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LETTERS TO THE EDITOR

The iGEL supraglottic airway: A potential role for resuscitation?

We would like to report our initial findings following the clinical use of a new supraglottic airway device (SAD) and consider its possible role in airway management during resuscitation. The 'iGEL' is a single use device manufactured by Intersurgical (Wokingham, Berkshire, UK) which is soon to be launched commercially throughout the UK and Europe. It is CE marked and has been made available to select anaesthetists for use in patients.¹ Whilst there has been an explosion in the development of SADs in recent years, the iGEL is a new device with some distinctive features that set it apart from many of its competitors (Figure 1). Of note is the supraglottic component that covers the larynx which is made of an elastomer gel (styrene ethylene butadiene styrene (SEBS)) which does not require inflation with air. There is also an independent gastric drain tube and an integral bite block. It is single use and available in sizes 3–5. There appears to be less dependence upon choosing the correct size in adults however (a size 4 is recommended by the manufacturers for patients between 50 and 90 kg, but our limited experience suggests an effective range of 40–100 kg). We have therefore confined our clinical use to the size 4 in an effort to evaluate its potential use in a resuscitation setting (thus simplifying the process of airway selection in an emergency).

We have used the iGEL in 100 adult patients presenting for elective surgery under general anaesthesia. All patients gave routine verbal anaesthetic consent for the use of a supraglottic airway device and all insertions were performed by one of two experienced anaesthetists (DG and RB). Particular attention was paid to the ease of insertion, seal/leak pressure and evidence of trauma from insertion. We used the device in both males and females with a weight range of between 40 and 100 kg. A size 4 iGEL was used throughout and standard monitoring applied. Anaesthesia was induced with propofol, midazolam and fentanyl and main-

tained with a volatile anaesthetic in oxygen using a co-axial circuit.

We found the iGEL very easy to use. Insertion does not require an introducer or placement of the finger into the mouth as the device is simply pushed into place. A 45° 'twist' was often employed to facilitate insertion. The 98/100 devices were adequately positioned on the first or second attempt. Only two could not be positioned satisfactorily and had to be removed after three attempts at insertion. For these two patients the Classic LMA (cLMA, Intavent Orthofix, Maidenhead, UK) also failed to control the airway in one patient who was subsequently intubated. In the other patient, a Classic LMA was inserted satisfactorily.

Seal pressures were found to be surprisingly good. Peak airway pressures above 30 cm H₂O were possible in the vast majority of patients (mean and median 32 cm H₂O.) The mean and median leak on sustained pressure (with the circle gas flows of 4 L min⁻¹ and the APL valve closed) was 24 cm H₂O. This compares favourably with previous findings of 18–21 cm H₂O for the cLMA^{2–4} and 29 cm H₂O for the Proseal LMA⁴ (Intavent Orthofix, Maidenhead, UK). Interestingly we also found that the seal pressure appeared to improve over time in a number of patients and we postulate that this might be due to the thermoplastic properties of the gel cuff which may form a more efficient seal around the larynx after warming to body temperature.

Airway trauma, demonstrated by visible blood on the iGEL on removal, was only detected on one occasion. There were no problems noted on insertion in this instance. Regurgitation occurred in one 'starved' patient on waking at the end of surgery. The gastric fluid was successfully vented through the oesophageal drainage port without any evidence of aspiration.

Further controlled trials are clearly the next step in the assessment of this new device, but our initial findings support its potential use for airway management in the resuscitation setting. It is easy to insert, one size fits the majority of adult patients, it is single use, has a bite block and a gastric drain



Figure 1 Photo of the iGEL.

tube. There is no air required to inflate any cuff (thus simplifying the insertion process) and finally it appears to have seal pressures comparable or better than many of the other SADs currently available. We await with interest the findings of other investigators.

Conflict of interest

There is no conflict of interest.

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18 October 2006

Should small volume hypertonic saline be used routinely in emergency cardiopulmonary resuscitation?

In the “2005 AHA Guideline for CPR and ECC”, there is no recommendation of volume expansion during ACLS. The volume status of sudden cardiac arrest victims are different. But, common pathophysiological changes occur after cardiac arrest. To achieve restoration of spontaneous circulation (ROSC), drugs causing cardiac stimulation and vasoconstriction are cited. But, the importance of volume expansion did not attract much attention. Cardiac arrest may be thought as the extreme of circulatory failure, so why do doctors neglect the importance of volume expansion in cardiopulmonary resuscitations (CPR)?

Resuscitation success depends crucially on myocardial blood flow (MBF). Insufficient circulatory volume may impair the effectiveness of chest compressions. Until now, there is no human trial to support volume expansion during CPR. Some early animal studies did not support volume expansion during CPR. Ditchey and Lindenfeld¹ found the MBF decreased due to elevated right atrium pressure with early volume expansion in experimental dogs. Gentile et al.² also failed to demonstrate the benefits of early volume expansion during CPR in experimental dogs. In recent years, small volume hypertonic saline (HS) was demonstrated to be useful in experimental CPR.^{3,4} During CPR, 2 mL/kg of 7.2% saline significantly increased MBF, and significantly increased resuscitation success. We analysed the infusion volume given to 10 ROSC patients in our emergency room. In the first 24 h after ROSC, the mean infusion volume exceeded 8000 mL.

The following reasons support volume expansion during CPR. First, the same dose of drugs used for rapid sequence intubation usually leads to a greater fall in blood pressure in the emergency room than in the operating room. Second, most sudden cardiac arrests occurred in the prehospital situation and the victims may be complicated with infection, low fluid intake, or poor nutritional status. The blood volume of such patients was usually insufficient. Third, caval blood flow to heart is reduced by systemic ischaemic vasoparalysis after cardiac arrest. The effectiveness of vasoconstrictors (adrenaline (epinephrine), or vasopressin) used in CPR supports this concept. Fourth, the plasma shift from the intra- to the extra-vascular compartment leads to a further decrease in circulatory volume after cardiac arrest.

Given the low volume status, due to a primary condition or secondary to prolonged cardiac arrest, we suggest in most conditions, small volume HS