Anesthesiology 67:1021, 1987

In Reply:—Drs. Fell, Derrington, and Wandless raise several issues in their letter.

First, the authors repeatedly refer to caudal blocks in children as "invasive blocks," "invasive technique demanding considerable expertise to perform," "a complex technique," etc. Although we are not familiar with the authors' particular institution and training, we'll venture to say that they probably have limited experience with caudal blocks in children. Caudal blocks in children are extremely easy to perform and to teach, a fact which is in direct contrast with most anesthesiologists' experience in performing that block in adults. Our combined experience to date is in excess of 2000 cases, with no significant complications, 1.2 even when most of the blocks were performed by anesthesia residents in training.

Second, we agree with Fell et al. that caudal blocks (as must be true with all types of blocks) are associated with the potential for complications. These complications can be avoided or totally eliminated by proper attention to detail, selection of appropriate drug dosage, and, most importantly, experience, which unfortunately only comes with practice. The 31% incidence of inability to walk 6 h postoperatively that Fell et al. cites in Yeoman's study³ is simply the result of using too concentrated a solution of bupivacaine. Inability to walk is generally not seen following the use of 0.25% bupivacaine solution.4 In fact, all of our patients are required to ambulate with minimal assistance to meet the hospital's standard discharge criteria. Residual numbness is hardly considered a complication following such a procedure as orchiopexy, when patients are confined to bed at home for at least the day of surgery.

Third, although delayed micturition may be common following caudal analysis performed for genito urinary procedures, especially if intravenous hydration is not maintained, urinary retention is extremely rare. In a series of 1154 patients, we had only one child who did not micturate until the evening of the day of surgery.

Fourth, we fail to understand why Fell *et al.* consider our bupivacaine dose "excessive." Our choice of bupivacaine dose was aimed at achieving a T10 level block. The maximum dose that can be calculated for the oldest child in our series (12 yr old, estimated weight 35 kg) would be just over 2 mg/kg of bupivacaine, well below that found to be safe by Eyres.⁵

Finally, we believe that Fell *et al.* misread our conclusion. We stated that "we found that both ilioinguinal/iliohypogastric nerve blocks and caudal blocks . . . are safe, and effective in controlling the postoperative pain of children. The administration of a small (1–2 mcg/kg) iv dose of fentanyl is an acceptable alternative for relief of the pain. . . ." We believe that our data do support that conclusion.

RAAFAT S. HANNALLAH, M.D. Associate Professor

LYNN M. BROADMAN, M.D. Assisant Professor

A. BARRY BELMAN, M.D. Professor

MICHAEL D. ABRAMOWITZ, M.D. Associate Professor

BURTON S. EPSTEIN, M.D. *Professor*

Departments of Anesthesiology, Urology, and Child Health and Development Children's Hospital National Medical Center and George Washington University Washington, D. C. 20010

REFERENCES

- Broadman LM, Hannallah RS, Norden MS, McGill WA: "Kiddie caudals:" Experience with 1154 consecutive cases without complications. Anesth Analg 66:S18, 1987
- Epstein BS, Hannallah R: Outpatient Anesthesia, Pediatric Anesthesia. Edited by Gregory G. New York, Churchill Livingstone, 1983, p 539
- Yeoman PM, Cooke R, Hain WR: Penile block for circumcision? A comparison with caudal blockade. Anaesthesia 38:862–866, 1983
- Broadman LM, Hannallah RS, Norrie WC, Kapsten JE, Mundy BS, Belman AB, Anderson KD, Guzzetta PC.: Caudal analgesia in pediatric outpatient surgery—A comparison of three different bupivacaine concentrations. Anesth Analg 66:S19, 1987
- Eyres RL, Bishop W, Oppenheim RC, Brown TCK: Plasma bupivacaine concentrations in children during caudal epidural analgesia. Anaesth Intensive Care 11:20–22, 1983

(Accepted for publication August 31, 1987.)