

Clinical Alignment Summary: COVID-19 Critical Care

The purpose of this summary is to display how clinical guidance from different organizations is aligned in this topic area.

LABS and IMAGING

Upon admission: CBC with diff, LDH, CRP, CK (1,2,3,5)

- o Also CMP, Mg, Phos, PT, BNP, D-dimer. Key labs daily (1,2,3)
- o Additional admission labs: ferritin, IL-6 level, troponin, BNP, DIC panel, minimize/batch labs thereafter to minimize HCW risk (5)
- Q12hr: Troponin, ABG and VBG (1,2)
- Recommend against routine CXR (1,2,3)
- Consider POCUS to monitor cardiac dysfunction (1,3,5)

PRONE POSITIONING

All protocols (1,2,3,5,7,8) recommend prone positioning of ARDS patients

- Recommend against awake prone positioning as a rescue therapy for refractory hypoxemia to avoid intubation and mechanical ventilation in patients who otherwise require it (7)
- Consider trial of awake prone positioning in patients with persistent hypoxemia despite increasing supplemental oxygen requirements in whom intubation is not otherwise indicated (7)
- Consider staff exposure risk/benefit ratio of prone positioning (5)
- Consider placing dialysis bags on chest for patients who cannot be proned (1)
- Detailed prone positioning instructions in document (4)

TREATMENTS

- Remdesivir (1,3,5,7)
- Dexamethasone recommended for patients (6mg/day for 10 days) who are mechanically ventilated and those on supplemental O₂ (1,2,3,5,7). See specific treatment recommendations by disease severity ([NIH COVID-19 Treatment Guidelines: Therapeutic Management of Patients with COVID-19](#), Updated 2/11/2021)
- Norepinephrine as first-choice vasopressor (3,7,8)

ANTICOAGULATION STRATEGIES

- All COVID patients should receive standard prophylactic anticoagulation with LMWH (1,3,5,6) or heparin (1,5,6)
- All patients should have daily DIC panel and twice weekly hypercoagulability panel (1)
- Risk Stratified Treatment: [Emory Healthcare VTE and Prophylaxis Guidelines for COVID-19 in ICU—Summary](#) (6)

CPR

- Encourage early discussions with family about DNRs (1,2,5)
- See [Serious Illness Communication/Conversation Guidance](#)
- In case of code, staff donning PPE should be prioritized (1,2,5)
- Call Anesthesia for Intubation (1)
- No more than 6 people should be in room during code (1,2)

PULMONARY

PRE-INTUBATION

- Avoid emergent intubation (1,2,5)
- Early intubation recommended (1,2,3,5)
- HFNC & NIPPV:
 - Extreme caution should be used in patients already on high amounts of O₂ or with increased work of breathing as they will likely benefit from early intubation, rather than HFNC (1)
 - May use HFNC if in appropriate isolation (5)
 - Close monitoring for worsening of respiratory status; consider early intubation with worsening (8) or if consistent with goals of care (5)
 - Recommend use of HFNC over NIPPV for acute hypoxemic respiratory failure despite conventional oxygen therapy (7)
- Mechanical ventilation:
 - Preferred means of respiratory support for COVID-19 patients with respiratory failure (1,3,5)

INTUBATION

- Goals for ARDS patients: (1,2,3,7,8)
 - Low tidal volume (6 mL/kg IBW)
 - SpO₂ > 92% (2), SaO₂ 90-96% (3)
 - pH > 7.25, plateau pressure <30 cm H₂O
 - Then assess for extubation
- For patients who are difficult to oxygenate, consider:
 - High PEEP ladder or alternative ventilator modes (1,2,3,5,8)
 - Paralysis/sedation for ventilator dyssynchrony (1,2,3,5,8)
 - Initiate trial of inhaled pulmonary vasodilator (1,2,3,7,8)
 - ECMO (1,2,3)
- Prone ventilation recommended if P_aO₂/F_IO₂ ratio <150 (1,2,3,5)

EXTUBATION

- Only extubate when reasonably confident that patient has peaked in terms of illness (1)
- Extubate to face mask, followed by titration down to nasal canula (1,2)
- Encourage aggressive pulmonary toilet (1,2)
- Do not use NIPPV with COVID-19 patients because of concerns of aerosolization (1,2)

INFECTIOUS DISEASE

- Require ID consult for COVID-19 patients (1,2) based on resource availability (5)
- Recommend consult when using investigational treatment (antivirals) (3,5)
- See Clinical Alignment Summary: [COVID-19 Infectious Disease Treatment](#)

RENAL

- Conservative fluid management (1,2,3,5,7,8)
- Recommend robust electrolyte repletion (K>4.5, Mg >2.5, PO4 > 2.5) (1)
- Place Foley for strict I/O's (1,2)
- Recommend Continuous Renal Replacement Therapy (CRRT) when available (5,7)
- Acute Renal Replacement Therapy (RRT):
<https://www.aamc.org/covid-19-clinical-guidance-repository>

NEUROLOGICAL

- Sedatives:** use opioids as primary sedative agents (1,2)
- Avoid benzodiazepines, due to hepatic and renal side effects, unless patient is difficult to sedate (1,2)

Neuromuscular Blockade Agents (NMBA)

- Recommend intermittent boluses in COVID-19 patients with moderate to severe ARDS to facilitate ventilation and prone positioning (3,7,8)
- Routine NMBA is not indicated in patients with ARDS (3,5)
- NMBAs may be used in patients with dyssynchrony (3,5,7,8)
 (5 specifies non-depolarizing NMBAs)

Sedation/NMBA

- First line regimen: hydromorphone, propofol, cisatracurium (3)
- Wean to minimum goal RASS 0 to -1 or, if dyssynchronous, RASS -1 to -2 (1,2,5)
- Recommend wrist restraints (1,2)
- Consider neurological consultation (1,2)

GASTROINTESTINAL

- Early initiation of enteral feeds (1,2)

CARDIAC

- Recommend baseline EKG for all patients upon admission (1,2,5)
- Consider troponin and TTE/POCUS (1,3,5)

PALLIATIVE CARE

- Consult the palliative care service upon admission to ICU (1)
- Consider video visitation for families (5)
- See [Serious Illness Communication/Conversation Guidance](#)

SOURCE DOCUMENTS

1. [Emory Healthcare Guidelines for the Care of Critically Ill Patients with COVID-19](#), Updated 6/30/20
2. [Emory Healthcare Overview of the Management of Patients with COVID-19 for Non-Critical Care Providers](#), Updated 6/30/20
3. [Massachusetts General Hospital Treatment Guidance for Critically Ill Patients with COVID-19](#), Updated 11/12/2020
4. [Massachusetts General Hospital Prone Positioning Protocol for Intubated Patients](#), Updated 4/8/2020
5. [University of Washington Medicine Critical Care Management of COVID-19](#), Updated 12/4/20
6. [Emory Healthcare VTE and Prophylaxis Guidelines for COVID-19 in the ICU—Summary](#), Updated 4/16/2020
7. [NIH COVID-19 Treatment Guidelines: Care of Critically Ill Patients with COVID-19](#), Updated 12/17/20
8. [Surviving Sepsis Campaign: Guidelines On The Management Of Critically Ill Adults With Coronavirus Disease 2019 \(COVID-19\) Combined Recommendations Table](#).

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