



Risk Stratification Tools for Predicting Morbidity and Mortality in Adult Patients Undergoing Major Surgery: Qualitative Systematic Review (Review Article) 959

Dozens of scores and models used to predict or adjust for risk were evaluated. The Surgical Risk Scale came closest to achieving the goals of being derived entirely from preoperative data and being accurate, parsimonious, and simple to implement. The P-POSSUM score was more accurate, but some of its variables are available only after the operation.

Surgery at the End of Life: A Pilot Study Comparing Decedents and Survivors at a Tertiary Care Center 796

Seven hundred forty-seven patients scheduled for inpatient or outpatient procedures and seen at the preoperative assessment center were studied to better understand the scheduled procedures patients undergo in their last year. Five percent of the patients died within 1 yr of surgery; 57% of decedents underwent palliative or diagnostic procedures while 82% of survivors underwent curative or elective procedures.

Relationship between Volume and Survival in Closed Intensive Care Units Is Weak and Apparent Only in Mechanically Ventilated Patients 871

The relationship between in-hospital mortality and intensive care unit (ICU) volume was determined over 3 months in all patients and in those being mechanically ventilated in 29 Spanish ICUs with 24 h/day, 7 days/week coverage by trained physicians. Although raw mortalities were inversely related to volume, there were no correlations after adjusting for expected mortality.

The Anesthesia in Abdominal Aortic Surgery (ABSENT) Study: A Prospective Randomized Controlled Trial Comparing Troponin T Release with Fentanyl-Sevoflurane and Propofol-Remifentanyl Anesthesia in Major Vascular Surgery 802

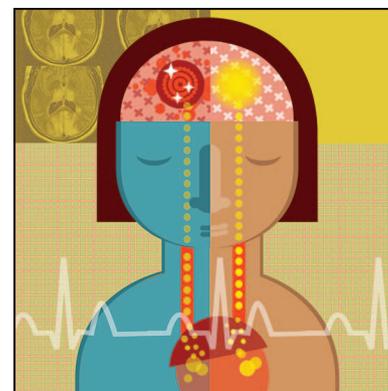
Potent volatile anesthetics are cardioprotective in cardiac surgery. One hundred ninety-three patients undergoing elective open abdominal surgery were randomized to sevoflurane or total intravenous anesthesia to determine if sevoflurane is cardioprotective in noncardiac surgery. Plasma troponin T concentrations on the first postoperative day did not differ between groups. Cardioprotective effects of sevoflurane were not obvious in major vascular surgery.

Effect of Perioperative Intravenous Lidocaine Administration on Pain, Opioid Consumption, and Quality of Life after Complex Spine Surgery 932

One hundred sixteen patients having complex spine surgery were randomly assigned to receive intravenous lidocaine or placebo during surgery and in the postanesthesia care unit to determine if lidocaine decreases pain or opioid requirements in the 48 h after surgery. Pain scores in the lidocaine group were significantly improved, but while morphine requirements were reduced they were not significantly less.

Selective β_1 -Antagonism with Bisoprolol Is Associated with Fewer Postoperative Strokes than Atenolol or Metoprolol: A Single-center Cohort Study of 44,092 Consecutive Patients 777

While the β -blockers metoprolol and atenolol reduce the risk of perioperative myocardial infarction, they also increase the risk of postoperative stroke. A retrospective cohort study was undertaken to determine whether the more β_1 -selective agent bisoprolol would be associated with a lower risk of postoperative stroke in patients undergoing noncardiac, nonneurological surgery at the University Health Network in Toronto, Ontario, Canada. A matched cohort of 2,462 patients, half of whom received bisoprolol while the other half received either metoprolol or atenolol, was created using a propensity score estimating the probability of being exposed to bisoprolol. The primary outcome, a stroke within 7 days of surgery, occurred in 2 patients taking bisoprolol and 10 patients taking metoprolol or atenolol. These results, along with those of other studies, suggest the risk of stroke associated with less selective β_1 -blockers results from inhibition of β_2 -mediated cerebral vasodilation.



Perioperative Outcomes of Major Noncardiac Surgery in Adults with Congenital Heart Disease 762

More patients with congenital heart disease are surviving to adulthood. They have higher rates of hospitalization and surgery than do adults without congenital heart disease. A study cohort of 10,004 adult congenital heart disease patients who underwent major noncardiac surgery from 2002 through 2009 was identified in the Nationwide Inpatient Sample database and matched to a comparison cohort of 37,581 patients without congenital heart disease. The morbidity and mortality of the cohorts were compared. Adult congenital heart disease patients undergoing major noncardiac surgery experienced greater in-hospital mortality (4.1%) than did the well-matched comparison cohort (3.6%). The adult congenital heart disease cohort also had more perioperative morbidity, longer lengths-of-stay, and more hospital charges. The effect of greater perioperative morbidity and mortality in adult congenital heart disease patients will increase as more of them undergo noncardiac surgery if their perioperative needs and care is not better understood and improved. *See the accompanying Editorial View on page 747*

Perioperative Auto-titrated Continuous Positive Airway Pressure Treatment in Surgical Patients with Obstructive Sleep Apnea: A Randomized Controlled Trial 837

Patients with obstructive sleep apnea (OSA) have an increased incidence of postoperative adverse events, the most common of which is oxygen desaturation. One hundred seventy-seven patients with an apnea-hypopnea index (AHI) of more than 15 events per hour on polysomnography were randomly assigned to perioperative auto-titrated continuous positive airway pressure (APAP) treatment or standard care (control) groups to determine if APAP decreases postoperative AHI and improves oxygenation in patients with moderate and severe OSA. APAP patients received APAP for 2 to 3 nights preoperatively to familiarize them with the device and for 5 postoperative nights. Perioperative APAP treatment decreased the median AHI from 30.1 events per hour on preoperative baseline to 3.0 events per hour on postoperative night 3 and improved oxygen saturation. Only 45% of patients wore APAP on all observed nights.