

Perioperative Medicine

J. Lance Lichtor, M.D., Editor

The relationship between body mass index and 30-day mortality risk, by principal surgical procedure. *Arch Surg* 2011 Nov 21. [Epub ahead of print]; doi: 10.1001/archsurg.2011.310

With the increasing proportion of obese adults in the United States, it is important to understand the potential surgical risks for these patients. Multiple previous studies failed to show an association between obesity and risk of surgical mortality; however, these studies had several limitations. The current study analyzed data from the American College of Surgeons National Surgical Quality Improvement Program to examine the relationship between body mass index (BMI) and 30-day mortality risk. Of 189,533 cases reviewed, 1.7% died within 30 days after general or vascular surgical procedures. Patients with a BMI of less than 23.1 had a significantly higher risk of death (odds ratio = 1.40; $P < 0.001$) compared with patients in the middle BMI range (26.3 to less than 29.7). For all surgeries, the risk of death for patients with BMIs in the obese range was not significantly different than patients with middle-range BMIs. The effect of BMI on mortality risk was significantly different ($P < 0.001$) for certain primary procedures including colostomy, wound debridement, ileostomy, colorectal resection, musculoskeletal system procedures, endarterectomy of head and neck, upper gastrointestinal procedures, cholecystectomy, hernia repair, and mastectomy.

Interpretation

These results indicate that BMI predicts mortality at 30 days, depending on the specific surgery. Patients with low BMI also are at increased risk of death after certain surgeries, even after adjustments for mortality risk. This mortality risk for surgical procedures could include BMI, and this may be helpful in making preoperative decisions for particular surgeries.

The intensity and variation of surgical care at the end of life: a retrospective cohort study. *Lancet* 2011; 378:1408–13

Little is known about the surgical practice patterns during end-of-life care. A retrospective cohort study of the Medicare database reviewed inpatient surgical procedure claims for patients who were 65 years of age or older when they died. Of

nearly 2 million beneficiaries of fee-for-service Medicare who died in 2008, 31.9% (11.5–34.4%) underwent an inpatient surgical procedure within their final year of life (see fig. 1). Patients who underwent a surgical procedure were significantly more likely to be male, younger, and nonwhite compared with patients who did not undergo surgery. Regions with a higher bed count per patient population and high total Medicare spending were both correlated with high rates of end-of-life surgical intensity.

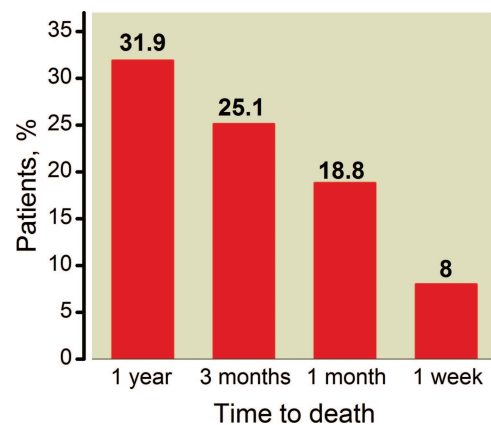


Fig. 1. Patients who underwent inpatient surgical procedures within their last year of life.

Interpretation

The authors examined Medicare data for elderly patients who had claims for at least 12 months before they died. Almost one-third of patients underwent a surgical procedure during their last year of life; during the last 3 months of life, more than 25% of those who died underwent a procedure. Rates of surgical care varied by age and region and may represent differences in healthcare providers' decision-making.

Xenon pretreatment may prevent early memory decline after isoflurane anesthesia and surgery in mice. *PLoS One* 2011; 6:e26394

Postoperative cognitive decline may affect up to half of all elderly patients undergoing major surgery. Although the mechanisms of this decline are not well understood, xenon has been shown to be neuroprotective in some animal models. In the current study, changes in long-term memory were assessed in mice that received 70% xenon anesthesia before surgery of the right leg. Xenon pretreatment prevented the typical memory deficit on day 1 ($P = 0.04$), but not on day 7 ($P = 0.69$; see fig. 2) after surgery under isoflurane anesthesia. Heat shock protein 72 (Hsp72) was upregulated and plasma IL-1 β was reduced by xenon pretreatment.

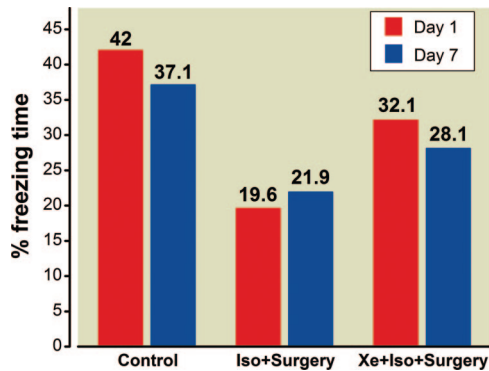


Fig. 2. Hippocampal dependent memory: contextual conditional response assessed by percent freezing time in mice who underwent surgery. Iso = isoflurane; Xe = xenon.

Interpretation

Postoperative cognitive decline after major surgery in elderly patients is a concern. Xenon provides neuroprotection in animals with cerebral ischemia. In this study in mice that received isoflurane anesthesia before tibial fracture surgery, xenon pretreatment immediately before surgery prevented memory decline potentially through a Hsp72, IL-1 β mechanism.

Early liver transplantation for severe alcoholic hepatitis. *N Engl J Med* 2011; 365: 1790–800

Up to 80% of patients with alcoholic hepatitis die within the 6-month sobriety period required before liver transplantation. In this case series, survival after early liver transplantation was evaluated in patients ($n = 26$) with a first incidence of alcoholic hepatitis that was nonresponsive to medical therapy. All patients had a high risk of death (median Lille score of 0.88). The cumulative 6-month survival rate was significantly higher among patients who received early transplantation *versus* those who did not (77% *vs.* 23%; $P < 0.001$).

Interpretation

Liver transplantation for alcoholic liver disease remains controversial. This case-control study indicates that early liver transplantation offers a valuable rescue option for selected patients whose first episode of alcoholic hepatitis is unresponsive to medical therapy, after careful assessment of their addiction profile.

Critical Care Medicine

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

Implementation of evidence-based treatment protocols to manage fever, hyperglycaemia, and swallowing dysfunction in acute stroke

(QASC): A cluster randomized controlled trial. *Lancet* 2011; 378:1699–706

Multidisciplinary teams may improve overall patient care. The Quality in Acute Stroke Care study, a cluster randomized controlled trial, assessed the effect of multidisciplinary team-building workshops and standardized education programs to improve patient outcomes in 19 acute stroke units. Intervention included protocols to manage fever, hyperglycemia, and swallowing dysfunction. In acute stroke units that received the intervention, patients were less likely to have died or be dependent at 90 days compared with controls ($P = 0.002$). The mean Short-Form 36 physical component summary scores were significantly better in patients in acute stroke units that received the intervention than not ($P = 0.002$). However, there were no differences in mortality between the two groups.

Interpretation

Active evidence-based, nurse-driven protocols were responsible for a significant improvement in outcome at 90 days. If extrapolated to brain-injured intensive care unit patients, these findings strongly encourage the implementation of these protocols in the routine care of intensive care unit patients, during and after the period of mechanical ventilation.

Referral to an extracorporeal membrane oxygenation center and mortality among patients with severe 2009 influenza A (H1N1). *JAMA* 2011; 306:1659–68

Patients with acute respiratory distress syndrome (ARDS) are at risk for ventilator-associated lung injuries and multiple organ dysfunction. Extracorporeal membrane oxygenation (ECMO) can support gas exchange in the absence of mechanical ventilation. A cohort study was conducted to evaluate hospital mortality in patients with H1N1-related ARDS who received ECMO ($n = 69$). Hospital mortality was significantly lower in the ECMO-referred patients compared with non-ECMO-referred patients (23.7% *vs.* 52.5%; $P = 0.006$). Hospital mortality remained significantly lower in the ECMO-referred patients compared with non-ECMO-referred patients after individual matching ($P = 0.008$), propensity score matching ($P = 0.001$), and GenMatch matching ($P = 0.001$).

Interpretation

This interesting cohort study strongly supports that ECMO provided a major benefit in patients with severe ARDS from H1N1 flu during 2009 and 2010. In-hospital mortality was two times lower in the eligible patients in ECMO centers in comparison with non-ECMO centers. The enthusiasm de-

rived from these conclusions should be tempered because this was not a randomized controlled trial.

Outcomes of extubation failure in medical intensive care unit patients. *Crit Care Med* 2011; 39:2612–8

The effect of extubation failure on patient outcomes is not well understood. A prospective 1-yr observational study was conducted to evaluate the impact of failed extubation on patient outcomes and to identify patients at risk for extubation failure. Overall, 15% of planned extubations failed. Of these, half died after reintubation and 27% had pneumonia. Extubation failure occurred in 34% of patients older than 65 yr of age with chronic cardiac or respiratory disease. Unplanned extubation occurred in 9% of patients and was associated with inadequate endotracheal tube position. Daily organ dysfunction scores significantly worsened after planned and unplanned extubation failure.

Interpretation

This prospective cohort study focuses on the serious vital risks associated with failed extubation, whether planned or unplanned. Patients aged 65 yr or older with chronic respiratory or cardiac disease are at high risk for extubation failure. Interestingly, the process of extubation failure and reintubation seems to be associated with worse outcome. This should prompt intensivists to reduce the rate of extubation failure.

Pain Medicine

Timothy J. Brennan, Ph.D., M.D., Editor

Cognitive behavior therapy, exercise, or both for treating chronic widespread pain. *Arch Intern Med* 2012; 172:48–57

Chronic widespread pain reduces patient quality of life and imposes an economic burden. A prospective randomized study was conducted to assess the clinical impact of 6 months of telephone-delivered cognitive behavioral therapy, exercise, or both in patients ($n = 442$) with chronic widespread pain. A positive outcome, defined as “much better” or “very much better,” was reported in all groups, with greater improvements in interventional groups compared with treatment as usual (see fig. 3). This improvement over treatment as usual remained after adjustment for confounding factors (odds ratios 5.0 to 7.1). Combined treatment showed a small additional improvement in outcome, and was associated with improvements in the 36-item Short Form Health Questionnaire physical component score.

Interpretation

Brief training in cognitive behavioral therapy or exercise produced clinically meaningful improvements in self-

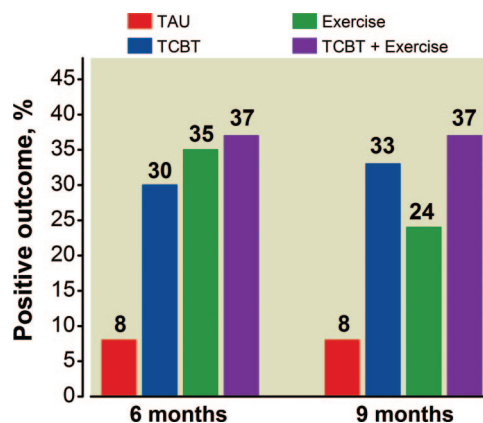


Fig. 3. Telephone-delivered cognitive behavioral therapy (TCBT), exercise, or a combination intervention of TCBT and exercise produced positive outcomes compared with treatment as usual (TAU).

rated global health. The combination of both cognitive behavioral therapy and exercise were not remarkably better than each single treatment alone. It is likely that either therapy alone was associated with a large improvement, and that additional interventions were of no benefit.

Comparison of stratified primary care management for low back pain with current best practice (STarT Back): A randomized controlled trial. *Lancet* 2011; 378:1560–71

Chronic back pain is a significant problem worldwide, but optimum treatment is difficult because of heterogeneity in patient response. This randomized controlled trial evaluated the clinical effectiveness and cost-effectiveness of stratified primary care in patients ($n = 568$ interventional arm, $n = 283$ control group) with back pain. The previously validated StarT Back Screening Tool classified patients as low risk (26%), medium risk (46%), or high risk (28%). Patients in the stratified groups demonstrated significantly improved Roland Morris Disability Questionnaire scores at 4 and 12 months and better generic health. The stratified group had a cost savings of £33.6 compared with the control group.

Interpretation

In the United Kingdom, stratification approaches for patients presenting with low back pain have attempted to identify relevant subgroups for specific treatments. Presumably, patients can be matched with interventions that could lead to improved outcomes. Stratified primary care management did show better outcomes in the medium- and high-risk groups. This outcome was present at 4 months and remained significant in the medium-risk group at 12 months. Surprisingly, cost savings was evident.