Stethoscopy

We read with interest the recent review on stethoscopy by McIntyre[1] and wish to elaborate on his statement, "Some authorities believe that . . . continuous stethoscopic monitoring is largely ignored in adult anaesthetic practice." Our study from 1995 demonstrated intraoperative stethoscope utilization at three training institutions averaged only 28% despite such devices being properly placed in 84% of the 520 observed anaesthetics. Only student nurse anaesthetists were continuously auscultating heart tones and breaths sounds in a majority (75%) of their patients, while respective numbers for anaesthesia residents, anaesthesiologist faculty, and certified registered nurse anaesthetists were 19%, 23%, and 30%.[2] We believe these results are troubling, raising questions about faculty role models, over reliance on recent technology (such as pulse oximetry and capnography), and an increasing physical detachment from the patient by anaesthesia caregivers. We strongly believe that a vigilant anaesthesia provider should continuously monitor the *physical* condition of the patient using the senses and their extensions (such as stethoscopy), while *supplementing* this information with (rather than substituting for it) physiologic and electronic data such as continuous electrocardiography, pulse oximetry, and capnography.

We are in full agreement with McIntyre regarding stethoscopy ("authorities believe its use essential") and the ASA Standards for Basic Anesthetic Monitoring. They state that "Auscultation of breath sounds may be useful" to ensure adequate ventilation while, "Every patient receiving general anesthesia shall have . . . circulatory function continually evaluated by at least one of the following: . . . auscultation of heart sounds."[3] Given the current medicolegal climate, appropriate and vigilant use of stethoscopy serves as an inexpensive risk management technique. We encourage all anaesthesia providers to reexamine critically this valuable, minimally invasive, and cost-effective continuous monitor of the patient's physical status.

Jeffrey S. Kelly MD
Richard C. Prielipp MD
Department of Anesthesiology
Bowman Gray School of Medicine
Wake Forest University
Winston-Salem, North Carolina, USA

REFERENCES

1 *McIntyre JWR.* Stethoscopy during anaesthesia. Can J Anaesth 1997; 44: 535–42.
2 *Prielipp RC, Kelly IS, Roy RC.* Use of esophageal or precordial stethoscopes by anesthesia providers: are we listening to our patients? J Clin Anesth 1995; 7: 367–72.
3 American Society of Anesthesiologists. Standards for basic anesthesia monitoring. 1997 Directory of Members, 62nd ed. Park Ridge, IL. 1997: 394–95.

REPLY

The point I wished to make was, that from an ergonomic (human factors) point of view during a great deal of contemporary anaesthesia, it is unreasonable to expect an anaesthetist to be "tubed to the patient." I concluded by speculating whether a visual display of breath sounds would restore their use, a change that is desirable whether or not other monitoring devices are employed.

John W.R. McIntyre MD FRCPC
Edmonton, Alberta

Anaesthesia and congenital tracheal stenosis

Regional anaesthesia in infants and children, is invariably performed in combination with general anaesthesia for practical reasons. Concha[1] *et al.* described an interesting case in which an infant with congenital tracheal stenosis presented for ureteral re-implantation. The authors successfully anaesthetised this child (8 mo) using a combined epidural/general technique, (N_2O/O_2 and sevoflurane by mask). The question is, is it feasible to perform an operation similar to this in a child, without having to resort to general anaesthesia?

This writer was faced with a similar problem in an eight year old child presenting for ileoconduit repair. The child had severe tracheal stenosis and previous attempts at performing the procedure under general anaesthesia were aborted because of airway difficulties. Following a thorough discussion of the risks with the child's parents and the surgeon, the procedure was successfully performed using lumbar epidural anaesthesia with sedation. The procedure lasted 5½ hr. The child weighed 23 kg and a total of 142 mg of bupivacaine 0.75% and 115 mg lidocaine were administered over six hours. The child was sedated using a combination of morphine and diazepam *iv*. The child made an uneventful recovery and did well subsequently.

These cases are very challenging and other than placing these children on cardio pulmonary bypass, there is no absolute safe way to perform abdominal procedures in the presence of congenital tracheal stenosis. The combined technique (regional plus light general without an endotracheal tube) carries with it, the risk of airway obstruction, and pulmonary aspiration. Regional

anaesthesia with sedation is associated with the risks of inadequate anaesthesia requiring hurried induction of general anaesthesia. General endotracheal anaesthesia carries with it, the risk of airway obstruction intraoperatively or postoperatively.

In summary, there are very few reports in the literature dealing with anaesthesia in the presence of CTS. This additional information is intended to complement Concha's important contribution to the literature.

Brendan T. Finucane MBBCH FRCA FRCPC
Edmonton, Alberta

REFERENCES

1 *Concha M, González J, González A, Dagnino J, Molina R.* Epidural anaesthesia for internal reimplantation in an infant with congenital tracheal stenosis. Can J Anaesth 1997; 44: 666–8.
2 *Finucane BT.* Epidural anesthesia in a pediatric patient with congenital tracheal stenosis. Anesthesiology 1979; 50: 166–7.

REPLY

We read with great interest Dr Finucane's letter and the full description of his case.[1] Unfortunately, we missed it in our literature search for we agree completely with him that there are very few reports in the literature dealing with anaesthesia in the presence of congenital tracheal stenosis. His question about the feasibility of using regional anaesthesia alone in infants has no definitive answer.

It has been advocated as an alternative for the anaesthetic management of high risk neonates or premature infants,[2,3] and we have used it with very good results in this group of patients. However, we believe that this technique is not advisable, and frequently, simply impossible, in healthy and vigorous infants, in those in whom the duration of surgery could be long, and in those in whom the management of the airway is anticipated to be difficult. Light inhalational general anaesthesia with spontaneous face mask ventilation or intermittent intravenous sedation, as described by Dr Finucane, are both valid alternatives for the airway management of these patients. In small infants, as was the case in our patient, we felt that spontaneous face mask ventilation was an easier and safer method of managing the airway. Unfortunately, in these uncommon cases there are no established rules of management tested by appropriate trials and we have to decide on the appropriate technique based on a few case reports, such as those of Finucane and our own, and most importantly on the careful evaluation of each patient and the experience with the selected technique.

Mario Concha
Santiago, Chile

REFERENCES

1 *Finucane BT.* Epidural anesthesia in a pediatric patient with congenital tracheal stenosis. Anesthesiology 1979; 50: 166–7.
2 *Webster AC, McKishnie JD, Kenyon CF, Marshall DG.* Spinal anaesthesia for inguinal hernia repair in high-risk neonates. Can J Anaesth 1991; 38: 281–6.
3 *Gunter JB, Watcha MF, Forestner JE, et al.* Caudal epidural anesthesia in conscious premature and high-risk infants. J Pediatr Surg 1991; 26: 9–14.