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Evaluation of the i-gel airway in 300 patients

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EDITOR:

There are many types of supraglottic airway devices currently available. The i-gel airway, manufactured by Intersurgical UK, is a new single-use supraglottic airway device with a unique non-inflatable cuff made of thermoplastic elastomer (Fig. 1). The gel-like cuff accurately mirrors the perilaryngeal anatomy to create a perfect fit and enable rapid, easy, safe and reliable application [1,2]. The stem of the device incorporates a gastric channel that allows gastric tube drainage, a bite guard that improves device patency and a widened buccal cavity stabilizer that ensures stable position [1,2]. It has a display of size and patient weight guidance. It is similar to the Pro-seal laryngeal mask airway (LMA), but has better features [3]. This report is a prospective audit of utilization and observations of the i-gel in a UK teaching hospital, as there are limited published data regarding its performance.

After audit registration and patient consent, we used the i-gel in 300 adults, with body mass index 20–40, who underwent elective surgery under propofol–fentanyl–sevoflurane anaesthesia. The surgery undertaken included perineal, limb, superficial, ear, nasal and eye surgery. The nasal and eye surgeons rated the i-gel as satisfactory and un-impeding of surgery. The i-gel has reliably stable positioning and does not require tying/taping down. However, tying/taping was required for patients in the lateral position, to minimize displacement and ventilation leak. About 55 cases were anaesthetized and ventilated adequately in the lateral position. The i-gel was inserted easily in 20 patients in the lateral position.

The i-gel is designed for successful insertion in <5 s. It is easy to insert and remove because of its shape, contours, firm stem, bite guard and buccal stabilizer. We achieved rapid, first-attempt insertion within 5 s in 290 patients and second-attempt insertion within 10 s in 8 patients requiring jaw thrusts. We did not need to twist the i-gel or insert fingers in the patients' mouth. The i-gel was not successful in two obese male patients, nor was the standard LMA successful; and both patients required tracheal intubation. Ninety successful insertions were performed by first-time users such as anaesthesia trainees, medical students, paramedics, nurses and firemen who were training in our hospital. We found removal very easy, as did the trainees and recovery nurses. Three patients with difficult airway underwent successful fiberoptic endotracheal intubation through the i-gel airway, under general anaesthesia. The i-gel airway sizes 3, 4 and 5 will accommodate endotracheal tube sizes 6.0, 7.0 and 8.0, respectively.

The gel-like cuff minimizes airway trauma and neurovascular compression. Although two patients had blood on the cuff at removal, there were no reports of postoperative upper airway problems. The cuff provides adequate seal for all ventilation modes [1,4]. All patients underwent adequate pressure-mode ventilation with airway pressures of 10–30 cm H₂O initially and spontaneous breathing subsequently. The seal seems to improve over time probably due to the thermoplastic cuff warming to body temperature. The manufacturer recommends ventilation pressure ≤40 cm H₂O. We observed significant leak at pressures >33 cm H₂O. The i-gel is suitable for weaning patients off ventilation because of its seal, bite guard and minimal airway stimulation. An elderly patient and an obese patient with intraoperative respiratory difficulty were weaned off the anaesthetic ventilator with the aid

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Figure 1.
The i-gel airway; sizes 3, 4, and 5.

of i-gel airway, which was exchanged in place of tracheal tube at the end of surgery.

Lubricated gastric tubes, sizes 10–14, were easily inserted through the gastric channel at first-attempt, in all 80 cases where this was performed. Intraoperative regurgitation occurred in two fasted patients who had no gastric tube inserted initially and the gastric fluid drained freely from the i-gel gastric channel. This was managed by head-down positioning without disrupting surgery and insertion of gastric tube through the gastric channel

with effective drainage. Direct pharyngoscopy and suction did not reveal gastric fluid soiling. Neither patient had clinical evidence of aspiration at 48 h. It is recommended that if regurgitation occurs during anaesthesia, the patient should be positioned head-down or lateral, gastric tube drainage performed, the i-gel removed, the pharynx suctioned and the patient intubated [1].

In conclusion, the i-gel is very suitable for peri-operative airway management, positive pressure ventilation, and weaning from ventilation. It is also useful as an intubation aid and has a potential role in airway management during resuscitation. It is very easy to use, highly reliable and associated with minimal morbidity. The gastric channel separates the oesophagus from the larynx and provides protection from aspiration. Further studies are required to compare the i-gel with other supraglottic devices.

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The use of near-infrared spectroscopy (NIRS) in surgical clipping of giant cerebral aneurysm

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A 49-yr-old male patient was scheduled for clipping of a giant right middle cerebral artery (MCA) aneurysm.

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He presented with Grade IV subarachnoid haemorrhage (SAH) and large intracerebral haemorrhage. Upon admission, the patient's Glasgow Coma Scale score was 8 (E2V2M4) with left-sided hemiplegia. The patient was transferred to the operating room, sedated and intubated. Two 18-G peripheral intravenous lines and a left radial arterial line were placed. In addition to the routine standard monitors, electroencephalograph (EEG) electrodes were placed over the midline and left