

## ABSTRACTS

### Acute Hemodynamic Collapse After Induction of General Anesthesia for Emergent Pulmonary Embolectomy

Peter Rosenberger, Stanton K. Shernan, Prem S. Shekar, Jayshree K. Tuli, Thomas Weissmüller, Sary F. Aranki, and Holger K. Eltzschig, *Anesth Analg* 102: 1311-1315.

Patients undergoing pulmonary embolectomy often experience hemodynamic deterioration during induction of general anesthesia (GA). Therefore, we studied the incidence and possible risk factors for hemodynamic deterioration during GA induction. Fifty-two consecutive patients undergoing emergent pulmonary embolectomy at our institution were included. Hemodynamic collapse after GA induction was defined as hypotension refractory to vasopressor, inotrope, or fluid administration, requiring cardiopulmonary resuscitation followed by urgent institution of cardiopulmonary bypass (CPB). Demographic variables, comorbidities, specific location of thromboemboli, preoperative inotropic support, and anesthetic drugs used for GA induction were evaluated as possible risk factors. After GA induction, hemodynamic collapse occurred in 19% of patients ( $n = 10$ ). However, the occurrence of hemodynamic instability was not predicted by any of the evaluated risk factors. In addition, the incidence of in-hospital mortality did not differ between hemodynamically stable or unstable patients (10%; 4 of 42 versus 10%; 1 of 10 patients, respectively). In conclusion, hemodynamic deterioration after GA induction develops frequently during emergent pulmonary embolectomy. On the basis of our experience from this study and the unpredictable nature of hemodynamic deterioration, we suggest that patients undergoing pulmonary embolectomy should be prepared and draped before GA induction, and a cardiac surgical team should immediately be available for emergent institution of cardiopulmonary bypass.

### The Accuracy of the Central Landmark Used for Central Venous Catheterization of the Internal Jugular Vein

Peter L. Bailey, Emmett E. Whitaker, Linda S. Palmer, and Laurent G. Glance, *Anesth Analg* 102: 1327-1332.

We simulated needle paths based on the central landmark used for central venous catheterization of the internal jugular vein. We obtained ultrasound images to quantify the landmark's accuracy (precision and bias) in 107 subjects placed in Trendelenburg position with their heads turned 30-35 degrees. We also determined the frequency of simulated carotid artery puncture. The simulated needle path missed the middle 80% of the lumen of the internal jugular vein in 34% of subjects (95% confidence interval [CI], 25% to 44%)

and traversed the carotid artery in 26% of subjects (95% CI, 18% to 35%). Both events occurred in 20% of subjects (95% CI, 13%-29%). The landmark had a medial bias of 3.7 mm (95% CI, 2.7 to 4.8); it was more often (77 of 104 subjects) medial to the center of the right internal jugular vein ( $P < 0.001$ ). The landmark was more likely to miss the internal jugular vein (odds ratio, 3.11;  $P < 0.016$ ) and intersect the carotid (odds ratio, 3.03;  $P < 0.024$ ) in obese patients. The central landmark should not be expected to yield frequent success on first needle pass without risk of carotid puncture because of its imprecision and bias. The measured bias should be considered when the central landmark is used for central venous catheterization.

### The Use of Oral Granisetron Versus Intravenous Ondansetron for Antiemetic Prophylaxis in Patients Undergoing Laparoscopic Surgery: The Effect on Emetic Symptoms and Quality of Recovery

Paul F. White, Jun Tang, Mohamed A. Hamza, Babatunde Ogunnaike, Monica Lo, Ronald H. Wender, Robert Naruse, Alexander Sloninsky, Robert Kariger, Scott Cunneen, and Ted Khalili, *Anesth Analg* 102: 1387-1393.

Based on comparative studies in patients receiving emetogenic chemotherapy, it has been suggested that granisetron would be more effective than ondansetron for the prevention of postdischarge nausea and vomiting (PDNV). However, there have been no direct comparisons of these two popular 5-HT<sub>3</sub> antagonists with respect to PDNV and quality of recovery. We designed this randomized, double-blind study to compare the antiemetic efficacy of oral granisetron (1 mg) to a standard IV dose of ondansetron (4 mg) when administered for antiemetic prophylaxis as part of a multimodal regimen in a laparoscopic surgical population. A total of 220 patients undergoing laparoscopic surgery with a standardized general anesthetic technique were enrolled in this prospective study at two major medical centers. Patients were randomly assigned to one of two prophylactic treatment groups: the control (ondansetron) group received an oral placebo 1 h before surgery and ondansetron, 4 mg IV, at the end of the surgery, and the granisetron group received granisetron, 1 mg per os, 1 h before surgery, and normal saline, 2 mL IV, at the end of the surgery. The early recovery profiles, requirement for rescue antiemetics, incidence of PDNV, and the side effects were recorded over the 48 h study period. In addition, nausea scores were assessed using an 11-point verbal rating scale at specific intervals in the postoperative period. The quality of recovery and patient satisfaction

scores were recorded at 48 h after surgery. The demographic characteristics were similar in the two prophylaxis treatment groups, as well as the recovery times to patient orientation, oral intake, and hospital discharge. The incidences of PDNV, requirements for rescue antiemetics, and quality of recovery did not differ between the two study groups. The antiemetic drug acquisition costs to achieve comparable patient satisfaction with ondansetron and granisetron were US \$25.65 and \$47.05, respectively. Therefore, ondansetron (4 mg IV) was more cost-effective than granisetron (1 mg per os) for routine antiemetic prophylaxis as part of a multimodal regimen in patients undergoing either outpatient or inpatient laparoscopic surgery.

### Predicting Anesthesia Times for Diagnostic and Interventional Radiological Procedures

Franklin Dexter, Jack C. Yue, and Angella J. Dow, *Anesth Analg* 102: 1491-1500.

We studied anesthesia times for diagnostic and interventional radiology using anesthesia billing data and paper radiology logbooks. For computerized tomography and magnetic resonance imaging procedures, we tried to predict future anesthesia times by using historical anesthesia times classified by Current Procedural Terminology (CPT) codes. By this method, anesthesia times were estimated even less accurately than operating room cases. Computerized tomography and magnetic resonance imaging had many different CPT codes, most rare, and CPT codes reflected organs imaged, not scanning times. However, when, anesthesia times were estimated by expert judgment, face validity and accuracy were good. Lower and upper prediction bounds were also estimated from the expert estimates. For interventional radiology, predicting anesthesia times was challenging because few CPT codes accounted for most cases. Because interventional radiologists scheduled their elective cases into allocated time, the necessary goal was not to estimate the time to complete each case but rather the time to complete each day's entire series of elective cases including turnover times. We determined the time of day (e.g., 4 pm) up to when interventional radiology could schedule so that on 80% of days the anesthesia team finishes no later than a specified time (e.g., 6 pm). Both diagnostic and interventional radiology results were similarly less accurate when Version 9 of the International Classifications of Diseases' procedure codes was used instead of CPT.

### Spinal Anesthesia Using Single Injection Small-Dose Bupivacaine Versus Continuous Catheter Injection Techniques for Surgical Repair of Hip Fracture in Elderly Patients

Vincent Minville, Olivier Fourcade, David Grousset, Clément Chassery, Luc Nguyen, Karim Asehnoune, Aline Colombani,

Lounès Goulmamine, and Kamran Samii, *Anesth Analg* 102: 1559-1563.

Aging and disease may make elderly patients particularly susceptible to hypotension during spinal anesthesia. We compared the hemodynamic effect of continuous spinal anesthesia (CSA) and small dose single injection spinal anesthesia (SA) regarding the incidence of hypotension. Seventy-four patients aged >75 yr undergoing surgical repair of hip fracture were randomized into 2 groups of 37 patients each. Group CSA received a continuous spinal anesthetic with a titration of 2.5 mg boluses every 15 min of isobaric bupivacaine, while group SA received a single injection spinal anesthetic with 7.5 mg of isobaric bupivacaine. The overall variations in noninvasive automated arterial blood pressure were not statistically significantly different in the 2 groups at baseline and after CSA or SA (not significant). In the SA group, 68% of patients experienced at least one episode of hypotension (decrease in systolic arterial blood pressure greater than 20% of baseline value) versus 31% of patients in the CSA group ( $P = 0.005$ ). In the SA group, 51% of patients experienced at least one episode of severe hypotension (decrease in systolic arterial blood pressure more than 30% of baseline value) versus 8% of patients in the CSA group ( $P < 0.0001$ ). In the CSA group,  $4.5 \pm 2$  mg of ephedrine was injected versus  $11 \pm 2$  mg in the SA group ( $P = 0.005$ ). In the CSA group, 5 mg (2.5-10) of anesthetic solution was required versus 7.5 mg in the SA group ( $P < 0.0001$ ). We conclude that, in elderly patients undergoing hip fracture repair, CSA provides fewer episodes of hypotension and severe hypotension compared with a single intrathecal injection of 7.5 mg bupivacaine.

### Comparison of xenon with propofol for supplementary general anaesthesia for knee replacement: a randomized study

L.S. Rasmussen, W. Schmehl and J. Jakobsson  
*Br. J. Anaesth.* 97: 154-159.

**BACKGROUND:** Xenon anaesthesia is associated with rapid recovery and may also offer protection against neuronal damage. The aim of this study was to compare xenon with propofol for supplementary general anaesthesia in patients undergoing knee replacement in spinal anaesthesia.

**CONCLUSIONS:** Xenon was well tolerated for supplementary general anaesthesia in elderly spontaneously breathing patients but supplementation may be necessary. Compared with propofol, emergence was faster with xenon. A larger sample-size is needed if cognitive function is to be addressed.

### Blood glucose concentration profile after 10 mg dexamethasone in non-diabetic and type 2 diabetic patients undergoing abdominal surgery

P. Hans, A. Vanthuyne, P. Y. Dewandre, J. F. Brichant, and

V. Bonhomme

BJA Advance Access published on August 1, 2006, DOI 10.1093/bja/ael111. Br. J. Anaesth. 97: 164-170.

**BACKGROUND:** Dexamethasone prevents postoperative nausea and vomiting but may increase blood glucose. We compared blood glucose concentrations after dexamethasone in non-diabetic and type 2 diabetic patients undergoing surgery and looked for any association with preoperative glycosylated haemoglobin [HbA (1c)] and BMI.

**CONCLUSIONS:** After 10 mg dexamethasone, blood glucose levels increase in non-diabetic and type 2 diabetic patients undergoing abdominal surgery. Poorly controlled diabetes and severe obesity can influence the development of hyperglycaemia.

**A comparison of the SNAP IITM and BIS XPTM indices during sevoflurane and nitrous oxide anaesthesia at 1 and 1.5 MAC and at awakening**

C. A. Wong, R. J. Fragen, P. Fitzgerald, and R. J. McCarthy Br. J. Anaesth. 97: 181-186.

**BACKGROUND:** Monitoring level of consciousness during anaesthesia, with the ability to predict the intentional or unintentional return to consciousness, is desirable. The purpose of this study was to compare two processed electroencephalographic depth of anaesthesia monitors (SNAP II<sup>TM</sup> and BIS XP<sup>TM</sup>) during sevoflurane and sevoflurane/nitrous oxide anaesthesia.

**CONCLUSIONS:** The SNAP index tracks loss of consciousness and emergence from sevoflurane and sevoflurane/nitrous oxide anaesthesia. There is significant bias between the SNAP and BIS indices and therefore, the indices are not interchangeable. The SNAP index returns to baseline before awakening, whereas the BIS index remains below baseline at awakening, suggesting that the SNAP index may be more sensitive to unintentional awareness.

**Epidural catheter placement in children: comparing a novel approach using ultrasound guidance and a standard loss-of-resistance technique**

H. Willschke, P. Marhofer, A. Bösenberg, S. Johnston, O. Wanzel, C. Sitzwohl, S. Kettner and S. Kapral, Br. J. Anaesth. 97: 200-207.

**BACKGROUND:** We report a prospective, randomized study to evaluate ultrasound guidance for epidural catheter placement in children 0-6 yr of age.

**RESULTS:** Epidural placement involved bone contacts in 17% of children in the ultrasound group and 71% of children in the LOR group ( $P < 0.0001$ ). Epidurals were executed more swiftly in the ultrasound group [162 (75) s vs 234 (138) s;  $P < 0.01$ ]. Children under 6 months revealed a 0.9 correlation between skin-epidural depth and body weight.

**CONCLUSIONS:** Ultrasonography is a useful aid to verify epidural placement of local anaesthetic agents and epidural catheters in children. Advantages include a reduction in bone contacts, faster epidural placement, direct visualization of neuraxial structures and the spread of local anaesthetic inside the epidural space. Ultrasound guidance requires additional training and good manual skills, and should only be used once experience in ultrasound-guided techniques of regional anaesthesia has been acquired.

**Absorption of carbon dioxide during laparoscopy in children measured using a novel mass spectrometric technique**

M. Pacilli, A. Pierro, C. Kingsley, J. I. Curry, J. Herod, and S. Eaton, Br. J. Anaesth. 97: 215-219.

**BACKGROUND:** Carbon dioxide (CO<sub>2</sub>) is absorbed during pneumoperitoneum and may cause adverse haemodynamic effects. The aim of this study was to measure the elimination of exogenous CO<sub>2</sub> during laparoscopy in children.

**CONCLUSIONS:** After 10 min of laparoscopy 10-20% of expired CO<sub>2</sub> derives from the exogenous CO<sub>2</sub>. CO<sub>2</sub> absorption can be measured using a simple mass spectrometric technique.

**Ultrasound-guided blocks of the ilioinguinal and iliohypogastric nerve: accuracy of a selective new technique confirmed by anatomical dissection**

U. Eichenberger, M. Greher, L. Kirchmair, M. Curatolo and B. Moriggl, Br. J. Anaesth. 97: 238-243.

**BACKGROUND:** Ilioinguinal and iliohypogastric nerve blocks may be used in the diagnosis of chronic groin pain or for analgesia for hernia repair. This study describes a new ultrasound-guided approach to these nerves and determines its accuracy using anatomical dissection control.

**CONCLUSIONS:** The anatomical dissections confirmed that our new ultrasound-guided approach to the ilioinguinal and iliohypogastric nerve is accurate. Ultrasound could become an attractive alternative to the 'blind' standard techniques of ilioinguinal and iliohypogastric nerve block in pain medicine and anaesthetic practice.

**Ultrasonography-guided rectus sheath block in paediatric anaesthesia—a new approach to an old technique**

H. Willschke, A. Bösenberg, P. Marhofer, S. Johnston, S. C. Kettner, O. Wanzel and S. Kapral, Br. J. Anaesth. 97: 244-249.

The bilateral placement of levobupivacaine 0.25% 0.1 ml kg<sup>-1</sup> in the space between the posterior aspect of the rectus sheath and the rectus abdominis muscle under real-time ultrasonographic guidance provides sufficient analgesia for umbilical hernia repair. The unpredictable depth of the pos-

terior rectus sheath in children is a good argument for the use of ultrasonography in this regional anaesthetic technique in children.

### First clinical experience of tracheal intubation with the SensaScope®, a novel steerable semirigid video stylet

P. Biro, U. Bättig, J. Henderson, and B. Seifert  
Br. J. Anaesth. 97: 255-261.

**BACKGROUND:** Problems with tracheal intubation are a major cause of anaesthesia-related morbidity and mortality. Difficulty with tracheal intubation is primarily a consequence of failure to see the vocal cords with conventional direct laryngoscopy. We report our experience with use of the SensaScope® for tracheal intubation in routine clinical practice.

**METHODS:** The SensaScope® is a hybrid steerable semirigid S-shaped video stylet. Its handling and performance were assessed by anaesthetists with a minimum of 1 yr of experience. They performed four intubations each with the device in anaesthetized elective surgical patients. The view of the glottis with the Macintosh laryngoscope was compared with the view shown on the monitor by the SensaScope®. The time taken to complete intubation, the final tracheal tube (TT) position and the degree of difficulty of the procedure were recorded.

**RESULTS:** Thirty-two patients were studied. All Macintosh Cormack and Lehane grade 3 patients were converted to grade 1 or 2 with the SensaScope®. Mean intubation time was 25 (12) s and correct mid-tracheal TT cuff position was achieved in all cases. The degree of difficulty was 3.0 (1.8) on a numerical scale ranging from 0 to 10. All operators rapidly became familiar with the device and mastered its technique of use.

**CONCLUSIONS:** The SensaScope® is a reliable and effective device for tracheal intubation under vision of the normal airway. It has great potential to facilitate management of difficult airway situations in anaesthetized and paralysed patients.

### Perioperative cardiac arrest: a study of 53 718 anaesthetics over 9 yr from a Brazilian teaching hospital

L. G. Braz, N. S. P. Módolo, P. do Nascimento, Jr, B. A. M. Bruschi, Y. M. M. Castiglia, E. M. Ganem, L. R. de Carvalho, and J. R. C. Braz. Br. J. Anaesth. 96: 569-575.

One hundred and eighty-six cardiac arrests (34.6:10 000) and 118 deaths (21.97:10 000) were found. Major risk factors for cardiac arrest were neonates, children under 1 yr and the elderly ( $P < 0.05$ ), male patients with ASA III or poorer physical status ( $P < 0.05$ ), in emergency surgery ( $P < 0.05$ ) and under general anaesthesia ( $P < 0.05$ ). Patient disease/condition was the major cause of cardiac arrest or death ( $P < 0.05$ ). There

were 18 anaesthesia-related cardiac arrests (3.35:10 000)—10 totally attributed (1.86:10 000) and 8 partially related to anaesthesia (1.49:10 000). There were 6 anaesthesia-related deaths (1.12:10 000)—3 totally attributable and 3 partially related to anaesthesia (0.56:10 000 in both cases). The main causes of anaesthesia-related cardiac arrest were respiratory events (55.5%) and medication-related events (44.5%). Perioperative cardiac arrests were relatively higher in neonates, infants, the elderly and in males with severe underlying disease and under emergency surgery. All anaesthesia-related cardiac arrests were related to airway management and medication administration which is important for prevention strategies.

### Ketamine for treatment of catheter related bladder discomfort: a prospective, randomized, placebo controlled and double blind study

A. Agarwal, D. Gupta, M. Kumar, S. Dhiraaj, M. Tandon, and P. K. Singh. Br. J. Anaesth. 96: 587-589.

Intraoperative urinary catheterization might cause postoperative catheter related bladder discomfort (CRBD). We evaluated the efficacy of ketamine as a treatment modality for CRBD.

I.V. ketamine (250  $\mu\text{g kg}^{-1}$ ) is an effective treatment for reducing the incidence and severity of postoperative CRBD.

### Landiolol, an ultra-short-acting beta 1-adrenoceptor antagonist, does not alter the electroencephalographic effect of isoflurane in swine model

T. Kurita, K. Morita, K. Fukuda, K. Takata, M. Uraoka, Y. Sanjo, and S. Sato. Br. J. Anaesth. 96: 602-607.

$\beta$ -Adrenergic blocking agents may interact with anaesthetics, and several studies suggest that  $\beta$ -blockers attenuate electroencephalographic responses during general anaesthesia. We have investigated the influence of landiolol, an ultra-short-acting beta 1-adrenoceptor antagonist, on the electroencephalographic effect of isoflurane in pigs.

There were no significant differences in the effect of isoflurane among the conditions used. Landiolol did not shift the concentration-effect relationship [the effect-site concentration that produced 50% of the maximal effect was 1.35 (0.17)% under control conditions, 1.30 (0.12)% at 40 landiolol, and 1.38 (0.30)% at 200 landiolol]. Landiolol does not alter the electroencephalographic effect of isoflurane.

### Buprenorphine induces ceiling in respiratory depression but not in analgesia

A. Dahan, A. Yassen, R. Romberg, E. Sarton, L. Teppema, E. Olofsen and M. Danhof. Br. J. Anaesth. 96: 627-632.

We measured the effect of two weight adjusted i.v. doses (0.2 mg per 70 kg and 0.4 mg per 70 kg) of the potent opioid buprenorphine on analgesia and respiratory depression in

healthy volunteers. The aim of the study was to compare buprenorphine's behaviour with respect to the occurrence of ceiling (or apparent maximum) in these typical  $\mu$ -opioid protein-(MOP) receptor effects.

While buprenorphine's analgesic effect increased significantly, respiratory depression was similar in magnitude and timing for the two doses tested. We conclude that over the dose range tested buprenorphine displays ceiling in respiratory effect but none in analgesic effect.

---

### Measuring the quality of continuous epidural block for abdominal surgery

G. A. McLeod, K. Dell, C. Smith and J. A. W. Wildsmith  
Br. J. Anaesth. 96: 633-639.

In view of the wide variation in pain experience between patients, a clinical standard—the time from the end of surgery to the first experience of pain—was applied to 1359 consecutive patients in order to investigate whether the initial quality of epidural block has an effect on the overall quality of postoperative pain relief.

Extending pain relief for more than 12 h beyond the end of abdominal surgery significantly improves the overall quality of postoperative pain relief, but is associated with an increase in side-effects.

---

### Superimposed high-frequency jet ventilation (SHFJV) for endoscopic laryngotracheal surgery in more than 1500 patients

A. Rezaie-Majd, W. Bigenzahn, D. M. Denk, M. Burian, J. Kornfehl, M. Ch. Grasl, G. Ihra and A. Aloy  
Br. J. Anaesth. 96: 650-659.

Superimposed high-frequency jet ventilation (SHFJV), which does not require any tracheal tubes or catheters, was developed specifically for use in laryngotracheal surgery. SHFJV uses two jet streams with different frequencies simultaneously and is applied in the supraglottic space using a jet laryngoscope and jet ventilator.

SHFJV is an advanced ventilation mode playing a pivotal role in the (open) ventilatory support/ventilation of patients with laryngotracheal stenosis. It is particularly indicated in cases of severe stenosis and offers optimal conditions for laryngotracheal surgery, including laser surgery and stent implantation techniques.

---

### Patient injuries in response to anaesthetic procedures: cases evaluated by the Danish Patient Insurance Association

L. D. Hove<sup>1\*</sup>, H. B. Nielsen<sup>2</sup> and J. K. Christoffersen<sup>3</sup>

BACKGROUND: In response to medical treatment, side-effects may occur and the patient may be injured. In

Denmark, a patient is entitled to raise a claim for financial compensation and the validity of the claim which, based on defined criteria, is decided by the independent Patient Insurance Association (PIA). In this study, we investigated the files of the patients who were given financial compensation because of an injury caused by an anaesthetic procedure. We wanted to find the sort of injuries and the anaesthetic procedures involved and the size of financial compensation.

CONCLUSIONS: In the 6-year period 1996–2002, 374 patients were given in total 8.0 million euros in financial compensation for an injury caused by an anaesthetic procedure. Some anaesthetic complications may result in severe disability whereby the financial compensation to the suffering patients is high. In this study, we estimate that approximately 0.2‰ of all patients receiving anaesthesia may develop complications that entitle them to financial compensation.

---

### Desflurane vs. sevoflurane as the main inhaled anaesthetic for spontaneous breathing via a laryngeal mask for varicose vein day surgery: a prospective randomized study

G. B. Saros<sup>1</sup>, A. Doolke<sup>1</sup>, R. E. Anderson<sup>2</sup> and J. G. Jakobsson<sup>1,3\*</sup>

BACKGROUND: Sevoflurane has become widely used in day surgery; however, desflurane may be a valuable alternative even in this setting. This study compares emergence from anaesthesia for day surgery with spontaneous breathing using either desflurane or sevoflurane.

CONCLUSIONS: Desflurane is associated with a faster emergence with no differences during the post-operative course except a somewhat higher incidence of airway irritation.

---

### Evaluation of a new recommendation for improved cuffed tracheal tube size selection in infants and small children

B. Salgo<sup>1</sup>, A. Schmitz<sup>1</sup>, G. Henze<sup>1</sup>, K. Stutz<sup>1</sup>, A. Dullenkopf<sup>1</sup>, S. Neff<sup>1</sup>, A. C. Gerber<sup>1</sup> and M. Weiss<sup>1,2\*</sup>

BACKGROUND: The purpose of this study was to evaluate a new recommendation for tracheal tube size selection using second-generation Microcuff paediatric endotracheal tubes (PETs) with optimized outer diameter (OD) of the distal tube.

CONCLUSIONS: The new recommendation presented for the use of second-generation Microcuff PETs with improved OD to ID ratio allows the selection of cuffed tracheal tubes with larger IDs than previously recommended for small children without increased need for tracheal tube exchange or increased incidence of post-intubation stridor in these age groups.

**Small-dose perfluorocarbon reduces the recruitment pressure needed to open surfactant-deficient atelectatic lungs**

R.-J. Houmes<sup>1</sup>, R. A. Lachmann<sup>1</sup>, J. J. Haitzma<sup>1</sup> and B. Lachmann<sup>1</sup>

**BACKGROUND:** This study was undertaken to investigate the effect of a small dose of perfluorocarbon on the recruitment pressure needed to open atelectatic lung areas.

**CONCLUSIONS:** The instillation of a small amount of perfluorocarbon significantly reduces the opening pressures needed to recruit atelectatic lung areas.

**Effect of needle insertion site on ilioinguinal-iliohypogastric nerve block in children**

P. Kundra<sup>1\*</sup>, T. Sivashanmugam<sup>1</sup> and M. Ravishankar<sup>1</sup>

**BACKGROUND:** Three different sites of needle insertion have been proposed for ilioinguinal-iliohypogastric (ILIH) nerve block. This double-blind study was designed to assess the quality of analgesia produced from these different sites.

**CONCLUSIONS:** ILIH block can be successfully accomplished from any point if the needle bevel lies between the two muscle planes above and below the internal oblique.

**A Multicenter Dose-escalation Study of the Analgesic and Adverse Effects of an Oral Cannabis Extract (Cannador) for Postoperative Pain Management.**

Anita Holdcroft, M.D.; Mervyn Maze, F.R.C.P., F.R.C.A., F.Med.Sci.; Caroline Doré, B.Sc.; Susan Tebbs, M.Sc.; Simon Thompson, D.Sc. *Anesthesiology*. 104(5):1040-1046, May 2006.

**Abstract:**

**BACKGROUND:** Cannabinoids have dose-related antinociceptive effects in animals. This clinical study aimed to investigate whether a single oral dose of cannabis plant extract (Cannador; Institute for Clinical Research, IKF, Berlin, Germany) could provide pain relief with minimal side effects for postoperative pain.

**CONCLUSIONS:** These significant dose-related improvements in rescue analgesia requirements in the 10 mg and 15 mg groups provide a number needed to treat that is equivalent to many routinely used analgesics without frequent adverse effects.

**Comparison of Mucosal Pressures Induced by Cuffs of Different Airway Devices.**

*Anesthesiology*. 104(5):933-938, May 2006.

Herbert Ulrich-Pur, M.D.; Franz Hrska, M.D.; Peter Krafft, M.D.; Helmut Friehs, M.D.; Beatrix Wulkersdorfer, M.D.; Wolfgang J. Köstler, M.D.; Werner Rabitsch, M.D.; Thomas Staudinger, M.D.; Ernst Schuster, Ph.D.; Michael Frass, M.D.

**BACKGROUND:** High pressures exerted by balloons and cuffs of conventional endotracheal tubes, the Combitube(R) (Tyco Healthcare Nellcor Mallinckrodt, Pleasanton, CA), the EasyTube(R) (Teleflex Ruesch, Kernen, Germany), the Laryngeal Mask Airway [TM] (LMA North America, San Diego, CA), the Intubating Laryngeal Mask Airway [TM] (Fastrach(R); LMA North America), the ProSeal [TM] (LMA North America), and the Laryngeal Tube (LT; VBM Medizintechnik, Sulz, Germany) may traumatize the pharyngeal mucosa. The aim of this study was to compare pressures exerted on the pharyngeal, tracheal, and esophageal mucosa by different devices designed for securing the patient's airways.

**CONCLUSIONS:** Although some devices exhibit a somewhat higher mucosal pressure when compared with others, the authors believe that the observed differences of the cuff pressures do not suggest a clinically relevant danger, because the investigated devices, except the endotracheal tubes, are not intended for prolonged use.

**Fresh Blood and Aged Stored Blood Are Equally Efficacious in Immediately Reversing Anemia-induced Brain Oxygenation Deficits in Humans.**

Richard B. Weiskopf, MD; John Feiner, MD; Harriet Hopf, MD; Jeremy Lieberman, M.D.; Heather E. Finlay, B.S.; Cheng Quah, MD; Joel H. Kramer, Psy.D; Alan Bostrom, Ph.D.; Pearl Toy, MD *Anesthesiology*. 104(5):911-920, May 2006.

**BACKGROUND:** Erythrocytes are transfused to treat or prevent imminent inadequate tissue oxygenation. 2,3-diphosphoglycerate concentration decreases and oxygen affinity of hemoglobin increases (P50 decreases) with blood storage, leading some to propose that erythrocytes stored for 14 or more days do not release sufficient oxygen to make their transfusion efficacious. The authors tested the hypothesis that erythrocytes stored for 3 weeks are as effective in supplying oxygen to human tissues as are erythrocytes stored for less than 5 h.

**CONCLUSIONS:** Erythrocytes stored for 3 weeks are as efficacious as are erythrocytes stored for 3.5 h in reversing the neurocognitive deficit of acute anemia. Requiring fresh rather than stored erythrocytes for augmentation of oxygen delivery does not seem warranted.

