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Prone Positioning: Conscious, Non-Intubated Patient with COVID-19 ARDS

Prone positioning for conscious, non-intubated patients with COVID-19 acute respiratory distress syndrome (ARDS) has been widely adopted. Awake pronation of patients with severe hypoxia from COVID-19 is associated with decreased intubation rates without serious adverse events (Cao, 2023; Ponnapa et al., 2022). Proning is a safe, inexpensive nursing-driven intervention.

The potential physiologic benefits include:

- Improved ventilation (V)/perfusion (Q) matching and reduced hypoxemia
- Reduced shunt
- Recruitment of the posterior lung segments due to reversal of atelectasis
- Improved clearance of secretions

Criteria for Prone Positioning

For the conscious patient who requires oxygen via nasal cannula, face mask, high flow nasal cannula oxygen, continuous positive airway pressure (CPAP), or bilevel positive airway pressure (BiPAP), consider these criteria for prone positioning:

- Suspected or confirmed COVID-19 infection
- FiO_2 greater than or equal to 28% or requiring basic respiratory support to achieve SaO_2 92 to 96% (88 to 92% if risk of hypercapnic respiratory failure)
- Ability to communicate and cooperate with the procedure
- Ability to rotate to front and adjust position independently
- Absence of anticipated airway issues

Contraindications to Prone Positioning

Evaluate the patient for the following absolute and relative contraindications:

Absolute contraindications

- Respiratory distress
- Immediate need for intubation
- Hemodynamic instability (SBP less than 90 mmHg) or arrhythmia
- Agitation or altered mental status
- Unstable spine/thoracic injury/recent abdominal surgery

Relative Contraindications:

- Facial injury
- Neurological issues (e.g., frequent seizures, chronic back or neck pain)
- Morbid obesity
- Pregnancy (2nd/3rd trimesters)
- Pressure injuries

Procedure

1. Assist the patient to the prone position.
   - Explain the procedure.
   - Ensure oxygen therapy and basic respiratory support; make sure there is adequate length of tubing.
   - Use pillows, as needed, to support the chest.
   - Reverse Trendelenburg position may aid comfort and promote lung expansion.
   - Monitor oxygen saturation continuously.
   - Avoid administering sedation to facilitate prone positioning.
2. Monitor oxygen saturation for 15 minutes.
   - Goal is SaO_2 92 to 96%; 88 to 92% if risk of hypercapnic respiratory failure
3. Continue prone positioning.
   - Change position every 1 to 2 hours to keep the patient prone for 6 to 8 hours per 24-hour period (Anesi, 2024).
     - Use timed position changes; ask the patient to switch positions as follows:
       - 30 minutes to 2 hours lying fully prone (bed flat)
       - 30 minutes to 2 hours lying on right side (bed flat)
       - 30 minutes to 2 hours sitting up (30 to 60 degrees) by adjusting head of the bed
       - 30 minutes to 2 hours lying on left side (bed flat)
       - 30 minutes to 2 hours lying prone again
       - Continue to repeat the cycle.
     - Monitor oxygen saturations 15 minutes after each position change to ensure oxygen saturation has not decreased.
     - Continue to monitor oxygen saturations as per the National Early Warning Score (NEWS).
   - When not prone, position the patient supine, upright, 30 to 60 degrees.
   - Titrate oxygen therapy according to patient requirements, as ordered.

If prone positioning is not tolerated

If oxygen saturations deteriorate, take the following steps:

- Ensure oxygen is connected to the patient.
- Increase FiO_2 (per facility policy or prescriber's order).
- Change the patient's position; consider returning the patient to the supine position.
- Escalate to critical care as appropriate.

Discontinue prone positioning if:

- No improvement is seen with the change of position.
- The patient is unable to tolerate the position.
- Respiratory rate increases to 35 breaths/minute or higher, the patient tires or uses accessory muscles.

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