Tie It Up: Is Your Airway Secure?

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Objectives

- Discuss different Endotracheal Tube (ETT) securing options for all patient populations
- Outline the advantages and disadvantages of these different securing options
- Explore ETT securing techniques for special circumstances
Financial Disclosure or Conflict of Interest

- None
Choices, Choices, Choices

- **Options**
  - Commercial Devices
  - Adhesive Tape
  - Cotton Ties

- **Goals of devices and techniques**
  - Security
  - Safety
  - Minimize unplanned extubations

- **Choosing a device**
  - Ease of use
  - Efficiency
  - Ability to reposition
Neonates and Infants

- **Method:**
  - Neobar
  - Other taping options
  - “Fish Lip”

- **Goals:**
  - Minimizes up and down movement
  - To prevent vagal response
  - Minimize unplanned extubations
Vermont Oxford Network Data

- 1200 hospitals collaborating to improve neonatal care

- Lowest unplanned extubation rates
  - 2017: 3 out of 82
  - 2018: 0 out of 102
“Fish Lip”

Materials:
- Johnson and Johnson 1 inch tape
- Tegaderm
- Benzoin

Procedure:
- Tape extends from ear to 1 cm from corner of mouth
- Leave gap with first tape
- Pull cheeks together; center tube
“Fish Lip”
Pediatrics

- Variety of ages and sizes
  - Different ways to secure
- Sedation and/or paralytics
  - Secretions
- Skin integrity
  - Repositioning
Adults

- Tape vs. commercial tube holder
  - Neurosurgery patients
  - Facial hair
  - Face shapes
- Proper Positioning
- Repositioning
Advantages and Disadvantages

- Adhesive tape, cotton ties
  - Advantages:
    - Custom fit
    - Reduced pressure ulcer formation
    - Avoidance of tube movement
    - Inexpensive
  - Disadvantages:
    - Soils easy, cannot be cleaned
    - May require frequent replacement
    - Skin sensitivity
    - Difficult to change tube position

Reference: Branson et al.
Static Tug Setup

Reference: Fisher et al.
Advantages and Disadvantages

- Commercially available ETT holders
  - Advantages:
    - Facilitates/speeds movement of tube in oral cavity
    - Can be cleaned
    - Can be used for prolonged periods of time
  - Disadvantages:
    - Cost
    - Variable threshold of each device for tube movement
    - Possible kinking or tube damage
    - Increase in risk of pressure ulcers due to higher forces applied to face
    - Discomfort
    - May be associated with skin pressure breakdown in prone position
    - Neuro patients

Reference: Branson et al.
Special Circumstances
Facial Burns

- Rolling Hitch Knot
  - Quick and Easy with Twill tape and scissors

- Dental Wire
  - Requires MD

**A** Wire Fixation of Endotracheal Tubes

**B**

**C**
Facial Burns

- Safety Pin with Surgical Mask Method
  - Safety pin can not be removed

- Dale Stabilock ETT holder
Nasotracheal Intubations

- Pediatrics and Adults
  - Previously preferred method
  - Orotracheal intubation not feasible
  - Peds: Nasopharyngeal Tube
    - Pierre Robin
Prone

- Why we prone:
  - Reduction in mortality from severe ARDS
  - Recruit collapsed or fluid filled lung
  - Improve oxygenation, ventilation and perfusion matching

- What we use:
  - Commercial ETT holder

- Process:
  - Prone 18 - 20 hours a day
  - Q2 head turns

Reference: Guerin, et al., 2013
AACN, 2011
Tracheostomy

- Commercial Ties
- Sutures
Final Thoughts

- No “best way”
- Changing conditions
- Be open to other options

Always protect the tube
References


