

Elements of Airway Training

Eleni Arnaoutoglou

Department of Anesthesiology, School of Medicine, University of Ioannina, Ioannina, Greece

Key Words

Airway training • Laryngeal mask airway • Analgesia by non-anesthesiologists

Abstract

Little research has been conducted into the topic of training in sedation for endoscopic procedures. In addition, a review of the literature did not reveal any published studies regarding the elements of airway training for endoscopists. From the anesthesiology published data, it seems that common methods for airway management training include theoretical instructions and hands-on sessions on anesthetized patients, manikins or simulators. Retraining is necessary in order to maintain knowledge and to refresh and update airway skills and should be conducted on a regular basis with simulation-based practice, practice with validated airway training courses, or even with hands-on training in the anesthetic room. The need for the development of formalized airway training courses carrying the joint approval of the gastrointestinal endoscopy and anesthesiology societies seems to be essential.

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Introduction

In 2002, the American Society of Anesthesiologists (ASA) developed guidelines for sedation and analgesia by non-anesthesiologists [1]. According to these guidelines,

the primary causes of morbidity associated with sedation/analgesia are drug-induced respiratory depression and airway obstruction. Therefore, it seems reasonable that all endoscopists should be capable of providing a patent airway and respiratory support for patients with apnea and upper airway obstruction. Unfortunately, most medical providers receive cursory exposure to the training in airway management in cardiopulmonary resuscitation courses [2]. Airway management training is entirely different from resuscitation training, so there is a need to develop a separate airway management course in addition to advanced cardiac life support training, which primarily involves interventions concentrating on cardiac arrhythmias.

The Curriculum of Airway Training

Little research has been conducted into the topic of training in sedating patients for endoscopic procedures. There are no published data regarding the elements of airway training, i.e. what to teach and the best method for teaching endoscopists and nursing staff how to keep the patient's airway patent and support normal breathing. The anesthesiology literature suggest that airway training should consist of a body of knowledge regarding anatomy and assessment of the airway based on lectures, book work, and practical skills training [3]. Practical skills for non-anesthesiologists should include both basic and advanced airway skills [1, 2]. Basic airway skills should in-

clude the head tilt maneuver and jaw thrust maneuver, while advanced airway skills should include the placement of a nasopharyngeal and an oropharyngeal airway, the bag-valve-mask ventilation, the use of the laryngeal mask airway (LMA) or other supraglottic devices, and tracheal intubation. LMA insertion is an easy skill to learn and retain [3–5]. Also, the correct use of LMA can be life-saving in a patient who is difficult to ventilate with a face mask or to intubate. Endotracheal intubation is the most secure and effective way to establish and maintain an airway. However, intubation is not a priority skill. It is a difficult skill to learn, requiring practice not only on manikins, but also in the operating theater. In contrast, studies show that the learning curve for LMA placement is very steep [3]. Compared with bag-valve-mask techniques and traditional tracheal intubation, the use of LMA seems to be an easier skill to acquire [4, 5]. Multiple other supraglottic airway devices can provide airway patency (e.g. COBRAs, EZ tubes, laryngeal tubes). To date, none of these has proven to be superior to the others [2, 6].

Skills can be learned in both the clinical and nonclinical environment [3]. The most important places for airway training are the ward, operating theater and intensive care unit [7]. Training airway management skills on anesthetized patients maximizes training potential and includes demonstrating basic maintenance of the airway with a face mask, with or without other airway adjuncts, and teaching the use of LMA or tracheal intubation. However, providing training for these skills on anesthetized patients poses a number of technical and ethical problems. Much work has been done to devise and evaluate alternative teaching methods, such as didactic teaching, videotapes and manikin practice, including simulation, in order to overcome these issues [3, 8, 9]. Although all of the above-mentioned teaching methods are useful when used appropriately, they do not substitute for experience with real patients under the supervision of expert airway managers [2].

The influence of good clinical teachers who are experts in airway management (like anesthesiologists and emergency department physicians) cannot be underestimated. The American Society for Gastrointestinal Endoscopy has published a training guideline for the use of propofol in endoscopy [10]. They suggest didactic and practical training in airway management, provided by anesthesiologists as a part of a formal curriculum. However, good teachers should combine enthusiasm, willingness to teach and experience in conveying knowledge and skills to other healthcare professionals [3]. It is obvious

that these experts must be instructors in validated resuscitation courses and, as they should have successfully completed an instructor course, know how to facilitate adult learning.

Assessing Competency

Written tests and oral examinations are important for assessing the trainees' knowledge and judgement, but do not test their competency in practical skills, which is essential for successful clinical performance. Using learning curves, estimations of the number of procedures that must be performed by a trainee in order to reach an acceptable success rate can be produced. Another way to assess competency in practical procedures is via objective assessment [3]. The tests that have been developed for skills in airway management involve an observer watching trainees perform a procedure and scoring them according to predefined criteria. Simulation is currently used as an assessment tool to provide ongoing feedback during training (formative assessment) and is gaining popularity as an adjunctive method for demonstrating competency (summative assessment) [11].

Maintaining Competency

As the retention of both knowledge and psychomotor skills declines markedly with time and is reduced significantly after 4–6 months, there is a need for regular practice to maintain airway skills [12]. Recent literature has demonstrated retention of knowledge and skills is increased after simulation-based training in the areas of resuscitation and airway management and after practice not only with validated courses, but also with hands-on training in the anesthetic room [11, 13, 14]. Though a number of workshops and short courses are available worldwide lasting anywhere from a few hours to days, there is perhaps a need for developing formalized airway training courses that carry the joint approval of the gastrointestinal endoscopy and anesthesiology societies. Until then, as the bulk of training must be done in the workplace, not in special centers, each anesthetic department involved in training should equip an airway training room, have trainers with time allotted to teach airway management and a budget to equip the airway training room [7].

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