

Journal-related Activities and Other Special Activities at the 2011 American Society of Anesthesiologists Annual Meeting

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20th Annual Journal Symposium: Anesthesia and Cancer

Tuesday, October 18, 2011, 8:00 AM to 11:00 AM, Room S405A, McCormick Convention Center, Chicago, Illinois.

This year ANESTHESIOLOGY will sponsor three sessions at the Annual Meeting of the American Society of Anesthesiologists (ASA).

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ologists (ASA). The Journal Symposium will highlight, in lectures and presentations of original research, the role of anesthetic and analgesic drugs and techniques on cancer outcome. Several retrospective studies suggest that anesthetic technique influences cancer recurrence, metastases, and mortality, and large prospective studies are currently under way. This symposium provides the scientist and clinician with state of the art information to help guide clinical practice.

Cancer recurrence is among the long-term postoperative outcomes that may be influenced by perioperative patient management. The 2011 Journal Symposium will explore factors that may affect the recurrence of cancer after surgery and how perioperative patient management could influence this outcome.

Three invited speakers will lead the session: Marcel E. Durieux, M.D., Ph.D., Professor of Anesthesiology and Neurologic Surgery at the University of Virginia, will provide a scientific overview of possible mechanisms of cancer recurrence; Jonathan Moss, M.D., Ph.D., Professor and Vice Chairman in the Department of Anesthesia and Critical Care at the University of Chicago, will discuss the effect of opioids on tumor growth and metastasis; and Daniel I. Sessler, M.D., Professor and Chair Department of Outcomes Research at the Cleveland Clinic, will discuss clinical studies of the relationship between anesthetic choices and cancer recurrence.

These lectures will be followed by the oral presentations of 10 abstracts that were selected for their relevance to the Symposium topic. The text for each abstract can be found at the ASA abstract Web site.

“Caveolin-1 Expression Can Determine the Outcome of Volatile Anesthetics and TRAIL Induced Apoptosis on Cancer Cells” by Y. Horikawa, Y Kawaraguchi, P.M. Patel, D.M. Roth, and H.H. Patel, Department of Anesthesiology, University of California, San Diego, California. The effects of isoflurane on cancer cell survival and death after exposure to it was determined by measuring tumor necrosis factor-related apoptosis-inducing ligand (TRAIL)-induced apoptosis and its regulation by caveolin-1 expression. TRAIL-induced apoptosis was increased by isoflurane exposure in

human cancer cell lines with low caveolin-1 levels and those with high Cav-1 levels after the levels has been knocked down using caveolin-1 small interferingRNA. Isoflurane protected cells with high caveolin-1 levels from TRAIL-induced apoptosis by a G-protein-dependent mechanism. [3062]

“Volatile Anesthetics Reduce Release of Matrix-Metalloproteinase-9 from Human Neutrophils” by B. Mueller-Edenborn, B. Roth Zraggen, L. Bircher, A. Borgeat, and B. Beck-Schimmer, University Hospital Zurich, Switzerland. Sevoflurane and desflurane preconditioned human neutrophils released less matrix metalloproteinase-9, which degrades components of the extracellular matrix leading to the spread of malignant solid tumors to distant sites, in response to stimulation by the main cytokine of ischemia-reperfusion injury, CXCL8. This suggests volatile anesthetics may reduce cancer recurrence in surgeries, such as liver or lung resection, involving ischemia reperfusion injury. [5133]

“Antiproliferative Effects of Local Anesthetics on Mesenchymal Cells: Implications for Perioperative Tumor Spreading and Metastasis Formation” by M. Zaugg, E. Lucchinetti, A. Awad, J. Feng, P. Lou, H. Lemieux, and L. Zhang, University of Alberta, Edmonton, Alberta, Canada; University of Zurich, Zurich, Switzerland. Mesenchymal stem cells facilitate vasculogenesis after engrafting at the sites of tissue damage, and they elicit pronounced immunomodulatory effects. Lidocaine, bupivacaine, and ropivacaine dose-dependently reduced mesenchymal stem cell proliferation and colony formation as well as the expression of ICAM-1, the critical surface receptor involved in mesenchymal stem cell migration, in tumor necrosis factor- α treated cells by fundamentally changing their transcriptome. [2791]

“Ropivacaine Inhibits Transendothelial Migration of Leukocytes Possibly by Attenuation of Src and ICAM-1 Phosphorylation” by T. Piegeler, G. Votta-Velis, D. E. Schwartz, A. Borgeat, R. D. Minshall, and B. Beck-Schimmer, Department of Anesthesiology, University of Illinois at Chicago, Chicago, Illinois; Division of Anesthesiology, Balgrist University Hospital Zurich, Zurich, Switzerland, Institute of Anesthesiology, University Hospital Zurich, Zurich, Switzerland. Ropivacaine dose-dependently decreased migration of polymorphonuclear leukocytes across human lung microvascular endothelial cells that had been cultured to confluence and treated with lipopolysaccharide, an inflammatory stimulant. Ropivacaine also inhibited activation of Src, a tyrosine kinase, and its resultant phosphorylation of ICAM-1, a cell surface receptor that is necessary for neutrophil adhesion and subsequent transmigration in acute lung injury and acute respiratory distress syndrome, suggesting a mechanism by which ropivacaine decreases polymorphonuclear leukocyte transendothelial migration. [4823]

“Ropivacaine Attenuates Src Activation, ICAM-1 Phosphorylation, and MCP-1 Production in H838 Lung

Cancer Cells” by T. Piegeler, G. Liu, G. Votta-Velis, D. E. Schwartz, B. Beck-Schimmer, R. D. Minshall, and A. Borgeat, Department of Anesthesiology, University of Illinois at Chicago, Chicago, Illinois, Department of Pharmacology, University of Illinois at Chicago, Chicago, Illinois; Institute of Anesthesiology, University Hospital Zurich, Zurich, Switzerland, Division of Anesthesiology, Balgrist University Hospital Zurich, Zurich, Switzerland. Ropivacaine dose-dependently decreased activation of the tyrosine kinase Src and its resultant phosphorylation of the cell surface receptor ICAM-1, which is necessary for neutrophil adhesion, in nonsmall cell lung cancer cells in both the absence and the presence of inflammatory stimulation by lipopolysaccharide. Ropivacaine also decreased tumor necrosis factor- α induced production of monocyte chemoattractant protein-1 in nonsmall cell lung cancer cells. [4822]

“ μ -Opioid Receptor Gene Polymorphism A118G Is Associated with Breast Cancer Survival” by A. Bortsov, R. Millikan, L. Diatchenko, I. Belfer, R. Boortz-Marx, H. Arora, and S. McLean, Anesthesiology, University of North Carolina, Chapel Hill, North Carolina, Epidemiology, University of North Carolina, Chapel Hill, North Carolina, Center for Neurosensory Disorders, University of North Carolina, Chapel Hill, North Carolina; University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania. Two thousand thirty-nine women between 23 and 74 years of age who were diagnosed with breast cancer between 1993 and 2001 were identified from the Carolina Breast Cancer Study and their survival status determined through 2006. The 323 women who had one copy of the μ opioid receptor gene minor allele 118G had one-half the breast cancer specific mortality of the 1,682 women without the minor allele, whereas the 22 women with two copies of the minor allele had a breast cancer specific mortality that was one-quarter that of those without it. [4631]

“Overexpression of the μ Opioid Receptor in Human Nonsmall Cell Lung Cancer Promotes Tumor Growth and Metastasis” by P. A. Singleton, F. E. Lennon, T. Mirzapozova, and J. Moss, Department of Medicine, University of Chicago, Chicago, Illinois, Anesthesia and Critical Care, University of Chicago, Chicago, Illinois. To determine the potential role of μ opioid receptor overexpression in human cancer recurrence, stable control and μ opioid receptor overexpressing bronchioalveolar carcinoma cells were inserted into the hind flank of nude mice and primary tumor growth rates and lung metastasis were analyzed. Primary tumor growth rate more than doubled and lung metastasis increased by more than an order of magnitude when cells overexpressed the μ opioid receptor. [4939]

“A Comparison of Epidural Analgesia and Traditional Pain Management Effects on Cancer Recurrence after Colectomy: A Population-Based Study” by K. C. Cummings III, L. C. Cummings, F. Xu, and G. S. Cooper, Anesthesiology Institute, Cleveland Clinic, Cleveland,

Ohio, Gastroenterology, Case Western Reserve University, Cleveland, Ohio. The Medicare-Surveillance Epidemiology and End Results database was used to identify 31,950 patients who were older than 65 yr and underwent a colectomy for incident nonmetastatic colorectal cancer diagnosed between 1996 and 2005. Cancer recurrence rates and all-cause survival were compared between the 7,701 patients who had received epidural anesthesia or analgesia and the 24,249 who had not. A significantly reduced risk of recurrence was found in the epidural group only after adjusting for demographic and clinical covariates. [3980]

“Epidural Anesthesia and Recurrence Free Longer Survival in Post Esophagectomy Patients” by M. Egi, S. Takenouchi, Y. Toda, and K. Morita, Okayama University Hospital, Okayama City, Japan. In this retrospective study with a 1,500-day postoperative follow-up, recurrence-free survival of patients undergoing esophagectomy under general anesthesia without epidural analgesia was compared with that of patients undergoing the same procedure under general anesthesia with epidural analgesia. The mean survival time of the 247 patients receiving epidural analgesia was 1,206 days, whereas that of the remaining 71 patients was 1,041 days ($P = 0.041$). [3981]

“Preoperative, Fever-Range Whole-Body Hyperthermia in Patients Undergoing Colorectal Cancer Surgery” by O. Kimberger, E. Fleischmann, and I. Sulyok, Department of Anesthesiology and General Intensive Care, Medical University of Vienna, Vienna, Austria. Eighteen patients undergoing curative colorectal surgery were randomly assigned to a preoperative placebo treatment group or a preoperative whole-body hyperthermia group in whom a target core body temperature of $30 \pm 0.5^\circ\text{C}$ was maintained for 2 h. Postoperative immunologic serum parameter profiles, such as that of lipopolysaccharide-induced tumor necrosis factor- α , suggested whole-body hyperthermia may improve the ability of the immune system to react to surgical stress. [5325]

Best Abstracts: Basic Science and Clinical Science

ANESTHESIOLOGY will sponsor two Best Abstract sessions this year, one in basic science and the other in clinical science. These abstracts were chosen by a panel of editors who examined the highest scoring abstracts from the ASA subcommittees, choosing those with important scientific and clinical application and novelty. Subsequently, a combination of these editors and appointees from the ASA will choose one abstract in each category to receive the inaugural Best Abstract award for basic science and for clinical science at the meeting in Chicago.

Following is a description of these sessions and the superlative abstracts that will be presented.

Best Abstracts: Basic Science

Monday, October 17, 8:00 AM to 10:00 AM, McCormick Convention Center, S405A, Chicago, Illinois.

“Role of the DRG-NR2B Subunit in Mechanical Allodynia Induced by Spared Nerve Injury” by M. Norcini, L. Martin Hernandez, J. Zhang, T. J. Blanck, and E. Recio-Pinto, Anesthesiology, New York Langone Medical Center, New York, New York. Neuropathic pain is often accompanied by hypersensitivity to touch or temperature changes and is frequently difficult to treat with traditional analgesics. Hypersensitivity to touch stimuli in rodents after peripheral nerve injury can be alleviated by *N*-methyl-D-aspartate (NMDA) antagonists, and there is evidence for increased NMDA receptor signaling on neurons in the spinal cord. This study shows that NMDA receptors are also present on the peripheral nerves as well and, paradoxically, they are more up-regulated in surgical models leading to slow resolution of hypersensitivity than in those without such resolution. As such, NMDA receptor changes may trigger resolution of pain as well as its persistence. [5170]

“In Utero Nitrous Oxide Exposure Increases Agouti Signal Protein Expression in *Avy/a* Mice” by K. Hogan, University of Wisconsin School of Medicine and Public Health, Anesthesiology, Madison, Wisconsin. Environmental factors *in utero* can change genetic structure and subsequent development of the fetus in part by altering methylation of DNA, which affects gene expression. In this study N_2O exposure during day 4 of gestation in mice altered coat color of the offspring, associated with reduction in methylation of DNA. Not only does this show that environmentally triggered epigenetic modifications *in utero* during a critical interval after fertilization may provide a mechanism for varying individual susceptibilities to nitrous oxide, but suggests that this effect could result in transgenerational inheritance. [2802]

“Peri-operative Fentanyl Administration Induces Spinal Cord Sensitization in Rat” by P. G. Richebe, M. Xu, E. H. Chudler, M. R. Byers, A. Cahana, and C. Rivat, Anesthesiology and Pain Medicine, University of Washington Medical Center, Seattle, Washington. Opioids, especially fentanyl, are commonly used as part of a balanced anesthetic for surgery, yet some studies suggest that acute, large-dose opioid exposure may later paradoxically increase pain and hypersensitivity. In this study, rats that received fentanyl exhibited more hypersensitivity to light touch stimuli after paw incision surgery than those without such exposure. This behavioral effect was mirrored in enhanced responsiveness of spinal dorsal horn neurons to stimulation, and this effect was blocked by ketamine and by inhibitors of p38 MAP kinase. These data are consistent with a complex interaction between spinal cord neurons and microglia, leading to enhanced pain after surgery when large doses of opioids are used. [5776]

“Isoflurane anesthesia increases mortality rate in aged Fischer 344 rats” by M. C. Lewis, L. Jones Mawhinney,

and H. Bramlett, University of Miami School of Medicine, Miami, Florida, Miami Project to Cure Paralysis, University of Miami School of Medicine, Miami, Florida. It is of great interest whether the elderly have increased cognitive dysfunction and mortality after general anesthesia. Baseline cognitive function was determined by the Morris water maze tests in aged (18 months) male Fischer 344 rats. Rats were randomly assigned to receive isoflurane/N₂O anesthesia for 4 h or no anesthesia. Both preexisting cognitive dysfunction and general anesthesia increased mortality rate in aged rats. Results suggest that cognitive deficits present before anesthetic exposure may increase the possibility of anesthesia related death in surgical patients. [4052]

“Hyperglycemia Attenuates Anesthetic Preconditioning in Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes” by S. Canfield, A. Sepac, F. Sedlic, M. Muravyeva, C. Kikuchi, X. Bai, and Z. Bosnjak, Anesthesiology Department, Medical College of Wisconsin, Wauwatosa, Wisconsin. Anesthetic can induce preconditioning, which reduces the extent of myocardial infarction from an ischemic event. However, this beneficial effect of anesthetics is attenuated by hyperglycemia. The authors generated human cardiomyocytes by directed differentiation of induced pluripotent stem cells obtained from patients without diabetes and those with type II diabetes. Higher concentrations of glucose decreased anesthetic preconditioning in both types of cardiomyocytes. [5241]

“Intralipid Rescues Preexisting Pulmonary Hypertension via Stimulation of Cardiac Neoangiogenesis” by S. Umar, H. Matori, R. Foroughi, P. Partownavid, and M. Eghbali, Anesthesiology, University of California at Los Angeles, Los Angeles, California. Several novel therapies have been shown to decrease or attenuate the development of experimental pulmonary hypertension (Umar S *et al.*, Journal of Biomedicine and Biotechnology 2010;2010: doi: 10.1155/2010/702836). Intralipid has been shown to rescue local anesthetic-induced cardiac arrest. The authors document that rats injected with monocrotaline develop pulmonary hypertension and then at day 21, after the pulmonary hypertension is established, injections of intralipid were given for 9 days to the rats. Serial echocardiography and direct cardiac catheterization before the euthanasia of the rats documented that the intralipid improved RV function, decreased the progression of pulmonary hypertension, and improved survival of the treated rats. [6234]

“PGC-1 α and the mitochondrial antioxidant response during sepsis” by A. D. Cherry, R. R. Bartz, P. Fu, C. A. Piantadosi, and H. B. Suliman, Department of Anesthesiology, Duke University, Durham, North Carolina. The treatment of septic and infected patients has not improved mortality for the past several years; most recently therapies of the coagulation system have not been shown to improve outcomes (Wunderink RG *et al.*, Am J Respir Crit Care Med 2011; 183:1561–68). Therefore, there is a need to understand the pathophysiologic changes that occur during

infection that lead to mortality. The authors implanted fibrin clots containing *Staphylococcus aureus* in the peritoneum of C57BL6/J wild-type mice and mice with the same background who were PGC-1 α heterozygotes. PGC-1 α is a master regulator of respiratory gene expression and oxidative metabolism. These experiments revealed that the components of the ROS defense system, as well as messenger RNA induction of SOD2, Trx2, and HO-1, were reduced in the heterozygote mice, as were antiinflammatory responses, including interleukin-10 responses. [2961]

“Event-related fMRI Reveals Dexmedetomidine’s Amnesic Effect is Associated with Decreased Hippocampal Activity at Encoding” by M. T. Alkire, H. Hayama, K. Drumheller, C. Reist, and L. Cahill, Long Beach VA Healthcare System and the University of California, Irvine, California.

The neuroanatomic locus of the amnesic effect of dexmedetomidine was investigated in human volunteers using event-related functional neuroimaging to identify changes in regional brain activity. Low-dose infusion of dexmedetomidine reduced memory performance with minimal changes in sedation parameter. This effect was strongly associated with bilateral reduction in hippocampal activity, a brain activity important to long-term memory formation. [5389]

“Optical Reversal of Anesthetic-induced Immobility” by P. G. Morgan, V. K. Singaram, and M. M. Sedensky, Seattle Childrens Research Institute, Seattle, Washington; Genetics, Case Western Reserve University, Cleveland, Ohio; Anesthesiology, Seattle Childrens Research Institute, Seattle, Washington. Halothane-induced immobility in the nematode *Caenorhabditis elegans* was investigated using transfection of light-activated ion channels in cholinergic or γ -aminobutyric acid-mediated (GABAergic) neurons. Activation of a depolarizing cation-conducting channel in cholinergic neurons antagonized the immobilizing effect of halothane, whereas activation of a hyperpolarizing anion-conducting channel enhanced the halothane effect. Hyperpolarization of GABAergic neurons did not affect halothane-induced immobility. These findings support the hypothesis that halothane inhibits worm neuromuscular function by reducing cholinergic neurotransmission. [5307]

“Neurotoxic Impact of Isoflurane versus Ketamine on The Neonatal versus Fetal Rhesus Macaque Brain” by A. M. Brambrink, M. S. Avidan, G. A. Dissen, C. E. Creeley, and J. W. Olney, Oregon Health and Sciences University, Portland, Oregon; Department of Anesthesiology, Washington University School of Medicine, St. Louis, Missouri; Oregon National Primary Research Center, Oregon Health and Sciences University, Portland, Oregon; Department of Psychiatry, Washington University School of Medicine, St. Louis, Missouri. Exposure of pregnant rhesus macaque monkeys to ketamine for 24 h causes cortical neuroapoptosis in the fetal brain. In this study to examine the effects of shorter duration exposure, anesthetic treatment of pregnant macaques with isoflurane

or ketamine for 5 h led to widespread neuroapoptosis in the fetal brain. This effect was somewhat greater than that observed previously for ketamine treatment of neonatal (P6) monkeys, but less than that observed for isoflurane exposure of P6 monkeys. These primate studies reveal developmental changes in the brain distribution and severity of neuroapoptosis that differ between specific anesthetics. [6228]

Best Abstracts: Clinical Science

Tuesday, October 18, 1:00 PM to 3:00 PM, McCormick Convention Center, S405A, Chicago, Illinois.

“Remifentanyl-Propofol Effect-Site Concentrations that Lead to Airway Obstruction and/or Intolerable Ventilatory Depression: Building a Response Surface Model for Respiratory Compromise” by C. LaPierre, K. Johnson, B. Randall, and T. Egan, **Bioengineering and Anesthesiology, University of Utah, Salt Lake City, Utah.** The response surface pharmacodynamic model for remifentanyl-propofol effect-site concentrations that lead to adverse respiratory events during moderate to deep sedation was refined by incorporating both airway obstruction and intolerable ventilatory depression (respiratory compromise). Accounting for both effects in this volunteer study expanded to remifentanyl-propofol effect-site concentration pairs associated with adverse respiratory effects and revealed that airway obstruction was associated with higher propofol concentrations, whereas ventilatory depression was associated with higher remifentanyl concentrations. These models will allow improved safety during sedation using target controlled intravenous infusions. [6206]

“Concurrent Fibromyalgia in the Spine Pain Population at a Tertiary Care Pain Clinic” by C. M. Brummett, R. Wasserman, J. Goeslin, K. Rakovitis, and A. L. Hassett, **University of Michigan, Ann Arbor, Michigan.** Axial spine pain (neck and back) occurs commonly and is frequently treated with opioids or injections, yet therapy is far from uniformly effective. It is conceivable that some of these patients have an etiology of pain (fibromyalgia) that may not be amenable to such therapies. In this study of 166 patients with a primary complaint of neck or back pain in a tertiary medical center pain clinic, approximately one-half met criteria for fibromyalgia. Compared with the others, those with fibromyalgia had greater pain intensity and higher levels of depression and rated opioids and injection therapy as less effective. These data suggest that fibromyalgia may coexist with axial spinal pain and that patients with both diseases may respond differently to treatment than those without fibromyalgia. [4000]

“Biomarkers of Persistent Pain: CAR8 is Associated With Multiple Forms of Chronic Pain” by M. A. Telleria, Q. Li, Y. Zhang, R. Morris, E. Fu, M. Sato-Takeda, T. Yabe, T. Wiltshire, N. Casamayor, and M. Spertus, **Anesthesiology, University of Miami, Miami, Florida; Anesthesiology, IUHW, Tokyo, Japan; Anesthesiology, Red Cross Tokyo Metropolitan Blood Center, Tokyo, Japan;**

Anesthesiology, Eshelman School of Pharmacology, Chapel Hill, North Carolina. Nerve trauma, including that resulting from surgery, results in persistent pain in some but not all individuals, and whether this reflects a different genetic susceptibility in some patients is unknown. In mice, polymorphisms of the Car8 gene are associated with susceptibility to persistent hypersensitivity after nerve trauma. In this study, patients from Tokyo and Oulu were genotyped for single nucleotide polymorphisms of the Car8 gene, and one of the polymorphisms was associated with an increased incidence of persistent pain after herpes zoster infection and in those with persistent pain from intervertebral disc disease-associated sciatica. These data support CAR8 polymorphisms as a biomarker for susceptibility to persistent pain. [6098]

“Title Gender and Age Bias in the Anesthesiology Residency Selection Process” by G. S. De Oliveria, Jr., T. Akikala, J. Sullivan, C. Zell, and R. McCarthy, **Anesthesiology, Northwestern University, Chicago, Illinois.** The selection process for medical students and medical residents has been the topic of intense debate over the years. In this study, data from 1,029 applicants to anesthesiology residency for the 2009–2010 match were extracted from the American Medical Association-National Residency Matching Program. After adjusting for confounding variables, older age, female sex, lower scores on USMLE, and international medical school attendance were predictors of a lower chance to successfully match into an anesthesiology residency program. These data are consistent with the presence of bias in the selection process for anesthesia residents against older applicants and women. [5176]

“The Failed Intraoperative Laryngeal Mask Airway: A Study of Clinical and Intraoperative Risk Factors” by M. Mathis, S. K. Ramachandran, S. Kheterpal, and A. M. Shanks, **Department of Anesthesiology, University of Michigan, Ann Arbor, Michigan.** Incidence and profiles of laryngeal mask airway failures are of great importance for safe airway management. A total of 15,795 cases with planned laryngeal mask airway were reviewed. One hundred seventy patients (1.1%) experienced a failed laryngeal mask airway. Through logistic regression, four independent risk factors for a failed laryngeal mask airway were identified: increased body mass index, male sex, poor dentition, and intraoperative surgical table rotation. In addition, patients experiencing laryngeal mask airway failure more frequently experienced difficult mask ventilation. [2350]

“Prediction of Postoperative Maladaptive Behaviors in Children with PACBIS” by N. Hagerman, A. Varughese, J. Gunter, T. Nick, and S. Sadhasivam, **Anesthesiology, Cincinnati Children’s Hospital Medical Center, Cincinnati, Ohio; Biostatistics, University of Arkansas for Medical Sciences, Little Rock, Arkansas.** Perioperative behavioral factors in pediatric anesthesia significantly contribute to postoperative outcomes. For 405 adenotonsillectomy cases, real-time assessments of

behaviors of children and parent(s) using the newly developed behavioral assessment tool, Perioperative Adult Child Behavioral Interaction Scale (PACBIS), revealed significant perioperative behavioral interactions between them and predicted postdischarge maladaptive behaviors in the children. [4158]

“Post Operative Cognitive Dysfunction in Non-Cardiac Surgical Patients up to 1 yr Post-Operatively: A Longitudinal Cohort Study and Nested Randomized Controlled Trial” by N. Gauge, C. Ballard, E. Jones, D. Green, King’s College London, London, United Kingdom. Postoperative cognitive dysfunction in the elderly has a negative impact on mortality. A longitudinal cohort study to identify postoperative cognitive dysfunction at 1 yr postoperatively in elderly patients and a nested RCT to test positive impact of intraoperative BIS and rSO₂ monitoring on the postoperative cognitive dysfunction were performed. Previous studies revealed significant increase of postoperative cognitive dysfunction in surgical patients than nonsurgical control subjects. Subsequent studies demonstrated significant reduction of postoperative cognitive dysfunction by the intraoperative interventions. [5900]

“Translational Research: Increase of Circulating Endothelial Progenitor Cells And Reactive Hyperemia in Response to Exhaustive Exercise - A Predictor of Perioperative Outcome?” by R. Schier, R. El-Zein, R. Mehran, and B. Riedel, Department of Anaesthesia and Intensive Care Medicine, University Hospital of Cologne, Cologne, Germany; Department of Epidemiology, The University of Texas M. D. Anderson Cancer Center, Houston, Texas; Department of Thoracic Surgery, The University of Texas M. D. Anderson Cancer Center; Department of Anaesthesia and Pain Medicine, Peter MacCallum Cancer Centre, East Melbourne, Australia. Predicting postoperative morbidity and mortality is difficult; the revised cardiac risk index has been widely used to predict perioperative cardiac complications but only discriminates moderately well between patients at low *versus* high risk for cardiac events after noncardiac surgery (Ford MK, Beattie WS, Wijeyesundera DN. *Ann Intern Med* 2010;152:26–35). Therefore, there is a need for other tests that can help predict the perioperative risks patients face. The authors used the release of endothelial progenitor cells after exercise to determine whether patients would have cardiac, pulmonary, wound healing, or other surgical complications after major thoracic surgery. The release of endothelial progenitor cells appears to be an important component of the regenerative process that follows tissue injury. Patients who had a decrease in circulating cells with CD 45, 133+, 276+ surface marker lineage suffered more frequent ($P = 0.01$) postoperative complications than patients who had an increase in these cells after exhaustive exercise. [4194]

“Improving Physician Performance on Administering Antiemetic Prophylaxis by Adding an Actionable Recommendation to a Risk Assessment” by T. H. Kappen, W. A.

van Klei, L. van Wolfswinkel, K. G. Moons, and C. J. Kalkman, Division of Anesthesiology, Intensive Care and Emergency Medicine, University Medical Center Utrecht, Utrecht, The Netherlands; Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands. There are data that suggest that providing an actionable recommendation to physicians has a greater impact on physician behavior than only providing a risk assessment. The authors’ studies compare both approaches in the same physician group. Between 2006–2007, a cluster-randomized trial was done in the anesthesiology department at a Dutch University hospital. The intervention group was given a patient’s predicted PONV risks without a recommendation and the control group was care-as-usual. In 2010, the same physicians underwent a before and after study. All physicians were then given a recommendation on how many prophylactic antiemetics to lower their patient’s PONV risks. Both interventions increased antiemetic prophylaxis compared with care-as-usual, but when provided with a recommendation, the same physicians administered significantly more antiemetics per patient than when only provided with information regarding risks. [5523]

“Does Early Perioperative Goal Directed Therapy Using Functional and Volumetric Hemodynamic Parameters Improve Therapy in Cardiac Surgery? A Prospective, Randomized Controlled Trial” by M. S. Goepfert, P. H. Richter, A. von Sandersleben, J. Gruetzmacher, E. Raffenbeul, K. Roehrer, C. zu Eulenburg, H. Reichenspurner, A. E. Goetz, and D. A. Reuter, University Medical Center Hamburg, Anaesthesiology and Intensive Care Medicine, Hamburg, Germany; University Medical Center Hamburg, Medical Biometry, Hamburg, Germany; University Heart Center Hamburg, Cardiac Surgery, Hamburg, Germany. The authors established a hemodynamic treatment algorithm based on measurements of cardiac output, stroke volume variations, and patients’ global end-diastolic volume index for optimizing therapy during and after elective cardiac surgery. Patients were randomized to two algorithm-based treatments; the algorithm above or a control group using an algorithm based on central venous pressure and mean arterial blood pressures. One hundred coronary artery bypass grafts or AVR with coronary artery bypass graft were randomized; data from 92 patients could be analyzed. There was no difference in mortalities, but complications, length of stay in the intensive care unit, and time to reach criteria for hospital discharge were significantly less in the patients receiving the algorithm that used cardiac output, stroke volume variations, and global end-diastolic volume index. [6233]

“Automatic Updating of Maximum Surgical Blood Ordering Schedule using Anesthesia Information Management System Data” by R. H. Epstein and F. Dexter, Anesthesiology, Jefferson Medical College, Philadelphia, Pennsylvania; Anesthesia, University of Iowa, Iowa City, Iowa. The authors evaluated the electronic records of

160,207 consecutive cases of procedures in adults, excluding cardiac or hepatic transplantation surgeries for a preoperative hemoglobin level and the number of transfusions administered. They predicted that the absence of a preoperative hemoglobin level was associated with no transfusion requirement. Their data showed that type and screen and cross-match decisions are made without evidence. Historical transfusion data predict which procedures are associated with transfusion requirements and can save money by stopping the ordering of tests that are not necessary. [4435]

“A Simplified Admission Bioclinical Score to Predict One-year Outcomes in Coiled-SAH Patients” by V. Degos, C. Apfel, C. Colonne, I. Renuit, T. Pourmohamad, P. Gourraud, W. Young, and L. Puybasset, *Anesthesia and Perioperative Care, University of California, San Francisco, San Francisco, California; Anesthesiology and Critical Care, Pitie-Salpetriere Hospital, University Pierre and Marie Curie, Paris, France; Neurology, University of California, San Francisco, San Francisco, California.* In a prospective cohort study, the authors used multivariate logistic regression analysis of clinical and biologic criteria to develop and validate a simplified admission score to predict 1-yr mortality after aneurysm coiling for subarachnoid hemorrhage. A score combining Glasgow coma scale and high plasma levels of S100B and troponin I (admission bio-

clinical score) was superior ($P < 0.001$) to other scores in predicting outcome, and also performed well in the validation cohort in predicting 1-yr outcome ($P < 0.03$). [6009]

9th Annual Celebration of Research Luncheon Session

Monday, October 17, 2011, 12:30 PM to 2:00 PM, Vista Ballroom (S406) South Building, McCormick Convention Center, Chicago, Illinois. Lunch will be provided!

This year's Celebration of Research will take place on Monday during the Annual Meeting. James C. Eisenach, M.D., Editor-in-Chief of ANESTHESIOLOGY, will serve as moderator. Featured speakers will be the 2011 recipient of the ASA Excellence in Research Award, Evan D. Kharasch, M.D., Ph.D., Professor, Department of Anesthesiology, Washington University, St. Louis, Missouri; and the recipient of the 2011 Presidential Scholar Award, George A. Mashour, M.D., Ph.D., Director, Division of Neuroanesthesiology, University of Michigan Medical School, Ann Arbor, Michigan. The recipients of the 2011 Residents' Research Awards will also be introduced during the Celebration event. Additional information regarding Journal-related activities and FAER-related activities will be included in the Celebration of Research booklet distributed at the 2011 Annual Meeting.