

both lidocaine and epinephrine plasma levels as well as perhaps tighter control of adjunct drugs to clarify the results of our survey.

Until this information is available, we continue to believe that our initial conclusion holds: "10 $\mu\text{g}/\text{kg}$ of epinephrine infiltration may be used safely in normocarbic and hypocarbic pediatric patients without congenital heart disease. . . . The occasional presence of premature atrial contractions and tachycardia in the child emphasizes the need for continuous ECG monitoring and caution during halothane anesthesia with epinephrine injection."¹

HELEN W. KARL, M.D.

*Assistant Professor of Anesthesia and Pediatrics
The Pennsylvania State University School of Medicine
M. S. Hershey Medical Center
Hershey, Pennsylvania 17033*

Anesthesiology
60:78-79, 1984

REFERENCES

1. Karl HW, Swedlow DB, Lee KW, Downes JJ: Epinephrine-halothane interactions in children. *ANESTHESIOLOGY* 58:142-145, 1983
2. Johnston RR, Eger EI, Wilson C: A comparative interaction of epinephrine with enflurane, isoflurane and halothane in man. *Anesth Analg* 55:709-712, 1976
3. Atlee JL, Malkinson CE: Thiopental potentiation of epinephrine sensitization with halothane. *ANESTHESIOLOGY* 53:S133, 1980
4. Puerto BA, Wong KC, Puerto AX, Tseng CK, Blatnick RA: Epinephrine-induced dysrhythmias: Comparison during anesthesia with narcotics and with halogenated inhalation agents in dogs. *Can Anaesth Soc J* 26:263-268, 1979
5. Kendall MG, Stuart A: *The Advanced Theory of Statistics*. Vol. 2, Chapter 33, Inference and Relationship. New York, Hafner, 1961

(Accepted for publication June 21, 1983)

ASA Preceptorship: Success in a Rural Setting

To the Editor:—The goals of the ASA preceptorship program are to 1) expose the medical student to the specialty of anesthesia, 2) build the image of the specialty of anesthesia within medicine, and 3) to act as a "tutorial or Socratic program" for the student.* Medical students are being given the opportunity to see what an anesthesiologist does on a daily basis in hopes of influencing well-qualified applicants to apply for anesthesia residency programs.

Five medical students participated in the ASA preceptorship program at the Dixie Medical Center in St. George, Utah, during the period 1976-1981. St. George, Utah, is a community of 14,000 population with a 65-bed hospital that serves an estimated area of 21,000. Surgical specialties represented during the period covered included: Orthopedics, General Surgery, ENT, OB, Ophthalmology, and Urology. The anesthesia department consisted of two CRNAs and one anesthesiologist.

Each of the five participants enrolled in the 8-week program. Upon beginning the preceptorship, each student was interviewed by me to ascertain their medical goals. Not one of the five medical students wanted to become an anesthesiologist, in fact, all had chosen specialties: *i.e.*, Radiology, Family Practice, or Aerospace Medicine. Their purpose in participating in the program was twofold: to learn endotracheal intubation and to be exposed to critical care patient management.

A flexible program was designed to allow the student

to be with the anesthesiologist for preanesthesia and post-anesthesia rounds, intensive care rounds, and participate in administering anesthesia in the operating room. The students were given didactic lectures a minimum of two times per week on basic anesthesia subjects. Each student received a list of 21 subjects to choose from for discussion during the preceptorship. A bibliography of 52 basic anesthesia articles was given to the student to serve as a nidus for OR discussion.

Goals for the practical mechanical skills for the student included 1) endotracheal intubation, 2) intravenous therapy, 3) intraarterial cannulation techniques, 4) airway management, and 5) use of anesthesia equipment.

At the conclusion of the 8-week program each student again was interviewed. Three students had not changed their specialty goals, but two students now were considering anesthesiology as an alternate specialty to their initial choice. Follow-up on each student until July 1983 has been rewarding in relation to their initial attitudes toward anesthesiology and the goals of the ASA Preceptorship Program. One student completed a residency in anesthesiology at the University of Arizona and presently is practicing anesthesia in Ames, Iowa; one student completed a Family Practice residency, practiced in a rural area in Utah for 2 years, and is now a resident in anesthesiology at the University at Kansas; one student completed an internship, practiced 6 months as an emergency room physician, and now is a resident in anesthesiology at the University of Utah; one continued in Aerospace Medicine and one will complete a Family Practice residency July 1983.

* Guidelines for Preceptors. Subcommittee on Medical Student Preceptorships American Society of Anesthesiologists, 1976.

Participation in the ASA Preceptorship program was gratifying during the 8-week course. To have three out of five students eventually enter anesthesiology residency programs was worth the inconveniences encountered during the 8-week program. Exposure to the private practice of anesthesiology is one of the most effective means to build the image of our specialty. Each anesthesiologist in private practice should evaluate their own environment and consider participation in the ASA Preceptorship program.

CLAYTON PETTY, M.D.
Professor
Department of Anesthesiology
University of Utah
Salt Lake City, Utah 84108
Formerly:
Chief of Anesthesia
Dixie Medical Center
St. George, Utah 84770

(Accepted for publication June 21, 1983.)

Anesthesiology
60:79, 1984

The Optimal Test Dose for Epidural Anesthesia

To the Editor:—For 7 years I have used a test dose of 2 ml 0.5% bupivacaine with 1:200,000 epinephrine, and it is good to find support from American colleagues.¹

We tested 100 young, fit, gynecologic patients by giving intravenously either 1) 0.25% bupivacaine plain, 2) 0.25% bupivacaine with 1:400,000 epinephrine, 3) 0.5% bupivacaine plain, or 4) 0.5% bupivacaine with 1:200,000 epinephrine in an amount of 2 ml. There were 25 patients in each group. Only in the group receiving 0.5% bupivacaine plus 1:200,000 epinephrine was it possible to be sure than an intravenous injection had occurred. The plain solutions never caused any symptoms or signs.

We also injected various suggested test doses intrathecally in patients requiring vaginal hysterectomy. We used 0.5% lidocaine; 0.25, 0.375, and 0.5% bupivacaine plain, and 0.5% with epinephrine. Only the 0.5% solutions of bupivacaine gave reasonably reliable results, but it was often not easy to be sure a block had occurred until 10–15 min had elapsed. At 5 min all 35 patients could move their legs. Unless evidence of perineal analgesia was sought, often nothing at all was reported by the patient. Where there is still doubt, hyperbaric dibucaine 1:200 solution 0.5–1 ml injected down the epidural needle will very quickly (2–3 min) and safely give the answer if in-

trathecal injection has occurred. The routine use of dibucaine would add to the expense of the technique and its use is confined to problem cases. Thus, 2 ml 0.5% bupivacaine with 1:200,000 epinephrine is used as the routine test dose.

In the laboring patient, pain relief may develop when 2 ml 0.5% bupivacaine with epinephrine is given inadvertently into the subarachnoid space. This is a very useful safety factor and should alert the clinician to the probable occurrence of spinal analgesia.

DR. A. D. G. NICHOLAS
Consultant Anaesthetist
Jessop Hospital for Women
Honorary Clinical Lecturer in Obstetric Anaesthesia
Department of Anaesthetics
The University of Sheffield Medical School
Beech Hill Road
Sheffield S10 2RX
United Kingdom

REFERENCES

1. Stonham J, Moss P: The optimal test dose for epidural anesthesia. *ANESTHESIOLOGY* 58:389–390, 1983

(Accepted for publication July 7, 1983.)

Anesthesiology
60:79–80, 1984

Another, Yet Simpler Device for the Identification of the Epidural Space

To the Editor:—Mustafa and Milliken suggested the use of a piece of clear plastic intravenous extension tubing filled with drops and bubbles, attached to a Tuohy needle

to demonstrate negative pressure upon entry of the epidural space. They describe this method as simple, dependable, inexpensive, and readily available.¹