



COVID-19

MedStar Clinical Guide for Mechanical Ventilation of COVID19 Pneumonia

A. Background

1. The MedStar EM/CC Clinical Advisory Group has previously recommended ARDSNET protocol for management of COVID19 induced severe respiratory failure
2. There is increasing evidence that acute respiratory failure secondary to COVID19 does not fit the classic descriptions of ARDS with non-compliant lungs and high plateau pressures ¹
3. Two phenotypes (H and L Phenotypes) of respiratory failure from COVID19 have been reported that may require different approaches on the ventilator ²
4. Some therapies with proven benefits for classic ARDS patients need to be re-evaluated for the H type COVID19 respiratory failure. These include: low tidal volume ventilation, high and low PEEP tables, the use of Epoprostenol, and the use of paralytics

B. Considerations

1. The management of acute respiratory failure secondary to COVID19 should not be a one size fits all, but guided by evaluation of lung mechanics on a case by case basis
2. Proning, which has shown improvements in PaO₂/FiO₂ ratio, will remain a major strategy in the management of severe hypoxemia from COVID19
3. Given that there may be a dynamic feature to L and H phenotypes of this disease, a coordinated communication between RT and the critical care team needs to be planned for
4. While not the goal of this change in clinical guideline, it is also believed that some of these changes will improve the overuse of sedatives, paralytics, and epoprostenol

C. Recommendations:

1. In patients intubated for severe hypoxemic respiratory failure, initial vent settings should be 8 cc/kg tidal volume and a PEEP of 8 to 10
2. FiO₂ should be weaned to less than 60% as soon as possible.
3. Patients with PF ratio less than 150, or those whose FiO₂ cannot be safely weaned to less than 60% should be evaluated for proning therapy soon after intubation and with every serial ABG result
4. Plateau pressure and driving pressure should be monitored at the time of intubation and every 12 hours
5. Patients with plateau pressure >30 and driving pressure >14 should be transitioned to ARDSNET ARDS protocol. Pulmonary pressure should be monitored twice and if compliance improves, PEEP should be reduced to the range of 8 to 12 to avoid overdistension

6. Respiratory therapist should monitor plateau and driving pressures twice daily. If these are elevated, the supervising RT or the ICU fellow or attending should review



COVID-19

settings for titration of optimal PEEP.

7. Patients who are dyssynchronous with the ventilator should first be evaluated for adjustment of ventilator settings. If dyssynchrony persists, increasing sedation should be discouraged. The use of paralytics should be used as a last resort and should be used as bolus doses as much as possible.
8. If P/F ratio is consistently over 300, patients should be evaluated for de-escalation of therapy. Prone patients should be evaluated for supine placements. Patients who are supine should be evaluated weaning of ventilator settings with a goal to transition to spontaneous breathing trials.

References:

1. Gattinoni L, Coppola S, Cressoni M, Busana M, Chiumello D. Covid-19 Does Not Lead to a “Typical” Acute Respiratory Distress Syndrome. *Am J Respir Crit Care Med.* 2020. doi:10.1164/rccm.202003-0817le
2. L. Gattinoni¹, D. Chiumello², P. Caironi³, M. Busana¹, F. Romitti¹, L. Brazzi⁴ LC. COVID-19 pneumonia: different respiratory treatment for different phenotypes? *Intensive Care Med.* 2020. doi:10.1007/s00134-020-06033-2



MedStar Guide for Ventilation of Patients with COVID19 Pnuemonia

Updated
04/15/2020

