ANESTHESIOLOGY

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

The medical response to multisite terrorist attacks in Paris. Lancet 2015; 386:2535–8.

This paper relates the pre-and intrahospital organization of health care of the 302 victims who survived terrorist attacks in Paris in November 2015. It shows how military and police forces collaborated with medical and paramedical staff that night. Lessons learned from this event to improve the management of victims are discussed, with opinions from many specialists (anesthesiologists, trauma surgeons, emergency physicians) and hospital facilities in the Paris area. *(Summary: J. Mantz. Photo: Eiffel Tower, J.P. Rathmell.)*

Cardiac complications in patients undergoing major noncardiac surgery. N Engl J Med 2015; 373:2258–69.

Cardiovascular complications are the leading cause of death within 30 days after noncardiac surgery. This review provides an updated, evidence-based overview of these complications, their risk factors, predictors, and preventive therapeutic strategies. Measurement of natriuretic peptide levels has substantial advantages over noninvasive cardiac testing (such as stress echocardiography), as a means to enhance preoperative risk prediction. Although randomized, controlled trials have not identified an effective and safe intervention to prevent perioperative cardiac complications, some trials have identified ways to improve safety. For example, enhanced monitoring on surgical wards and rapid management of cardiac complications when they occur may improve outcomes. Since perioperative acute coronary syndrome is asymptomatic, troponin levels after surgery should be monitored in patients with risk factors to avoid missing these prognostically important events. *(Summary: J. Mantz. Illustration: J.P. Rathmell.)*

Relationship between cesarean delivery rate and maternal and neonatal mortality. JAMA 2015; 314:2263–70.

Based on older analyses, the World Health Organization recommends that cesarean delivery rates should not exceed 10 to 15 per 100 live births to optimize maternal and neonatal outcomes. This cross-sectional study estimated annual cesarean delivery rates from data collected during 2005 to 2012 for all 194 World Health Organization member states. The year of analysis was 2012. Cesarean delivery rates were available for 54 countries for 2012. For the 118 countries for which 2012 data were not available, the 2012 cesarean delivery rate was imputed from other years. For the 22 countries for which no cesarean rate data were available, the rate was imputed from total health expenditure per capita, fertility rate, life expectancy, percent of urban population, and geographic region. It was found that at a country level, cesarean delivery rate estimates up to 19.1 per 100 live births were inversely correlated with maternal and neonatal mortality rates. Therefore, previously recommended national target rates for cesarean deliveries may be too low. *(Summary: J. Mantz. Illustration: J.P. Rathmell.)*

CPAP *vs* mandibular advancement devices and blood pressure in patients with obstructive sleep apnea: A systematic review and meta-analysis. JAMA 2015; 314:2280–93.

Obstructive sleep apnea syndrome is a matter of concern for the daily practice of anesthesiologists because of increased cardiovascular, respiratory, and metabolic risks. The main objective of this meta-analysis of randomized controlled trials was to compare the association of continuous positive airway pressure, mandibular advancement devices, and inactive control groups (placebo or no treatment) with changes in systolic blood pressure and diastolic blood pressure in patients with obstructive sleep apnea. It was found that among patients with obstructive sleep apnea, both continuous positive airway pressure and mandibular advancement devices were associated with reductions in blood pressure. Network meta-analysis did not identify a statistically significant difference between the blood pressure outcomes associated with these therapies. *(Summary: J. Mantz. Photo: J.P. Rathmell.)*

Associations between different sedatives and ventilator-associated events, length-of-stay, and mortality in mechanically ventilated patients. Chest 2015; doi: 10.1378/chest.15-1389 [Epub ahead of print].

Current sedation guidelines recommend avoiding benzodiazepines but express no preference for propofol *versus* dexmedetomidine. In this single center cohort study, daily sedative exposure data from all patients on mechanical ventilation for 3 days or more over a 7-yr period was collected. Hazard ratios for ventilator-associated events, extubation, hospital discharge, and hospital death among those receiving benzodiazepines, propofol, and dexmedetomidine were examined using proportional subdistribution hazard models with competing risks adjusted for a large number of confounders. Nine thousand six hundred and three consecutive episodes of mechanical ventilation were analyzed. Propofol and dexmedetomidine were associated with less time to extubation compared to benzodiazepines but dexmedetomidine was also associated with less time to extubation compared to propofol. *(Summary: J. Mantz. Image: J.P. Rathmell.)*

Trial of continuous or interrupted chest compressions during CPR. N Engl J Med 2015; 373:2203–14.

During cardiopulmonary resuscitation (CPR) in patients with out-of-hospital cardiac arrest, the interruption of manual chest compressions for rescue breathing reduces blood flow and possibly survival. This cluster-randomized trial with crossover included 23,711 patients from 114 emergency medical service agencies. Adults with non–trauma-related cardiac arrest who were treated by emergency medical service providers received continuous chest compressions (intervention group) or interrupted chest compressions (control group). The primary outcome was the rate of survival to hospital discharge. Secondary outcomes included the modified Rankin scale score (on a scale from 0 to 6, with a score of 3 or less indicating favorable neurologic function). The cardiopulmonary resuscitation process was measured to assess compliance. No significant difference was found between the intervention and the control group in any of the outcomes. *(Summary: J. Mantz. Photo: J.P. Rathmell.)*

Trends in prescription drug use among adults in the United States from 1999–2012. JAMA 2015; 314:1818–31.

The costs of prescription drugs in the United States have risen rapidly over the past decade with the annual prescription drug expenditure per capita now exceeding $1,000. Both the price per tablet and the overall use of drugs may be driving this increase. In this study, Kantor *et al.* report on the trends in prescription drug use from 1999 to 2012. For this study the authors leveraged data available through the National Health and Nutrition Examination Survey providing a sample size approaching 38,000. The rates of prescription drug use of most common classes increased. Remarkably, 59% of those participating used at least one prescription drug in the previous 30 days, and 15% used more than five prescription medications. Rates were higher among the elderly. Antihyperlipidemics, antidepressants, and proton pump inhibitors were among the drug classes showing the largest increases. These data demonstrate the continuing steady growth of overall drug use that might represent more aggressive treatment with the trade-offs of increasing medical costs and possible drug-related complications. *(Summary: J.D. Clark. Photo illustration: J.P. Rathmell.)*

Prevalence of depression and depressive symptoms among resident physicians: A systematic review and meta-analysis. JAMA 2015; 314:2373–83.

The mental health of residents is an important consideration of graduate medical education. Burnout and stress have recently had the national spotlight and now depression has its turn in this systematic review and meta-analysis. The authors identified 54 studies with over 17,000 residents that met their inclusion criteria. The summary prevalence of depressive symptoms from the 54 studies is 28% with a range of 20.9 to 43% depending on the assessment tools used. Despite duty-hour reductions and an awareness of stress and burnout, the prevalence of depressive symptoms among residents appears to be quite high and the consequences of this may be significant. Depression may increase the risk of future depressive episodes in healthcare providers and it has also been associated with the delivery of less quality care. Our dilemma as educators will be to not only identify those residents at risk but also identify the underlying etiology of this high prevalence. *(Summary: F.P. Cladis. Illustration: J.P. Rathmell.)*