SPA

Society for Pediatric Anesthesia
NEWSLETTER

Volume 8 Number 1 Winter-Spring, 1995

PRESIDENT'S MESSAGE

By William J. Greeley, M.D.

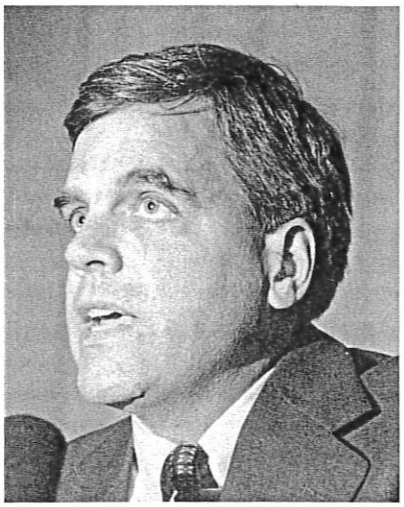
At the time of writing this message, another very successful Society for Pediatric Anesthesia (SPA) Annual Meeting has been completed, the dog days of winter lie ahead, and some of our members are putting final preparations to the first joint meeting of SPA with the American Academy of Pediatrics (AAP) this February in Phoenix, Arizona.

As our Society continues to grow and organize, the important contributions of the various committees of SPA have become evident. The Committees on Education, Membership, Finance, Research, Publications and Nominations have worked closely with your Board of Directors over the past year to continue to develop and support the various endeavors of our Society. Allow me to review a few examples of the work of these various committees.

One of the long-range strategic goals of our Society was to develop a freestanding meeting in order to further meet the educational and research missions of SPA. Last year, the Committee on Education was charged with developing such a meeting in association with the AAP Section on Anesthesiology. The fruits of the committee's effort will be evidenced at the first SPA-AAP Winter Meeting to be held in Phoenix on February 17-19, 1995.

Pediatric Anesthesiology-1995 will bring to the forefront some of the critical issues now facing anesthesiologists who care for children: sedation outside the operating room; what constitutes pediatric anesthesiology training and practice; issues in health care reform such as dealing with capitation; the changing trends in pediatric anesthesia practice; and the complexity of tertiary pediatric anesthesia care, i.e., transplantation.

The program will reflect four important changes from our usual Annual Meeting format. There will be oral and poster abstract sessions, as well as an academic development session, which will allow for the presentation of new clinical and basic science information in pediatric anesthesiology and critical care.



William J. Greeley, M.D.

(Continued on page 7)

SPA EIGHTH ANNUAL MEETING REPORT

By Francis X. McGowan, Jr., M.D., Brian J. Gronert, M.D. and Peter J. Davis, M.D.

More than 500 people attended the SPA Eighth Annual Meeting on October 14, 1994 in San Francisco, California. The morning session focused on brain development, intraoperative monitoring of brain function and mechanisms of brain injury and protection.

The afternoon session featured "point-counterpoint" discussions on the anesthetic management of foreign body aspiration, the relative benefits of regional anesthesia in pediatric patients, presentations on pediatric anesthesia practice and health care delivery in Europe and developing countries, and concluded with a synopsis of health care reform prospects in the United States.

Michael V. Johnston, M.D., Departments of Neurology and Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland, highlighted some of the newer information regarding the developing brain. Much of the exponential brain growth that occurs during the first year of life is due to myelinization and increasing axodendritic neuronal connections. Interestingly, about half of the synapses and many of the neurons present during early development appear to be redundant and eventually disappear.

This process of selective neuronal reduction is under multiple influences, including neurotransmitters and neuronal activity induced by external stimuli. For example, the excitatory neurotransmitter glutamate may be an especially important mediator of neuronal migration and the

(Continued on page 2)

SPA Contents

The Society for Pediatric Anesthesia (SPA) publishes the SPA Newsletter twice a year: the Winter-Spring issue and the Summer-Fall issue. The information presented in the SPA Newsletter has been obtained by the Editors. Validity of opinions presented, drug dosages, accuracy and completeness of content are not guaranteed by SPA.

Editor:
Peter J. Davis, M.D., Department of Anesthesiology, Children's Hospital of Pittsburgh, 3705 Fifth Avenue at DeSoto Street, Pittsburgh, PA 15213-2583.

Associate Editor:
Francis X. McGowan, Jr., M.D., Department of Anesthesiology, Children's Hospital of Pittsburgh, 3705 Fifth Avenue at DeSoto Street, Pittsburgh, PA 15213-2583

Assistant Editors:
David E. Cohen, M.D., Department of Anesthesia, Children's Hospital of Philadelphia, 34th Street and Civic Center Boulevard, Philadelphia, PA 19104

Anne E. Dickison, M.D., Department of Anesthesiology, Dartmouth-Hitchcock Medical Center, One Medical Center Drive, Lebanon, NH 03756

Lawrence H. Feld, M.D., 913 Ventura Way, Mill Valley, CA 94941

Brian J. Gronert, M.D., Department of Anesthesiology, Children's Hospital of Pittsburgh, 3705 Fifth Avenue at DeSoto Street, Pittsburgh, PA 15213-2583

Howard B. Gutstein, M.D., Section of Pediatric Anesthesia, Mott Children's Hospital, 1500 East Medical Center Drive, Ann Arbor, MI 48109

Zeev N. Kain, M.D., Department of Anesthesiology, Yale University School of Medicine, 333 Cedar Street, P.O. Box 3333, New Haven, CT 06510

Alan S. Klein, M.D., Pediatric Anesthesia Consultants, 818 East 19th Avenue, Denver, CO 80218

Stephen Rimar, M.D., Department of Anesthesiology, Yale University School of Medicine, 333 Cedar Street, P.O. Box 3333, New Haven, CT 06510

Scott R. Schulman, M.D., Department of Anesthesia, Duke University Medical Center, Durham, NC 27709

Mehernoor F. Watcha, M.D., Department of Anesthesia, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235-9068

SPA EIGHTH ANNUAL

(Continued from page 1)

normal developmental process of synapse reduction; synapse reduction may facilitate effective signal processing (reducing "neuronal noise") and, therefore, be an important aspect of brain development.

Excitatory (glutamate) and inhibitory (γ-amino butyric acid, GABA) amino acids are also the most abundant brain neurotransmitters. They carry ~75 percent of brain transmissions and are critical to pathways involved in memory, vision, movement and the respiratory control center. Interestingly, transgenic mice who have had the NMDA receptor deleted by gene "knock-out" die from respiratory failure.

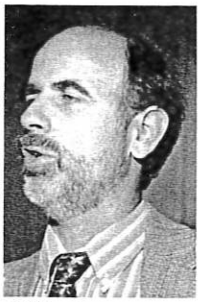
The immature brain has more excitatory neurotransmitter receptors and activity and is more sensitive to excitotoxicity than the adult brain. This may predispose the infant to seizures and also to hypoxic-ischemic injury. Dr. Johnston also noted that since glutamate/NMDA receptors regulate normal neuronal regression, excitatory amino acid toxicity may also be a mechanism of selective neuronal degeneration that occurs after deep hypothermic circulatory arrest.

The second speaker of the morning was **Philip G. Morgan, M.D.**, Case Western Reserve University, Cleveland, Ohio, who discussed developmental features affecting anesthetic action. Benzodiazepines and barbiturates increase the inhibitory effects of GABA at the GABA receptor. Age-related differences in GABA receptor subtype, activity and ligand affinity have been identified.

Unlike the adult, the GABA receptor may play a role in control of ventilation in the newborn as well as having neurotropic and occasionally excitatory effects upon the developing brain. While the results are somewhat conflicting, they mainly predict greater efficacy of benzodiazepines and barbiturates in older animals.

Chronic benzodiazepine exposure may adversely affect central nervous system plasticity and development. Chronic exposure to ketamine, which interacts with the NMDA receptor, may also affect the development and function of neuronal pathways (e.g., the prolonged exposure of immature but not adult brains to other NMDA agonists can result in massive brain degeneration).

Michael V. Johnston, M.D.



Philip G. Morgan, M.D.

In addition to well-established, age-related differences in opioid clearance and metabolism, opioid receptor subtypes are also differentially expressed in immature animals. In general, mu receptors may be relatively fewer in number in the neonate, and increasing age is accompanied by an increase in mu, kappa and delta receptors. Opiate receptors may contribute to different aspects of learning; for example, increased kappa receptor stimulation can reduce long-term potentiation. Both endogenous and exogenous opioids may serve as inhibitory developmental factors.

Dr. Morgan stated that much of this work is preliminary, and he emphasized that stated effects upon learning and development have been related to long-term exposures.

Jayant K. Deshpande, M.D., Departments of Anesthesiology and Pediatrics, Vanderbilt University School of Medicine, Nashville, Tennessee, summarized mechanisms of brain injury and protection after global ischemia. Dr. Deshpande noted that the neurotoxic events during and after global cerebral ischemia were multiple; they included depletion of high-energy phosphates, the presence of high concentrations of excitotoxic neurotrans mitters (which increase cytosolic calcium and may also activate neuronal nitric ox-

ide synthase) active at the glutamate receptor subtypes (AMPA, NMDA, kainate, quisqualate, of which AMPA may be most important), membrane lipid breakdown and lipid peroxidation, and free radical generation.

In addition to direct injury, these phenomena may result in loss of normal ionic homeostasis and promote intracellular sodium and calcium accumulation. Calcium may exacerbate mitochondrial damage, accelerate ATP depletion, enhance phospholipase activity and alter normal phosphorylation-dephosphorylation cycles that regulate intracellular enzyme activity. The net result is energetic depletion and impairment of cell enzymes, altered gene expression and ion channel dysfunction resulting in cell death.

Current treatments ***following*** an ischemic episode are directed mainly at restoring adequate substrate delivery by ensuring adequate oxygenation, perfusion and glucose. The use of hypothermia ***after*** an ischemic insult is controversial; deep hypothermia in the intensive care unit setting can be complicated by dysrythmias and lung infections.

The benefits of mild hypothermia (33-35°C) to attenuate brain injury ***after*** ischemia are under study but are probably modest; potential beneficial mechanisms may include reduced excitatory neurotransmitter release and diminished calcium-mediated injury.

Some success has been obtained in experimental systems using: 1) NMDA (may be better for focal ischemia) or AMPA (better for global ischemia) receptor blockade; 2) free radical scavengers; 3) calcium channel blockade; 4) inhibition of regulatory enzymes such as those in the phospholipase C-protein kinase C pathway that phosphorylate/regulate intracellular proteins and mobilize intracellular calcium stores; and 5) reducing neutrophil-mediated injury and microcirculatory damage by neutrophil depletion or antibodies to white cell adhesion molecules.

Cerebral monitoring and protection for ischemia occurring during low-flow cardiopulmonary bypass (CPB) and deep hypothermic circulatory arrest were the focus of a presentation by **Frank H. Kern, M.D.**, Duke University School of Medicine, Durham, North Carolina. Low-flow hypothermic CPB and circulatory arrest have facilitated complex cardiac repairs in neonates; however, the improvement in surgical outcome has been accompanied by an increase in apparent neurological and neuropsychological complications (perhaps as many as 25 percent of all infants having hypothermic bypass).

With regards to monitoring techniques, Dr. Kern emphasized that brain cooling is probably heterogeneous and that nasopharyngeal or tympanic membrane temperatures may not accurately reflect residual temperature gradients (and hence warmer regions) within the brain. Inadequate brain cooling promotes inadequate cerebral metabolic suppression and may be associated with poor neurologic outcome. Very rapid (<20-25 minutes) cooling regimens may contribute to worsened neurological outcome, probably due to uneven brain cooling. Prolonged cooling times may be necessary in chronically cyanotic children, at least in part due to the presence of systemic-pulmonary artery collaterals in the head and neck that "steal" perfusion from the cranium and thereby impede brain cooling.

Measurement of jugular venous oxygen saturation is one method to follow the metabolic activity of the brain and the adequacy of cerebral cooling; high oxygen extraction indicates ineffective metabolic suppression and, based upon preliminary data, may be associated with postoperative neurological dysfunction.

One indication that brain injury occurs from circulatory arrest is that reduced brain oxygen consumption persists after circulatory arrest, and the magnitude of this reduction is proportional to arrest duration. Some evidence indicates that even brief (1 minute) restoration of flow during circulatory arrest promotes brain metabolic recovery.

Jayant K. Deshpande, M.D.

Frank H. Kern, M.D.

Cerebral metabolic data can also be used to predict cerebral oxygen consumption at different temperatures and thereby derive limits of *low-flow bypass* that are likely to be well-tolerated (assuming complete brain cooling prior to instituting low-flow CPB). For example, $CMRO_2$ at 18°C is 11 percent that of normothermia. Assuming that a pump flow rate of 100 ml/min/kg is acceptable in neonates during normothermic bypass, then approximately 11 ml/min/kg should be adequate at 18°C.

Dr. Kern also noted that the oxygenation status of cytochrome aa_3 in the mitochondrial electron transport chain can be monitored noninvasively using near-infrared spectroscopy, and that this technology may also soon aid in assessing cerebral oxygenation during low-flow CPB and deep hypothermic circulatory arrest.

The post-bypass period is a time that has received inadequate attention, according to Dr. Kern. Use of modified ultrafiltration during the first 15 minutes after cessation of bypass can increase hematocrit (and thereby oxygen carrying capacity). It may also decrease cerebral edema and remove several inflammatory mediators, effects that may contribute to improved cerebral oxygen delivery and metabolism.

Finally, Dr. Kern stressed that the effects of intensive care unit management strategies needed to be assessed. For ex-

(Continued on page 4)

SPA EIGHTH ANNUAL MEETING REPORT

(Continued from page 3)

ample, hyperventilation is frequently used to control pulmonary vascular resistance; however, it is unknown whether this also causes a significant important decrease in cerebral perfusion at a critical juncture during brain recovery.

In the last session of the morning, **Henry L. Bennett, Ph.D.**, a psychologist in the Department of Anesthesia at the University of California-Davis, Sacramento, California, addressed a clinical concern among practicing anesthesiologists; namely, are our patients asleep? The concern of patient awareness during anesthesia and the psychological impact that awareness may have on patients were the main features of Dr. Bennett's presentation.

Noting that there are no reliable indicators to ascertain whether patients are aware during anesthesia, Dr. Bennett examined the role of the facial EMG as a monitor of intraoperative awareness. Because the facial muscles are innervated by brainstem nuclei of the pons, display autonomic properties and are relatively resistant to neuromuscular blocking agents, Dr. Bennett presented data to suggest that facial muscle activity may be a useful tool to evaluate intraoperative awareness.

In addition to his discussion on the relationship of facial EMG and awareness, Dr. Bennett also discussed the psychological impact and the development of post-traumatic stress disorders that frequently occur in patients who experience intraoperative awareness.

The first part of the afternoon session was devoted to controversies in pediatric anesthesia. The first controversy examined the anesthetic management of the pediatric patient with a foreign body.

Peter T. Rothstein, M.D., Columbia University, New York, New York, and **Frederic A. Berry, M.D.**, University of Virginia, Charlottesville, Virginia, addressed the two main concerns that anesthesiologists face in anesthetizing the child with a foreign body. The first issue centered on whether a patient should be induced with a rapid sequence intubation or by a slow inhalational induction. The second concern that Drs. Berry and Rothstein discussed was whether spontaneous or controlled ventilation is better.

Henry L. Bennett, Ph.D.

Peter T. Rothstein, M.D.

Frederic A. Berry, M.D.

Ann G. Bailey, M.D.

In reality, there was little disagreement in the management of these patients, and both discussants stressed using a common sense approach to their management. Because there are too many variables in the clinical presentation of these patients, there is no absolute right or wrong. Consequently, the anesthesiologist should use the approach that he or she does best.

The second topic of controversy was "Pediatric Regional Anesthesia for Postoperative Pain Management—What's the Big Deal?" The two discussants were **Ann G. Bailey, M.D.**, University of North Carolina, Chapel Hill, North Carolina, and **Raeford E. Brown, Jr., M.D.**, University of Arkansas, Little Rock, Arkansas.

Dr. Bailey maintained that regional anesthesia provided patients with preemptive analgesia, decreased hormonal stress responses to surgery, increased patient satisfaction and decreased hospital resource utilization. Although Dr. Bailey acknowledged that untoward side effects such as local anesthetic overdose (cardiovascular and central nervous system toxicity) as well as spinal axis opioid-induced respiratory depression are well-reported, she felt that appropriate dose selection and appropriate patient monitoring should minimize these complications and thereby allow pediatric patients the benefits of regional anesthesia and postoperative analgesia.

Dr. Bailey also pointed out that anesthesiologists generally are not the physicians who write postoperative pain orders; therefore, regional anesthesia may have another benefit in that it may guarantee children adequate pain relief in the early postoperative period.

In an interesting rebuttal, Dr. Brown stressed that regional anesthesia has some serious drawbacks. He noted that regional anesthesia has been associated with significant complications and that these complications were reported from centers where pediatric anesthesia is practiced by pediatric anesthesia specialists.

In view of the fact that the vast majority of pediatric anesthesia care is administered by practitioners who are not pediatric anesthesiologists, Dr. Brown noted that other techniques of pain control should be employed. These techniques should be techniques that practicing nonpediatric anesthesiologists feel more comfortable with and use regularly (e.g., intravenous opioids, preincision administration of nonsteroidal anti-inflammatory agents, local nerve blocks).

Dr. Brown also noted that postoperative regional anesthesia requires significant resources, especially if continuous epidural infusions are used (i.e., 24-hour coverage), and that there is no prospective data to suggest that regional anesthesia is cost-effective or improves patient outcome. Consequently, Dr. Brown felt it is important for practitioners to continually

reassess the cost and the risk-benefit ratio of pediatric regional anesthesia before concluding that regional anesthesia is for everyone.

The last session of the afternoon was devoted to health care delivery. Four presenters from the United States and Europe addressed both international and national trends.

Claude Ecoffey, M.D., Hopital Pitié Salpêtrière, Paris, France, outlined training required to become a medical doctor, an anesthesiologist, an intensivist and a pediatric anesthesiologist in France. He noted that health care costs were 9.4 percent of the total French budget in 1992, and like other countries, health care costs have risen significantly over the last four decades.

In France, health care is financed 74 percent by the government (covering 92 percent of the population), 6 percent by insurance companies and 19 percent by self pay. Both public and private health care systems are in place in France, and an individual can choose his or her own physician.

Anneke E. Meursing, M.B., Ph.D., Sophia Children's Hospital, Rotterdam, The Netherlands, next summarized health care in The Netherlands. In her presentation, she noted that the Ministry of Welfare, Health and Culture Affairs in The Netherlands provides health care to everyone at a reasonable price. Health care comprises 8.3 percent of the gross domestic product as compared to 12 percent in the United States. In 1988, the Dutch health system was reformed due to increasing costs, and now everyone is covered by a compulsory basic health insurance package. Voluntary options for supplementary coverage can also be obtained.

Dr. Meursing also noted that the Dutch government allows only a fixed number of students to be admitted to medical school per year. Anesthesia training is dictated by the chair of an anesthesiology department. Anesthesiologists always work with a qualified nurse or anesthesia assistant. These assistants are always supervised and not allowed to perform endotracheal intubation or extubation or induction of anesthesia without an anesthesiologist present.

Robert K. Crone, M.D., Medical Director of Project HOPE, Millwood, Virginia, presented an informational session on Project HOPE. Since its founding in 1958, Project HOPE has developed both national and international programs. Using China as an example of a changing health care system, Dr. Crone emphasized the importance of a health care team where education, bedside nursing and the support of technology become key ingredients to delivering health care in less developed areas.

The last speaker of the day was **Mark C. Rogers, M.D.**, Vice Chancellor and Executive Director of Duke University Medical Center, Durham, North Carolina. Dr. Rogers spoke on "Health Care Reform—Hillary or Hilarity." He stated that there needs to be limits in medicine and that one-seventh of the U.S. budget goes to health care costs.

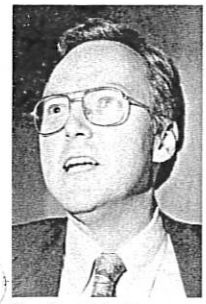
In his presentation, Dr. Rogers emphasized the role of market forces in directing health care reform, noting that these market forces are already in operation. The days of fee-for-service are over, he said. Coalitions of doctors, hospitals and insurance companies are presently being formed. Capitations or reimbursements for services will be rendered by primarily economic forces, namely, who can do it for less. The end result will be fewer hospital beds, fewer hospitals and an oversupply of specialists, including anesthesiologists.

Dr. Rogers noted that at the present time, there is a surplus of anesthesiology residents and that training programs will need to decrease their resident numbers. Dr. Rogers concluded his presentation with the good news that there will still be a demand for well-qualified anesthesiologists who will be well-paid. The bad news is that the definition of well-paid will be redefined.

Business Meeting

At the SPA Business Meeting, which followed the scientific program, it was reported that SPA's membership continues to grow. At the present time, the Society has 1,391 members with 1,256 active members, seven affiliate members and 128 resident members. In addition to a membership directory, the Membership Committee has also compiled a directory

(Continued on page 6)



Raeford E. Brown, Jr., M.D.

Claude Ecoffey, M.D.

Anneke E. Meursing, M.B., Ph.D.

Robert K. Crone, M.D.

Mark C. Rogers, M.D.

SPA EIGHTH ANNUAL MEETING REPORT

(Continued from page 5)

of pediatric anesthesiology fellowship training programs throughout North America.

The Society continues to be financially sound with reserve funds in excess of one year's operating expenses.

The Committee on Education continues to expand its role. In addition to producing the fall annual meeting, the Committee on Education, in conjunction with the American Academy of Pediatrics Section on Anesthesiology, will sponsor a new spring meeting. This year, the meeting will be held February 16-19, 1995, at The Pointe Hilton at Squaw Peak in Phoenix, Arizona. The meeting program is included on pages 8-9 in this newsletter.

In an effort to further promote research and education, SPA continues to provide the Foundation for Anesthesia Education and Research (FAER) with an annual contribution that supports a SPA-FAER research starter grant.

After eight years, the Society is looking for an official SPA seal and logo. All members are encouraged to submit entries. All entries should be received no later than **February 12, 1995** and sent to:

Peter J. Davis, M.D.
Children's Hospital of Pittsburgh
Department of Anesthesiology
3705 Fifth Avenue at DeSoto Street
Pittsburgh, Pennsylvania 15213-2583

SPA Officers: *(left to right) Incoming SPA President William J. Greeley, M.D. presents the President's Scroll to outgoing President Charles H. Lockhart, M.D. during the recently convened SPA Eighth Annual Meeting in San Francisco, California, as newly elected Vice President/ President-Elect Mark A. Rockoff, M.D. and newly elected Secretary Steven C. Hall, M.D. look on. Not pictured is newly elected Treasurer Linda Jo Rice, M.D.*

The meeting concluded with the election of new officers. This year, three new members of the SPA Board of Directors and a new Treasurer were elected. Elected to the Board of Directors were: James P. Viney, M.D., Salt Lake City, Utah; David G. Nichols, M.D., Baltimore, Maryland; and Raeford E. Brown, Jr., M.D., Little Rock, Arkansas Each Director will serve a four-year term. Linda Jo Rice, M.D., Hartford, Connecticut, was elected the Society's Treasurer and will serve a two-year term.

Other elected officers include: President William J. Greeley, M.D., Durham, North Carolina; Vice-President Mark A. Rockoff, M.D., Boston, Massachusetts; and Secretary Steven C. Hall, M.D., Chicago, Illinois. ☐

ERRATUM

Five abstracts in the "Literature Review" section, Summer-Fall, 1994, were incorrectly referenced to the journal, *Pediatrics*. They should have been referenced to the *Journal of Pediatrics*. The correct references are:

Local anesthetics in the management of acute pain in children.
Yaster M, Tobin JR, et al. *J Pediatr.* 1994; 124:165-176.

A decade of experience with neonatal extracorporeal membrane oxygenation (ECMO).
Kanto WP. *J Pediatr.* 1994; 124:335-347.

A policy regarding research in healthy children.
Gidding SS, Camp D, et al. *J Pediatr.* 1993; 123:852-855.

Venous thromboembolic complications in children.
David M, Andrew M. *J Pediatr.* 1993; 123:337-346.

Comparison of oxygenation measurements in pediatric patients during sickle cell crises.
Craft JA. Alessandrini E. *J Pediatr.* 1994; 124:93-95. ☐

PRESIDENT'S MESSAGE

(Continued from page 1)

Secondly, in order to understand and quantify practice trends, computerized survey balloting will be available at all of the sessions so that the audience can be queried and the results immediately collated and displayed.

Third, hands-on workshops will be available on topics such as noncaudal regional anesthesia and the laryngeal mask airway.

Lastly, the meeting should prove a warm respite from the winter doldrums customary in February and provide a unique opportunity to socialize with one's colleagues in a friendly, recreational setting. I hope that our entire membership will take advantage of this opportunity and support this first meeting.

The Committee on Membership, under the direction of Mark A. Rockoff, M.D., Boston, Massachusetts, has developed a directory of the pediatric anesthesiology fellowship training programs in the United States and Canada. This is an important first step in understanding who is training and how we are training future anesthesiologists with interests in pediatric anesthesia.

This directory was sent to residency program directors and program chairs at all the children's hospitals in the United States and Canada. Copies are available by writing to the SPA office.

The Committee on Finance, under the direction of Steven C. Hall, M.D., Chicago, Illinois, has not only continued in its efforts to acquire significant corporate sponsorship for our Annual Meeting, but also has articulated a vision and a stance for further corporate sponsorship of our educational activities. We will continue to focus on selective industry support, emphasizing the development of our present relationships with certain companies.

The Committee on Research recommended that SPA continue its support of a SPA-FAER (Foundation for Anesthesia Education and Research) research grant. At the American Society of Anesthesiologists Annual Meeting in San Francisco, California in October, 1994, Zeev N. Kain, M.D. from Yale University, New Haven, Connecticut, presented two abstracts on his work. This work was supported by our first SPA-FAER research grant and gives evidence for SPA's support of research activities in pediatric anesthesia.

Dr. Kain will be presenting his work during a plenary session at the SPA-AAP Winter Meeting in February. The Research Committee is also exploring other opportunities for developing a SPA-industry research fellowship.

A number of other important initiatives were acted upon at the SPA Board of Directors meeting in San Francisco. As you may know, one of the important long-range strategic plans of the Society is to advance the development of new knowledge in pediatric anesthesia; that is, promoting both clinical and basic science research. One strategy that the Society has elected to pursue is a joint publishing agreement with an anesthesiology journal. Over the past 18 months, with the support of the SPA Board of Directors, I have been negotiating with *Anesthesia and Analgesia.* The Society of Cardiovascular Anesthesiologists (SCA) has an ongoing publishing agreement with *Anesthesia and Analgesia*, and we are seeking to pursue a similar strategy.

The advantages to such an affiliation include the identification with and accountability for a pediatric anesthesia section of a major anesthesiology journal, publication of our Society's activities, potential for publication of our Annual Meeting abstracts and responsibility for a yearly review article on a topic in pediatric anesthesia.

Initial negotiations with the International Anesthesia Research Society and SCA in the pursuit of a joint publishing agreement have been favorable. I will keep you informed of the progress of this initiative. Such an agreement speaks well for the reputation of our Society and addresses our challenge for future growth, increased responsibility and citizenship to our colleagues in anesthesiology.

The SPA Board of Directors also gave its approval for developing a logo. SPA currently has no logo or corporate seal. Any members who have particular expertise in this regard may submit a logo prototype to Peter J. Davis, M.D. at Children's Hospital in Pittsburgh, Pennsylvania. These will be reviewed and presented to the Board of Directors for a final decision at the spring meeting in February.

I would like to thank the outgoing members of the SPA Board of Directors for their many contributions to our Society: Jerrold Lerman, M.D., Toronto, Ontario, Canada; Anne M. Lynn, M.D., Seattle, Washington; and Frederic A. Berry, M.D., Charlottesville, Virginia. I also wish to welcome new members to the SPA Board of Directors: James P. Viney, M.D., Salt Lake City, Utah; Linda Jo Rice, M.D., Hartford, Connecticut; David G. Nichols, M.D., Baltimore, Maryland; and Raeford E. Brown, Jr., M.D., Little Rock, Arkansas.

Finally, on behalf of SPA, I would like to thank our outgoing President, Charles H. Lockhart, M.D., Denver, Colorado, for his vision and leadership in directing our Society.

I know that each committee chair joins me in inviting you to actively participate in our Society. Please let me know if you wish to volunteer for one of our committees and/or send me any of your ideas about making our Society and its programs better. I look forward to working with you and advancing our important clinical care, education and research missions. ☐

SPA-AAP JOINT WINTER MEETING:

Pointe Hilton Resort at Squaw Peak
Phoenix, Arizona
Friday-Sunday, February 17-19, 1995

Thursday, February 16, 1995

3:00 - 5:30 p.m.
Early Registration

5:30 - 8:00 p.m.
Welcome Reception

Friday, February 17, 1995

7:00 - 8:00 a.m.
Continental Breakfast with Exhibitors

8:00 a.m. - 5:00 p.m.
Registration

8:00 - 8:10 a.m.
Welcome and Introductory Remarks
J. Michael Badgwell, M.D.,
William J. Greeley, M.D.

8:10 - 10:00 a.m.
Transplantation in Children
Moderator: D. Ryan Cook, M.D.

Heart-Lung Transplantation
Francis X. McGowan, Jr., M.D.

Liver Transplantation
J. Lance Lichtor, M.D.

Surgeon's Perspective
David G. Tapper, M.D.

Ethical Issues
Robert D. Truog, M.D.

10:00 - 10:30 a.m.
Break - Exhibits and Scientific Posters

10:30 a.m. - 1:00 p.m.
Oral Abstract Presentations
Moderators: David G. Nichols, M.D.,
Ann Lynn, M.D.

1:00 - 2:00 p.m.
Lunch - Exhibits and Scientific Posters

2:00 - 4:00 p.m.
Session A: Poster Discussion
Moderator: Jayant K. Deshpande, M.D.

Discussants: Joseph R. Tobin, M.D.,
Dennis M. Fisher, M.D.

Session B: Parallel Workshops
(Session I - 2:00 - 2:50 p.m.)
(Session II - 3:00 - 3:50 p.m.)

a. Laryngeal Mask Airway
Lynne R. Ferrari, M.D., Mehernoor F.
Watcha, M.D., Guy D. Dear, M.B.

b. Optimizing Perioperative Respiratory Support
Frank H. Kern, M.D., Jon N. Meliones,
M.D., Barbara Wilson, RRT

c. Cardiopulmonary Resuscitation (CPR)
Hal Schaffner, M.D., Charles L.
Schleien, M.D., Eugene B. Freid, M.D.,
Joseph R. Tobin, M.D.

d. Noncaudal Regional Anesthetic Techniques
Linda Jo Rice, M.D., Joelle F.
Desparmet, M.D., Joseph D. Tobias,
M.D., Thomas R. Vetter, M.D.

e. Pain Service — Procedures, Protocols, Billing
Myron Yaster, M.D., Scott R.
Schulman, M.D., Robert D. Valley,
M.D., Corrie T.M. Anderson, M.D.,
David E. Cohen, M.D.

4:00 - 5:00 p.m.
Anesthesia Practice Trend Survey
Moderators: Raeford E. Brown, Jr.,
M.D., David A. Lowe, M.D.

Anesthesia Practice Trends:
Real-Time, Computerized Survey,
Participant Survey, Audience Questions
and Immediate Answers

5:30 - 7:00 p.m.
Scientific Poster Review/Wine and Cheese Reception with Exhibitors

Saturday, February 18, 1995

7:00 - 8:00 a.m.
Continental Breakfast with Exhibitors

8:00 - 10:00 a.m.
Changing Patterns of Anesthesia Practice in Children
Moderator: J. Michael Badgwell, M.D.

Halothane Is Sufficient
Charles J. Coté, M.D.

Newer Agents Are Better
Peter J. Davis, M.D.

Controversies in Sedation of Children
Applying the AAP Guidelines: Educational Perspectives
Alan S. Klein, M.D.

Applying the AAP Guidelines in Private Practice
Robert J. Moynihan, M.D.

Drugs Created for Pediatric Analgesia and Sedation
Richard F. Kaplan, M.D.

Pediatric Sedation: The FDA Perspective
Curtis Wright, M.Ph.

10:00 - 10:30 a.m.
Break - Exhibits and Scientific Posters

PEDIATRIC ANESTHESIOLOGY - 1995

10:30 a.m. - 1:00 p.m.
Session A: Academic Development
Moderator: Elliott J. Krane, M.D.

Review of Previous Day's Abstracts
James L. Robotham, M.D.

Study Design and Statistical Analysis
Dennis M. Fisher, M.D.

Medical Writing, Journal Review and Beyond
Paul R. Hickey, M.D.

Presentation Techniques
Mark S. Schreiner, M.D.

Award Presentations:
SPA/FAER Research Grant Award - Abstract Presentation
AAP Resident Research Competition
AAP Robert M. Smith Award

Session B: Parallel Workshops -
(Session III - 10:30 - 11:20 a.m.)
(Session IV - 11:30 a.m. - 12:20 p.m.)
(repeat of Friday's workshop presentations)

1:00 p.m.
Adjournment for the Day

Sunday, February 19, 1995

7:00 - 8:00 a.m.
Continental Breakfast with Exhibitors

8:00 - 10:00 a.m.
Capitation or Decapitation?
Moderator: William J. Greeley, M.D.

Current State of Health Care Reform
Stephen J. Thomas, M.D.

Positioning Children's Care in a Competitive Market
Philip A. Balderston, M.B.A.

Marketing Strategies for Physician Groups
George Viglotti

Practice Analysis
William J. Greeley, M.D.

10:00 - 10:30 a.m.
Break - Exhibits

10:30 a.m. - 12:00 noon
What is a Pediatric Anesthesiologist? Training, Practicing and Credentialing
Moderator: Jeffrey Morray, M.D.

Practice Perspective
Jay H. Shapiro, M.D.

ABA Perspective
Myer H. Rosenthal, M.D.

Legal Perspective
Steven Kern, J.D.

Synthesis
John J. Downes, Jr., M.D.

12:00 noon - 1:00 p.m.
Grand Rounds Case Presentation
Moderator: Mark A. Rockoff, M.D.

Discussants: Aubrey Maze, M.B., Lynda Jo Means, M.D., Charles H. Lockhart, M.D.

1:00 p.m.
Adjournment

SPA/FAER GRANT AVAILABLE

The Foundation for Anesthesia Education and Research (FAER) offers exciting opportunities for young anesthesiologists. SPA supports a research starter grant through FAER, which provides $25,000 for one year as seed money to start a project related to pediatric anesthesia. The investigator may then seek support for continuation of the project.

The sponsoring institution must agree to match the amount awarded. For application information for the SPA/FAER Research Starter Grant, contact Martin Helrich, M.D., FAER Executive Director, 3701 Old Court Road, Suite 24, Baltimore, Maryland 21208-3901; or call (410) 486-6935.

Applications are closed for 1994, but applications are being accepted for next year.

Deadline for 1995: July 31. □

REMINDER NOTICE

The journal, *Paediatric Anaesthesia,* is available at a 25-percent discount for all SPA members. Members can now pay by credit card.

Contact: Stuart Taylor, M.D., *Paediatric Anaesthesia*, Blackwell Scientific Publications, 25 John Street, London, WC1N 2BL, U.K. □

Pediatric Anesthesiology - 1995
February 17 - 19, 1995
Scientific Program Registration

For Office Use Only:
Check # _____
Amt. $ _____
Date Paid _____

If paying by check, please make checks payable to **SPA** and mail to P.O. Box 11086, Richmond, VA 23230-1086.
Telephone: (804) 282-9780; Fax: (804) 282-0090.

PLEASE PRINT/TYPE

Name _____ (Last / First / Middle Initial)

MD _____ PhD _____
RN _____ CRNA _____
Other _____

Preferred Mailing Address _____

City, State, ZIP _____

Office Telephone ( ) _____ Home Telephone ( ) _____ Fax ( ) _____

Accompanying Person's Name(s) _____

	Through 1/10/95	After 1/10/95		
SPA Member	$310	$360	=	$ _____
AAP Anesthesiology Section Member	$310	$360	=	$ _____
Non-Member (MD, DO, PhD)	$410	$460	=	$ _____
Allied Health (CRNA, RN, etc.)	$200	$250	=	$ _____
Resident/Fellow*	$100	$125	=	$ _____
Accompanying Person(s) # ____ @	$ 35	$ 50	=	$ _____
		ANNUAL MEETING TOTAL	=	$ _____

* When accompanied by a letter from Department Chair, verifying Resident/Fellow status.

☐ Check ☐ VISA ☐ MasterCard (Credit card payments may be faxed to (804) 282-0090.)

Card No. |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_| Exp. Date _____ Signature _____

Refund Policy: A full refund will be given through 1/9/95; 50% refund from 1/10/95 through 1/26/95; no refunds after 1/26/95. Refund will be determined by date **written** cancellation is received.

Workshop Registration

	1st Choice	2nd Choice	3rd Choice	4th Choice
Friday, February 17, Session I; 2:00 - 2:50 p.m.	_____	_____	_____	_____
Friday, February 17, Session II; 3:00 - 3:50 p.m.	_____	_____	_____	_____
Saturday, February 18, Session III; 10:30 - 11:20 a.m.	_____	_____	_____	_____
Saturday, February 18, Session IV; 11:30 a.m. - 12:20 p.m.	_____	_____	_____	_____

Identify your first four choices from the following:

a: Laryngeal Mask Airway
b: Optimizing Perioperative Respiratory Support
c: Cardiopulmonary Resuscitation (CPR)
d: Noncaudal Regional Anesthetic Techniques
e: Pain Service — Procedures, Protocols, Billing

Pediatric Anesthesiology - 1995
February 17 - 19, 1995
Pointe Hilton Resort at Squaw Peak
Hotel Reservation Form

The Pointe Hilton at Squaw Peak

Reservations may not be guaranteed after January 26, 1995.

Deposit and Reservation Form must be sent to:
Pointe Hilton Resort at Squaw Peak
Reservations Department
7677 North 16th Street
Phoenix, AZ 85020
(602) 997-2626
(602) 943-4633 Fax
(If you fax, do not mail; if you mail, do not fax.)

PLEASE PRINT/TYPE

MD _____ PhD _____

Name _____ RN _____ CRNA _____
Last First Middle Initial

Other _____

Preferred Mailing Address _____

City, State, ZIP _____

Office Telephone ( ) _____ Home Telephone ( ) _____ Fax ( ) _____

Accompanying Person's Name(s) _____

In order to guarantee your reservation, please include the first night's deposit.

☐ Enclosed is my check in the amount of $ _____.

☐ Please charge first night's deposit to my ☐ VISA ☐ MasterCard ☐ American Express

Card No. |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_| Exp. Date _____ Signature _____

PLEASE RESERVE:

☐ Single Standard Suite @ $195/night
☐ Pointe Guest Room @ $175/night
☐ 1-Bedroom Casita with Queen @ $275/night
☐ Double Standard Suite @ $195/night
☐ 1-Bedroom Casita with King @ $275/night
☐ 2-Bedroom Casita @ $350/night

All rates quoted are exclusive of state/local tax, currently 10.35%.

My Arrival Date is: _____ My Departure Date is: _____

RESERVATIONS RECEIVED AFTER JANUARY 26, 1995
WILL BE ACCEPTED BASED ON AVAILABILITY

OUT AND ABOUT THE ASA ANNUAL MEETING

By Zeev N. Kain, M.D., Frank H. Kern, M.D., Christine N. Sang, M.D. and Steven C. Hall, M.D.

Pediatric postoperative care, pediatric regional anesthesia and pediatric cardiac anesthesia in a variety of clinical situations were highlighted in several scientific presentations during the American Society of Anesthesiologists (ASA) Annual Meeting last October in San Francisco, California. As follows are several reports on these presentations, including their abstract numbers in **boldface** that correspond with their entries in the September supplement of the journal, *Anesthesiology*.

Several studies investigated the antiemetic effects of ondansetron in children. Goodarzi et al. (**A-1337**), in a randomized, double-blinded study, compared the prophylactic antiemetic effects of ondansetron, droperidol and a placebo for the prevention of postoperative vomiting. The study included 80 children ages 2 to 14 scheduled for major orthopedic surgery who received general and opioid epidural anesthesia.

Subjects received ondansetron 100 μg/kg, ondansetron 50 μg/kg, droperidol 60 μg/kg or saline placebo. Drugs were administered intravenously after the induction of anesthesia. The incidence of vomiting in the immediate postoperative period in the postanesthesia care unit (PACU) was 25 percent with ondansetron (100 μg/kg), 40 percent with ondansetron (50 μg/kg), 45 percent with droperidol and 70 percent with the control group ($p < 0.01$). In the first 24 hours, the incidence of emesis increased to 30 percent for ondansetron (100 μg/kg), 55 percent with ondansetron (50 μg/kg), 65 percent with droperidol and 85 percent for the control group.

The authors concluded that the prophylactic administration of ondansetron (100 μg/kg) is superior to droperidol and ondansetron (50 μg/kg) in the prevention of emesis from epidural and general anesthesia.

Stene et al. (**A-1353**) compared the prophylactic antiemetic efficacy of ondansetron, metoclopramide and placebo in pediatric patients undergoing tonsillectomy and adenoidectomy. Patients received either ondansetron 0.1 mg/kg, metoclopramide 0.25 mg/kg or placebo intravenously after induction. Upon arrival in the PACU, patients received I.V. morphine sulfate 0.05 to 0.1 mg/kg if needed. A total of 120 patients completed the study.

The overall incidence of emesis prior to discharge was 26 percent for the ondansetron group, 54 percent for the metoclopramide group and 69 percent for the placebo group. The difference between metoclopramide and placebo was not significant.

In a related investigation, Watcha et al. (**A-1350**) determined the dose-response of ondansetron for the prophylaxis of postoperative vomiting in children. Eighty-two children undergoing outpatient surgery for strabismus, tonsillectomy or dental procedures participated in this randomized, double-blinded study. Patients were assigned to receive saline (placebo), or 10, 50 or 100 μg/kg ondansetron I.V. before incision.

There was no significant difference between the groups that received 50 or 100 μg/kg ondansetron (24 hours emesis, 24 percent versus 20 percent, respectively). The incidence of postoperative vomiting in the group that received 10 μg/kg was not significantly different from the placebo group (55 percent versus 53 percent for 24 hours).

Finally, in a meta-analysis of all randomized controlled trials in children comparing droperidol or ondansetron with placebo, Lopez and Mathieu (**A-1351**) found that compared to droperidol, ondansetron patients had a 76-percent lesser likelihood of postoperative vomiting and an 81-percent lesser likelihood of vomiting compared to placebo.

Several studies regarding epidural analgesia in infants and children were presented during this session. Yamashita and Kondo (**A-1338**) examined the applicability of two formulas to calculate the distance from the skin to the lumbar epidural space in ex-premature infants. The two formulas were based on weight [depth = (weight in kilos + 10) x 0.8], and age [depth = (age in years x 2) + 10]. The measured depth and the predicted depth were calculated by the two formulas and then compared.

The investigators concluded that the formula to predict the distance from the skin to the lumbar epidural space based on body weight is applicable in ex-premature infants. However, the predicted depth based on age differed significantly from the measured depth.

Blank et al. (**A-1345**) examined whether caudal and lumbar epidural catheters can be advanced cephalad in children. Sixteen children scheduled for upper abdominal or thoracic surgeries had epidural catheters placed by either the caudal or lumbar approach. The catheters were advanced to a measured distance cephalad. The catheters were injected with a radiocontrast agent, and a radiograph was obtained.

Seventy-seven percent of the lumbar catheters and 62 percent of the caudal catheters were noted by radiography not to have reached the desired vertebral level. All catheters placed for thoracic surgery were found to be below the desired level. Successful cephalad advancement could not be predicted by the age of the patient, the gauge of the catheter or difficulty advancing the catheter.

Two investigators evaluated the use of epinephrine as a marker for inadvertent systemic administration in patients undergoing epidural anesthesia. Sang et al. (**A-1344**) in a double-blinded, randomized trial, examined the hypothesis that epinephrine can be used as a reliable epidural test dose in patients undergoing isoflurane anesthesia. Patients received

general anesthesia by inhalation induction with halothane-N_2O and maintenance with isoflurane-O_2. Next, subjects were randomized to receive intravenously 1 percent lidocaine (0.1 ml/kg) with either placebo, epinephrine 0.5 μg/kg or epinephrine 0.75 μg/kg.

The investigators found that both test doses resulted in increases in maximal heart rate as compared with controls. There were no differences between the 0.5 μg/kg and 0.75 μg/kg epinephrine groups in maximum heart rate increase and time to peak heart rate. The authors concluded that unlike halothane anesthesia, epinephrine 0.5 μg/kg and 0.75 μg/kg can be used to detect intravascular injection in isoflurane-anesthetized children.

Darrow et al. (**A-1357**) examined the arrhythmogenic effects of bupivacaine and lidocaine with epinephrine in an animal model of young pigs anesthetized with halothane. The investigators concluded that although epinephrine may be added to local anesthetics to provide an early warning marker for inadvertent systemic injection, the cardiotoxic effect of bupivacaine and epinephrine appear to act synergistically and may produce life-threatening cardiac arrhythmias.

Lawhorn et al. (**A-1341**) demonstrated an advantage of adding butorphanol to caudal bupivacaine for pain management in children undergoing genitourinary surgery. In this study, 37 percent of the patients who received bupivacaine required administration of morphine sulfate in the PACU as compared to only 7 percent of patients who received bupivacaine and butorphanol (30 μg/kg). There were no statistically significant differences in sedation scores between the two groups.

Kost-Byerly and colleagues (**A-1343**) hypothesized that a continuous epidural infusion of lidocaine can provide effective and safe postoperative analgesia in neonates. Seventeen full-term neonates, 0-12 days of age who underwent major surgical procedures below the T4 dermatome with a combined general and epidural anesthetic technique, were enrolled in the study. Postoperatively, continuous lidocaine epidural analgesia was initiated at a rate of 1.2 ± 0.4 mg/kg/h with an infusion of 0.1-0.4 percent solution (0.3-1 ml/kg/h). Plasma lidocaine levels were monitored carefully, and infusion rates were adjusted if the plasma level was high.

The investigators found that almost all plasma levels were within the upper limit of the therapeutic range for lidocaine in adults (5 mg/L). They suggested that continuous epidural lidocaine infusion can provide effective analgesia in neonates after surgery, but plasma levels must be monitored frequently and infusion rates adjusted to avoid toxicity.

Houck et al. (**A-1346**) investigated the duration of analgesia and incidence of side effects for three different doses of epidural hydromorphone in children undergoing ureteral reimplantation surgery. Children underwent a standard anesthetic and an epidural catheter was inserted at L3-L4. At the end of surgery, a test dose of 0.1 ml/kg of 1.5 percent lidocaine with epinephrine was administered. This was followed by 0.5 ml/kg of 1.0 percent lidocaine with epinephrine mixed with one of three randomly chosen doses of epidural hydromorphone (2, 8 or 20 μg/kg). There was no significant difference in duration of analgesia or incidence of nausea and vomiting between any of the groups.

Pruritus was significantly less in both the groups that received 2 or 8 μg/kg compared to the group that received 20 μg/kg. Mild respiratory depression was also noted significantly more frequently in the group that received 20 μg/kg. The authors recommended that an initial bolus dose of between 2 and 8 μg/kg of epidural hydromorphone should be used.

The use of epidural clonidine was evaluated by investigators from France. Rochette et al. (**A-1340**) compared the duration and hemodynamic effects of lidocaine epidural anesthesia supplemented with either clonidine or epinephrine. Children were randomly allocated to receive lidocaine 2 percent (8 mg/kg^{-1}) with either epinephrine (5 $\mu g/kg^{-1}$) or clonidine (3 $\mu g/kg^{-1}$).

Inadequate analgesia before the end of surgery (20 percent increase in heart rate or blood pressure) occurred significantly more frequently in the lidocaine/epinephrine group (72 percent) than in the lidocaine/clonidine group (31 percent). In contrast to reports of adults receiving clonidine, no clinically significant decrease in blood pressure or heart rate occurred in this group of children.

In a second investigation by the same group, Beauvoir et al. (**A-1347**) investigated the duration and hemodynamic effects of lidocaine caudal anesthesia with either clonidine or epinephrine. Again, the investigators concluded that when clonidine 3 $\mu g/kg^{-1}$ was added to lidocaine and administered caudally, postoperative analgesia was prolonged by 50 percent as compared to lidocaine with epinephrine. No significant hemodynamic or sedative effect was recorded among the subjects.

The use of regional anesthesia for pain management following cardiac surgery was also studied. Carr et al. (**A-1348**) examined the safety and efficacy of preoperative caudal morphine in children following cardiac surgery requiring cardiopulmonary bypass. Subjects were randomly assigned to receive caudal morphine (in doses of 50, 100 or 150 μg/kg) after induction of anesthesia or an I.V. infusion of morphine (40 μg/kg/hr) stopped 30 minutes before the end of surgery. Ninety percent of subjects were extubated in the operating room. In two subjects, extubation was delayed because of ongoing bleeding.

The investigators demonstrated that postoperative (24-hour) morphine requirements were significantly less in the caudal

Continued on page 14

OUT AND ABOUT THE ASA ANNUAL MEETING

(Continued from page 13)

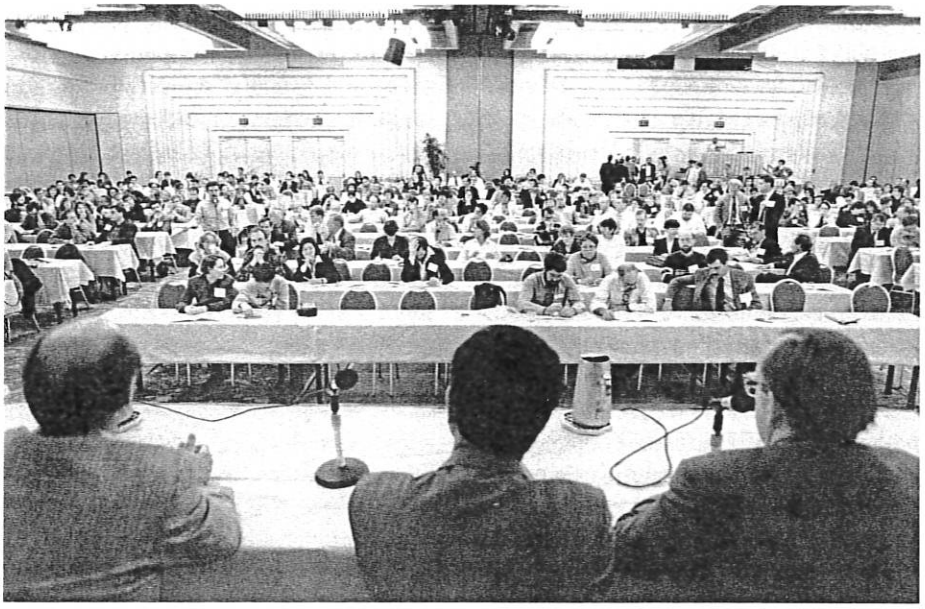
group as compared to the intravenous group. In addition, pain scores were lower in the caudal group at one and two hours postoperatively ($P < 0.02$). One child who received 100 µg/kg caudal morphine had a brief apneic episode (<30 seconds) within one hour of extubation.

Two poster presentations suggested the use of acetaminophen to control pain following bilateral myringotomy and tube (BMT) placement. In a study by Verghese et al. (**A-1363**), subjects were randomly assigned to three treatment groups, acetaminophen 15 mg/kg orally 1/2 hour before surgery, acetaminophen rectally 15 mg/kg immediately after surgery and a control group. Anesthesia was induced and maintained using N_2O, O_2 and halothane by mask in all cases; no other drugs were given.

In the PACU, pain scores were significantly lower in the group that received pre-emptive analgesia with oral acetaminophen. In addition, the group that received oral acetaminophen needed significantly less rescue treatment in the PACU as compared to the two other groups.

In a randomized, blinded trial, Stinson and Bean (**A-1360**) compared the efficacy of oral acetaminophen (15 mg/kg) to oral ketorolac (1 mg/kg) prior to BMT placement. The investigators reported that both acetaminophen and ketorolac at the doses used were equally effective for pain control. Also, there was no difference in postoperative analgesic usage, nausea, vomiting and return to normal appetite and behavior at the 24-hour follow-up. The authors recommended the usage of prophylactic acetaminophen prior to BMT placement.

Kain and colleagues (**A-1361**) developed a tool for measurement of preoperative anxiety in children. The Yale Preoperative Anxiety Scale (YPAS) contains 29 descriptors in five main domains of behavior indicating anxiety (activity, emotional expressivity, state of arousal, vocalization and use of parents) in a child undergoing an anesthetic induction. The tool has high inter- and intra-observer reliability and good-to-excellent construct validity when compared to global measures of anxiety. The authors suggest that the tool can be used as an anxiety outcome measure in children ages 1-7 years undergoing induction of anesthesia or other invasive medical procedures.



More than 500 SPA members, speakers, dignitaries, panelists and guests attended the SPA Eighth Annual Meeting on October 14, 1994 in San Francisco. They also attended various refresher courses, panels and workshops at the American Society of Anesthesiologists Annual Meeting that followed on October 15-19.

In a related investigation at Yale, Kain and colleagues (**A-1362**) examined the effectiveness of a preoperative preparation program in reducing the anxiety of children undergoing anesthesia. The investigators followed 143 children undergoing ambulatory surgery in a cross-sectional cohort study. Baseline measures, including temperament of the child and parent, were obtained. Anxiety was evaluated by self-reported and observational measures in the holding area as well as upon separation to the operating room.

In the holding area, all measures of anxiety in children and mothers indicated no difference between the group that received preoperative preparation and the group that did not receive preparation. Surprisingly, upon separation to the operating room, children and mothers who received the preparation were more anxious than those who did not receive the preparation.

The investigators concluded that this phenomenon may be explained on the basis of different coping mechanisms ("avoidance" versus "information seeking") and sensitization that may occur in some patients.

In a multicenter study involving 17 institutions with well-established pediatric pain services, Sang and Berde (**A-1386**) evaluated the risk of critical events associated with regional administration of local anesthetics and opioids in infants and children during the period 1985-92, inclusive.

Of the 52,315 total regional procedures performed (27,966 known single-shot and 15,415 known continuous blocks), 27 procedures (7-year cumulative incidence [CI], 52/100,000) were

complicated by respiratory depression, 11 (7-year CI, 21/100,000) were complicated by convulsions, and 21 (7-year CI, 40/100,000) were complicated by noncritical but clinically significant incidents. These incidences included infection (n=4), nerve root lesion (n=1), heel or buttock sores (n=8) and retained catheter (n=1).

Of those patients who developed respiratory depression, 25/27 (93 percent) received neuraxial opioid, and 14/27 (52 percent) received supplementary intravenous sedation. Of the patients who experienced convulsions, eight of 11 patients (73 percent) received either repeated boluses or continuous epidural bupivacaine infusion rates in excess of 0.5 mg/kg/hr (0.5-2.5 mg/kg/hr), while two of the remaining three patients had a pre-existing seizure disorder. Catheter entry site did not predict risk of procedure.

The investigators demonstrated that the risk of clinically significant complications was uncommon, at 11 per 10,000 (21 per 100,000 for convulsions and 52 per 100,000 for respiratory depression). However, as previously suspected, coadministration of systemic opioids and bolus dosing of epidural morphine in excess of 0.05 mg/kg (particularly in infants) increased the risk of respiratory depression; dosing of bupivacaine in excess of 0.5 mg/kg/hr increased the risk of convulsions.

Several studies from Duke University have suggested that inefficiencies in brain cooling play an important role in neuropsychologic injury after congenital heart surgery. In an attempt to define a physiologic basis for perfusion abnormalities, a study by Kern et al. (**A-1394**) evaluated the jugular venous effluent of patients undergoing deep hypothermic cardiopulmonary bypass.

The study demonstrated a significant widening in the arterial-venous pH difference during the first 12 minutes of nonpulsatile cardiopulmonary bypass (CPB) despite active cooling and high perfusion flow rates. This more exacting measure of brain perfusion suggests both altered distribution of cooled perfusate and the presence of anaerobic cerebral metabolism during the early period of CPB cooling.

The authors speculate that measures which enhance blood flow distribution to the brain such as the addition of carbon dioxide, a known cerebral vasodilator, may be beneficial in improving cerebral cooling and cerebral oxygen. □

CLINICAL FORUM

One of the clinical forums on Monday, October 17, 1994 during the American Society of Anesthesiologists (ASA) Annual Meeting in San Francisco, California was devoted to pediatric anesthesia.

John F. Ryan, M.D., Massachusetts General Hospital, Boston, Massachusetts, moderated the session. The other participants were: **William T. ("Pepper") Denman, M.B.,** also of Massachusetts General Hospital; **Elliot J. Krane, M.D.**, Stanford University Medical Center, Stanford, California; and **Steven C. Hall, M.D.**, Children's Memorial Hospital, Chicago, Illinois.

The clinical forum used two cases as a basis for a discussion among the members of the panel, the moderator and the audience. The audience was strongly encouraged to contribute questions, answers and commentary about both the specific cases and other issues involving pediatric anesthesia.

The first case presented was an 11-year-old, uncooperative child with Down's syndrome who was scheduled for a magnetic resonance imaging (MRI) scan. The wide-ranging discussion covered such issues as potential cervical instability and its evaluation; premedication for uncooperative patients; NPO guidelines, especially when there is a history of regurgitation; and sedation/anesthetic techniques for MRI scanning. To enliven the discussion, Dr. Ryan then added the complication of masseter spasm after succinylcholine.

The second case featured a 6-year-old patient with myotonic dystrophy and spina bifida occulta scheduled for femoral osteotomy. Initial discussion centered on evaluation and treatment of children with myotonias, followed by comments on preemptive analgesia, latex sensitivity precautions and postoperative pain management planning. Because the panel felt that peridural blockade was a reasonable modality, Dr. Ryan then added two complications to the case discussion: a "wet tap" and inability to move the legs postoperatively.

The clinical forum was well-attended. The audience consisted of physicians from a wide variety of practices, spanning the spectrum from full-time pediatric anesthesia practice in a children's hospital to general practice in small community hospitals. The discussion was mostly practical in nature, with the audience freely contributing questions and management suggestions. The audience especially appreciated Dr. Ryan's habit of suggesting a complication every time a panelist proposed a course of action. □

Society for Pediatric Anesthesia

520 N. Northwest Highway
Park Ridge, IL 60068-2573

Non-Profit Org.
U.S. POSTAGE
PAID
Permit No. 62
Palatine P&DC

MARK YOUR CALENDAR

The SPA Ninth Annual Meeting will take place on October 20, 1995 in Atlanta, Georgia. As usual, this will be on the Friday just prior to the start of the American Society of Anesthesiologists Annual Meeting.

The morning scientific session will address "The Pharmacologic Basis of Pediatric Anesthesia Practice." Topics to be covered during this session include "Molecular Pharmacology and Drug Development" and "Are Pharmacokinetics Clinically Relevant?" The morning session will conclude with clinical pharmacologic topics, "Drug Delivery Systems in Pediatric Anesthesia Practice" and "Pharmacoeconomics." Particular emphasis will be given to discussing the use of these modalities in infants and outpatients and to understanding the information available from clinical trials.

Following lunch, one afternoon session will be devoted to "Blood Conservation and Substitutes in Pediatric Anesthesia Practice," including talks on hemodilution, hemostatic agents (e.g., aprotonin, aminocaproic acid) and the use of artificial blood substitutes.

"Controversies in Anesthesia" will examine the issue of who should perform conscious sedation outside the operating room (anesthesiologist or nonanesthesiologist) as well as what monitoring standards are required. The second controversy to be discussed is "Patient Referral—Whose Life Is It Anyway?" This presentation centers on managed care contracts and provider networks and the implications to providers of the basis for referral (i.e., price, quality of care, etc.).

The meeting will conclude with the always-popular evening social gathering and dinner. Full details will be forthcoming early in 1995. □