

### PRESIDENT'S ADDRESS

By Aubrey Maze, M.B.

After a pleasant spring in the desert where there was a plethora of rain and beautiful flowers, we have embarked on our usual "warm" summer. Prior to getting affected by this weather, I thought I should summon my reserves and write what will be my final newsletter address as SPA President.

The Society is entering its seventh year of existence and has grown both in number and stature within the American Society of Anesthesiologists (ASA). The success of the Society is and always will be due to the efforts and enthusiasm of the members.

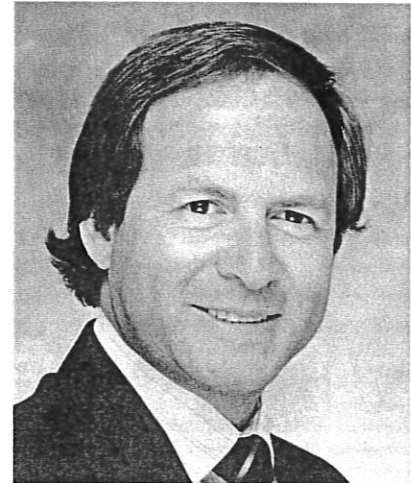
In this newsletter, you will find reports from various subsections of your Society. Your Board of Directors met in Chicago in March and dealt with the "nuts and bolts" of the Society. Unfortunately, the only place we saw in Chicago was the airport, but nevertheless, we felt we handled the formidable agenda well.

In May, SPA held a joint meeting with the American Pediatric Surgical Associa-

tion in Colorado Springs, Colorado. This meeting turned out to be a success for all who attended. All the sessions were well-attended. This joint meeting is planned again for 1996 as it was felt that these meetings are worthwhile, both from an academic and social perspective. The meeting will be held in Tucson, Arizona.

The SPA Sixth Annual Meeting will be held in New Orleans on Friday, October 16. The agenda for this meeting will include speakers from Europe, Canada and the United States. This is our first joint effort with our European associates and the Section on Anesthesiology of the American Academy of Pediatrics. A summary of the agenda appears in this newsletter. After the meeting, SPA will be hosting a buffet reception for all Annual Meeting registrants and guests at the Windsor Court Hotel.

At the conclusion of the educational sessions, we will have the annual business meeting of the Society with reports from the Treasurer and Secretary. This year, we



Aubrey Maze, M.B.

will have elections to fill positions on the SPA Board of Directors. The nominating committee, under the guidance of Robert K. Crone, M.D., has announced the slate of candidates. A short biography of each nominated member is in this newsletter (see page 3). The chair will also entertain additional nominations from the floor.

The SPA Board of Directors and I wish you a happy and healthy summer, and we look forward to seeing you at the meeting in New Orleans on October 16. □

### SPA SIXTH ANNUAL MEETING

The Society for Pediatric Anesthesia (SPA) Sixth Annual Meeting will be held on Friday, October 16, 1992 at the New Orleans Hilton in New Orleans, Louisiana. As a reminder, the cost of the meeting for SPA members is \$100 or \$200 for nonmembers (\$100 meeting fee and \$100 immediate SPA membership). The focus of this year's meeting will be on developmental pharmacology and the pharmacology of anesthetic agents.

To broaden the scope of the meeting, the Society has invited several speakers from both Europe and Canada to participate in our annual meeting. This transat-

lantic approach to the topics germane to pediatric anesthesia will provide additional insights into the nuances and practices of our subspecialty.

A continental buffet breakfast will be provided for meeting attendees beginning at 7:00 a.m. **Aubrey Maze, M.B.**, SPA President and Chief of Anesthesia at Phoenix Children's Hospital, Phoenix, Arizona, will open the meeting at 8:00 a.m. The morning session will be chaired by Dr. Maze and will be devoted to developmental pharmacology. **Dennis M. Fisher, M.D.**, Professor of Anesthesia and Pediatrics at the University of Cali-

fornia, San Francisco, will discuss the pharmacologic issue of "When Does the Infant Become an Adult with Respect to its Pharmacology?" **Barbara W. Bandom, M.D.**, Associate Professor at the University of Pittsburgh, Pennsylvania, will discuss the "Age-Related Differences in Response to Neuromuscular Blocking Agents." **Gavril Pasternak, M.D.**, a world-renowned expert on opioid receptors from Rockefeller University in New York City, will discuss "Maturation of the Opioid Receptor."

The second session of the morning  
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# SPA SIXTH ANNUAL MEETING

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will be moderated by **R. Gordon Bush, M.D.**, Editor of the *Journal of Paediatric Anaesthesia*, from London, England, and the discussions will deal with new issues regarding pediatric anesthesia practice. **Roddy McNicol, M.B.**, a consultant anaesthetist from Royal Hospital for Sick Children, Glasgow, Scotland, will discuss "New Advances in Local Anesthetic Agents." **Jerrold Lerman, M.D.** from the Hospital for Sick Children, Toronto, Ontario, Canada, will discuss "New Inhalational Anesthetics in Children" while **George Meakin, M.B.**, a senior lecturer in the Manchester University Department of Anaesthesia and a physician at Royal Manchester Children's Hospital, Manchester, England, will discuss "Neuromuscular Blocking Agents."

The afternoon session will feature practical issues in pediatric anesthesia. The first session of the afternoon will be chaired by **Frederic A. Berry, M.D.** from the University of Virginia Health Sciences Center, Charlottesville, Virginia. The issue of "Parents in the Operating Room" will be addressed by **Peter Morris, M.B.**

## See SPA Annual Meeting Program Schedule on page 6.

Dr. Morris is the President of the Association of Paediatric Anaesthetists and a senior consultant anaesthetist at the Royal Manchester Children's Hospital, Manchester, England. **Susan Jones, M.B.**, a consultant anaesthetist from the Children's Hospital, Birmingham, England, will address the issue of "Intravenous Inductions in Pediatrics." **Peter J. Davis, M.D.**, Associate Professor of Anesthesiology and Pediatrics at Children's Hospital of Pittsburgh, Pennsylvania, will address "Issues of Premedication: Is It Necessary and Which Orifice is Best?" **Annake Meursing, M.D.** from Rotterdam, The Netherlands, will discuss "Induction Techniques in Children." Dr. Meursing is a senior consultant at the Sophia Children's Hospital in Rotterdam.

The afternoon session will conclude with "Controversies in Pediatric Anesthesia." This session will be moderated by **Charles H. Lockhart, M.D.** from Children's Hospital of Denver, Colorado, and will feature **Paul Hickey, M.D.**, Associate Professor of Anesthesia at Children's Hospital, Boston, Massachusetts, and **David J. Hatch, M.B.** from the Hospital for Sick Children, London, England. Dr. Hatch holds the First Chair in Paediatric Anaesthesia in the United Kingdom. This year's topic of controversy will focus on whether opioid or inhalational anesthesia is better for neonates with congenital heart disease.

The SPA Sixth Annual Meeting will conclude with a brief business meeting and the election of officers. Following the meeting will be a reception for SPA members, guests and our colleagues from the American Academy of Pediatrics and the Association of Paediatric Anaesthetists. The reception will be held at the Windsor Court Hotel from 6:30 p.m. to 10:00 p.m. Hors d'oeuvres will be served with local accents highly recommended by our New Orleans coordinator, **James H. Diaz, M.D.** of Ochsner Clinic, New Orleans, Louisiana. The reception is included in the meeting registration fee. Spouses and guests who are not meeting registrants may attend for \$35 each.

The Windsor Court Hotel is located at 300 Gravier Street in New Orleans and is conveniently located within walking distance from many of the ASA Annual Meeting hotels. A registration form for the meeting and reception is included in this issue of the Newsletter.

Advance registration is required to assure adequate provision of libations and culinary resources. Deadline for registration is October 5, 1992.

The 1992 SPA Annual Meeting is co-sponsored by the American Society of Anesthesiologists (ASA). ASA is approved by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians.

ASA designates this continuing medical education for 6 credit hours in category 1 of the Physician's Recognition Award of the American Medical Association. □

*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.*

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**Mehernoor F. Watcha, M.D.**, Department of Anesthesia, Children's Hospital, 400 South Kings Highway, P.O. Box 14871, St. Louis, MO 63110

## SLATE OF OFFICERS AND DIRECTOR CANDIDATES

Officers and directors of the Society for Pediatric Anesthesia (SPA) will be elected at the Business Meeting at the conclusion of the SPA Sixth Annual Meeting on Friday, October 16, 1992 in New Orleans.

SPA members will vote to elect four officers and three directors at the meeting at the New Orleans Hilton Hotel.

The elected SPA officers will serve two-year terms expiring in 1994.

### Charles H. Lockhart, M.D. (President)

Anesthesiology Residency: Washington University, St. Louis, Missouri. Anesthesiology Fellowship: Children's Hospital, University of Colorado, Denver, Colorado. Board Certification: American Board of Anesthesiology; American College of Anesthesiologists. Positions: Clinical Professor of Anesthesiology and Pediatrics, University of Colorado School of Medicine; Director of Anesthesiology, Children's Hospital, Denver, Colorado.

### William J. Greeley, M.D. (Vice-President/President-Elect)

Anesthesiology Residency: Duke University Medical Center, Durham, North Carolina. Anesthesiology Fellowship: Pediatric Anesthesia and Critical Care - Children's Hospital of Philadelphia, Philadelphia, Pennsylvania. Other Residencies and Fellowships: Pediatrics - Duke University Medical Center; Pediatric Cardiology - Duke University Medical Center. Board Certification: American Board of Anesthesiology; American Academy of Pediatrics. Positions: Associate Professor of Anesthesiology and Pediatrics; Director, Pediatric Intensive Care Unit; Chief, Pediatric Anesthesia, Duke University Medical Center, Durham, North Carolina.

#### PRESIDENT:



Charles H. Lockhart, M.D.

#### VICE-PRESIDENT/ PRESIDENT-ELECT:



William J. Greeley, M.D.

### Mark A. Rockoff, M.D. (Secretary)

Anesthesiology Residency: Massachusetts General Hospital, Boston, Massachusetts. Anesthesiology Fellowship: Neuroanesthesia - University of California-San Diego, San Diego, California. Other Residencies/Fellowships: Pediatrics - Massachusetts General Hospital, Boston, Massachusetts. Board Certification: American Board of Anesthesiology; American Academy of Pediatrics; Critical Care Medicine. Positions: Associate Professor of Anesthesia (Pediatrics), Harvard Medical School; Vice-Chairman, Department of Anesthesia, Children's Hospital, Boston, Massachusetts.

### Steven C. Hall, M.D. (Treasurer)

Anesthesiology Residency: Northwestern University Medical School, Chicago, Illinois. Anesthesiology Fellowship: Pediatric Anesthesia - Children's Memorial Hospital, Chicago, Illinois; Hospital for Sick Children, Toronto, Ontario, Canada. Board Certification: American Board of Anesthesiology. Positions: Associate Professor of Clinical Anesthesia, Northwestern University Medical School; Anesthesiologist-in-Chief, Children's Memorial Hospital, Chicago, Illinois.

#### SECRETARY:



Mark A. Rockoff, M.D.

#### TREASURER:



Steven C. Hall, M.D.

The following six candidates have been nominated to the SPA Board of Directors. Three candidates will be elected at the SPA Sixth Annual Meeting in New Orleans on October 16, 1992, to serve four-year Director terms expiring in 1996.

### Raeford E. Brown, M.D. (Director)

Anesthesiology Residency: University of Virginia Medical Center, Charlottesville, Virginia. Anesthesiology Fellowship: Pediatric Anesthesia and Critical Care - Children's Hospital, National Medical Center, Washington, D.C. Other Residencies/Fellowships: Pediatrics - Children's Hospital, National Medical Center, Washington, D.C. Board Certification: American Board of Anesthesiology; American Academy of Pediatrics. Positions: Chief of Pediatric Anesthesia, Arkansas Children's Hospital; Associate Professor of Anesthesiology and Pediatrics, University of Arkansas for Medical Science, Little Rock, Arkansas.

(Continued on page 4)

# SLATE OF OFFICERS AND DIRECTOR CANDIDATES

(Continued from page 3)

## Gerald V. Goresky, M.D. (Director)

Anesthesiology Residency: University of Toronto, Toronto, Ontario, Canada. Anesthesiology Fellowship: Intensive Care Medicine - University of California-San Francisco, San Francisco, California; Pediatric Anesthesia - Massachusetts General Hospital, Boston, Massachusetts. Board Certification: Canadian Fellowship in Anesthesia FRCP(C). Positions: Associate Professor of Anesthesia and Pediatrics, University of Calgary; Director of Anesthesia, Alberta Children's Hospital, Calgary, Alberta, Canada.

## BOARD OF DIRECTORS:



Raeford E.  
Brown, M.D.



Gerald V.  
Goresky, M.D.

## Juan F. Gutierrez-Mazorra, M.D. (Director)

Anesthesiology Residency: University of Alabama, Hospitals and Clinics, Birmingham, Alabama. Anesthesiology Fellowship: Children's Hospital, Birmingham, Alabama. Board Certification: American Board of Anesthesiology. Positions: Professor of Anesthesiology and Pediatrics; Director, Pediatric Anesthesia, University of Alabama; Anesthesiologist-In-Chief, Children's Hospital, Birmingham, Alabama.

## Susan C. Nicolson, M.D. (Director)

Anesthesiology Residency: Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania. Anesthesiology Fellowship: Pediatric Anesthesia and Critical Care, Children's Hospital of Philadelphia, Pennsylvania. Other Residencies/Fellowships: Pediatrics - Children's Hospital of Philadelphia. Board Certification: American Board of Anesthesiology. Positions: Associate Professor of Anesthesia, University of Pennsylvania School of Medicine; Director, Cardiac Anesthesia, Children's Hospital of Philadelphia, Pennsylvania.

(Not pictured)

Juan F. Gutierrez-  
Mazorra, M.D.



Susan C.  
Nicolson, M.D.

## James P. Viney, M.D. (Director)

Anesthesiology Residency: University of California- San Diego, San Diego, California. Anesthesiology Fellowship: Pediatric Anesthesia and Critical Care - Children's Hospital, Philadelphia, Pennsylvania. Other Residencies/Fellowships: Pediatrics - University of California-San Diego, San Diego, California. Board Certification: American Board of Anesthesiology; American Academy of Pediatrics. Positions: Clinical Assistant Professor of Pediatrics and Anesthesia, University of Utah; Chairman, New Primary Children's Medical Center, Salt Lake City, Utah.

## Leila G. Welborn, M.B. (Director)

Anesthesiology Residency: Anglo-American Hospital, Cairo University Hospital, Cairo, Egypt; Charing Cross Hospital, London, England. Anesthesiology Fellowship: University College Hospital National Heart Hospital; University of London, England; Hospital for Sick Children, University of Toronto, Ontario, Canada. Board Certification: Fellow of Faculty Anaesthetists, Royal College of Surgeons of England (FFARCS). Positions: Professor of Anesthesiology and Pediatrics, George Washington University Medical Center; Director, Cardiac Anesthesia, Children's National Medical Center, Washington, D.C. □



James P. Viney,  
M.D.



Leila G.  
Welborn, M.B.

## SURVEY RESULTS

# General Anesthesia for Full-Term Infants: Less Than One Month of Age - A Problem?

By Anne M. Lynne, M.D.  
Associate Professor of Anesthesiology  
and Pediatrics  
University of Washington Children's  
Hospital and Medical Center  
Seattle, Washington

### Background

Numerous investigators, including Steward, Liu and Kurth, have investigated and documented the problem of postoperative apnea in infants born prematurely who are less than 46 (perhaps 60) weeks post-conceptual age (PCA). Recommendations have included admitting such infants for overnight respiratory monitoring following a general anesthetic. A case report by Coté and colleagues also reported an apparent respiratory control problem uncovered by the appearance of apnea in a full-term infant following a general anesthetic.

But problems in the full-term infant having a general anesthetic in the first month of life have remained of a case report nature. Few infants having neonatal surgery are outpatient candidates.

In Seattle, we are called upon several times a year to anesthetize full-term infants for examinations and, at times, cataract extractions in infants who are under 46 weeks PCA even though they have been born after a full-term gestation. The question arose whether these infants should be handled as day surgery patients or whether they should be handled as we

would if the child were born prematurely, that is, admitted overnight for respiratory monitoring.

Because a MEDLINE search revealed no literature on this question, I composed a questionnaire that was distributed at the fall 1991 Society for Pediatric Anesthesia Annual Meeting in San Francisco. This report details the responses to that questionnaire.

Of the 157 respondents to the survey (200 were distributed), 89 percent of the respondents perform more than 100 pediatric cases a year, with 63 percent doing more than 500 cases. Of the respondents, 94 percent provide outpatient anesthesia for infants under six months of age, 86 percent perform anesthesia for all age patients, including former premature infants, and 49 percent of the respondents dedicate their practice solely to pediatric anesthesia.

In response to nationwide trends for how anesthesia in term infants less than 46 weeks PCA is handled, 56 percent admit all infants less than 46 weeks PCA whether or not the infants were born prematurely. Of the 44 percent who discharge full-term infants under 46 weeks PCA after routine day surgeries, 90 percent avoid the use of intraoperative narcotics and 88 percent avoid postoperative narcotic use when potential discharge is planned. Similarly, all who do discharge such infants indicated that a longer than usual stay of two to four hours in the recovery area is required. In the comment section at the bottom of the questionnaire, no specific problem cases were listed.

### Discussion

As you can see, you can make an argument on the basis of this survey for either path, that is to say, admitting these infants or discharging them. There was almost universal agreement that if such infants are discharged, narcotics should not be any part of their anesthetic care. The question still remains and would probably require a multicenter, nationwide investigation in order to accu-

mulate a sufficient number of full-term infants undergoing general anesthesia from the hospital to be evaluated to identify any risk associated with discharging full-term infants.

### Conclusion

Until such an investigation is established, either course of action (i.e., overnight admission or ambulatory surgery) can be defended on the basis of practice standards across the nation.

I welcome any input from the membership who know of specific problems or exceptions in similar case management. □

## SPA/FAER Research Grants

One of the goals of the Society for Pediatric Anesthesia (SPA) is to facilitate high quality continuing education of anesthesiologists in subjects relevant to the practice of pediatric anesthesia.

It is recognized that continued research is necessary to refine and extend knowledge in subjects of interest to practitioners of pediatric anesthesia. SPA recognizes that good research requires financial support; consequently, SPA is now an active contributor to the Foundation for Anesthesia Education and Research (FAER). Recently, SPA announced that it will fund an Anesthesiology Research Starter Grant jointly with FAER.

It is hoped that SPA members with relevant research interests in pediatric anesthesia will compete for FAER grants. Up to four awards of \$30,000 each will be given per year.

Applications are available from FAER, M.S.T.F. 300, 10 South Pine Street, Baltimore, Maryland 21201. □

### Dues Information

Membership dues for the Society for Pediatric Anesthesia are \$100 per fiscal year. The costs of the SPA Annual Meeting (guest speaker stipends, meeting place expenses and food) are underwritten by membership dues and by generous contributions from corporate donations and sponsors. For more information, interested physicians should write to:

THE SOCIETY FOR  
PEDIATRIC ANESTHESIA  
520 N. Northwest Highway  
Park Ridge, Illinois 60068-2573

# SPA SIXTH ANNUAL MEETING SCHEDULE

## Friday, October 16, 1992 - New Orleans Hilton Hotel

7:00 a.m. - 8:00 a.m.  
REGISTRATION AND  
CONTINENTAL BREAKFAST  
*Grand Ballroom - Salon B*

8:00 a.m. - 8:05 a.m.  
Introductory Remarks  
**Aubrey Maze, M.B., President**  
*Grand Ballroom - Salon A*

8:05 a.m. - 10:15 a.m.  
**Developmental Pharmacology**  
**Moderator: Aubrey Maze, M.B.**  
*Grand Ballroom - Salon A*

8:05 a.m.  
Developmental Pharmacology: When  
Does the Infant Become an Adult with  
Respect to Its Pharmacology?  
**Dennis M. Fisher, M.D.**

8:40 a.m.  
Age-Related Differences in Response to  
Neuromuscular Blocking Agents  
**Barbara W. Brandom, M.D.**

9:15 a.m.  
Maturation of the Opioid Receptor  
**Gavril Pasternak, M.D.**

10:00 a.m.  
Questions and Answers

10:15 a.m. - 10:45 a.m.  
COFFEE BREAK

10:45 a.m. - 12:00 noon  
**What Is New in Pediatric Anesthesia?**  
**Moderator: R. Gordon Bush, M.D.**  
*Grand Ballroom - Salon A*

10:45 a.m.  
Advances in Local Anesthetic Agents  
**Roddy McNicol, M.B.**

11:05 a.m.  
New Inhalational Anesthetics in Children  
**Jerrold Lerman, M.D.**

11:20 a.m.  
Neuromuscular Blocking Agents  
**George Meakin, M.B.**

11:45 a.m.  
Questions and Answers

12:00 noon - 1:30 p.m.  
LUNCHEON  
*Grand Ballroom - Salon B*

1:30 p.m. - 3:20 p.m.  
**Practical Issues in Pediatric Anesthesia**  
**Moderator: Frederic A. Berry, M.D.**  
*Grand Ballroom - Salon A*

1:30 p.m.  
Parents in the Operating Room  
**Peter Morris, M.B.**

1:50 p.m.  
Intravenous Inductions in Pediatrics  
**Susan Jones, M.B.**

2:10 p.m.  
Issues of Premedication: Is It Necessary,  
and Which Orifice is Best?  
**Peter J. Davis, M.D.**

3:00 p.m.  
Induction Techniques in Children  
**Anneke Meursing, M.D.**

3:20 p.m. - 3:40 p.m.  
COFFEE BREAK

3:40 p.m. - 4:45 p.m.  
**Controversies in Pediatric Anesthesia**  
**Moderator: Charles H. Lockhart, M.D.**  
*Grand Ballroom - Salon A*

3:40 p.m.  
Inhalational vs. Opioid  
Anesthesia for Neonates with  
Congenital Heart Disease —  
Point/Counterpoint  
**David J. Hatch, M.B.**  
**Paul Hickey, M.D.**

4:30 p.m.  
Questions and Answers

4:45 p.m.  
**BUSINESS MEETING**  
Election of Officers and Directors

## FACULTY

**Frederic A. Berry, M.D.**  
University of Virginia  
Health Sciences Center  
Charlottesville, VA

**Barbara W. Brandom, M.D.**  
Children's Hospital of Pittsburgh  
Pittsburgh, PA

**R. Gordon Bush, M.D.**  
Editor, *Journal of Paediatric Anaesthesia*  
London, England

**Peter J. Davis, M.D.**  
Children's Hospital of Pittsburgh  
Pittsburgh, PA

**Dennis M. Fisher, M.D.**  
University of California  
San Francisco, CA

**David J. Hatch, M.B.**  
Hospital for Sick Children  
London, England

**Paul Hickey, M.D.**  
Children's Hospital  
Boston, MA

**Susan Jones, M. B.**  
Children's Hospital  
Birmingham, England

**Jerrold Lerman, M.D.**  
Hospital for Sick Children  
Toronto, Ontario, Canada

**Charles H. Lockhart, M.D.**  
Children's Hospital  
Denver, CO

**Aubrey Maze, M.B.**  
Phoenix Children's Hospital  
Phoenix, AZ

**Roddy McNicol, M.B.**  
Royal Hospital for Sick Children  
Glasgow, Scotland

**George Meakin, M.B.**  
Royal Manchester Children's Hospital  
Manchester, England

**Anneke Meursing, M.D.**  
Sophia Kinderziekenhuis  
Rotterdam, The Netherlands

**Peter Morris, M.B.**  
Royal Manchester Children's Hospital  
Manchester, England

**Gavril Pasternak, M.D.**  
Sloan-Kettering Memorial Cancer Center  
New York, NY

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# BUFFET RECEPTION AT THE WINDSOR COURT HOTEL

Friday, October 16, 1992 — 6:30 p.m. to 10:00 p.m.

**M**ake your participation at the Society for Pediatric Anesthesia Sixth Annual Meeting complete by attending the highly popular SPA Buffet Reception. This year's reception will be held on the 23rd floor of the elegant Windsor Court Hotel. The Windsor Court is located at 300 Gravier Street and is conveniently located to all ASA Annual Meeting hotels. The Windsor Court's 23rd floor terrace offers you a panoramic view of New Orleans and the Mississippi River.

The cost of the SPA Buffet Reception is included in the SPA Annual Meeting registration fee. Tickets for guests may be purchased in advance for \$35 per person. Please check the appropriate box on the registration form and include the proper remittance with your registration fee.

Last year's Buffet Reception at the San Francisco Museum of Modern Art was a sellout. Early registration for this year's SPA Buffet Reception at the Windsor Court is encouraged.

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## Society for Pediatric Anesthesia

### 1992 ANNUAL MEETING REGISTRATION FORM

NEW ORLEANS HILTON HOTEL / NEW ORLEANS, LOUISIANA / OCTOBER 16, 1992

1992 SPA Annual Meeting registration fees are: AAP, APA, SPA Members - \$100; Non-SPA Members - \$200 (includes \$100 meeting registration and \$100 immediate SPA membership). Extra Buffet Reception tickets for nonregistered guests may be purchased in advance at the cost of \$35 per person.

Name \_\_\_\_\_

Address (Check Preference): ( ) Home ( ) Business: \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP Code \_\_\_\_\_

Hospital Affiliation \_\_\_\_\_

Business Telephone ( ) \_\_\_\_\_ Home Telephone ( ) \_\_\_\_\_

Registration:

Make check payable to the **Society for Pediatric Anesthesia** and mail to:

Society for Pediatric Anesthesia  
520 N. Northwest Highway  
Park Ridge, Illinois 60068-2573

Registration

AAP, APA, SPA Members (\$100) \_\_\_\_\_

Non-SPA Members (\$200) \_\_\_\_\_

Extra Buffet Reception \_\_\_\_\_

Ticket (\$35 each) \_\_\_\_\_

TOTAL \_\_\_\_\_

## ANNUAL MEETING SPONSORS

The following companies have provided educational grants to the Society for Pediatric Anesthesia for the SPA Annual Meeting and Newsletter:

Burroughs Wellcome Company  
Marquette Electronics, Inc.  
Siemens  
Nellcor, Inc.  
Cook, Inc.  
Abbott Laboratories



## ANNUAL MEETING PANEL DISCUSSIONS

SPA, in conjunction with the American Academy of Pediatrics (AAP) Section on Anesthesiology is organizing this year's pediatric anesthesia conferences at the ASA Annual Meeting as well as hosting our colleagues of the Association of Paediatric Anaesthetists.

SPA will be coordinating ef-

forts for the Society's Sixth Annual Meeting on Friday, October 16, 1992, while the AAP Section on Anesthesiology will be coordinating the Monday, October 19, 1992 Breakfast Panel discussion on "Issues in Pediatric Anesthesia for Ambulatory Surgery." The Breakfast Panel is scheduled from 7:30

a.m. to 8:45 a.m. at the New Orleans Hilton Hotel.

On Monday afternoon, there will be a panel to discuss "Neonatal Anesthesia in the Community Hospital." This panel discussion is scheduled from 2:00 p.m. to 5:00 p.m. at the New Orleans Convention Center.

Monday, October 19

7:30 a.m. to 8:45 a.m.  
New Orleans Hilton Hotel

**American Academy of Pediatrics  
Section on Anesthesiology**

**Breakfast Panel Discussion**

**Issues in Pediatric Anesthesia for Ambulatory Surgery**

Moderator:

J. Michael Badgwell, M.D.  
Associate Professor  
Anesthesiology and Pediatrics  
Department of Anesthesiology  
Texas Tech University  
Health Sciences Center  
Lubbock, Texas

Panel Members:

**Preoperative Hematocrits**  
W. Lawrence Roy, M.D.  
Staff Anaesthetist  
Hospital for Sick Children  
Associate Professor  
Department of Anaesthesia  
University of Toronto  
Toronto, Ontario, Canada

**Appropriateness of Regional Anesthesia**

Linda Jo Rice, M.D.  
Assistant Professor of  
Anesthesiology and Child  
Health and Development  
Children's Hospital National  
Medical Center  
Washington, D.C.

**The Ex-Premature Infant**

Peter Crean, M.B.  
Consultant Paediatric Anaesthetist  
Royal Belfast Hospital  
for Sick Children  
Belfast, Northern Ireland,  
United Kingdom

**NPO Intervals**

Sten G.E. Lindahl, M.D.  
Professor and Chairman  
Department of Anesthesiology and  
Intensive Care  
Karolinska Hospital and Institute  
Stockholm, Sweden

Tuesday, October 20, 1992

2:00 p.m. to 5:00 p.m.  
New Orleans Convention Center

**Panel on Neonatal Anesthesia in the Community Hospital**

Moderators:

**Steven C. Hall, M.D.**  
Associate Professor of Anesthesia  
Northwestern University  
Chief of Pediatric Anesthesia  
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Panel Members:

**What Equipment Can We Use?  
(Do They Make the Right Stuff  
for Neonates?)**  
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## JOINT SPA/APSA MEETING

By Jerrold Lerman, M.D.

The first joint meeting of the Society for Pediatric Anesthesia (SPA) and the American Pediatric Surgical Association (APSA) was held at the Broadmoor Hotel in Colorado Springs, Colorado on May 15-16, 1992. An enthusiastic group of about 25 pediatric anesthesiologists supported by more than 100 pediatric surgeons attended the joint sessions. The program was comprised of two academic sessions on May 15: "Controversies and Dilemmas" and "What's New"; and one three-hour abstract session on May 16.

The session on current controversies and dilemmas covered a wide range of practical problems that both anesthesiologists and surgeons face daily. Joseph T. Zerella, M.D. and Aubrey Maze, M.B., both of Phoenix, Arizona, discussed "The Premature Infants with an Inguinal Hernia: Does It Make a Difference When Surgery is Scheduled?" The concepts of regional anesthesia as the sole anesthetic and intravenous caffeine to attenuate the severity of the postanesthetic apnea fostered much discussion. Myron Yaster, M.D., Baltimore, Maryland, presented a comprehensive review of regional anesthesia for the pediatric patient, and David E. Cohen, M.D., Philadelphia, Pennsylvania, discussed "Patient-Controlled Analgesia: Theoretical and Practical Implications for the Practicing Physician."

The session on "What's New" was a very captivating and lively presentation. Michael Harrison, M.D., San Francisco, California, presented a state-of-the-art lecture on "Fetal Surgery: Where It's Been and Where It's Going." The outcome of human fetal surgery with the implementation of technological

advances has brought fetal surgery close to becoming something more than experimental. The addition of expert anesthesia will undoubtedly contribute to the success of this new and exciting field in pediatric surgery.

Charles H. Lockhart, M.D., Denver, Colorado, presented a cogent lecture on the pharmacology of the neonate undergoing surgery. His review highlighted many of the issues germane to neonatal anesthesia. In particular, he noted the need for adequate anesthesia and narcotics in the intra- and postoperative periods.

David Tapper, M.D., Seattle, Washington, and Jerrold Lerman, M.D. chaired the abstract session on Saturday morning. Sixteen research abstracts of interest to pediatric surgery and anesthesia were presented. The research abstracts followed two themes: respiratory physiology and regional anesthesia. Each abstract presented was critiqued by an expert in the field and then discussed by members of the audience. The abstracts were very well-presented, and if audience participation is any indication of the enthusiasm, this session was a resounding success.

Those who attended the joint SPA/APSA meeting were extremely pleased with the content of the meeting and the camaraderie between the two groups. Most left the first joint surgical/anesthesia meeting in North America with a better understanding of our colleagues' problems.

Future meetings similar to this one will provide a forum to address areas of mutual interest to anesthesiologists and surgeons. Plans are under way to hold another SPA/APSA joint meeting in 1996 in Tucson, Arizona. □

### What Drugs Can We Use? (Are Neonates Specially "Sensitive"?)

#### Volatile Anesthetics

Jerrold Lerman, M.D.  
Chief of Anaesthesia  
Hospital for Sick Children  
Toronto, Ontario, Canada

#### Intravenous Agents

Robert M. Spear, M.D.  
Consultant  
San Diego Children's Hospital  
San Diego, California

#### How About Propofol?

Raafat S. Hannallah, M.D.  
Professor  
Anesthesiology and Pediatrics  
Children's Hospital National  
Medical Center  
Washington, D.C.

### Which Anesthesiologists Should We Use? (Should Only Pediatric Subspecialists Anesthetize Neonates?)

Charles H. Lockhart, M.D.  
Chief of Anesthesia  
Children's Hospital  
Denver, Colorado □

## LITERATURE REVIEWS

The following literature reviews have been selected from recent issues of international journals concerning pediatric and surgical studies which may be of interest to the pediatric anesthesiologist.

### **Is outpatient tonsillectomy appropriate for young children?**

Tom LWC et al. *Laryngoscope* 1992; 102(3):277-280.

Reviewed by *H.B. Gutstein, M.D.*

The paper is certainly a "must-read." The authors studied 223 children under 3 years of age who underwent tonsillectomy. Upper airway obstruction and tonsillitis were the indications for surgery. In this study, approximately 60 percent of children undergoing surgery required more than standard postoperative management, including supplemental oxygen, dexamethasone and droperidol for postoperative vomiting. About 50 percent of the children exhibited airway complications, while 8.5 percent required intravenous hydration for treatment of emesis. About 8 percent of the children required postoperative ICU care. Only patients with pre-existing upper airway obstruction required ICU care, and the majority of those patients presented with obstructive apnea. Also, approximately 70 percent of the children requiring an ICU stay had associated medical problems such as cardiac anomalies, asthma and genetic or developmental anomalies. Half of the children requiring ICU care needed endotracheal intubation, while most of the remainder required nasal airways.

Anesthetic technique (narcotic versus potent inhalational agents) was not a factor in postoperative outcome. It was recommended that all children under the age of 3 years be admitted overnight after tonsillectomy due to the high incidence of complications. Preoperative apnea, age of less than 12 months and the presence of accompanying medical conditions were associated with a higher incidence of postoperative airway complications.

### **Outpatient inguinal herniorrhaphy in premature infants: Is it safe?**

Melone JH et al. *J Pediatr Surg* 1992; 27(2):203-208.

Reviewed by *L.H. Feld, M.D.*

This is a retrospective study looking at 1,294 outpatient inguinal herniorrhaphy performed in a freestanding outpatient surgery unit between 1985-1990. The patients were ASA 1-2 whose average post-conceptual age was 45.3 weeks (34-59 weeks) and average weight was 4,485 gm (2,295-9,977). One hundred and twenty-four patients (9.6 percent) were identified as being premature (< 36 weeks gestational age). Twenty-two infants previously required ventilatory support, 11 patients had apnea and bradycardia, and nine patients developed broncho-pulmonary dysplasia. General anesthesia (mostly N<sub>2</sub>O/halothane) was used with no muscle relaxants, regional or narcotic anesthetics. No perioperative deaths were recorded. One patient became apneic immediately after extubation in the O.R. Another patient following discharge had a brief apneic episode at home while on an apnea monitor. Bradycardia to 80/min. was noted in two patients. Two patients required postoperative ventilation.

The authors state that their series did not "demonstrate the high postoperative incidence of apnea/bradycardia previously reported in our literature." They go on to theorize that perhaps the fact that their patients did not receive muscle relaxants or narcotics was responsible for their low incidence of apnea/bradycardia postoperatively. They conclude that "outpatient inguinal herniorrhaphy can be performed in this patient group with minimal morbidity and no mortality."

This study clearly represents the pitfalls of a retrospective study and the ability to therefore come to a conclusion based on inappropriate information. Clearly, there is a significant incidence of apnea and bradycardia postoperatively and, furthermore, it is clear that the apneic event may occur hours after surgery. Infants were monitored in the PACU by vital signs and heart rate only. Pulse oximetry and pneumo-cardiograms were not used; therefore, episodes of oxygen desaturation, apnea or bradycardia could easily have been missed. Even if these monitors were

in place during this study, the apneic episodes in the study alone causes one to clearly recall that even one cardiorespiratory catastrophe is considered a disaster in this patient population.

### **Is there a choice of palliation for Tetralogy of Fallot?**

Sommer RJ, Golinko RJ. *J Am College of Cardiol* 1991; 18(1):166-167.

Reviewed by *S. Rimar, M.D.*

Reviews the state-of-the-art in the surgical treatment of Tetralogy of Fallot.

### **Cyanotic congenital heart disease: Hematologic management.**

Territo MC, Rosove MH. *J Am College of Cardiol* 1991; 18(2):320-322.

Reviewed by *S. Rimar, M.D.*

This article gives a clear and concise review of hematologic problems in patients with cyanotic heart lesions, including cerebrovascular accidents, bleeding tendency, and pre- and postoperative management.

### **Minimum alveolar concentration of sevoflurane in children.**

Katoh T, Ikeda K. *Br J Anaesth* 1992; 68:139-141.

Reviewed by *A.S. Klein, M.D.*

The authors determined the MAC of sevoflurane in 20 Japanese children ages 3-5 years. MAC was found to be 2.5 percent, predictably higher than that reported for adults (1.7-2.0 percent). This is consistent with the MAC age-related differences observed for other potent inhaled halogenated agents. Bucking and grimacing on incision were not considered movement and may have led to the underestimation of MAC in some subjects. Of note is that the ED95 for no movement on incision was only slightly higher than MAC, at 2.9 percent. Also, the authors make no mention of airway irritation during the inhalation induction.

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**Anesthesia for premature and term infants: Preoperative implications.**

Spear RM. *J Pediatr* 1992; 120:165-176.  
Reviewed by *A.S. Klein, M.D.*

This is a medical progress review article written with pediatricians and neonatologists in mind. It is nicely done and should be shared with your colleagues.

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**Ketamine for caudal analgesia in children: Comparison with caudal bupivacaine.**

Nauguib M, Sharif AMY, Seraj M et al. *Br J Anaesth* 1991; 67:559-564.  
Reviewed by *A.S. Klein, M.D.*

In this study, caudal ketamine 0.5 mg/kg produced postoperative analgesia comparable to that associated with caudal 0.25 percent bupivacaine 1 ml/kg with or without ketamine. No patient in the ketamine group had urinary retention or motor weakness. All patients were Saudi Arabian toddlers undergoing unilateral hernia repair. All they need to do now is compare it to simple nerve block or the bupivacaine "splash," or even a simple dose of morphine. Is it really necessary to add an invasive procedure to a simple operation, no matter how easy it is to do? What else can we stick in the epidural space?

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**Ventricular performance in congenital heart disease.**

Graham TP. *Circulation* 1991; 84:2259-2274.  
Reviewed by *F.X. McGowan, Jr., M.D.*

This is an excellent review of current knowledge concerning the effects of congenital heart disease upon ventricular function. The immediate and long-term consequences of volume overloading and/or underloading, cyanosis and surgical repair upon ventricular performance in lesions such as atrial and ventricular septal defects, tetralogy, transposition, anomalous venous return, aortic stenosis and coarctation are clearly summarized.

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**Recovery of cerebral metabolism and mitochondrial oxidation state is delayed after hypothermic circulatory arrest.**

Greeley WJ et al. *Circulation* 84(suppl III):1991; III:400-406.  
Reviewed by *F.X. McGowan, Jr., M.D.*

In this study, cerebral blood flow, oxygen consumption and oxygenation status

(inferred from near infrared spectroscopy) were compared in children (age 1 day to 6 years) undergoing deep hypothermic bypass with and without circulatory arrest. The total circulatory arrest (DHCA) group experienced reduced brain oxygenation (decreased amounts of oxyhemoglobin and oxidized cytochrome aa3) during DHCA. With rewarming and restoration of oxygen supply, the DHCA group demonstrated reduced cerebral oxygen consumption and cytochrome oxidation state, while tissue deoxyhemoglobin was increased. Despite hypothermia, DHCA is associated with ongoing metabolic activity during ischemia and with impaired oxidative metabolism in the brain during reflow. The mechanism(s), duration and clinical consequences of these defects await further study.

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**Acquired tracheal stenosis in infants and children.**

Wever TR, Connors RH, Tracy TF. *J Thorac Cardiovasc Surg* 1991; 102(1):29-35.

Reviewed by *S. Rimar, M.D.*

This article reviews the 10-year experience in 110 infants and children with acquired tracheal stenosis. The most common cause (44 cases) was endotracheal intubation, usually in the subglottic area. The duration of intubation ranged from four weeks to four months, involved the use of a cuffless tube that was replaced only when absolutely necessary. Most of these were in premature infants, and the most common symptoms were upper airway obstruction or inability to remove endotracheal tube. Caustic aspiration, recurrent infection, bronchoscopic perforation and gastric aspiration were responsible for the other cases of stenosis. Therapies involved balloon dilatation, bronchoscopic electrocoagulation resection, steroid injection, T tube stent, resection with anastomosis, cricoid split or rib cartilage grafting. The authors conclude that a variety of techniques can be successful in the treatment of this disorder, and resection and grafting procedures should be reserved for cases in which less complicated methods fail.

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**Preoperative history and coagulation screening in children undergoing tonsillectomy.**

Burk CD, Miller L, Handler SD, Cohen

AR. *Pediatrics* 1992; 89:691-695.  
Reviewed by *M.F. Watcha, M.D.*

A prospective study of 1,603 children undergoing tonsillectomy was performed to evaluate the role of routine history and preoperative coagulation screening in detecting the potential for excessive bleeding. The tests included a complete blood count, bleeding time, prothrombin time and activated partial thromboplastin time. In predicting perioperative bleeding, history and laboratory screening had a high specificity but a low positive predictive value. The large number of false positive results and the relative rarity of inherited and acquired coagulopathies raise doubts about the overall value of routine screening.

This is one more study casting doubts about the value of routine testing to detect events of low incidence but high morbidity. Although a cost-benefit analysis was not included in this study, it appears that routine coagulation studies rarely alter subsequent management. Children who hate "shots" will applaud the termination of this practice.

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**Midazolam for conscious sedation during pediatric oncology procedures: Safety and recovery parameters.**

Sievers TD, Yee JD, Foley ME, Blanding RJ, Berde CB. *Pediatrics* 1991; 88:1172-1179.

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**Midazolam versus fentanyl as premedication for painful procedures in children with cancer.**

Sandler ES, Weyman C, Connor K et al. *Pediatrics* 1992; 89:631-634.  
Reviewed by *M.F. Watcha, M.D.*

Children with oncological disorders often need to undergo painful procedures, and they often consider these procedures to be worse than the disease. The first study from Boston is a descriptive one of the use of midazolam alone or with opioids for bone marrow biopsies and lumbar punctures. In this study, 13 percent developed O<sub>2</sub> saturation <90 percent but recovered with verbal stimulation and oxygen therapy. The other study by Sandler et al. had a randomized, double-blind crossover design, where patients preferred midazolam over fentanyl. In this study, the lowest O<sub>2</sub> saturation was 91 percent.

These two studies are examples of how anesthesiologists are having an im-

pact on pediatric practice outside the operating rooms. Prior to the advent of pain services, these procedures were often done without local anesthesia and with physical restraints because of concerns about safety and efficacy of premedication. These studies demonstrate that anxiety is a greater problem than pain; hence, the benefits from midazolam. The need for constant monitoring, availability of oxygen and resuscitation equipment is emphasized. (See Guidelines for Sedation in Pediatrics, 1986;76:317-321.)

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**Thiopental as an adjunct to hypothermia for EEG suppression in infants prior to circulatory arrest.**

Rung GW et al. *J Cardiothorac Vasc Anesth* 1991; 5:337-342.  
Reviewed by **B.J. Gronert, M.D.**

This study evaluated the combination of profound hypothermia (nasal temp. 15-17°C and rectal temp. 20-22°C) and thiopental (8 mg/kg) on the electroencephalogram (EEG) prior to circulatory arrest. EEG activity often persists just before institution of cardiac arrest in spite of profound hypothermia. Mean patient age and weight were 5.5 ± 1.2 months and 4.9 ± 0.3 kg, respectively. The EEG recording was "satisfactory" in 9/15 patients, and serum thiopental concentration was measured in 12 patients. Persistent EEG activity with hypothermia alone (mean venous return temp., 17.8 ± 1.6°C) was noted in 8/9 patients (89 percent). After thiopental was administered, the EEG became isoelectric in six of these eight patients (75 percent). EEG activity resumed in all patients after reinstitution cardiopulmonary bypass (CPB) without any sign of seizures or global hypoperfusion. Serum thiopental concentration at the end of CPB was negligible. Thiopental did not cause difficulty weaning from CPB. Postoperatively, two patients developed "transient" seizures, one developed encephalopathy with delayed awakening, and one died of respiratory complications. Thirteen of 15 of the patients studied were discharged from the hospital in good condition.

The inability to achieve "satisfactory" EEG recordings in 40 percent of the patients is of concern because almost half the data are not available. In addition, only 12 of 15 serum concentrations of thiopental were available. The authors agree that this area of cerebral protection

needs more study and that one should not administer thiopental unless you are monitoring the EEG. Certainly, brain protection is an important area of study that has not enjoyed the same advances as myocardial preservation.

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**Transesophageal echocardiography and the intraoperative management of pediatric congenital heart disease: Initial experience with a pediatric esophageal 2D color flow echocardiographic probe.**

Shah PM et al. *J Cardiothorac Vasc Anesth* 1992; 6:8-14.  
Reviewed by **B.J. Gronert, M.D.**

These authors evaluated a new pediatric transesophageal echocardiography (TEE) color Doppler probe with a 5 MHz transducer on the tip of 100 cm long endoscope that is 6.8 mm in diameter. Twenty-six patients undergoing corrective or palliative surgery for congenital heart disease ranging in age from 1 day to 15 years and weighing 2.9 to 42 kg were studied. The probe was inserted easily in all cases without complications and used for the entire case. The intraoperative TEE correlated with the preoperative transthoracic echocardiography evaluation. The intraoperative TEE altered surgical management of two of 15 patients. The authors noted that "the exact role of intraoperative two-dimensional TEE in the pediatric and infant population" needs to be further defined.

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**The epidemiology of pain in children and adolescents: A review.**

Goodman J, McGrath P. *Pain* 1991; 46:247.  
Reviewed by **D.E. Cohen, M.D.**

This review focuses on the findings and methodological issues regarding the epidemiological studies examining pediatric pain. Reports included examining the epidemiology of head pain, abdominal pain, back pain and in-hospital pain. The review stated that because of design and measurement problems, the epidemiology of pain in children and adolescents is relatively undocumented.

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**Halothane-morphine compared with high dose sufentanil for anesthesia and postoperative analgesia in neonatal cardiac surgery.**

Anand KJS, Hickey PR. *N Engl J Med*

1991; 326(1):1-9.

Reviewed by **J.P. Viney, M.D.**

Drs. Anand and Hickey randomly compared 30 neonates receiving high dose sufentanil anesthesia plus postoperative opiate infusions with 15 neonates receiving halothane and morphine anesthesia plus postoperative morphine and valium. The groups were analyzed with regard to 20 hormones and blood chemistries as well as postoperative outcome. This interesting article is controversial enough that it should be read by all pediatric anesthesiologists.\*

\* Specifically the Letters to the Editor, *NEJM* 327:124-127.

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**Individual variability in the response to different opioids: Report of five cases.**

Galer BS, Coyle N, Pasternak GW, Portenoy RK. *Pain* 1992; 49:87.  
Reviewed by **D.E. Cohen, M.D.**

Five patients are reported who had highly variable responses to different opioid drugs. Equianalgesic doses of different analgesics produced variable side effects. Pain unresponsive to one opioid was responsive to another in several cases. This contradicts the view that any opioid is not inherently more efficacious than any other. Genetic variability may explain the differences.

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**Efficacy of rectal ibuprofen in controlling post-op pain in children.**

Maunulcsla EL et al. *Can J Anaesth* 1992; 39(3):226-230.  
Reviewed by **L.H. Feld, M.D.**

The authors studied the efficacy of ibuprofen scheduled rectal administration given preoperatively and continued postoperatively for postoperative pain control in children 4-12 years old. Rectal ibuprofen (40 mg/kg per day divided in 3-4 doses) was given in a double-blind, placebo-controlled fashion to 128 children ages 4-12 years old. The first dose was given immediately after induction of anesthesia and then postoperatively for three days thereafter. Morphine was given to all children 0.1 mg/kg IV or 0.15 mg/kg IM according to need. Every morning the children were interviewed about the efficacy of analgesic treatment.

The results showed that there was no difference in sedation scores in the PACU, but the pain scores were significantly lower

in the ibuprofen group in the PACU and throughout the study period. The difference in the need for opioids was most clearly seen in patients undergoing extensive orthopedic surgery.

On the day of surgery, the analgesic therapy was considered to be good or very good by 47/53 and 32/49 of the children in ibuprofen and placebo groups respectively ( $p < 0.05$ ). Later their assessments did not differ. There was no difference between groups with respect to the incidence of unwanted side effects, including that of bleeding.

The authors conclude that the scheduled administration of ibuprofen decreased the need for opioid analgesia, improved the pain relief during recovery and did not cause additional side effects. This and other studies looking at NSAIDs in children point in a direction to new and exciting means of pain control in children. The lack of respiratory depression is also a particularly attractive attribute of NSAIDs.

#### **Pulmonary function in newborns after repair of congenital diaphragmatic hernia.**

Nakayama DK et al. *Pediatric Pulmonology* 1991; 11:49-55.  
Reviewed by **B.J. Gronert, M.D.**

This study compared pulmonary function tests (PFTs) obtained in eight intubated infants who survived neonatal repair of congenital diaphragmatic hernia (CDH) and six full-term infants with no respiratory disease undergoing elective surgery. The patients were similar in age and weight. The deflation flow-volume curve technique produced maximum expiratory flow-volume (MEFV) curves, giving reproducible measurements of forced vital capacity (FVC) and maximal expiratory flow at 25 percent of FVC (MEF 25). Respiratory system compliance (Crs) and resistance (Rrs) were obtained with a modified passive mechanics technique. In neonates surviving CDH repair as compared to those with normal lung function, FVC was significantly reduced to 52.7 percent of that of control infants, indicating restrictive disease. MEF 25 was also significantly reduced to 26.0 percent of controls, indicating the onset of obstructive airway disease as well. Administration of a nebulized bronchodilator (isoetharine) caused significant increase in FVC (15 percent) and MEF 25 (200 percent). Crs (normalized to body weight)

in infants with CDH was 53.3 percent of controls. The mean Rrs values, which include the flow resistance of the endotracheal tube, were similar in both groups.

This study further confirms the presence of restrictive lung disease in infants surviving CDH repair, and documents obstructive airway disease that responds to nebulized bronchodilator therapy.

#### **Flexible endoscopic intubation of the neonate.**

Finer NN, Muzyka D. *Pediatric Pulmonology* 1992; 12:48-51.  
Reviewed by **B.J. Gronert, M.D.**

This study documents the use of an ultra-thin bronchoscope for flexible endoscopic intubation in 23 neonates, 31.5 to 60 weeks postconceptual age, weighing 1200 to 4600 grams. A 2.2 mm diameter bronchoscope was used with endotracheal tubes as small as 2.5 mm. The infants were premedicated with 2 mg/kg meperidine, and their right nostril was topicalized with 4 mg/kg of lidocaine. The average duration of the procedure was 30 to 180 seconds. There were no failed intubations. Transient hypoxia (lowest SpO<sub>2</sub>=85%) was frequently noted on introduction of the bronchoscope into the trachea. There were no major complications.

This small bronchoscope will be a nice addition to the airway management of small infants with abnormal airways.

#### **Complications of pediatric cardiac catheterization: A 3-year study.**

Cassidy SC, Schmidt KG, Van Hare GF, Stanger P, Teitel DF. *J Am College of Cardiol* 1992; 19(6):1285-1293.  
Reviewed by **S. Rimar, M.D.**

This prospective study of 1,037 cardiac catheterization on patients ages 1 day to 27 months (median 15.6 months) determined the risk associated with both diagnostic and interventional procedures. There were 15 major (1.4 percent) and 70 minor complications (6.8 percent). Four patients died as a result of the catheterization or pericatheterization events. Dysrhythmias, bleeding, hypoxia, perforation of the heart or great vessels and hypotension were the most common major complications reported. Compared with similar data from the same institution 10 years earlier, the incidence of death as well as major and minor compli-

cations decreased significantly. The authors suggest that changes in pericatheterization medical management, patient selection for catheterization and catheterization techniques account for this improvement.

#### **Early experience with percutaneous tracheotomy.**

Wang MB et al. *Laryngoscope* 1992; 102(2):157-162.  
Reviewed by **H.B. Gutstein, M.D.**

This paper, though not directly relevant to pediatric anesthesia, points out serious problems with a new and increasingly popular technique, that of percutaneous tracheotomy. The procedure uses a needle and guidewire to enter the trachea, and progressively larger dilators are then used to widen the stoma for insertion of the tracheotomy tube. This technique has been touted as an excellent way to gain emergency access to the airway by nonsurgical personnel (i.e., anesthesiologists and emergency room physicians). However, this study and several others in the distant past report an unacceptably high incidence of major complications, including placement of the tracheotomy tube in a false passage, excessive bleeding and death. It is recommended that this technique be abandoned.

#### **Pediatric tracheobronchomalacia (TBM) and major airway collapse.**

Mair EA, Parsons DS. *Annals of Otolaryngology, Rhinology, and Laryngology* 1992; 101(4):300-309.  
Reviewed by **H.B. Gutstein, M.D.**

This article presents a nice review of the diagnosis, classification, preferred anesthetic management and treatment of infants with TBM. In this series, TBM was the etiology in 30 percent of the children under 3 years of age presenting with acute or chronic respiratory distress. Presenting symptoms of TBM included acute or chronic respiratory obstruction with prolonged expiration, cyanosis, barking cough, stridor, apnea, difficulty feeding and recurrent pneumonia. The onset of symptoms occurred at birth in nearly all of the children, and about one-third of the children were premature infants. Associated cardiac anomalies and developmental problems were extremely common.

Preoperative evaluation of these children should include an EKG and

echocardiogram. Co-existing anomalies included GE reflux, subglottic stenosis, tracheoesophageal fistula and vocal cord paralysis. The authors recommend spontaneous ventilation with laryngoscopic insufflation of anesthetic gases and the use of small diameter telescopes without bronchoscopes as the preferred anesthetic technique for dynamic evaluation of the malacic airway. CPAP was also recommended for use if the airway was being evaluated fluoroscopically. A classification system was also proposed in the article as well as recommendations for medical and surgical management of these children. Mortality of this condition depends on the severity of disease but has been previously reported to be as high as 80 percent.

**The effect of pre-incisional infiltration of tonsils with bupivacaine on the pain following tonsillectomy under general anesthesia.**

Jebles J, Reilly J, Gutierrez J, Bradle EL, Kissin I. *Pain* 1991; 47:305.  
Reviewed by *D.E. Cohen, M.D.*

This study compared 0.25 percent bupivacaine with 1:200,000 epinephrine added to saline with 1:200,000 epinephrine in 14 patients undergoing tonsillectomy. On day 2, constant pain was markedly less in the study group. By days 4-5, pain in the study group was minimal compared to a pain score of 40-60/100 in the control group. At 10 days, a significant difference continued to exist in swallowing pain between the two groups. These investigators suggested that local anesthetic blocked the formation of a sustained hyperexcitable state responsible for the maintenance of postoperative pain.

**Pharmacokinetic model driven infusion of propofol in children.**

Marsh B, White N, Morton N, Kenny NC. *Br J Anaesth* 1991; 67:41-48.  
Reviewed by *A.S. Klein, M.D.*

The authors used a computer-controlled delivery system for propofol anesthesia in children (ages 1-12 years) to allow administration of drug to a theoretical target plasma concentration. Compared with an adult model (Spelina KR. *Br J Anaesth* 1986;58:1080-1084), the volume of the central compartment (Vc) of the new pediatric model was calculated to be 343 ml/kg, 50 percent greater than

the adult pharmacokinetic model. This is different from the value for Vc of 722 ml/kg/min reported after single bolus administration to children (Saint-Maurice C. *Br J Anaesth*, 1989;63:667-670). The clearance was calculated to be 34 ml/kg/min, versus an adult value of 27 ml/kg/min. It was found that the theoretical target concentration for achieving adequate induction was as high as 14 ug/ml as compared to 5 ug/ml in adults. This study is consistent with others that demonstrate an increased bolus dose (50 percent greater) and infusion rate (25 percent greater) of propofol for children versus adults.

**Continuous paravertebral block for post thoracotomy analgesia in children.**

Eng J, Sabanathem S. *J Pediatr Surg* 1992; 27(5):556-557.  
Reviewed by *L.H. Feld, M.D.*

Six children (mean age 10.6 years, range 7-16 years) underwent thoracotomy for pulmonary and esophageal procedures. Postoperatively, continuous paravertebral block using an infusion of bupivacaine 0.5 percent via an extrapleural catheter was used. The catheter was placed just prior to closure of the surgical wound under direct vision into the paravertebral space. A bolus of 2 ml/10 kg (max 20 ml) was given, and an infusion at a rate of 0.2 ml/kg/hr was started and given for five days postoperatively. The effectiveness of pain control was assessed using a visual analog scale. No children required operative or other analgesic drugs while the bupivacaine infusion was running. No significant complications were reported, and all children were fully mobile as soon as their chest tubes could be disconnected from suction. All patients cooperated fully during physiotherapy.

The authors discuss the superiority of the extrapleural catheter versus the intrapleural catheter. They state that placing the bupivacaine in an extrapleural paravertebral pocket allows for retention of the local anesthetic within that pocket and an even spread of LA with inflation of the lung. Apparently, intrapleural infusion of LA has been found to be variably effective in children because of the bupivacaine run-off by gravity. In addition, since this is only a unilateral block, the sympathetic component that is blocked is also only unilateral, and, therefore, hypotension is not expected.

Although the study only looked at six

patients, this appears to be another alternative to pain control in children where the pain is limited to one side.

**Accuracy of central venous pressure monitoring in the intra-abdominal inferior vena cava: A canine study.**

Berg RA, Lloyd TR, Donnerstein RL. *J Pediatr* 1992; 120:67-71.  
Reviewed by *A.S. Klein, M.D.*

In this study of puppies, end-expiratory intra-abdominal IVC pressures in the range of -3 to +11 accurately reflected SVC pressures, and mean CVP monitoring was as reliable in the IVC as in the SVC. The study observations included pathophysiologic circumstances commonly encountered in critically ill children: positive-pressure mechanical ventilation, labored spontaneous ventilation through a partially obstructed airway and progressive volume depletion. Conditions of volume overload were not studied.

**Anaesthesia and the ventilatory system in infants and young children.**

Hatch D, Fletcher M. *Br J Anaesth* 1992; 68:398-410.  
Reviewed by *A.S. Klein, M.D.*

An excellent review of pulmonary mechanics for the anesthesiologist with 153 references. Get it for your files.

**Does postoperative pyrexia indicate malignant hyperthermia susceptibility?**

Halsall PJ, Ellis FR. *Br J Anaesth* 1992; 68:209-210.  
Reviewed by *A.S. Klein, M.D.*

Thirty patients referred to the Leeds MH Investigation Unit with a history of isolated postoperative pyrexia were studied by in vitro contracture tests. All results were normal. It is concluded that such an isolated event should not be the sole source for the diagnosis of MH. An association of severe, prolonged (2-3 days) muscle stiffness, causing immobility, or red/brown urine in the postoperative period should influence a diagnosis in favor of MH.

**Residual curarization in the neonate after cesarian section.**

Perreault C, Guay J, Guadreault P, Cyrenne L, Varin F. *Can J Anaesth* 1992; 38(5):587-591.  
Reviewed by *L.H. Feld, M.D.*

*Continued on page 16*

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I hereby make application for:

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Date

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## LITERATURE REVIEWS

*Continued from page 14*

This is an article that should be of some interest to the pediatric anesthesiologist. The authors are looking at the transplacental transfer and neonatal effects of atracurium 0.3 mg/kg in 46 patients undergoing elective cesarian section under general anesthesia. They found that the transplacental transfer of atracurium (A) was lower than that of d-tubocurarine (Feto-maternal ratio  $9 \pm 3\%$  for A and  $12 \pm 5\%$  percent for DTC,  $p < 0.05$ ). The transplacental transfer of laudanosine was low at  $14 \pm 5\%$  percent with the umbilical vein blood levels low at  $0.101 \pm 0.032$  micro m/liter. The newborns were comparable in terms of Apgar scores at one, five and 10 minutes, as well as for NACS scores (neurological and adaptive capacity scoring test) at two and 24 hours after birth. At 15 minutes after birth, only 55 percent of the newborns in whom the mothers received atracurium had a normal NACS score compared with 83 percent of newborns in whom the mother received DTC ( $p < 0.01$ ). This result is compatible with the effect of residual curarization among newborns in whom the mothers received atracurium. The effect was transient since

no difference in NACS was found at two and 24 hours. No newborn had clinical signs of respiratory depression.

The significance of this study's results are somewhat reassuring rather than disturbing in that the drug effect is transient (seen at 15 min. and gone by 2 hrs.) and relatively unimportant clinically since respiratory depression was not seen in any subject. It would be interesting to look at vecuronium in the same light. The authors also point out that this residual curarization might be clinically significant in the premature newborn whose diaphragmatic muscular composition already predisposes the diaphragm to fatigue.

### **Persistent pulmonary hypertension complicating cystic adenomatoid malformation in neonates.**

Atkinson JB et al. *J Pediatr Surg* 1992; 7(1):54-56.

Reviewed by *L.H. Feld, M.D.*

This is an interesting report because we usually do not think of patients with CCAM having PPHN or vice versa. These patients may present to the O.R. for other surgery, and we should be thinking of

anesthetic considerations concerning a reactive pulmonary vasculature.

### **The effects of cardiopulmonary bypass on thyroid function in infants weighing less than five kilograms.**

Mitchell IM, Pollock JCS, Jamieson MPG, Conaghey SFO, Paton RD, Logan RW. *J Thorac Cardiovasc Surg* 1992; 103(4):800-805.

Reviewed by *S. Rimar, M.D.*

While it is known that plasma levels of thyroid hormones fall during cardiopulmonary bypass in adults, little is known about the effects of bypass on thyroid function in infants. This study examines the effect of cardiopulmonary bypass upon thyroid function in 10 patients (ages 13 days to 5 months). Total T3 and T4 levels fell significantly during bypass, with a nadir occurring 48 hours after the procedure, before returning to baseline five to seven days later. The decrease in T3 and T4 was greater than that previously described in adults, suggesting that hypothalamo-pituitary dysfunction may be another cause of morbidity in infants following cardiopulmonary bypass. □