How well equipped are ENT wards for airway emergencies?

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ABSTRACT

INTRODUCTION With increased cross cover of specialities at night and more direct triaging of casualty patients to ENT wards, there is an increased need to ensure that there is adequate provision of emergency airway management. There are currently no national guidelines on what equipment should be available on ENT wards, and the authors have devised a portable airway box with all equipment deemed necessary to manage an acute airway. We believe that all junior doctors covering ENT should have airway training and access to an airway box. The aim of this study was to determine the provision of on-ward airway equipment and training on ENT wards in England.

MATERIALS AND METHODS A telephone survey of all English hospitals with in-patient ENT services.

RESULTS A total of 103 departments were contacted with 98% response rate. Most wards were covered by a combination of ENT and other specialities. Results indicated that only 18% of departments had an airway box and 28% had some training in airway management.

CONCLUSIONS Results suggest poor provision of emergency airway equipment and training on wards. We recommend the use of an airway box, and list of minimal equipment required.

KEYWORDS

Airway management – Surgical airway – Emergency

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Patients presenting with an obvious acute airway emergency are managed with a multidisciplinary team approach (usually in the resuscitation area in casualty) involving staff from accident and emergency, anaesthetics and ENT. Patients who have a planned tracheostomy or a known potential airway problem on an ENT ward often have a trolley at the end of their bed with equipment to manage an airway obstruction. However, what provision is there for the unexpected airway threat in other ward settings?

Pressures on casualty waiting times have increased direct triage of straight-forward ENT cases to ENT wards, for example haemodynamically stable epistaxis and acute tonsillitis. However difficulty in visualising the upper aerodigestive tract (without specialist training and equipment) can lead to more serious potential airway problems such as supraglottic infection being misdiagnosed and inadvertently sent to a ward setting.

With the introduction of the European Working Time Directive, junior doctors' hours have been cut significantly. This has necessitated the increasing use of cross cover (particularly out of hours) by other specialties. As a consequence,

the resident-on-call doctor is not always surgically- or ENT-trained.

In addition, services are being centralised; therefore, ENT-trained doctors may not be immediately available on site.

A review of the literature^{1–5} revealed that there are papers evaluating emergency equipment used by front-line paramedical staff. Current practices for the difficult airway intubation by anaesthetists have also been surveyed. There are, however, no reported guidelines detailing what equipment is deemed necessary for securing a surgical airway, nor are there any guidelines on in-patient ENT ward equipment or junior doctors' training.

In a hospital environment, all clinical areas have a resuscitation trolley providing the equipment for orotracheal intubation to secure the airway if this is feasible. After discussion with consultant otolaryngologists and anaesthetists, the authors have compiled an emergency airway box (Table 1, Fig. 1) with all necessary equipment to perform a surgical airway (cricothyroidotomy or tracheotomy). This box is easily portable to wherever it may be needed; it is checked daily along with the resuscitation trolley. It has been invaluable

Table 1 List of contents of the Oxford Airway Box

Suture material
Needles (23 ch)
Venflons (14 ch)
Syringes (2 x 5 ml, 2 x 10 ml)
Sterets
Gauze swabs
Disposable scalpel
Dressing pack (gauze, galipot, drapes)
Suture pack (artery clips, needle holder, forceps)
Aquagel lubricant
Lignocaine 2%
Adrenaline 1:1000
Tracheal dilator
Gum elastic bougie
Pen torch/headlight
Flexible suction catheters (10 ch, 12 ch, 14 ch)
Yankauer sucker
Minitrach (jet ventilation catheter)
Guedell airways (0, 1, 2, 3, 4)
Nasopharyngeal airways (6, 7, 8)
Tubes Bivona Hyperflex (9)
Laryngectomy (7)
Tracheostomy (4, 6, 8)
Nebuliser
Trache tapes

in the emergency situation when orotracheal intubation was not possible and we believe that it has saved lives already.

We recommend that such an airway box should also be available on paediatric wards with appropriately sized equipment. The authors believe that all junior doctors covering

Figure 1 The Oxford Airway Box

such emergencies should have airway training and access to an airway box. This survey was conducted to determine what facilities are provided across the country.

Materials and Methods

An up-to-date hospital telephone directory was used to ascertain all the hospitals in England that provided an on-call service for ENT with in-patients in November 2003.

Both the most senior nurse in charge of the ward and the senior house officer on call were contacted and asked basic questions about the provision of emergency care (Table 2).

The contents of any 'emergency airway box/trolley' were compared with that compiled in Oxford to see what equipment was considered important nationally.

Results

In total, 103 departments were identified and contacted. of these, 101 responded, giving response rate of 98%. All

Table 2 List of questions

1. Which specialties do you cross cover with out of hours?
2. Did you receive any training in emergency airway management, formal or informal?
3. Do you have a portable airway box or trolley?
4. If yes, what are the contents?
5. Do you have a sterile tracheotomy cut down set on the ward?
6. Do you have a mini trach set™ (or equivalent) on the ward?

departments had qualified doctors on call overnight, with 45 (44%) covered by ENT trainees alone and 56 (56%) covered by a mixture of ENT and other specialties (Fig. 2).

Equipment

Only 19 (18%) departments had an airway box/trolley, which included essential equipment needed to manage an airway, and 82 (82%) did not have an airway box (Fig. 3).

Of those that did not have an airway box: (i) 42 (51%) had a sterile surgical tracheostomy set available on the

ward, with tubes stocked separately; (ii) 14 (17%) had a mini trach set™ (or equivalent); (iii) 10 (12%) had both; and (iv) 36 (44%) had neither (Fig. 4).

Training

Only 28 (28%) departments had some form of teaching/training in emergency airway management and 72 (72%) felt that they had no training programme.

Discussion

Although most hospitals with an ENT in-patient ward will stock equipment needed for emergency problems, this is not necessarily easily accessible, portable or in one designated place. The junior doctors or nurses may not be familiar with the ward set-up or have received a formal induction or training. Valuable time could be lost in treating acute upper airway obstruction.

Whilst conducting the telephone questionnaire, it became apparent that some of the more junior staff were not always aware of what was available on the ward, and this may have contributed to inaccurate results. However, this in itself needs to be addressed, as emergencies do also occur out-of-hours when the most senior staff are not immediately available on site.

The most common reason quoted for lack of equipment on the wards was the proximity of theatre facilities. When managing a true upper airway emergency, time is valuable

and every second wasted in gathering equipment may have a detrimental effect on the outcome of the patient.

The induction of junior doctors and nurses should include a formal session on the use of this equipment and training in emergency airway procedures. In addition to having the necessary facilities, it is essential that people

have the necessary training to access and use the equipment in the emergency setting.

In our hospital setting, we have found not only that it has been useful to have the airway box but, because it is portable it can be rapidly transported to where ever it is needed, for example, the out-patient department, casualty, outlying wards and peripheral hospitals.

In light of the fact that overnight on-call cover is becoming more generic, we believe that it would be beneficial to have national guidelines on such equipment.

References

1. Levitan RM, Kush S, Hollander JE. Devices for difficult airway management in academic emergency departments: results of a national survey. *Ann Emerg Med* 1999; **33**: 694–8.
2. Graham CA, Britliff J, Beard D, McKeown DW. Airway equipment in Scottish emergency departments. *Eur J Emerg Med* 2003; **10**: 16–8.
3. Morton T, Brady S, Clancy M. Difficult airway equipment in English emergency departments. *Anaesthesia* 2000; **55**: 485–8.
4. Ratnayake B, Langford RM. A survey of emergency airway management in the United Kingdom. *Anaesthesia* 1996; **51**: 908–11.
5. Roberts K, Allison KP, Porter KM. A review of emergency equipment carried and procedures performed by UK front line paramedics. *Resuscitation* 2003; **58**: 153–8.