CCRC

OSLER COVID CLINICAL RESPONSE COMMITTEE

Use of prone positioning in patients not mechanically ventilated **20 April 2020**

Update: 13 May 2020

The COVID Clinical Response Committee (CCRC) has been asked to comment on the prone positioning in those patients who are on face-mask oxygen or high-flow nasal cannula prior to intubation.

1. **There is clinical equipoise for this question and we would support a clinical trial for proning in this patient population.**
2. **We recommend considering awake proning for ward patients who meet ALL of the following inclusion criteria:**
    a. **Oxygen requirement more than 4 L/min OR high-flow nasal cannula (HFNC) oxygen therapy.**
    b. **Awake, alert, cooperative.**
    c. **The patient can tolerate a minimum of one hour in the prone position.**
3. **Awake proning in the non-mechanically ventilated patient should only be ordered if it can be almost entirely supported by the patient without constant nursing intervention. Clustering of care should be considered here.**
4. **We recommend patient education, including the use of written materials, on the importance of prone positioning. Consideration should be given to distraction techniques (books, cell phone, or tablet device). Reverse Trendelenburg position of the bed and a pillow placed under the chest may aid in patient comfort.**
5. **We do <u>not</u> recommend prone positioning if any one of the following conditions are met:**
    a. **altered level of consciousness**
    b. **severe respiratory distress**
    c. **hemodynamic instability**
    d. **vomiting**
    e. **abdominal surgery less than two weeks ago**
    f. **spinal precautions**
    g. **require enteral nutrition (tube) (ward patients only)**
6. **Prone positioning should be aborted if any one of the following conditions are met:**
    a. **Worsening respiratory failure or oxygen requirement in the prone position**
    b. **Hemodynamic instability**
    c. **Oxygen requirement decreases to less than 4 L/min via nasal prongs**
    d. **Significant patient discomfort or non-compliance**
7. **For patients who exhibit clinical signs of worsening respiratory failure and increasing oxygen requirements, the use of prone positioning does not obviate other established clinical responses including critical care or palliative specialist consultation.**
8. **For patients performing awake self proning, we do not recommend oral intake while in the prone position. Patients should be in the upright position to eat their prescribed diet (and for 30 minutes following oral intake) assuming no other contraindications exist.**

This decision will be revisited on request.

IMT Report Date - April 21, 2020

Rationale

1. The use of prone positioning in mechanically ventilated patients with moderate to severe ARDS has been shown to be associated with a mortality benefit [NEJM 2013;368:2159]
2. Prone positioning is beneficial in ARDS for a variety of complex physiological reasons:
    a. Improved matching of ventilation with pulmonary perfusion
    b. Decrease in pleural pressure gradient, leading to a decrease in mechanical lung stress
    c. Improved secretion clearance
3. In one trial, there was at best a modest benefit in oxygenation to patients who were on non-invasive ventilation or high-flow nasal cannula while in the prone position [Critical Care 2020;24:18]
4. Prone positioning has been used successfully to improve oxygenation in mechanically ventilated patients with COVID pneumonia. This experience has now been extrapolated to awake and cooperative patients with COVID pneumonia that are supported without the need for mechanical ventilation, both within intensive care units and on medical wards
5. The patient should be able to independently prone themselves, with minimal if any assistance
6. Proning for periods of 2-4 hours BID or TID for awake patients supported with supplemental oxygen (nasal cannula, Venturi mask, high flow oxygen) has been suggested by several expert centres in North America and Europe as a reasonable proning frequency. This can be modified by patient compliance and comfort. Another proning schedule is outlined at the bottom of this commentary.
7. There are no documented adverse effects of awake proning. However, nursing staff should pay close attention to existing intravenous lines given the potential for kinking, malpositioning or loss of the IV with turns.
8. Awake prone positioning may help improve oxygenation (the SpO2 may rise, thereby allowing the care team to decrease the amount of supplemental oxygen, at least while the patient is prone).
9. Prone positioning does not change the underlying pathology of respiratory failure and is not a treatment per se.
10. If the awake, non-mechanically ventilated patient requires tube feeding, the risk of aspiration outweighs the potential undefined benefit of prone position.
11. Patients should not eat in the supine position due to aspiration risk.

Appendix A

There is no clear protocol for prone positioning in patients not in the ICU. One possible approach might be the following rotation positioning but there is no good evidence to guide this:

- 1 to 2 hours lying fully prone
- 1 to 2 hours lying on the right side
- 1 to 2 hours supine with the bed at 45 degrees
- 1 to 2 hours lying on the left side
- 1 to 2 hours lying prone again
- Repeat if there is an oxygenation benefit.

Appendix B

Patient information pamphlet pending development.