Lippincott NursingCenter®

May 2020
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Prone Positioning: Non-Intubated Patient with COVID-19 ARDS

Based on the progress made in mechanically ventilated patients, it has been theorized that adopting the prone position for conscious, non-intubated patients with COVID-19 ARDS may help improve oxygenation, reduce the need for invasive ventilation and potentially decrease mortality. 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 is not receiving mechanical ventilation, 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

Evaluate 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)
- Morbid obesity
- Pregnancy (2nd/3rd trimesters)
- Pressure injuries

Procedure

1. **Assist patient to 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.
- Monitor oxygen saturation.
- Don't administer 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 with the goal of keeping the patient prone as long as possible.
     - 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 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 patient.
- Increase FiO_2 (per facility policy or prescriber's order).
- Change patient position; consider return to supine position.
- Escalate to critical care, as appropriate.

Discontinue prone positioning if:

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

Reference:

Bamford, P., Bentley, A., Dean, J., Whitmore, D. & Wilson-Baig, N. (2020). ICS Guidance for Prone Positioning of the Conscious COVID Patient 2020. Retrieved from https://emcrit.org/wp-content/uploads/2020/04/2020-04-12-Guidance-for-conscious-proning.pdf