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

Perioperative Medicine

Normothermic perfusion of donor lungs for preservation and assessment with the Organ Care System Lung before bilateral transplantation: A pilot study of 12 patients. Lancet 2012; 380:1851–8.

Lung transplantation is still associated with significant long term mortality. This pilot study investigated the efficacy and safety of the portable organ care system lung for normothermic preservation of the explanted lungs immediately before bilateral lung transplantation in 12 patients with various pulmonary diseases. Mean running time of the organ care system lung was 303 ± 105 min. No donor lung was lost. All grafts and patients survived to 30 days. All patients recovered and were discharged from the hospital. Although this case series suffers from obvious methodological limitations, it opens an avenue to improve donor lung preservation and perhaps, recipient survival, over the classical organ care system lung with standard cold storage. This hypothesis warrants confirmation using a randomized prospective trial, which was initiated in November 2011.

Early infection with respiratory syncytial virus impairs regulatory T cell function and increases susceptibility to allergic asthma. Nature Med 2012; 18:1525–32.

Anesthetic management of patients with severe asthma may represent a hazardous situation in routine practice because of the risk of irreductible bronchospasm. A better understanding of the mechanisms that may exacerbate the frequency or severity of allergic asthma in childhood may help to prevent its development in the adult and to identify patients at risk before surgery and anesthesia. This elegant experimental study highlights a mechanism by which a common viral infection (respiratory synctial virus) targets host-protective mechanisms in early life, subsequently increasing susceptibility to allergic disease and asthma later in life.

Statin use and reduced cancer-related mortality. N Engl J Med 2012; 367:1792–802.

A reduction in cholesterol disposition may reduce cellular development required for cancer growth and metastases. This nationwide Danish cohort study investigated the role of statin use before diagnosis of cancer among patients aged 40 yr or older. After propensity score analysis adjustment for potential bias and confounders, compared with nonstatin users multiple adjusted hazard ratios for statin users were 0.85 (CI: 0.83–0.87) for death from any cause and 0.85 (0.82–0.87) for death from cancer, regardless of cancer type (fig. 1). On the basis of the current observation of an association between statin use and a 15% reduction in the risk of developing cancer, a prospective evaluation of the effect of statins on survival is needed.

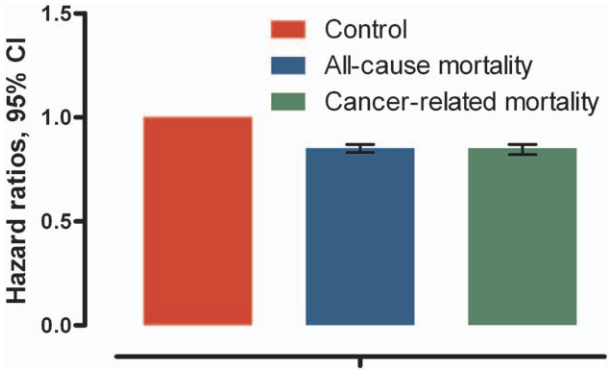

Fig. 1. Multivariable-adjusted hazard ratios demonstrated the reduced all-cause and cancer-related mortality among statin users compared with nonstatin users.

Association between use of renin-angiotensin system antagonists and mortality in patients with heart failure and preserved ejection fraction. JAMA 212; 308:2108–17.

Mortality may be as high in patients with heart failure and preserved ejection fraction or diastolic heart failure in comparison with patients with systolic heart failure or reduced ejection fraction. This prospective study of nearly 42,000 patients used the Swedish Heart Failure Registry to examine all-cause mortality with propensity score analysis for exposure to renin angiotensin system antagonists. Heart failure or reduced ejection fraction was considered present if ejection fraction was less than 40% (fig. 2). One-year survival in the overall heart failure and preserved ejection fraction cohort was superior for patients treated with renin angiotensin system antagonists than for untreated patients (propensity score adjusted hazard ratio of 0.90 (95% CI: 0.85–0.96, $P < 0.001$). This effect was perceptible for treatment by doses greater than 50% of the target dose. These findings suggest the benefits of chronic treatment with renin angiotensin system in patients with heart failure and preserved ejection fraction.

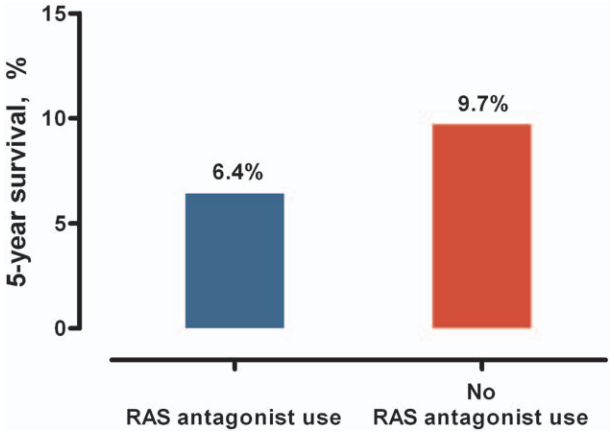

Fig. 2. Five-year survival rates among patients with heart failure with preserved ejection fraction treated with and without renin angiotensin (RAS) antagonist treatment.

Critical Care Medicine

Trends in survival after in-hospital cardiac arrest. N Engl J Med 2012; 367:1912–20.

Whether advances in resuscitation of cardiac arrest are associated with improved survival and neurologic outcomes remains unproven. This retrospective study of data from the American Heart Association Get with the Guidelines Registry in 374 hospitals, found that of 84,625 patients with intrahospital cardiac arrest between 2000 and 2009, 79.3% had an initial rhythm of asystole or pulseless electrical activity and 80.7% had ventricular fibrillation or pulseless ventricular tachycardia. Risk-adjusted rates of survival to discharge increased in both groups between 2000 and 2009 (13.7–22.3%, adjusted risk ratio per year: 1.04, CI [1.03–1.6] and was due to improvement in resuscitation and postresuscitation survival (fig. 3). Rates of neurologic disabilities concomitantly decreased with time. These encouraging data justify ongoing time and efforts dedicated to improve both acute resuscitation and postresuscitation care in patients with cardiac arrest.

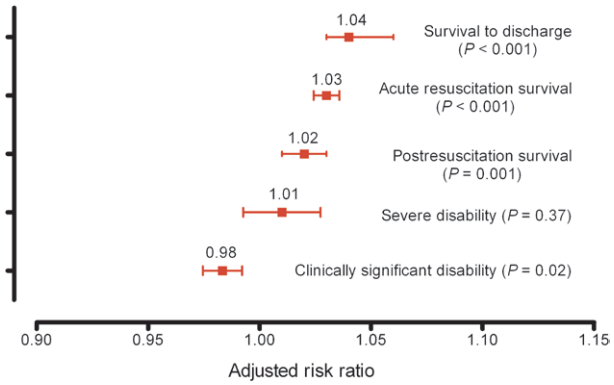

Fig. 3. Risk-adjusted rates for survival and neurologic outcomes.

Effect of citicoline on functional and cognitive status among patients with traumatic brain injury. Citicoline Brain Injury Treatment Trial (COBRIT) JAMA 2012; 308:1993–2000.

Effective treatment of traumatic brain injury learning from experience. JAMA 2012; 308:2032–3.

Citicoline is an endogenous substance with potential neuroprotective properties that may facilitate repair postinjury. This phase III double-blind randomized multicenter controlled trial examined the effect of citicoline on cognitive and functional status in mild to severe trauma brain injury. Patients (N = 1,213) received either oral or enteral citicoline (2000 mg per day), or placebo for 90 days and functional status and cognitive performance were measured using the nine components of the Traumatic Brain Injury Clinical Trials Network Core Battery. No significant difference was found between the citicoline and the placebo groups at 90 or 180 days (fig. 4). Taken together with the long list of clinical failures observed with experimentally efficient neuroprotectant therapies, these findings suggest that a novel magic bullet neuroprotectant is not to be identified in the near future by this approach. As correctly pointed out in the accompanying Editorial, multiple treatment interventions combined with comprehensive rehabilitation strategies should probably be targeted to improve the outcome of patients with trauma brain injury.

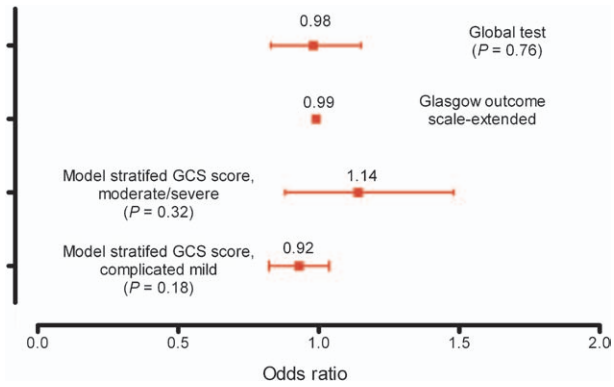

Fig. 4. Results for the primary analysis: 90-day evaluation. Model stratified Glasgow Coma Scale (GCS) scores adjusted for head Abbreviated Injury Score (AIS).

Pain Medicine

Prolonged nerve blockade delays the onset of neuropathic pain. PNAS 2012; 109:17555–60.

A major need in perioperative care is to develop regional analgesic techniques with prolonged duration, high efficacy, and minimal neurotoxicity. Thus far, the development of local anesthetic formulations with prolonged durations

Table 1. Sequence of Affective Responses by Surgeons as a Consequence of Experiencing a Negative Patient Care Event

Response Phase	
1. Kick	Visceral blow; anxiety/stress; self-doubt; feel failure
2. Fall	Feeling of spiraling out of control; a pall; self-challenge to pinpoint the cause
3. Recovery	Personal coping; emotions less raw; more willing to openly reflect; need to talk about event with others
4. Long-term impact	Impact of event and prior phases of response on personal and professional identity

of action for nerve blockade has been limited. This study demonstrates that use of a sustained release formulation of saxitoxin, a nonlocal anesthetic sodium channel blocker, produced a nerve blockade for 7 days in animals that had undergone experimental nerve injury. If such formulations could be used in patients, they may provide prolonged analgesia after surgery and also delay the onset of chronic neuropathic pain after surgery.

Education

Waking up the next morning: Surgeons' emotional reactions to adverse events. Medical Education 2012; 46:1179–88.

This study looked at how surgeons react to adverse events that occur related to the surgical care they provided. Two groups of surgeons were interviewed; one retrospectively reflecting upon their recollections about adverse events that occurred in the past and another being questioned on their thoughts about recent adverse patient care events. The authors' premise is that being able to characterize the emotional responses of surgeons to negative patient care events can help understand how surgeons actualize patient care judgment and decision making for future charges under their care.

The structured interviews of the surgeons provide insight on four phases of reactions through which surgeons progressed after an adverse patient care episode occurred (table 1). These surgeons attributed their diminished clarity for future judgment and clinical decision making to the emotional rollercoaster they experienced from the patient care incident through the four-phase process used to come to terms with the adverse event as it relates to the surgical sense-of-self.

The similarity to how anesthesiologists may respond to adverse patient care episodes is striking and intuitively obvious. Understanding this process has great potential to expand how we educate anesthesiologists in the affective (psychosocial and emotional) domain.