

## ABSTRACTS

Nordic guidelines for neuraxial blocks in disturbed haemostasis from the Scandinavian Society of Anaesthesiology and Intensive Care Medicine: lessons learned from different dosage regimens in two continents

H.Breivik, U.Bang, J.Jalonen, G.Vigfússon, S.Alahuhta, M.Lagerkranser

Central neuraxial blocks (CNBs) for surgery and analgesia are an important part of anaesthesia practice in the Nordic countries. More active thromboprophylaxis with potent antithrombotic drugs has increased the risk of bleeding into the spinal canal. The Scandinavian Society of Anaesthesiology and Intensive Care Medicine (SSAI) appointed a task force of experts to establish a Nordic consensus on recommendations for best clinical practice in providing effective and safe CNBs in patients with an increased risk of bleeding. Neuraxial blocks can improve comfort and reduce morbidity (strong evidence) and mortality (moderate evidence) after surgical procedures. Haemostatic disorders, antithrombotic drugs, anatomical abnormalities of the spine and spinal blood vessels, elderly patients, and renal and hepatic impairment are risk factors for spinal bleeding (strong evidence). The task force reached a consensus on Nordic guidelines, mainly based on our experts' opinions, but we acknowledge different practices in heparinization during vascular surgery and peri-operative administration of non-steroidal anti-inflammatory drugs during neuraxial blocks. Experts from the five Nordic countries offer consensus recommendations for safe clinical practice of neuraxial blocks and how to minimize the risks of serious complications from spinal bleeding. A brief version of the recommendations is available on <http://www.ssai.info>. (*Acta Anaesthesiologica Scandinavica* 2010; 54(1): 16-41)

Regional anaesthesia for a Caesarean section in women with cardiac disease: a prospective study: arrhythmias, cardiomyopathy, aortic stenosis, transposition of the great arteries and Marfan's syndrome

E.Langesæter, M.Dragsund, L.a.Rosseland

Our study suggests that pregnant women with cardiac disease may safely deliver the baby by a caesarean section under regional anaesthesia. According to our findings, haemodynamic stability can be obtained by titrated regional anaesthesia, intravenous (i.v.) volume, phenylephrine infusion, and small repeated doses of i.v. oxytocin guided by invasive monitoring. (*Acta Anaesthesiologica Scandinavica* 200; 54(1): 46-54)

Pain Following Battlefield Injury and Evacuation: A Survey of 110 Casualties from the Wars in Iraq and Afghanistan

Chester C. Buckenmaier III, MD, Col., Christine Rupprecht, et al.

Advances in regional anesthesia, specifically continuous peripheral nerve blocks (CPNBs), have greatly improved pain outcomes for wounded soldiers in Iraq and Afghanistan. Pain management practice variations, however, do exist, depending

on the availability of pain-trained military professionals deployed to combat support hospitals. An exploratory study was undertaken to examine pain and other outcomes during evacuation and at Landstuhl Regional Medical Center (LRMC), Germany. A total of 110 wounded soldiers evacuated from Iraq and Afghanistan from July 2007 to February 2008 completed a pain survey at LRMC. Participants were typically male (99.1%), Caucasian (80%), and injured from improvised explosive devices (60%) and gunshots (21.8%). Average and worst pain scores were inversely correlated with pain relief during transport ( $r = -0.58$  and  $r = -0.46$ , respectively;  $P < 0.001$ ), and low to moderately positively correlated with increased anxiety, distress, and worry during transport ( $P < 0.05$ ). Average percent pain relief achieved was  $45.2\% \pm 26.6\%$  during transport and  $64.5\% \pm 23.5\%$  while at LRMC ( $P < 0.001$ ). Participants with CPNB catheters placed at LRMC reported significantly less pain right now ( $P = 0.031$ ) and better pain relief ( $P = 0.029$ ) than soldiers without CPNBs. Our findings underscore the value of early aggressive pain management after major combat injuries. Regional anesthesia techniques while at LRMC contributed to better pain outcomes. (*Pain Medicine* 2009; 10(8): 1487-96)

The Effects of Crystalloid and Colloid Preload on Cardiac Output in the Parturient Undergoing Planned Cesarean Delivery Under Spinal Anesthesia: A Randomized Trial

Perumal Tamilselvan, Roshan Fernando, Johanna Bray, Manisha Sodhi, and Malachy Columb,<sup>11</sup>

Hypotension after spinal anesthesia for cesarean delivery remains a major clinical problem. Fluid preloading regimens together with vasopressors have been used to reduce its incidence. We used a suprasternal Doppler flow technique to measure maternal cardiac output (CO) and corrected flow time (FTc, a measure of intravascular volume) before and after spinal anesthesia after 3 fluid preload regimens. Patients were randomized to receive 1 of 3 fluid preload regimens given over 15 min: 1.5 L crystalloid (Hartman's solution), 0.5 L of 6% w/v hydroxyethyl starch (HES) solution (HES 0.5), or 1 L of 6% w/v HES solution (HES 1.0). After 30 min, spinal anesthesia was induced with hyperbaric bupivacaine 12.5 mg with fentanyl 15 µg and recordings were continued every 5 min for 20 min or until surgery started. There were no differences among groups in the incidence of hypotension (70% vs 35% vs 65% for Hartman's solution, HES 0.5, and HES 1.0, respectively;  $P = 0.069$ ) or mean ephedrine dose (10.4 vs 5.7 vs 9.7 mg;  $P = 0.26$ ). Despite CO and FTc increases after fluid preload, particularly with HES 1.0 L, hypotension still occurred. The data suggest that CO increases after these preload regimens cannot compensate for reductions in arterial blood pressure after spinal anesthesia. (*Anesthesia & Analgesia* 2009; 109(6): 1916-21)

Transcatheter aortic valve insertion: anaesthetic implications of emerging new technology

A. A. Klein, S. T. Webb, S. Tsui, C. Sudarshan, L. Shapiro and C. Densem

Transcatheter aortic valve insertion is a new development that potentially offers a number of advantages to patients and healthcare providers. These include the avoidance of sternotomy and cardiopulmonary bypass, and much faster discharge from hospital and return to functional status. The procedure itself however is quite complex, and presents significant demands in planning and implementation to the multidisciplinary team. Anaesthetic input is essential, and patient care in the perioperative period can be challenging. Early results have shown a significant mortality and morbidity rate, but the majority of procedures to date have been carried out in elderly patients with multiple comorbidities, making comparison with surgical aortic valve replacement inappropriate. (BJA: British Journal of Anaesthesia 2009; 103(6): 792-9)

A comparison of intra-articular magnesium and/or morphine with bupivacaine for postoperative analgesia after arthroscopic knee surgery

Sherif Farouk and Ansam Aly

Both magnesium and morphine provide enhanced patient analgesia after arthroscopic knee surgery when administered separately via the intra-articular route. Magnesium sulfate amplifies the analgesic effect of morphine. Group B+Mor and group B+Mg patients had equally effective postoperative analgesia. Group B+Mor+Mg patients had significantly reduced visual analogue scale (VAS) values both at rest and during movement and significantly increased time to first postoperative analgesic request, as well as significantly reduced total analgesic consumption, compared with the other groups. Intra-articular administration of magnesium sulfate or morphine, with bupivacaine, had comparable analgesic effects in the doses used. Their combination provided more effective postoperative analgesia than either drug alone. (Journal of Anesthesia 2009; 23(4): 508-12)

Comparison of two ventilatory strategies in elderly patients undergoing major abdominal surgery

T. N. Weingarten, F. X. Whalen et al

'Open lung' ventilation is commonly used in patients with acute lung injury and has been shown to improve intraoperative oxygenation in obese patients undergoing laparoscopic surgery. The feasibility of an 'open lung' ventilatory strategy in elderly patients under general anaesthesia has not previously been assessed. 'Open lung' ventilation (recruitment manoeuvres, tidal volume 6 ml kg<sup>-1</sup> predicted body weight, and 12 cm H<sub>2</sub>O PEEP) (RM group) was compared with conventional ventilation (no recruitment manoeuvres, tidal volume 10 ml kg<sup>-1</sup> predicted body weight, and zero end-expiratory pressure) in elderly patients (>65 yr) undergoing major open abdominal surgery with regard to oxygenation, respiratory system mechanics, and haemodynamic stability. The RM group tolerated open lung ventilation without significant haemodynamic instability. Intraoperative Pa<sub>O<sub>2</sub></sub> improved in the RM group (P<0.01) and deteriorated in controls (P=0.01), but postoperative Pa<sub>O<sub>2</sub></sub> was

similar in both groups. The RM group had improved breathing mechanics as evidenced by increased dynamic compliance (36%) and decreased airway resistance (21%). Both IL-6 and IL-8 significantly increased after surgery, but the magnitude of increase did not differ between the groups. A lung recruitment strategy in elderly patients is well tolerated and improves intraoperative oxygenation and lung mechanics during laparotomy. (BJA: British Journal of Anaesthesia 2009; aop: 10.1093/bja/aep319)

The GlideScope Ranger<sup>®</sup> video laryngoscope can be useful in airway management of entrapped patients: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway

A.R.Nakstad, M.Sandberg

Airway management of entrapped patients is challenging and alternatives to endotracheal intubation with a Macintosh laryngoscope must be considered. In this study, the GlideScope Ranger<sup>®</sup> video laryngoscope has been evaluated as an alternative to standard laryngoscopy.

Eight anaesthesiologists from a Helicopter Emergency Medical Service intubated the trachea of a Laerdal SimMan<sup>®</sup> manikin using the studied laryngoscopes in two scenarios: (A) unrestricted access to the manikin in an ambulance and (B) no access from the head end, simulating an entrapped patient. The time used to secure the airway and the scored level of difficulty were the main variables. In scenario A, all anaesthesiologists managed to secure the airway using both techniques within the 60-s time limit. In scenario B, all secured the airway when using the video laryngoscope, while 50% succeeded with endotracheal intubation using the Macintosh laryngoscope. The difference in the success rate was statistically significant (P=0.025). There were no significant differences in the time spent on endotracheal intubation in the two scenarios or between the devices. This study suggests that the Glidescope Ranger<sup>®</sup> may be merited in situations requiring endotracheal intubation by an experienced intubator in patient entrapment. (Acta Anaesthesiologica Scandinavica 2009; 53(10): 1257-61)

A Comparison of Postoperative Throat and Neck Complaints After the Use of the i-gel<sup>®</sup> and the La Premiere<sup>®</sup> Disposable Laryngeal Mask: A Double-Blinded, Randomized, Controlled Trial

Christiaan Keijzer, Md, PhD, Dirk R. Buitelaar, et al.

Many supralaryngeal airway devices are available. Because of the absence of an inflatable cuff, we hypothesized that use of the i-gel<sup>®</sup> should produce fewer postoperative throat and neck complaints compared with a standard disposable laryngeal mask (LM). The incidence of sore throat was significantly lower with the i-gel than with LM at 1 (6 vs 32), 24 (7 vs 48), and 48 h (5 vs 25). Similar results were seen for dysphagia. The incidence of neck pain was also lower for the i-gel at 24 (1 vs 7) and 48 h (1 vs 7). (Anesthesia & Analgesia 2009; 109(4): 1092-5)