report and behavioral pain measures in 3–7 year old children following surgery. *J Pain Symptom Management* 1990; 5: 350–6.

- 6 Bieri D, Reeve RA, Champion GD, Addicoat L, Ziegler JB. The Faces Pain Scale for the self-assessment of the severity of pain experienced by children: development, initial validation, and preliminary investigation for ratio scale properties. *Pain* 1990; 41: 139–50.

REPLY

We thank the authors for their interest in our study and for the insightful observations they have provided. As they stated, most paediatric anaesthetists are faced with the inability to provide adequate immediate postoperative analgesia after tonsillectomy. The use of local anaesthetic either topically or after submucosal infiltration has been investigated as a means of controlling postoperative tonsillectomy pain in infants and small children.¹ It had been suggested previously in a Letter to the Editor that the use of topical bupivacaine 0.5% was effective in providing immediate postoperative pain relief.² Our prospective study was motivated by the necessity to prove the safety of the use of bupivacaine after tonsillectomy in children and also to assess its immediate efficacy. It is reported that the administration of bupivacaine with epinephrine or phenylephrine is more likely to produce cardiorespiratory depression.³ We use the OPS score⁴ to assess immediate pain relief with the understanding that the test was not validated by peer-reviewed process but that it had been used extensively for that purpose in past studies. Furthermore, as stated by Drs. Finley and McGrath, the OPS score has been shown to be valid when compared to the CHEOPS scale in immediate pain evaluation.⁵ We agree that the need to determine appropriately the effect of bupivacaine on the duration of pain relief after tonsillectomy would necessitate the use of other pain evaluation scoring system. The question of whether the differences amongst the groups carry beyond the immediate postoperative period is important and relevant in assessing the clinical usefulness of peritonsillar infiltration.

A.K. Wong MD FRCPC
B. Bissonnette MD FRCPC
B.A. Braude MB FRCPC FRA(SA)
R.M. MacDonald MD FRCSC
P.J. St-Louis PhD
D.W. Fear MD FRCPC
Toronto, Ontario

REFERENCES

- 1 Bissonnette B. Lidocaine en aérosol après l'amygdalectomie chez l'enfant. *Can J Anaesth* 1990; 37: 534–7.
- 2 Brown TC. Lidocaine en aérosol après l'amygdalectomie chez l'enfant (Letter). *Can J Anaesth* 1991; 38: 417–8.
- 3 Kambam JR, Kinney WW, Matsuda F, Wright W, Holaday DA. Epinephrine and phenylephrine increase cardiorespiratory toxicity of intravenously administered bupivacaine in rats. *Anesth Analg* 1990; 70: 543–5.
- 4 Norden J, Hannallah R, Getson P, O'Donnell R, Kelliher G, Walker N. Reliability of an objective pain scale in children. *Anesth Analg* 1991; 72: S199.
- 5 Norden J, Hannallah R, Getson P, O'Donnell R, Kelliher G, Walker N. Concurrent validation of an objective pain scale for infants and children. *Anesthesiology* 1991; 75: A934.

Brevibloc drug errors

To the Editor:

In a routine administration of Brevibloc prior to induction and intubation of a healthy 52-year-old male, for laparoscopic surgery, who required the drug for labile hypertension; I reached for the Brevibloc out of my drug cabinet and administered 8 ml of the 10 ml drawn into the syringe, as usual. To my alarm this caused a brady-asystolic arrest requiring full resuscitation measures. The patient developed severe cardiogenic shock and was further treated with vasopressors and monitored in the ICU with invasive monitoring for 24 hrs. There was no damage to the patient other than missing his surgery.

In retrospect, I discovered that the discarded Brevibloc vial contained the 250 mg·ml⁻¹ concentration rather than the 10 mg·ml⁻¹ concentration used in the bolus containers. The containers are so similar, that this mistake is likely to recur unless special precautions are initiated at various levels of its handling.

D.J. Pearce MD
Goderich, Ontario

REPLY

BREVIBLOCK® (esmolol) packaging does conform to all regulatory and association requirements for injectable medications. However, to help prevent further similar instances as that described by Dr. Pearce, we have decided to take further action. A letter mailing was sent in November 1995 to all Anaesthetists and Hospital Pharmacists in Canada highlighting that the ampoule is a concentrated form of Brevibloc. Included in the mailing was a supply of stickers that could be affixed to the concentrated ampoule (250 mg·ml⁻¹), already available in the Hospital, alerting the end user that this format must be diluted before use. Additionally, all Brevibloc ampoules being sold by Zeneca Pharma, as of the 1st December, 1995, have been stickered with a bilingual red label which reads "Attention: Dilute Before Use." We are also discussing whether further packaging changes could be of benefit with an advisory board of Anaesthetists and Pharmacists.

Ali Raza MD
Medical Director
Clinical & Medical Affairs
ZENECA Pharma Inc.

Pneumothorax complicating hypertrophic cardiomyopathy

To the Editor:

Hypertrophic Cardiomyopathy (HCM) is characterized by hypertrophied and nondilated left ventricle. An 80 yr-old man with HCM was scheduled for right hemicolectomy for adenocarcinoma of the colon. His interventricular septum and posterior wall thickness were 1.8 and 1.3 cm, respectively, with a septal:wall ratio of 1.38. A pulmonary artery catheter was placed through the left subclavian vein 12 hr before the surgical procedure and its position was confirmed by chest x-ray. He received general anaesthesia for an uneventful surgical

procedure. Upon completion of the four hour procedure, he was transferred to the SICU for later tracheal extubation in view of his difficult airway. Five minutes after initiating intermittent positive pressure ventilation, he became bradycardic and the arterial pressure waveform and carotid pulses disappeared. Atropine, 0.5 mg *iv*, was administered and external cardiac compression was initiated. As breath sounds were diminished on the left with a hyperresonant percussion note a thoracostomy tube was placed. SpO₂ improved dramatically and his heart rate and blood pressure returned to normal. A chest x-ray then showed a left-sided pneumothorax which resolved over next 24 hr.

Several morphological and haemodynamic factors may contribute to left ventricular outflow tract (LVOT) obstruction in patients with HCM. The LVOT obstruction can be exaggerated by interventions that increase myocardial contractility and heart rate (e.g., inotropes, chronotropes) or decrease arterial blood pressure and ventricular volume (e.g., Valsalva manoeuvre, positive intrathoracic pressure, vasodilatation, blood loss).² In this patient, pneumothorax may have caused LVOT obstruction and pulseless electrical activity secondary to diminished ventricular filling and mediastinal displacement. Alternatively, the pneumothorax itself may have been responsible.

In summary, pneumothorax leading to possible LVOT and pulseless electrical activity was diagnosed and treated successfully during perioperative anaesthetic management of a patient with HCM undergoing non-cardiac surgery.

Harbhej Singh MD FFARCSI

Department of Anesthesiology and Pain Management
University of Texas Southwestern Medical Center at Dallas

REFERENCES

- 1 Maron BJ, Epstein SE. Hypertrophic cardiomyopathy: a discussion of nomenclature (Editorial). *Am J Cardiol* 1979; 43: 1242-4.
- 2 Thompson RC, Libberthson RR, Lowenstein E. Perioperative anesthetic risk of noncardiac surgery in hypertrophic obstructive cardiomyopathy. *JAMA* 1985; 254: 2419-21.
- 3 Widimsky P, Ten Cate FJ, Vletter W, van Herwerden L. Potential applications for transesophageal echocardiography in hypertrophic cardiomyopathies. *J Am Soc Echocardiogr* 1992; 5: 163-7.
- 4 Brown MJ, Licina MG, Savage RM, Kraenzler EJ, Hearn C, Kirby TJ. Transesophageal echocardiography should be used during anesthesia for lung transplantation. *Anesthesiology* 1994; 81: A547.

An unusual foreign body

To the Editor:

We recently cared for an eight year-old boy who presented after ingestion of the metal disk which is pushed into the top of drink cans. His past medical history was unremarkable. He was awake, alert, cooperative, and in no distress. Only the lateral radiograph of the neck demonstrated the metal disk at the level of the 7th cervical vertebra (Figure). The disk was subsequently removed by rigid oesophagoscopy under general anaesthesia.

FIGURE (Top) Antero-posterior neck radiograph of the patient. (Bottom) Lateral neck radiograph of the patient.

Aluminium is markedly less radiodense than steel and many other metals. The "radiographic invisibility" of aluminum foreign bodies has been reported previously¹⁻⁵ but is less well recognized in the anaesthesia and surgical literature. The case emphasizes the importance of clinical presentation in cases of foreign body ingestion or aspiration. Radiographic examination must be viewed as an *adjunct* to the history and physical examination. We live in a world filled with millions of aluminum objects sufficiently small as to be ingested or inhaled. Aluminum, and many other, foreign bodies may be difficult or impossible to detect radiographically. A high index of suspicion is required for effective care.