience of pain. This unique mechanism demonstrates a method whereby the mice can avoid pain from a particular type of prey, but retain the protective ability to experience pain from other causes.

Article selection and summary: J.D. Clark. Photo: Used with permission from Matthew Rowe, Michigan State University.