Nursing Considerations for the Patient With a Difficult Airway

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Adverse respiratory events are the most common anesthesia-related complications causing significant patient morbidity and mortality and malpractice claims.[1] The most serious respiratory mishap is the mismanagement of a patient with a difficult airway that results in inadequate ventilation, hypoxemia, cardiac arrest, hypoxic brain damage, or severe disability or death. An Australian study found that deficiencies in preoperative airway evaluation have contributed to negative but avoidable patient outcomes.[2] Anesthesia professionals traditionally have considered airway evaluation and examination to be solely their responsibility. However, increasing nursing involvement in preoperative patient evaluation provides an opportunity for the perioperative nurse to identify patients at increased risk for airway difficulties. When nurses communicate airway concerns to the anesthesia team, they can facilitate a more thorough airway evaluation and allow the team to plan for airway management.

AIRWAY EVALUATION

The first step in the airway-evaluation process is to obtain an anesthetic and medical history from the patient. If the patient has been previously anesthetized, he or she may be aware of airway problems that have occurred in the past. A patient also may have been provided with a document from a previous anesthesia team indicating that he or she has a difficult airway, or the nurse may deduce that there was difficulty based on a patient's verbal description of previous anesthetic experiences. Information provided by the patient may be overlooked or underappreciated by the anesthesia team because of their brief interaction with the patient in the preoperative period. As a result, the nurse may be the only individual aware of these crucial facts and thus can ensure that they are conveyed to the anesthesia team.

The nurse can perform significant portions of a basic airway evaluation by simply observing the patient. Important

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observations include the patient's inability to fully open the mouth, limited head and neck movement, the presence of a recessed chin, the presence of facial hair or facial deformities, and adipose distribution affecting the head and neck.[3] Each of these factors can dramatically affect the ability of the anesthesia professional to perform mask ventilation or intubation of the patient. However, the absence of these factors does not completely eliminate the risk of a difficult airway.[4] Table 1 lists clinical conditions and syndromes that also can affect management of the airway.

Mouth

Examination of the patient's fully open mouth is the first step in airway evaluation. To facilitate endotracheal intubation with a standard laryngoscope, the patient must be able to open his or her mouth at least 4 cm (1.6 inches) from tooth edge to tooth edge. Other oral factors affecting airway management include prominent teeth, loose teeth, broken or chipped teeth, crowns or veneers (particularly involving the incisors), partial or full dentures, and piercings of the tongue or lips. The nurse must document and communicate the presence of a limited mouth opening or other oral factors to the anesthesia team.

Head and Neck

The nurse should examine the patient's head and neck range of motion. Motion limitation may be the result of obvious things, such as a cervical collar, but less obvious underlying disorders, such as arthritis, prior cervical fusion, or ankylosing spondylitis,[5] can create difficulty in mask ventilation or intubation because of an inability to extend or move the neck. The nurse may be the first, or only, individual to notice limited head and neck motion.

The presence of a recessed chin (ie, hypognathia) or a reduced distance from the chin to the larynx with the neck fully extended (ie, thyromental distance) rarely affects mask ventilation, but it may make endotracheal intubation extremely difficult; the poor ability to see laryngeal structures in patients with these characteristics results from anterior displacement of the tongue and larynx.[6] The nurse should document and communicate observation of any of these abnormalities to the anesthesia team.

Facial Hair

The presence of a beard, mustache, or both can make ventilating the patient difficult. Thick or prominent facial hair prevents the formation of an airtight seal between the face mask and the skin, rendering positive-pressure ventilation difficult or impossible. In some instances, male patients purposely grow facial hair to cover or compensate for abnormal facial anatomy that otherwise would be visually evident. Depending on the degree of anticipated difficulty, the anesthesia professional may ask a patient to remove facial hair before surgery or inform him that the surgical team my need to remove the hair to ensure his safety.

Obesity

Obesity has been linked to an increased incidence of airway difficulties.[7] Large neck circumference and/or adipose tissue on the face and head are predictive of the patient having a difficult airway.[8] Additionally, obesity is commonly associated with obstructive sleep apnea (OSA), a condition that causes partial or complete collapse of the upper airway when the patient relaxes during sleep or induction, resulting in airway obstruction. Researchers have linked OSA to an increased risk of difficult mask ventilation and intubation. Clinicians also can experience airway issues in patients with OSA in the postoperative period because of the effects of residual muscle relaxants and the administration of opioids[9] and sedatives.[10]

INDUCTION OF AND EMERGENCE FROM ANESTHESIA

The induction of and emergence from anesthesia are the most vulnerable times during the course of an anesthetic; for the patient with a difficult airway, they are particularly dangerous because of the patient's potential inability to maintain a patent airway. During these periods, the RN circulator should have the difficult airway cart in the OR to help manage emergency situations, and he or she should remain with the anesthesia professional to aid in maintaining or establishing the patient's airway. The RN circulator should ask for the attention of the surgical team and for the reduction of noise during induction and emergence to avoid distractions or the inability to hear requests from the anesthesia professional.

Nursing care for the patient with a difficult airway continues in the postanesthesia care unit (PACU) and throughout the patient's hospitalization until discharge. Several key considerations will help optimize care during the postoperative period for the patient with a known or unanticipated difficult airway. There must be clear communication between the perioperative nurse, the anesthesia team, and the PACU nurses about the