Bronchospasm and Laryngospasm During Anesthesia

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Bronchospasm and laryngospasm are involuntary respiratory complications that can occur in patients under light anesthesia.[8] During these types of spasms, the gag reflex can be triggered by the presence of saliva, stimulation or inflammation, resulting in rigidity of the respiratory tract.[4]

Under these conditions, airflow in and out of the lungs is restricted or occluded due to constriction of the various muscles of the throat. It is important for surgical technologists to understand and recognize these types of respiratory emergencies, because they can be life-threatening.[2]

Laryngospasm

Laryngospasm causes airway occlusion by way of an involuntary muscular reaction that constricts the laryngeal cords.[8] This constriction is most likely to occur during the lighter stages of anesthesia, because laryngeal reflexes are suppressed during deeper anesthesia. Induction of anesthesia, extubation, recovery, and stimulating surgical procedures, therefore, are more likely to produce this reaction.[2]

Several factors can lead to laryngospasm in lightly anesthetized patients, such as anesthesia induction, removal of the endotracheal tube, or the presence of blood and other secretions.[2]

Signs of laryngospasm include inspiratory stridor or airway obstruction, increased respiratory effort and tracheal tug, paradoxical chest and abdominal movements, desaturation of oxygen concentration, bradycardia, and central cyanosis.

Management

Laryngospasm must be treated immediately. Actions taken include cessation of surgery or stimulation, administration of 100% oxygen, gentle administration of the chin lift or jaw thrust maneuver, request for additional assistance, deepening anesthesia with an IV agent, visualizing and clearing the airway, and intubating and ventilating as necessary.[5]

Bronchospasm

Bronchospasm is unrelated to laryngospasm and is typically caused by asthma.[3] Bronchospasm is defined as a narrowing of the respiratory tract caused by an abnormal contraction of the smooth muscle of the bronchi.[1]

This narrowing of the airways causes an increase in mucous production, further occluding the airway of the patient and placing them in respiratory distress.[7] Anaphylactic reactions leading to bronchospasm during surgical procedures are most often attributed to allergies to anesthesia and/or latex.

Signs of bronchospasm in the anesthetized patient include: increasing circuit pressure, desaturation of oxygen concentration, audible wheezing with or without auscultation, rising end-tidal CO_2, prolonged respiration, and a reduction in tidal volumes.

Management

As with laryngospasm, bronchospasm is a life-threatening condition requiring immediate action, including administration of 100% oxygen, cessation of surgery or stimulation, request for immediate assistance, deepening anesthesia, checking for airway obstruction, and the administration of bronchodilators as necessary.[6]

The Importance of Preventive Measures

Laryngospasm and bronchospasm are life-threatening conditions that should be monitored and managed during every procedure in order to maintain patient airway and vital signs.

The surgical team should always be prepared in advance for a respiratory crisis. Preventative measures can be taken by obtaining a thorough patient history, having all necessary equipment ready in the event of an emergency, using proper procedure and technique, and by having each surgical team member adequately trained to handle such a situation.

About the Author

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