



In this issue:

From The Editor	2
President's Message	3
CCAS Update	5
Review of 2007 Winter Meeting Sessions.....	6
Book Corner.....	8
Literature Review.....	9
Article highlights from <i>Pediatric Anesthesia</i>	9
Peds Passport.....	11

On the web:

- Literature Reviews with full references
- PedsPassport by Helen V. Lauro, MD, FAAP
- 2006 SPA Supporters and Exhibitors
- Dr. Myron Yaster's Personal History of SPA

www.pedsanesthesia.org

Communications Committee

Co-Chairs

Shobha Malviya, MD
Allison Kinder Ross, MD

Newsletter Editor

Allison Kinder Ross, MD

Associate Editors

Helen V. Lauro, MD, FAAP
Cheryl K. Gooden, MD, FAAP

Contributing Editors

Samuel Golden, MD, FAAP
Sean Flack, MD
Hoshang J. Khambatta, MD



FROM PEDIATRIC ANESTHESIOLOGY '07: Attendees at SPA's March Winter Meeting in Phoenix took advantage of live patient sessions. Attendance at the meeting was close to 600 people.

Update on the Effects of Anesthetics on the Developing Brain

Recent FDA Hearing and the SPA Response

The issue of potential anesthetic neurotoxicity, especially to immature brain, has continued to develop. Based initially upon work from John Olney and other members of his laboratory at Washington University in St. Louis, the thrust of the data essentially demonstrates in a variety of young animal models that drugs that are used for sedation and/or anesthesia can produce neuronal apoptosis in the developing nervous system. A more limited dataset also suggests that the neuronal cell death that is induced can be associated with long-term behavioral and learning abnormalities. Because of the significance of the implications of these findings, the SPA featured a session in the 2006 Winter meeting to address this important topic.

At the end of March 2007, the Food and Drug Administration (FDA), via its Anesthetic and Life Support Advisory Committee, assembled a group of experts to evaluate the potential neurodegenerative effects of anesthetic agents in infant and juvenile animals. The overall goal of the meeting was to determine whether sufficient data existed in preclinical models to warrant consideration of changing clinical practice.

Dr. Frank McGowan, the Immediate Past President of the SPA, and on behalf of the members and Board of Directors of the SPA, provided the FDA a document to present the position of the Society at the March meeting. This document may be seen in its entirety on the SPA website at

Continued on page 4

FROM THE EDITOR

It is with great excitement and trepidation that I introduce myself to the members of this society as your new Newsletter Editor. I have been a member of the Society for Pediatric Anesthesia since my fellowship at Johns Hopkins (merely a few years ago) and have since been on faculty at Duke University Medical Center.

I have to admit that I accepted this Editor position for selfish reasons. The roots of the Society grew from the ideas of Dr. Myron Yaster of Johns Hopkins Hospital, who became the first official President of the SPA in 1986. He was one of my early mentors (along with current President Dr. Jay Deshpande and others with SPA history) and remains my most quote-worthy faculty member from the past (although my brief time with coworker Dr. Ryan Cook resulted in a number of quotes that would easily rival the "Yasterisms"). Taking on this position as Editor, I can't help but think of Myron's voice saying, "No good deed goes unpunished". So far, so good.

The bottom line is, I could not pass up the opportunity to remain an integral part of the Society and be allowed to work alongside those that continue to commit their time and efforts to the SPA. The Officers of this Society are an impressive group that have, over the years, been able to effectively present the SPA as the voice of pediatric anesthesia. I can attest to the fact that the Executive Team and Board of Directors work tirelessly to not only advance our profession, but also to take care of its members through ongoing review of policies and updates of the benefits to the Membership. This involvement was easily demonstrated by our immediate Past President, Dr. Frank McGowan, in our cover story regarding the SPA's participation in helping to guide decisions regarding the

next steps to determine the effects of anesthetics on the developing brain.

You will find significant changes in the layout and content of the Newsletter with the hope that it will provide the members of the SPA some insight to the topics that affect us most. In addition to the Newsletter, the SPA website has undergone significant changes in the past year and will include many additional features such as extended reviews and CME opportunities. Dr. Shobha Malviya is my media partner and Communications Committee Co-Chair and has recently been appointed to manage the SPA website. The website will provide complete coverage for the members of this Society that cannot be included in the newsletter due to space restrictions. Please know that we are always open to suggestions for improvement or topics of interest.

Lastly, on behalf of the entire Society, I'd like to thank Dr. Rita Agarwal for her commitment and years of dedication as our past Newsletter Editor. She has laid the groundwork for this endeavor and I am grateful to her and to all the contributing Editors who have remained on the Communications Committee and who have sent to me their quality work without hesitation. As they continue to contribute material to the Newsletter, additional requests will come forth, and they too will learn that no good deed goes unpunished.



Allison Kinder Ross, MD
Duke University
Medical Center,
Durham, NC

**SOCIETY FOR
PEDIATRIC ANESTHESIA**

**ASSOCIATION OF
PAEDIATRIC ANAESTHETISTS
OF GREAT BRITAIN & IRELAND**

**SPA
APAI**

Joint Annual Meeting • October 12, 2007 • The Hilton San Francisco, CA, U.S.A

© Copyright 2007 SPA. The Society for Pediatric Anesthesia (SPA) publishes the SPA News four times a year. The information presented in the SPA News has been obtained by the Editors. Validity of opinions presented, drug dosages, accuracy and completeness of content are not guaranteed by SPA.

PRESIDENT'S MESSAGE

I am honored to serve as President as the Society begins its 21st year. We continue to grow and mature as colleagues, physicians and advocates for children. SPA continually seeks wide participation of our members in all of the Society's activities and to provide venues for exchanging ideas, fostering the development of junior colleagues and advancing the practice of perioperative care for children.

The recent Pediatric Anesthesiology 2007 meeting (Randy Flick – Program Director) was a superb example of SPA. The newly formed CCAS (Dean Andropolous, President) got off to an auspicious beginning with a superb educational program (Chandra Ramamoorthy, Program Chair) that attracted nearly double the numbers of attendees expected. The SPA website (www.peds-anesthesia.org) provides another (virtual) setting for members to learn, exchange ideas and contribute to the specialty.

Thanks to the generosity of fellow members and supporters, the Society is in solid fiscal health, allowing us to continue to provide our educational and professional programs. Many members generously contribute annually to the SPA Education and Research Fund to support various research and educational initiatives.

To build on the success of the past, last year the SPA Board of Directors developed a strategic plan to help guide our future activities. The Strategic Plan calls for SPA to be “the recognized voice to improve the perioperative care of children” by defining [and expanding] the body of knowledge and skills, shaping the perioperative environment, and providing patient-focused education to the public.

The education symposia (Annual Meeting in October and the Winter/Spring Meeting) and the expanding CME offerings on the website are representative of the Society's efforts. The Society has posted recommendations for pediatric education for the core anesthesiology residency (Ron Litman et al) and supported the formation of the Pediatric Anesthesia Program Directors group (David Waisel, Chair). The Quality Improvement collaborative (Don Tyler, Chair) begins later this year with 10 children's hospitals participating in the pilot phase of the “wake up safe” initiative, designed to promote better understanding of the current practice of pediatric anesthesia and to identify areas for improving practice.

Recently, SPA supported an application to the American Board of Anesthesiology for Certification in Pediatric Anesthesiology, similar to that granted in Anesthesiology Critical Care and in Pain Management. We hope that the Board will respond with a favorable review of the application. I am delighted that all of these activities and others allow us to forge a stronger collaboration with the ASA Committee on Pediatric Anesthesia (Randall Clark, Chair) and the AAP Section on Anesthesiology and Pain Management (Joe Cravero, Chair). Together we can be the voice of pediatric anesthesiology working to improve the care of children.

Recently the practice of pediatric anesthesiology received a loud wake-up call because of publications suggesting that anesthetic exposure may have serious negative effects in the developing brain. The cover story details this topic and the recent meeting of the FDA advisory committee very well. I think pediatric anesthesiologists should welcome this wake up call and actively seek to better understand the effects of anesthetics and perioperative care in the developing human brain. We clearly need further studies to understand the effects in infants and children, as well as the underlying mechanisms which produce those effects.

Concurrently, we also need longitudinal studies of patient outcomes to determine if anesthetic exposure has any neurodevelopmental impact on children. These will take careful planning, support and collaboration in the studies from SPA members. The Society supported FAER grants can provide a good start to these efforts, and the SPA Research Committee is an excellent setting for developing ideas.

This is a wonderful time for the specialty of pediatric anesthesiology and your Society needs your active participation in the many activities and initiatives in order to advance the perioperative care of children.



Jayant K. Deshpande, MD
Vanderbilt Children's Hospital,
Nashville, TN

WELCOME NEW MEMBERS!

ACTIVE MEMBERS

Kerryn Jennifer Carter MD Calgary, AB
Kathryn Marie Fry MD Edmonton, AB
Susan Bazzell MD Tucson, AZ
Brenna L. Jacobson MD Loma Linda, CA
Charles Lee MD Loma Linda, CA
Michelle L. Schlunt MD Loma Linda, CA
Makoto Nagoshi "MD, PhD" Los Angeles, CA
Gee Mei Tan MD Thornton, CO
David L. Fahringer MD Jacksonville, FL
Alfredo Fernandez MD Miami, FL
Faye Evans MD Atlanta, GA
John G. Aker CRNA MS Coralville, IA
Ioanna Apostolidou MD Eagan, MN
Robert T. Wilder "MD, PhD" Rochester, MN

Michael Loushin MD Shoreview, MN
Adam Booser MD Kansas City, MO
Tessa King MD St. Louis, MO
James O'Brien MD Winston-Salem, NC
Ingrid A. Fitz-James MD Englewood, NJ
Richardo Falcon MD Albuquerque, NM
Teodoro Reyes MD Dayton, OH
Liwana M. Calibag MD Mayfield Heights, OH
F. Wickham "Kraemer, III" MD Philadelphia, PA
Koto Furue MD Montreal, PQ
Gary R. Haynes PhD MD Charleston, SC
Paul W. Sheeran MD Dallas, TX
Jorge A. Guerrero MD San Antonio, TX
Kimberly D. Milhoan MD San Antonio, TX
Karen Thomson MD Alexandria, VA

FELLOWS

Ravi V. Tamerisa MD Holyoke, MA
James Kevin Miller MD Franklin, TN
Jill E. Kilkelly MD Nashville, TN

INTERNATIONAL MEMBERS

Philip Wolstencroft MD Auckland, New Zealand
Daniel Roke MD Bann, Germany
Raju Reddy Birmingham, UK
Yunxia Zuo PhD Chengdu, China
Antigona Hasani MD Prishtina, Albania
Ximena A. Mora Diez MD Santiago, Chile
Birgit Steiner MD Vienna, Austria
Justin Foutes MD Atlanta, GA
Andre Heinen MD Amsterdam, The Netherlands

Continued from page 1

www.pedsanesthesia.org. The document first stated that the pediatric anesthesia community has been aware of the issues since 1999 or 2000, and has addressed them formally at its 2006 Winter meeting. In addition, the document stated the following:

“...the data presented up to this point are concerning and clearly warrant further investigation that is comprehensive and of high-quality. In sum, we believe that this is an important question that should not be dismissed.” Important points regarding the limitations of the studies with regards to the models, doses and durations, and correlation of animal models to humans were addressed. In sum, the SPA recommendations to the FDA were as follows:

- Support for additional animal studies to better define the actual mechanisms, risks, and potential treatments for this problem. These studies must be relevant to human development and practice.
- Human studies of sufficient power and robust design to effectively address this issue are clearly needed. Such studies will be extremely difficult and expensive to design and conduct.
- Pediatric surgical specialists, in conjunction with anesthesiologists and pediatricians, should seek to identify any surgical procedures that could be delayed until older age, as well as verify outcome data that argued in favor of early repair. Increased use of regional anesthetic techniques, where possible, should be evaluated. However, as noted previously, it is unlikely that the impact of these efforts will be large.
- Increased research on mechanisms of anesthetic action is indicated to increase the likelihood of developing agents with greater specificity (and hence potentially less toxicity).
- Development of a national pediatric anesthesia registry and complications database is needed (of note, the SPA is engaged in this effort currently.)
- The pediatric anesthesia community and our patients need the FDA to frame this important issue in the appropriate context. We believe that this context acknowledges the importance of the research conducted to this point as well as its limitations and indications for further investigative efforts of the types outlined. We also believe that understanding the “required” nature of virtually all pediatric surgical procedures, as well as the far greater importance of hypoxic and cardiovascular mechanisms of brain injury and death during anesthesia and surgery in these patients, are also essential components of this context.

Dr. McGowan also attended the session held by the FDA, as did other SPA members Dean Kurth (Children’s Hospital of Cincinnati), and Lynne Maxwell and David Cohen (both from Children’s Hospital of Philadelphia). The FDA panel included experts in the field such as Drs. John Olney and Vesna Jevtovic-Todorovic, Dr. William Slikker from the FDA, and Dr. Sol Soriano (Children’s Hospital of Boston). Also present to provide expertise and consultation to the FDA were Drs. Jay Deshpande, the current President of the SPA, Steven Shafer (Stanford University and Editor of *Anesthesia and Analgesia*), James Eisenach (Wake Forest University), and Athena Zuppa (Children’s Hospital of Philadel-

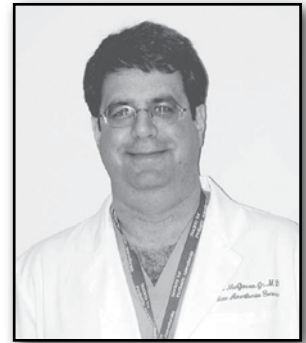
phia). The meeting consisted of data presentations, discussions of limitations to the data, and the implications to clinical practice. Although the data was considered substantial, the problems and limitations noted above were also recognized. In particular, unresolved issues with dose and duration of exposure, differences in developmental stage, rate and processes between the animal models studied and humans, a focus thus far on just a relative few agents, the absence of study in surgical models, the known harmful effects of untreated pain in infants, the absence of a clear clinical phenotype or clinical biomarkers were all noted. It was also recognized that avoiding or delaying surgery is not possible for the vast majority of pediatric surgery, and that using suboptimal anesthetic techniques was also likely to be harmful. Moreover, it was also recognized that the risks posed by airway and related complications (i.e. hypoxia) and hemodynamic complications (i.e. hypotension and cardiac arrest) were far greater. It was recognized that most often anesthetic drugs are used in combination and that they be studied in these combinations. In addition, surgical models should be included in future studies.

Two important questions were posed toward the conclusion of meeting held by the FDA to help summarize the findings of the literature and the results of the day’s discussions. The first was, “Please discuss whether there are sufficient data to determine the applicability of the findings of anesthetics in nonclinical models to humans.” The answer of the voting Committee members was unanimously, “No”. Another question posed was, “To what extent are the doses and duration of exposure to the anesthetics used in nonclinical studies relevant to the clinical use of these drugs?” The panel determined that the extent was still unclear. It was determined that based on the current knowledge and lack of appropriate alternatives, there was no scientific basis to recommend changes in clinical practice.

What does this mean to the pediatric anesthesia community at this point? As we know, there are presently no alternatives to providing what we feel is the safest anesthetic for our pediatric patients. What we are presented with instead is, that although there will be no immediate changes in our practices, there will be an increasing number of questions posed not only by ourselves and from our colleagues, but also by the families of our patients.

On March 29th, the ABC news website addressed this issue for the public in the article, “Anesthesia risk for children worries FDA” (abcnews.go.com search for title). In this article, the author summarized the proceedings of the FDA meeting and appropriately suggested that it is unknown based on the current studies whether or not the findings apply to children. However, the article specifically implicated isoflurane, midazolam and nitrous oxide as being potentially more toxic than any anesthetic used individually. The lack of clear answers to the questions may likely have parents addressing the need for surgery in their children, the timing of surgery, and the agents themselves.

This is clearly a complex topic and of the utmost importance that



Francis X. McGowan Jr., MD

Continued on page 5

CONGENITAL CARDIAC ANESTHESIA SOCIETY UPDATE

As the CCAS has entered its second year, there are a number of exciting developments for the Society. The CCAS currently has 294 individual members, as well as 30 Institutional Charter Members. The CCAS Board would like to sincerely thank the SPA and its membership for their substantial support to ensure a very successful start for the CCAS.

On March 8, the CCAS held its first Pediatric Anesthesia Conference in conjunction with the Winter SPA Meeting. Over 250 attendees, plus an outstanding program coordinated by Dr. Chandra Ramamoorthy made the meeting a great success. A number of timely and interesting topics were presented in a variety of formats, including pro-con debate about aprotinin use, update on hypoplastic left heart syndrome, an excellent PBLD on tetralogy of Fallot, and outstanding workshops on transesophageal echocardiography and pacemakers. I would like to thank Chandra and the CCAS Education Committee for organizing an excellent conference. Because of this response, the SPA Board asked that there be another CCAS Pediatric Cardiac Anesthesia Conference in 2008, again held the day before the Winter Meeting.

Additional upcoming CCAS sponsored educational events include a 2 hour session on adult congenital heart disease at the Society of Cardiovascular Anesthesiologists' 30th Annual Meeting and Workshops in Vancouver, B.C., in June 2008, and a full day Pediatric Cardiac Anesthesia Conference at the Pediatric Cardiac Intensive Care Society's 6th International Meeting in Miami in December 2008.

Another important CCAS initiative is the Pediatric Cardiac Anesthesia Database, in conjunction with the Society of Thoracic

Surgeons' Congenital Heart Surgery Database. Under the leadership of David Vener, M.D. the STS and CCAS have reached agreement to add anesthesia data to each cardiac surgery case in the database. Currently over 50 congenital heart surgery programs participate, and many of the CCAS Charter Institutional Members will participate. This database is an important tool for quality and outcomes research, both for each participating institution, and for our subspecialty as a whole. I would like to thank Dr. Vener, and the CCAS Board for their diligent work on this project.

The CCAS will initiate a quarterly electronic newsletter, with the first edition in June 2007. This will be an informative source of information about the CCAS, and contain literature reviews and important clinical and educational content.

Finally, three additional at-large CCAS Board of Directors will be elected in the fall of 2007, to bring the total to 10 board members. Information about the nomination and election process will be forthcoming on the CCAS webpage and the CCAS newsletter.

For more information about the CCAS, visit www.pedsanesthesia.org/ccas/, or email the CCAS at CCAS@societyhq.com.



Dean B. Andropoulos, MD
CCAS President
Texas Children's Hospital,
Houston, TX



Continued from page 4

will require our commitment to its study and attention to its implications. I would encourage the Members of the SPA to review not only the A & A paper by Mellon, Simone and Rappaport, but also to review the work by Olney's team and the responses by Anand, Soriano and others that are referenced in Mellon's paper. In addition, visit the SPA website and take the opportunity to read the letter written to the FDA by Dr. McGowan that outlines the issues from the view of the pediatric anesthesia practitioner.

Although the data may first be considered "concerning", one must remember that it is not directly translatable to humans by models, durations, or doses. There is presently a lack of suitable alternatives and the real risks of delaying surgery or not treating

pain are more pressing. Future study is certainly warranted and will present challenges of its own.

Reference:

Mellon RD, Simone AF, Rappaport BA. Use of anesthetic agents in neonates and young children. A & A 2007; 104: 509-20

(Although submitted by Dr. Allison Ross, significant recognition goes to Dr. Frank McGowan who shared his experience regarding this important topic and completely contributed to the content of this article to improve the understanding of the issues for the SPA Members.)

CLINICAL CORNER

Did you know???

PICC lines that are 24 gauge must only be flushed with 10 cc syringes. Smaller syringes generate higher forces that may result in catheter rupture. So, if you have a tiny patient with a tiny PICC line for an intravenous induction, put away your 1, 3, and 5 cc syringes and work within the confines of that 10 cc syringe guideline.

Review of sessions at the 2007 SPA Winter Meeting

Edited and summarized by A.K. Ross, MD

March 9, 2007-Friday Morning

Submitted by Helen V. Lauro, M.D., F.A.A.P.
SUNY-Downstate Medical Center/Long Island
College Hospital

Incoming SPA President Jayant K. Deshpande M.D. (Vanderbilt Children's, Nashville, TN) welcomed more than 600 meeting registrants and exhibitors, proclaiming this the largest SPA turnout ever recorded. Randall P. Flick, M.D., M.P.H., F.A.A.P. (Mayo Clinic, Rochester, MN) winter meeting program chair, offered his greetings and provided important clarification on the meeting program.

Aubrey Maze, M.D. (Phoenix, Children's, Phoenix, AZ) moderated an outstanding first morning session The Complex Pediatric Airway. Robert S. Holzmann, M.D., F.A.A.P. (Children's Hospital, Boston, MA) spoke on Developmental Pathology of the Infant Airway. An analogy between architecture of a house to the embryology of the head and neck was drawn—underdevelopment or hypoplasia of building blocks leads to structural problems or anomalies with anesthetic implications. Defects focused on five pivotal topics—cranial vault and base, craniovertebral development, face, branchial apparatus and larynx. Raanan Arens, M.D. (Children's Montefiore, Bronx, NY) spoke on Imaging the Obstructed Airway. The clinical presentation of obstructive sleep apnea (OSA) was illustrated to the audience by polysomnography; etiology of OSA has both anatomical support (small airways, increased lymphoid and soft tissue, facial skeleton defects) and functional support (children with OSA can have normal anatomy, children with OSA don't obstruct when awake, and children with abnormal anatomy don't have OSA). Imaging methods might include plain X ray, cephalometry, endoscopy, acoustic reflection pharyngometry, CT three dimensional upper airway tomography, and MRI. Robin Cotton M.D. (Cincinnati Children's, Cincinnati, OH) lectured on Reconstructing the Airway. He stated that anesthesiologists rely on pediatric otolaryngologists to perform flexible laryngoscopy in the office in the airway evaluation algorithm, but that AP (or PA) and lateral neck films along with a thorough history and physical exam must not be omitted. Complex airway surgery requires a good integrated team approach for a good outcome. He stressed that spontaneous ventilation is the ideal technique to assess the pediatric airway. Laryngotracheal reconstruction versus expansion techniques (anterior or posterior grafts) were also discussed—the main ideas emphasized by Dr. Cotton were good collaboration with the surgeon and clear communication especially when coming in and out of the airway, being prepared for anything and understanding the patient's pulmonary and cardiac issues.

The second morning session Genetics and the Pediatric Anesthesiologist moderated by Joseph R. Tobin, M.D., F.A.A.P., F.C.C.M. (Wake Forest, Winston-Salem, NC). Evan Kharasch, M.D. (Wash-

ington University, St. Louis, MS) discussed Pharmacogenetics in Pediatric Anesthesia: a Primer. Pharmacogenetics has its roots in anesthesia as Werner Kalow historically identified atypical plasma cholinesterase. The functional hierarchy of single nucleotide polymorphisms (SNP's) was emphasized starting from 100,000 genes in human genome at the bottom to only a few SNP's that occur that change clinical outcome at the top. Polymorphisms can affect enzymes for regulators, receptors or transporters. DNA polymorphisms have been identified encoding a number of cytochrome P450 enzymes, leading to variations in drug clearance. Future challenges include genetic heterogeneity, phenotypic complexity, underpowered studies, and informed consent.

The third morning session Syndromes, Associations & Sequences featured Jennifer O'Flaherty, M.D. who discussed "When Sux Sucks—Adverse reactions to succinylcholine in syndromic patients". She traced the different categories of adverse drug reactions with succinylcholine (SUX) since its clinical use started in 1951, including hyperkalemic cardiac arrest due to acetylcholine (Ach) receptor upregulation, hyperkalemia due to anesthetic induced rhabdomyolysis, and malignant hyperthermia (MH). Of importance, anesthetic induced rhabdomyolysis is thought a

greater risk in early muscular dystrophy where resuscitation can be complicated by concurrent cardiomyopathy and high mortality, and is not as successful as with hyperkalemic cardiac arrest due to receptor Ach upregulation. Victor C. Baum, M.D. (University of Virginia, Charlottesville, VA) discussed "When Nitrous is No Laughing Matter". Nitrous oxide can exert deleterious effects after brief exposures, with onset of effects delayed over weeks. Known inborn errors of metabolism can be implicated such as methionine synthase deficiency, homocystinuria and methylmalonic acidemia. Effects of nitrous oxide on the human fetus and infant is unclear—in immature animals nitrous oxide potentiates low dose isoflurane induced apoptotic neurodegeneration in the brain; in aging animals, neuropathic changes including vacuolization, mitochondrial swelling and neural cell death are related to methionine synthase effects. The morning session concluded with Phil G. Morgan, M.D. (University Hospitals, Cleveland, OH) discussing "When Propofol is Problematic". He reviewed the original presentation of propofol infusion syndrome (PIS) where use of high dose propofol (>4 mg/kg/hour) for > 48 hours resulted in the classic triad of bradycardia, lipidemia and rhabdomyolysis, then enforced this is not absolute—recent case reports have proven lower dose (2.5 mg/kg/hour) and/or shorter duration (less than 2 hours) resulted in PIS. He examined the physiology of PIS and highlighted there is no "one best anesthetic. His analysis—the key is not what we use but to modify our approach—suggestions were to consider dose adjustment of anesthetics perhaps by bispectral index monitoring, especially in those with complex I disease mitochondrial defects and using a dextrose containing intravenous fluid to decrease fatty acid metabolism when using propofol.

Continued on page 7

2007 PEDIATRIC ANESTHESIOLOGY

March 8 – 11, 2007 • Phoenix, AZ

Continued on page 7

March 9, 2007 – Friday Afternoon

Submitted by Cheryl K. Gooden, MD, FAAP
Mount Sinai Medical Center, New York, NY

The Friday afternoon session, moderated by Randall Flick, MD (Mayo Clinic, Rochester, MN) was devoted to issues of medical cases and media coverage. During the first segment of this session, William McIlvaine, MD (Childrens Hospital Los Angeles) discussed the provider perspective as part of an anesthesia team managing the separation of conjoined twins with media presence in the operating room. He highlighted the considerations as well as the impact of the media on the patient, family members, and operating room staff. In addition, Dr. McIlvaine described the complexities of anesthetic management involved with conjoined twins.

Jennifer Gentile (NBC Today Show/Network Producer) described from a media perspective the essentials for the making of a good news story. She noted several elements that may comprise a news story and these include unusual or rare topics, the news of the day, popular or famous people, common problems, trends, and tear jerkers. She concluded with five recommendations for interacting with the media and these are as follows: 1) be upfront on element, 2) deliver what you promise, 3) befriend the media, 4) don't ignore us and 5) negotiate.

Rounding out the panel on medicine and the media was Lee Aase (Manager, Media Relations, Mayo Clinic) who discussed the topic "Meeting News Media Needs without Compromising Care." He focused on the early setting of ground rules with regards to media coverage, the need for extensive planning by the medical teams, elements for success, and the various venues available for dissemination of the news story. He concluded by mentioning his website, www.leeaase.wordpress.com, as a resource for obtaining further information on this topic.

Next it was time for Jeopardy! Myron Yaster, MD (Johns Hopkins Medical Center) moderated this educational and at the same time entertaining session. Co-moderators included Frederic Berry, MD (University of Virginia Health System),

Aubry Maze, MD (Phoenix Children's Hospital), and David Polaner, MD (The Children's Hospital, Denver). The Jeopardy questions generated much audience participation and interesting discussions.

Refresher courses and workshops followed with a variety of topics presented. During the one to two hour, small forum sessions participants had the opportunity to learn more about subjects unrelated to medicine as well as about some of the latest modalities in anesthesia management, ask questions of those with expertise in the topic, and for some of these, gain hands-on experience.

Saturday, March 10

Submitted by Samuel Golden, MD, FAAP
Comer Children's Hospital, University of Chicago

Saturday morning began with breakfast PBLD sessions. There were 16 different PBLDs to choose from and all were well-attended.

Following the PBLDs, the research abstract awards were given. The resident abstracts were presented first. First place was awarded to Roland Brusseau, MD and colleagues from Children's Hospital,

Boston. Dr. Brusseau's presentation was titled "Fetal and maternal plasma concentrations after intra-amniotic fentanyl administration in instrumented pregnant sheep". The resident abstract 2nd place award went to SJ Gleich et al from the Mayo Clinic, Rochester, for their abstract entitled "Incidence of perioperative cardiac arrest in pediatric patients undergoing cardiac surgery". The 3rd place resident award was entitled "Identification of a high risk subset of POCA registrants: Potential impact on practice recommendations for successful resuscitation" by D Singh et al from Johns Hopkins University.

Next, the SPA Young Investigator Awards were given for the two best abstracts written by investigators in their first year of practice. First place was awarded to S. Sadhasivam, MD et al from Cincinnati Children's entitled "Real time assessment of perioperative child and adult behaviors and behavioral interactions". The 2nd place young investigator award went to MD Twite, et al from The Children's Hospital, Denver for their presentation entitled "Exhaled nitric oxide levels are decreased in children with cyanotic congenital heart disease and correlate with the inflammatory response to cardiopulmonary bypass".

The AAP advocacy lecture was then given by Joan Y. Reede, MD, the Dean of Diversity and Community Partnership at Harvard University School of Medicine. Dr. Reede currently trains physicians to advise legislators on health care policy decisions. Her talk centered around poverty and its effect on the distribution of health care resources to disadvantaged children. Approximately 47 million Americans are currently uninsured. The poverty rate is increasing, especially in minorities, with ill-effects on access to care, quality of care, education, etc. Dr. Reede stressed three principles: Equity, Professionalism, and Principles. The principles discussed were primacy of patient welfare, patient autonomy, and social justice (the distribution of services in a non-discriminatory fashion). Her talk was thought-provoking and well received.

The Smith Award for outstanding lifetime service in pediatric anesthesia was presented by Lynda Means, MD. The award went to Josephine "Pina" Templeton, MD at Children's Hospital, Philadelphia, who joined the CHOP faculty in 1978 and retired in 1999.

Sunday, March 11

Submitted by Sean Flack, MD
Seattle Children's Hospital

The final session was well attended, with over 100 delegates present for the Sonosite lecture delivered by Professor Peter Marhofer from Vienna, Austria. The lecture, entitled "A New Horizon in Paediatric Anaesthesia-Ultrasound", proved to be both entertaining and informative.

Professor Marhofer began by describing the traditional nerve block techniques in children in terms of "pops and plops". Traditional reliance on anatomic landmarks for successful nerve blocks is often difficult in infants and small children. As a result, failure rates ("flops") and complications remain unacceptably high for many common blocks. Recent studies have shown that block quality improves and the incidence of complications is reduced with the use of ultrasound. Accurate needle position can be achieved

BOOK CORNER

By **Helen V. Lauro, MD, F.A.A.P.**
SUNY-Downstate Medical Center/
Long Island College Hospital

Critical Heart Disease in Infants and Children

David G. Nichols, MD, Ross M. Ungerleider, M.D., et al. 1040 pages, \$219.00, ISBN 0323012817, New York, NY, Mosby Elsevier, 2006.

This is the second edition of this recently published hardcover textbook whose purpose is to offer a comprehensive understanding of pediatric critical heart disease based on scientific principles and best evidence combined with practical management plans.

The text is divided into five parts encompassing 48 chapters: Basic Principles, Special Problems, Equipment and Techniques, Congenital Heart Defects, and Medical Conditions. The book features a multidisciplinary approach, and is contributed to by 86

internationally recognized pediatric subspecialists (intensivists, cardiac anesthesiologists, cardiac surgeons, and cardiologists), pediatricians, and nurse practitioners.

The first chapter lays the groundwork with a focus on segmental approach to congenital heart disease, reinforced through illustrative cases. The chapter on Syndromes and Congenital Heart Defects is excellent and emphasizes clinical aspects of syndromes confronted by the pediatric cardiac intensive care team (ex. Down, Noonan, Visceral Heterotaxy) and summarizes new findings in 22q11.2 deletion syndromes. Features new to this edition are chapters on cardiac trauma, congenital heart disease in the adult, congenitally corrected transposition of the great arteries and outcome evaluation. Figures are black and white, but are clear and well illustrated. Tables are nicely shadow-boxed from textual material.

Overall, this is a valuable textbook for all pediatric subspecialists who provide care for children with critical heart disease.

Continued from page 7

and the distribution of local anesthetic confirmed under ultrasound guidance. Furthermore, the volume of local anesthetic can be reduced as well as the time to perform peripheral nerve blocks.

Professor Marhofer concluded by stating that many of these proposed advantages require further validation in clinical trials. The use of ultrasound guidance for peripheral nerve blocks in children is growing in popularity as evidenced by the audience poll which showed a majority of respondents use ultrasound, alone or in combination with nerve stimulation, in their clinical practice. The future will show whether this promising technique finds its way into common daily practice. Further efforts including clinical trials, education and skills acquisition are needed.

Dr. Jerry Lerman then moderated a stimulating session entitled "New Drugs, Old Applications/Old Drugs, New Applications". Sugammadex, a modified cyclodextrin, is currently undergoing Phase III trials and is not yet approved for use. Dr Wayne Nicholson updated the audience regarding this novel and exciting agent for reversal of neuromuscular blockade. It is particularly effective in reversing the action of rocuronium but will also reverse blockade from vecuronium and, to a lesser extent, pancuronium. It has no effect on the benzylisoquinolines or depolarizing muscle relaxants.

Numerous small studies were presented, all of which show the considerable promise of Sugammadex. Even in the presence of profound neuromuscular blockade, rapid and complete reversal can be achieved. The steroidal rocuronium molecule is irreversibly encapsulated by the lipophilic core of the Sugammadex molecule rendering it unavailable for binding with the neuromuscular

junction. No significant side-effects or drug interactions have been identified. Phase IV trials results are eagerly anticipated.

Dr. R. Blaine Easley presented a comprehensive update regarding the potential applications of dexmedetomidine, a highly selective alpha-2 adrenergic agonist. It is currently approved by the FDA for the sedation of intubated and ventilated adults in the ICU, but not children. Numerous publications regarding its use in children were presented. Potential applications of this drug in pediatric anesthesia include: awake craniotomies, fibre-optic intubations, non-painful procedures (e.g. MRI), diagnostic procedures (e.g. bronchoscopy, colonoscopy) and mechanical ventilation. It may also prove effective in the reduction or treatment of emergence delirium and post-operative shivering. Further studies regarding metabolites, the effects of prolonged use, and drug pharmacology in infants as well as children with renal and/or hepatic impairment are required.

The meeting's concluding session, entitled "Ten Best Articles", was moderated by Dr. Peter Davis. Dr. Davis concluded with his moderator's pick: A published study by Flick RP, et al "Perioperative cardiac arrests in children between 1988 and 2005 at a tertiary referral center: a study of 92,881 patients. *Anesthesiology* 2007 Feb;106(2):226-37" as well as a second study on the same subject from The Children's Hospital, Boston which is in press.

Appropriately, *Pediatric Anesthesiology* 2007 closed with a lively discussion regarding these 2 studies and the definition of "anesthesia-related" cardiac arrest. Dr. Davis encouraged the audience to collaborate through the use of multi-center databases to help address some of the questions raised.

FELLOWSHIP FACTS

There are 44 accredited programs.
There are 150 fellowship positions.
Nine programs have no fellows at this time.

There are presently a total of 126 fellows.

*As presented at Pediatric Anesthesia Program Director's Meeting,
SPA 3/2007*

Inappropriate Perioperative Fluid Management In Children: Time For A Solution?!

Pre-Arne Lönnqvist.

Pediatric Anesthesia 2007; 17:203-205

Reviewed by: Hoshang J. Khambatta, M.D.

Columbia Presbyterian Medical Center, New York, NY

Once again we have another excellent editorial on the subject of perioperative fluid management in the pediatric patient. The first issue of interest in this context is whether there truly is a need for the administration of glucose in smaller children. The editorial points out that it has now been demonstrated that even small children are capable of mounting a stress response to surgery. Hence, it is possible to manage even very small children using glucose free solutions without the risk of hypoglycemia. However, certain risk categories do exist that still may develop intra or postoperative hypoglycemia if glucose is not given. Thus, many pediatric anesthesiologists still believe that glucose containing fluids should be used not only to safeguard against such potentially dangerous situations but in all cases. Although, even if a slightly elevated blood glucose level most likely does not cause any harm to the patient, it has been shown that more pronounced degrees of hyperglycemia may cause problems. For example osmotic diuresis, increased rate of wound infection, and less favorable outcomes in situations where the patient may be at risk for periods of cerebral ischaemia as in cardiac bypass surgery and neurosurgical interventions.

The next point that needs to be taken into account is the issue of isotonicity and sodium administration. It is generally regarded that administration of isotonic fluids is preferred in most instances. For most commonly used glucose solutions, isotonic means only 70 mmol/l of sodium. Furthermore, the author points out that this glucose containing fluid remains isotonic only when contained in

the i.v. container. As soon as the fluid is infused the glucose component is transported intracellularly and metabolized thus causing the infusion to become effectively hypotonic. This result could then lead to hyponatremia and edema formation, which may then be further complicated as the surgical stress response will cause increased secretion of antidiuretic hormone and increased reabsorption of water. This scenario requires that post operative fluids be restricted to approximately 33 – 50% of normal requirements or otherwise risk the disastrous consequences of overhydration and hyponatremia. In a study examining more than 25,000 pediatric anesthetics over the past 20 years it was noted that 0.34% (76 children) had postoperative hyponatremia with a mortality of 6 (a rate of 8.4% of those so affected).. Hence there were 6 deaths during 25,000 pediatric anesthetics. Of the 76 instances of hyponatremia noted, 16 occurred as late as the years 2002-2003.

Comments: Professor Lönnqvist has pointed out that even after government alerts and other publications on the subject, the situation has not improved. It has been suggested that there should be guidelines issued on the proper use of i.v. fluids. However, this precaution has not yet been implemented, even though there are guidelines on other issues where the mortality rates are lower. There appears to be a dichotomy between published work and clinical practice. He has suggested that perhaps pharmaceutical manufacturers could be persuaded to produce a solution with low glucose, say less than 1% and sodium close to normal physiological level. A major hospital in Paris has already prepared such a solution, but a majority of the hospitals do not have the resources to do such a formulation. If a standard pediatric solution were available off the shelf, then it may be possible that all such iatrogenic fatalities could be avoided. Perhaps the elders of our Society can be persuaded to take the lead in persuading the pharmaceutical companies to manufacture an intra venous fluid for use in the pediatric population.

Article Highlights of *Pediatric Anesthesia* in 2006

By Robert H. Friesen, MD

Children's Hospital, Denver

Pediatric Anesthesia is the only journal solely dedicated to the medical disciplines in all areas relevant to anesthesia and intensive care of newborns, infants, and children. This young international journal continues to mature, and many articles in 2006—too many to discuss in this space—were important contributions to the literature in our field. A few highlights are included here:

Review Articles

“Measuring anesthesia in children using the EEG.” AJ Davidson. *Pediatr Anesth* 2006;16:374-387.

The author explains the physiology of the EEG as it relates to depth of anesthesia and reviews the strengths and limitations of EEG-based monitors of anesthetic depth in children. This is an important article for clinicians and researchers who use such monitors.

“Ultrasonic guidance in pediatric regional anesthesia. Part 1: theoretical background.” P Marhofer, N Frickey. *Pediatr Anesth* 2006;16:1008-1018 and “Ultrasonic guidance in pediatric regional anesthesia. Part 2: techniques.” S Roberts. *Pediatr Anesth* 2006;16:1112-1124.

This outstanding pair of articles provides the reader with the state of the art of ultrasonic guided regional anesthesia by reviewing the science, tools, and clinical applications of this emerging field.

Original Articles

“The revised FLACC observational pain tool: improved reliability and validity for pain assessment in children with cognitive impairment.” Malviya S, Voepel-Lewis T, Burke C, Merkel S, Tait AR. *Pediatr Anesth* 2006;16:258-265.

Continued on **page 10**

The authors revised the FLACC observational pain tool by adding descriptors that were consistently associated with pain in children with cognitive impairment and applied it postoperatively to 52 children. The revised tool was rigorously tested in this well designed study and was shown to be reliable and valid, thus providing clinicians with an improved method of pain assessment in this population.

“Human factors in pediatric anesthesia incidents.” R Marcus. *Pediatr Anesth* 16;242-250.

Noting that delivery of anesthesia involves a complex system of man-machine and human-human interactions, the author classified the human factors contributing to perianesthetic adverse events by reviewing a contemporaneously reported database of 28,023 anesthetics in a large children’s hospital. Human factors contributed to nearly half of the incidents reported. These factors are classified and their cognitive mechanisms discussed in this erudite and interesting article.

“A prospective randomized blinded study of the effect of intravenous fluid therapy on postoperative nausea and vomiting in chil-

dren undergoing strabismus surgery.” M Goodarzi, MM Matar, M Shafa, JE Townsend, I Gonzalez. *Pediatr Anesth* 2006;16:49-53.

This straight-forward, clinically relevant study demonstrated that aggressive intraoperative hydration with 30 mL/kg of iv crystalloid solution was associated with a significant reduction in the incidence of PONV.

Editorial

“Muscular dystrophy, anesthesia and the safety of inhalational agents revisited; again.” TA Yemen, C McClain. *Pediatr Anesth* 2006;16:105-108.

This thought provoking editorial reviews the case reports of rhabdomyolysis and hyperkalemic cardiac arrest associated with inhalational anesthesia in children with muscular dystrophy. The authors speculate on the possible mechanism and argue that volatile anesthetic agents should not be administered to children with Duchenne’s muscular dystrophy.



Thanks to Supporters

We would like to thank the following supporters of the:
SPA 2007 Winter Meeting, Phoenix, AZ, March 8-11, 2007
& SPA 2007 Annual Meeting, San Francisco, CA, October 12, 2007

PLATINUM

Abbott Laboratories

SPA Newsletter • SPA Website • CD-ROM Syllabus

SILVER

Anesiva, Inc.

Baxter Healthcare Corporation

Endo Pharmaceuticals

Smiths Medical, MD

SonoSite, Inc.

BRONZE

Arizant Healthcare, Inc.

Aspect Medical

Cook Critical Care, Inc.

Draeger Medical, Inc.

GlaxoSmithKline

Hospital Corporation of America, Inc.

Kaiser Permanente of Southern California

Karl Storz Endoscopy America, Inc.

King Systems Corporation

LMA North America

Mayo Clinic

MEDRAD, Inc.

Oridion Medical, LTD

Phoenix Children’s Hospital

Reinhardt Medical

TIVA Healthcare, Inc.

VasoCom

Wolfe Tory Medical, Inc.

SUPPORTERS

American Academy of Pediatrics

Lippincott, Williams & Wilkins

Saunders/Mosby Elsevier

CCAS SUPPORTER: Somanetics Corporation

June 24-28: Geneva, Switzerland

5th World Congress on Pediatric Intensive Care
Tel: +41 22 8398484, Fax: +41 22 839 8485
Information: Symporg SA, Congress Organizers, Avenue Krieg 7,
CH-1208 Geneva, Switzerland

June 28-July 1: Amelia Island, Florida, USA

Sixth International Pediatric Cardiovascular Symposium: Novel
Medical Interventions and Their Role in Children with Heart
Disease
Tel: (404) 785-7840, Fax: (404) 785-7673
Information: Terry Cameron, Program Specialist, Children's
Healthcare of Atlanta Continuing Education,
1600 Tullie Circle, Atlanta, GA 30329

September 8-9: Seattle, Washington, USA

Regional Anesthesia in Children
Tel: (206) 987-5379, Fax: (206) 987-5798
Information: Kathie Kohorn, CME Coordinator, Children's
Hospital & Regional Medical Center, M/S S-219, P.O. Box 50020,
Seattle, WA 98145-5020

September 15-16: Boston, Massachusetts, USA

Pediatric Sedation Outside of the Operating Room
Tel: (617) 384-8600, Fax: (617) 384-8686
Information: Harvard Medical School, Department of Continuing
Education, P.O. Box 825, Boston, MA 02117-0825

September 27-29: Amsterdam, the Netherlands

FEAPA European Conference on Paediatric Anaesthesia 2007
Tel: +31 30 250 91 11, Fax: +31 30 254 18 28
Information: Dr. Ton Schouten, Wilhelmina Children Hospital
Room number KG 02.3070, Postbox 65090 3508 AB, Utrecht,
the Netherlands

October 6-8: Prague, Czech Republic

48th Annual Meeting of the European Society for Paediatric
Research
Tel: +41 22 908 0488, Fax: +41 22 732 2852
Information: Kenes International, The Secretariat, 17 Rue du
Cendrier, PO Box 1726, CH-1211 Geneva 1, Switzerland

October 12: San Francisco, California, USA

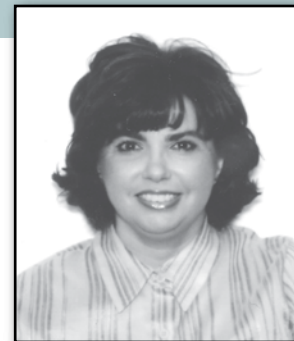
Joint Society for Pediatric Anaesthesia/Association of Paediatric
Anesthetists 21st Annual Meeting
Tel: (804) 282-9780, Fax (804) 282-0900
Information: Society for Pediatric Anesthesia, 2209 Dickens Rd.,
Richmond, VA 23230-2005

November 2-4: Fremantle, Perth, Western Australia

Society for Paediatric Anaesthesia
in New Zealand and Australia
(SPANZA) Ninth Annual Scientific
Meeting
Information: Dr. Craig Sims, De-
partment of Anaesthesia, Princess
Margaret Hospital for Children,
PO Box D184, Perth, WA-6840

November 9-11: Toronto, On- tario, Canada

Pediatric Anesthesia Conference
Tel: (416) 813-7445,
Fax: (416) 813-7543
Information: Dr. Lawrence Roy, The Hospital for Sick Children,
University of Toronto, Toronto, Canada



Helen V. Lauro, MD, FAAP
Long Island College Hospital,
Brooklyn, NY

2008

February 20-23: Whistler, British Columbia, Canada

17th Annual Pediatric Critical Care Colloquium/5th Annual Ca-
nadian Critical Care Conference
Tel: (604) 834-9362, Fax: (604) 875-5957
Information: Ms. Zena Davidson, Rm. 2448 Vancouver General
Hospital ICU, 899 West 12th Avenue, Vancouver, British Colum-
bia, V5Z1M9

April 3-6: San Diego, California, USA

Society for Pediatric Anesthesia (SPA)/American Association of
Pediatrics (AAP) 2008 Winter Meeting
Tel: (804) 282-9780, Fax (804) 282-0900
Information: Society for Pediatric Anesthesia, 2209 Dickens Rd.,
Richmond, VA 23230-2005

November 6-9: Hunter Valley Gardens, Hunter Valley, New South Wales, Australia

Society for Paediatric Anaesthesia in New Zealand and Australia
(SPANZA) Tenth Annual Scientific Meeting
Tel: +61 2 4073 6573, Fax: +61 2 4973 6609
Information: Conference Secretariat, P.O. Box 180, Morisset,
New South Wales, Australia 2264

Footnote:

Please forward all information concerning congresses relevant to Pediatric Anesthesia to: Dr. Helen V. Lauro, M.D., F.A.A.P.,
Department of Anesthesiology, Long Island College Hospital, 339 Hicks Street, Brooklyn, New York 11201.

A Very Personal History of the Society for Pediatric Anesthesia

By **Myron Yaster, MD**

*Richard J. Traystman Professor of Anesthesiology
and Critical Care Medicine
The Johns Hopkins University*

My early career and the creation of the Society for Pediatric Anesthesia (SPA) are intertwined. After having completed residencies in Pediatrics (Pittsburgh) and Anesthesiology (U Penn) and a Fellowship in Pediatric Anesthesia and Intensive Care (CHOP Philadelphia), I joined the Department of Anesthesiology and Critical Care Medicine at the Johns Hopkins Hospital as a pediatric anesthesiologist and intensivist.

As a young faculty member I joined several professional societies (American Society of Anesthesiologists, Society for Critical Care Medicine) and tried to join the American Academy of Pediatrics (AAP) Anesthesia Section, which at the time was the only professional society specifically for pediatric anesthesiologists. Much to my chagrin, I was rejected because the bylaws of the AAP Anesthesia Section required that its members have practices limited to pediatric anesthesia (> 90%). Because Johns Hopkins is a large



Myron Yaster, MD

multi-disciplinary general hospital, I also provided anesthesia to adult patients and therefore did not meet the AAP membership requirements.

To say the least I was incensed and went to my Department Chair, Dr. Mark Rogers, and talked of the need for a more inclusive Society, a Society of anesthesiologists who practice and have a strong interest in pediatric anesthesia but who did not have to have a practice limited only to pediatric anesthesia. The purpose of the Society as I envisioned it was to foster quality anesthesia and peri-operative care, and to alleviate pain in children. The goals of the Society would be

1. advancing the study of pediatric anesthesia and contributing to its growth and influence;
2. encouraging research and scientific progress in pediatric anesthesia;
3. serving as a forum for discussion of issues (scientific and political) of importance to pediatric anesthesia; and
4. forming a fellowship of friends.

Please see the rest of Dr. Yaster's personal history of SPA at
www.pedsanesthesia.org



Non-Profit Org. U.S. Postage PAID Permit No. 956 Richmond, VA
