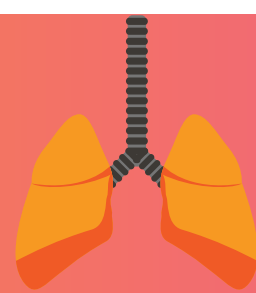


ACCUMULATED SECRETIONS: A CRITICAL ISSUE IN AIRWAY MANAGEMENT



Airway secretion clearance (airway hygiene) is a normal physiological process and crucial to the prevention of respiratory tract infection, atelectasis[#] and preservation of airway patency.^{1,2}

In a healthy individual:³



IMPAIRED AIRWAY HYGIENE IN PATIENTS ON MECHANICAL VENTILATION

Airway hygiene is impaired in critically ill patients on mechanical ventilation as a result of depressed (impaired) cough reflex and ineffective mucociliary clearance due to:¹

- Sedation¹
- Elevated endotracheal tube (ETT) cuff pressure¹
- High inspired oxygen levels¹
- Tracheal mucosal inflammation and damage¹

They also have a risk of increased secretions due to:²

- Supine position²
- Presence of mechanical adjuncts (cuff, ETT) that prevent spontaneous clearance of secretions²

RISKS DUE TO ACCUMULATION OF AIRWAY SECRETIONS

Airway mucus can accumulate into the distal bronchial airways⁴

- Can contribute to the disruption of physiology of the respiratory system and lead to pneumonia.⁴

ROLE OF SUCTIONING IN OVERALL AIRWAY MANAGEMENT

Suctioning is a component of bronchial hygiene, involving mechanical aspiration of secretions from the nasopharynx, oropharynx or trachea.⁵

Suctioning can help maintain and establish the gas exchange viz.-²

- Adequate oxygenation²
- Alveolar ventilation²

TYPES OF SUCTIONING

Subglottic suctioning/ Subglottic secretion drainage

- Evacuation of secretions that drain into the subglottic space and pool above the cuff.⁶
- Secretions easily drain into the subglottic space and pool above the cuff, leak down and contribute to pneumonia through microaspiration.^{6,7,8}

Endotracheal suctioning

- Process of applying a negative pressure to the distal ETT or trachea by introducing a catheter, to clear excess or abnormal secretions.⁹
- Two techniques of ETT suctioning include open suction technique and closed suction technique.¹⁰

Oral suctioning

- Maintains a patent airway and improves oxygenation by removing mucus secretions and foreign material (vomit or gastric secretions) from the mouth and throat (oropharynx).¹¹

DID YOU KNOW

Clinical Practice Guidelines for doing endotracheal suctioning from the American Association of Respiratory Care (AARC):¹⁰

- Sawtooth pattern on flow-volume loop on ventilator monitor
- Coarse crackles over trachea
- Increased peak inspiratory pressure during volume-controlled mechanical ventilation
- Decreased tidal volume during pressure-controlled ventilation
- Deterioration in oxygen saturation and/or arterial blood gas values
- Visible secretions in the airway
- Patient's inability to generate an effective spontaneous cough
- Acute respiratory distress
- Suspected aspiration of gastric or upper airway secretions

[#]Atelectasis, also known as collapsed lung, is a condition in which the airways and air sacs in the lung collapse or do not expand properly

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