BEST EVIDENCE EQUIPMENT REVIEW

The intubating laryngeal mask airway

A Steel

The laryngeal mask airway (LMA) is accepted as both a rescue ventilation and a primary airway management device in both the prehospital and emergency department environments.1-3 A modified version of the LMA, the intubating laryngeal mask airway (ILMA, LMA-Fastrach; Intavent Ltd, Reading, UK) exists, which, when combined with a modified tracheal tube, can be used for blind tracheal intubation. There is evidence that the ILMA is an effective means of maintaining ventilation and oxygenation in the prehospital,4 operating theatre,5 and emergency department6-7 environments. In addition, it has been reported to be effective in facial trauma,7 neck immobilisation,8-9 in a lateral position,10 while wearing a chemical protective hood,11 and while in a helicopter.12 Importantly, it has been shown to be effective even among inexperienced operators.6-8 10 11 13 14 A best evidence equipment review was undertaken to assess whether, compared with a conventional LMA, the ILMA would be of use as an airway rescue device.

DESCRIPTION OF DEVICE

The ILMA is a modified version of the LMA, which, in addition to permitting ventilation, is designed to facilitate blind tracheal intubation with a tracheal tube in an obtunded or anaesthetised patient. It has a soft inflatable laryngeal mask and a rigid, anatomically curved airway tube terminating in a standard 15 mm connector and is wide enough to accept a cuffed 8 mm tracheal tube. The rigid handle permits removal and “steering” of the device in relation to the larynx. The device measures about 20 mm in transverse diameter at its widest point. An epiglottic elevator bar in the mask aperture elevates the epiglottis when an endotracheal tube is passed through the aperture (fig 1).

PURPOSE AND INDICATIONS

The ILMA permits single handed insertion from any operator position, without moving the head or neck from a neutral position and without placing fingers in the patient’s mouth. It can be used as an airway device in its own right, permitting ventilatory control and oxygenation between intubation attempts. Indications include use during difficult airway situations, specifically including the need for manual in-line stabilisation and situations where there is restricted access to the patient or where personnel with intubation skills are not available, or where there is suspected cervical spine injury. The laryngeal mask component serves to guide the reinforced tracheal tube directly to the glottis without displacing anatomical structures. Unless the patient is deeply unconscious or has had topical anaesthesia applied to their upper airway, this will require concomitant neuromuscular block. Intubation through the ILMA is contraindicated in the presence of oesophageal or pharyngeal abnormality, although oesophageal abnormality alone is not a contraindication to the use of the ILMA purely as a rescue ventilation device.

CLINICAL SCENARIO

A young adult is involved in a road traffic collision resulting in a head injury and lower limb entrapment. He has a reduced level of consciousness and is unable to maintain an effective airway. Tracheal intubation by direct laryngoscopy is impossible. You wonder whether the prehospital use of an ILMA as a primary airway management or rescue ventilation device would be better than a standard LMA.

THREE PART QUESTION

In [patients with a reduced level of consciousness] is [prehospital insertion of an ILMA] more or less likely to be [successful and associated with effective ventilation and oxygenation] compared with a standard LMA?

SEARCH STRATEGY

Primary sources of evidence (Medline and Embase) were searched using [intubating laryngeal mask airway, intubating LMA OR Fastrach.mp] with Medline and [“intubating laryngeal mask airway, intubating LMA OR Fastrach”] with Embase. This search strategy was checked with an information specialist. The same search strategy was applied to the Cochrane Library as a source of secondary evidence. In addition, a text word internet search and direct communication with the manufacturer was undertaken.

Figure 1 The intubating LMA with modified tracheal tube component inserted (with permission of The Laryngeal Mask Company Ltd). The tracheal tube component shown is minus its detachable 15 mm connector.
times. A single use plastic version of the ILMA is currently available as part of a difficult airway equipment set. Most UK anaesthetic departments will have the device available soon. For prehospital care practitioners or systems that regularly encounter difficult airways in patients anaesthetised or with reduced levels of consciousness, the ILMA is a useful rescue ventilation and primary airway management device that could be carried as an alternative to the standard LMA.

Cost
Single reusable ILMA: £304. Single reusable tracheal component: £46. Complete set: £1050 (containing mask sizes 3, 4, and 5 with reinforced tracheal tubes size 7, 7.5, and 8 and three stabiliser rods). A reusable standard (non-intubating) LMA is £91 and the disposable standard (non-intubating) LMA (also available in sizes 3, 4, and 5) is £9 (Intavent-Orthofix, personal communication).

CLINICAL BOTTOM LINE
There is reasonable evidence that the ILMA can be inserted with as much success as a standard LMA with the additional advantage of probable subsequent successful tracheal intubation if necessary. Individual practitioners may find the cost prohibitively expensive and the practical considerations of sterilisation overburdening. However, single use versions are expected to be significantly more affordable and should be available soon. For prehospital care practitioners or systems that regularly encounter difficult airways in patients anaesthetised or with reduced levels of consciousness, the ILMA is a useful rescue ventilation and primary airway management device that could be carried as an alternative to the standard LMA.

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REFERENCES


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