

UAB MANUAL PRONING GUIDELINE

I. Background

Prone positioning has an immediate benefit on oxygenation for many patients with ARDS and COVID-19 pneumonia. Prone position can protect functional lung tissue and promote improvement in ventilation to perfusion (V/Q) mismatch. Proning for 16 or more hours/day may reduce mortality.

II. Clinical Practice Guidelines

1. Indications for manual proning

- a. One or more of the following: Moderate to severe ARDS with PEEP >10, Fio2 >0.6, inability to maintain PaO2/FiO2 ratio \geq 150mmHg

2. Absolute contraindications to manual proning

- a. Unstable facial, cervical, thoracic, lumbar or pelvic fracture
- b. Skeletal or cervical traction
- c. Sustained intracranial pressure >30mmHg or cerebral perfusion pressure <60mmHg

3. Relative contraindications to manual proning

Decision to proceed with proning in the setting of 1 relative contraindication is at the discretion of the provider; avoid proning if > 2 relative contraindications are present

- a. Hemodynamic instability with progressive increase in vasopressor use
- b. Severe acute arrhythmia
- c. Unstable chest wall
- d. Open chest or abdomen
- e. Pregnancy
- f. Massive hemoptysis
- g. Tracheal surgery or sternotomy during the previous 7 days

4. Sedation during proning

Dosing recommendations should be used as a general guide. Patient response may warrant dosing outside of the provided dosing ranges

- a. Fentanyl 150-400mcg/hr; hydromorphone 1-2 mg/hr; titrated prior to neuromuscular blockade to a nonverbal pain score of 3 or less
- b. Propofol 40-50mcg/kg/min; Midazolam 4-8mg/hr, MD/APP to titrate prior to neuromuscular blockade to target RASS -5 for proning period
- c. Cisatracurium 3 mcg/kg/min titrated to maintain train of four of 1-2 twitches to a maximum of 10 mcg/kg/min

5. Nutritional support during proning

- a. Place post-pyloric enteric tube
- b. Keep patient positioned in Reverse Trendelenberg at 25-30 degrees
- c. Initiate tube feeds after first hour of proning and titrate per protocol
- d. Discontinue tube feeds 1 hour before returning to supine position

6. Complications requiring return to supine position

- a. Cardiac arrest

- b. Acute arrhythmia
- c. Massive hemoptysis
- d. Suspected break in ventilator circuit
- e. Unplanned extubation, displacement or obstruction of endotracheal tube

7. Continuing/Discontinuing therapy

- a. Patient must be re-evaluated daily to determine need to continue/discontinue therapy
- b. A new order must be placed daily to continue proning
- c. Patients should be placed in prone position for 16 hours and returned to supine for 8 hours during proning protocol
- d. Therapy is discontinued when the patient's clinical status is unresponsive to the position change or significant improvement has been achieved and maintained

III. References

1. Girard, R., Baboi, L., Ayzac, J., Richard, C., & Guerin, C. (2014). The impact of patient positioning on pressure ulcers in patients with severe ARDS: Results from a multicenter randomized controlled trial on prone positioning. *Intensive Care Medicine.*, 40(3), 397-403.
2. Guérin, C., Reignier, J., Richard, J., Beuret, P., et al. (2013). Prone positioning in severe acute respiratory distress syndrome. *The New England Journal of Medicine.*, 368(23), 2159-2168.
3. Kallet, R. (2015). A comprehensive review of prone position in ARDS. *Respiratory Care.*, 60 (11). 1660-1687.
4. Sud, S., Friedrich, J., Taccone, P., Polli, F., et al. (2010). Prone ventilation reduces mortality in patients with acute respiratory failure and severe hypoxemia: Systematic review and meta-analysis. *Intensive Care Medicine.*, 36(4), 585-599.