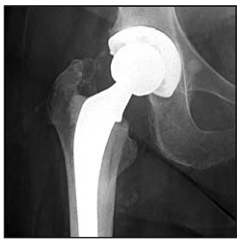
Key Papers from the Most Recent Literature Relevant to Anesthesiologists

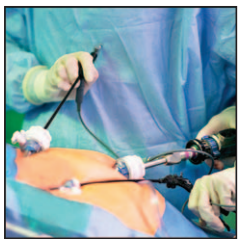
ANESTHESIOLOGY

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



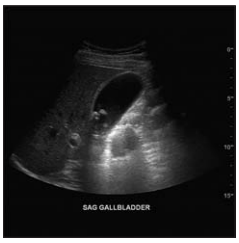
Outcomes after hip fracture surgery compared with elective total hip replacement. JAMA 2015; 314:1159–66.

Patients undergoing surgery for hip fracture have a higher risk of mortality and major complications compared with patients undergoing elective total hip replacement. The effect of older age and comorbidities associated with hip fracture on this increased perioperative risk is unknown. The authors examined data from 690,995 patients over the age of 45 yr undergoing hip surgery in 864 French institutions between January 2010 and December 2013. Postoperative in-hospital mortality (main outcome measure) was 3.42% after hip fracture surgery and 0.16% after total hip replacement. After adjustment for age, sex, and measured comorbidities, hip fracture surgery compared with elective total hip replacement was associated with a higher risk of in-hospital mortality. The causes for this difference remain to be elucidated. *(Summary: J. Mantz. Image: J.P. Rathmell.)*



Laparoscopic peritoneal lavage or sigmoidectomy for perforated diverticulitis with purulent peritonitis: A multicentre, parallel-group, randomised, open-label trial. Lancet 2015; 386:1269–77.

Case series suggest that laparoscopic peritoneal lavage might be a promising alternative to sigmoidectomy in patients with perforated diverticulitis. In this multicenter, parallel-group, randomized, open-label trial conducted in 34 teaching hospitals and eight academic hospitals in Europe, patients with purulent perforated diverticulitis were allocated to either laparoscopic lavage with sigmoidectomy or Hartmann's procedure with sigmoidectomy plus primary anastomosis. The primary outcome measure was a composite endpoint of major morbidity and mortality within 12 months. The trial was prematurely stopped because of an increased event rate in the lavage group. The primary endpoint occurred in 30 (67%) of 45 patients in the lavage group and 25 (60%) of 42 patients in the sigmoidectomy group (odds ratio = 1.28, 95% CI = 0.54 to 3.03, P = 0.58). The results suggest that laparoscopic lavage is not superior to sigmoidectomy for the treatment of purulent perforated diverticulitis. *(Summary: J. Mantz. Image: J.P. Rathmell.)*



Same-admission *versus* interval cholecystectomy for mild gallstone pancreatitis (PONCHO): A multicentre randomized controlled trial. Lancet 2015; 386:1261–8.

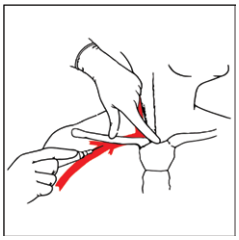
In patients with mild gallstone pancreatitis, the risk/benefit balance of same-admission *versus* interval cholecystectomy is unclear. In this Dutch multicenter, parallel-group, assessor-masked, randomized controlled superiority trial, 266 eligible patients were allocated to either cholecystectomy within 3 days of randomization (same-admission cholecystectomy) or to discharge and cholecystectomy 25 to 30 days after randomization (interval cholecystectomy). The primary endpoint was a composite of readmission for recurrent gallstone-related complications (pancreatitis, cholangitis, cholecystitis, choledocholithiasis needing endoscopic intervention, or colic gallstone) or mortality within 6 months. The primary endpoint occurred in 23 (17%) of 136 patients in the interval group and in 6 (5%) of 128 patients in the same-admission group (risk ratio = 0.28, 95% CI = 0.12 to 0.66; P =0.002). Compared with interval cholecystectomy, same-admission cholecystectomy reduced the rate of recurrent gallstone-related complications in patients with mild gallstone pancreatitis, with a low risk of cholecystectomy-related complications. *(Summary: J. Mantz. Illustration: J.P. Rathmell.)*

Clinical features and outcomes of Takotsubo (stress) cardiomyopathy. N Engl J Med 2015; 373:929–38.

Recognition of stress cardiomyopathy (Takotsubo syndrome) is relevant for anesthesiologists and must be differentiated from acute coronary syndrome in the perioperative period. Its natural history, management, and outcome are incompletely understood. The International Takotsubo Registry, a consortium of 26 centers in Europe and the United States recruiting 1,750 patients was established to investigate clinical features, prognostic predictors, and outcome of Takotsubo cardiomyopathy. Patients were compared with age- and sex-matched patients who had an acute coronary syndrome. In patients with Takotsubo syndrome, mortality rate was 5.6% per patient per year. Acute neurologic or psychiatric diseases, high troponin levels, and a low ejection fraction on admission were independent predictors for in-hospital complications. *(Summary: J. Mantz. Image: J.P. Rathmell.)*

Maintenance intravenous fluids in acutely ill patients. N Engl J Med 2015; 373:1350–60.

The administration of intravenous fluids is an essential component of supportive care for acutely ill patients. This review addresses pathophysiological issues related to electrolyte disorders in the critically ill and discusses the rationale for the choice of appropriate maintenance fluids. Hypotonic solutes (< 130 mM) should be avoided because of the risk of hyponatremia. Isotonic fluids are the most appropriate maintenance fluids in the vast majority of situations. Data from studies to determine whether balanced solutions are superior to saline solutions and to determine the most appropriate potassium concentration in fluids are lacking. The reader will also find images and case reports that illustrate situations encountered in daily clinical practice. *(Summary: J. Mantz. Illustration: J.P. Rathmell.)*



Intravascular complications of central venous catheterization by insertion site. N Engl J Med 2015; 373:1220–9.

This French multicenter trial included 3,027 patients in the adult intensive care unit who were randomly assigned to receive nontunneled central venous catheterization *via* the subclavian, jugular, or femoral vein (in a 1:1:1 ratio if all three insertion sites were suitable and in a 1:1 ratio if two sites were suitable). The primary outcome measure was a composite of catheter-related bloodstream infection and symptomatic deep-vein thrombosis. In pairwise comparisons, the risk of the primary outcome was significantly higher in the femoral group than in the subclavian group (hazard ratio, 3.5; 95% CI, 1.5 to 7.8; $P = 0.003$) and in the jugular group than in the subclavian group (hazard ratio, 2.1; 95% CI, 1.0 to 4.3; $P = 0.04$), whereas the risk in the femoral group was similar to that in the jugular group (hazard ratio, 1.3; 95% CI, 0.8 to 2.1; $P = 0.30$). Subclavian-vein catheterization was associated with a lower risk of bloodstream infection and symptomatic thrombosis and a higher risk of pneumothorax than jugular-vein or femoral-vein catheterization. *(Summary: J. Mantz. Illustration: J.P. Rathmell.)*

Psychology. Estimating the reproducibility of psychological science. Science 2015; 349(6251):aac4716. doi: 10.1126/science.aac4716.

The reliability of scientific studies has come under scrutiny as evidence mounts that laboratory and clinical investigations are often irreproducible. Within the past few years independent efforts to reproduce high impact scientific reports have produced discouraging results. A 4-yr-long effort to reproduce 100 separate studies found in three major behavioral health journals is one of the best and most recent examples of this problem. A group of 270 collaborators, part of the Open Science Collaboration, found that whereas 97% of the published studies selected reported statistically significant results, only 36% of the replication studies achieved significance. Effect sizes were on average less than half those reported in the original articles. The list of reasons for the discrepant results is long, and it is of course possible that the replication studies were false negatives. Still, the widespread issues with poor reproducibility in basic and clinical science are not likely to go away soon. *(Summary: J.D. Clark. Illustration: J.P. Rathmell.)*

Wisdom in medicine: What helps physicians after a medical error? Acad Med 2015 [Epub ahead of print].

What qualities allow physicians to display and develop wisdom, not simply cope, following a serious medical error? This study combines qualitative and quantitative techniques to investigate this question. Sixty-one (54% male) internal medicine physicians who self-reported being involved in a significant medical error completed the Ardelt's Three-Dimensional Wisdom Scale survey tool that identifies the compassionate, cognitive, and reflective components of responding to a traumatic event, followed by a semi-structured interview about their actions and reactions following a self-reported error. The 73.8% of subjects identified as wisdom "exemplars," based on the qualitative assessment of the interviews due to their positive responses following an event, also scored higher on the quantitative survey than the remaining "nonexemplars." Of note, while nearly three-quarters are "exemplars," fewer than 10% of study participants reported receiving training on disclosing errors. If "exemplar" qualities can be identified, the next questions are can they be taught to improve responses—as individuals and institutions—to serious errors and should we be teaching them? *(Summary: C. Peterson-Layne. Image: ©Thinkstock.)*