Correspondence

Children and size of laryngeal masks

To the Editor:

Selecting the correct sized laryngeal mask airway (LMA) is of utmost importance in determining the adequacy of oxygen delivery to a patient under anaesthesia. This seems especially so in paediatric cases where choosing a size according to the child's age may not necessarily be as accurate as a choice related to his/her body size. A wrong size can result in poor oxygenation.

A 12-yr-old boy was scheduled for urgent exploration of testes to exclude torsion. His only past medical history was of mild asthma. On examination he looked chubby and large for his age. His maxilla and mandible were of normal shape and size. He weighed 45 kg. Anaesthesia was induced with propofol, and a LMA size #2-1/2 inserted. The cuff was inflated with 14 ml of air (as per manufacturer's guidelines) and satisfactory placement confirmed with gentle manual inflation of the reservoir bag on the Bain circuit. Anaesthesia was maintained with a nitrous oxide/oxygen/enflurane mixture. On commencement of spontaneous breathing chest expansion was satisfactory and movement of the reservoir bag good with no evidence of airway obstruction. Surgery was carried out uneventfully although the patient's oxygen saturation (SpO_2) was kept above 96% only by using a 50/50 oxygen/nitrous oxide mixture. Chest air entry and breath sounds were normal.

At the end of the procedure the boy was turned into the left lateral position and taken to the recovery area with the LMA *in situ* and inflated. Despite 100% oxygen his SpO_2 on the pulse oximeter was noted to be only 92-94%. His general condition, respiratory rate, chest movement, air entry and breath sounds remained satisfactory. Air movement felt at the proximal end of the shaft of the LMA was also normal. The LMA was deflated and removed when he began objecting to its presence. An oxygen mask was placed over his face. Almost immediately his saturation rose to 100%.

An explanation for the decrease in SpO_2 was incorrect placement of the LMA. However, satisfactory positioning was checked throughout the procedure. A more probable explanation was of an inappropriately sized LMA resulting in a "leak" of anaesthetic mixture around the LMA cuff in the patient's laryngeal inlet with consequent decrease in oxygen delivery and resulting hypoxia. A large

child of 12 would probably be more suited to a "small adult" size #3 LMA.

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End tidal O_2 and CO_2 after resuscitation

To the Editor:

Recently we continuously recorded the end tidal concentrations of oxygen (PETO_2) and carbon dioxide (PETCO_2) during cardiopulmonary resuscitation (CPR). A 67-yr-old, 60-kg, 167-cm man underwent rectal resection under lumbar epidural plus sevoflurane anaesthesia. As his legs were placed from the lithotomy to the horizontal position, wide QRS waves followed by ventricular fibrillation (VF) were observed. External cardiac massage was instituted. The first counter-shock defibrillated the heart, but a few minutes later VF recurred (pH 7.47, PaO_2 511.2 mmHg, PaCO_2 19.6 mmHg, base deficit 6.2 $\text{mEq} \cdot \text{L}^{-1}$, K^+ 6.8 $\text{mEq} \cdot \text{L}^{-1}$). About 30 min later, an intra-aortic balloon pump (IABP) was instituted. Counter-shock was attempted about ten minutes after IABP, which resulted in arterial blood pressure of about 50 mmHg, 50 min after the first VF (Figure), and defibrillating the heart. After the return of spontaneous circulation, the patient was able to maintain adequate blood gas status. Within the next five minutes he responded to verbal commands. Intraoperative fluid management appeared appropriate and the ECG and echocardiography recordings, and myocardial enzyme studies were all within the normal ranges. From the blood gas values a large air embolism appeared unlikely. A tentative diagnosis was made of coronary spasm or hyperkalaemia.

The respiratory gases were monitored by a Raman scattering spectrometer (Albion Co., United States) (Figure). The PETCO_2 values have been considered as a good prognosticator of CPR in humans.¹ The present recordings confirmed that PETCO_2 about 15 mmHg is a good indicator of successful CPR.² The PETCO_2 after the re-