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)*
- Also CMP, Mg, Phos, PT, BNP, D-dimer. Key labs daily (1,2,3)
- 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 using 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 proneed (1)
- Detailed prone positioning instructions in document (4)

TREATMENTS

- Dexamethasone recommended for patients (6mg/day for 10 days) who are mechanically ventilated and those on supplemental O$_2$ (1,2,5,7)
- Recommend norepinephrine as first-choice vasopressor (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

Avoid emergent intubation (1,2,3,5)
Early intubation recommended (1,2,3,5)

HFNC & NIPPV:
- Extreme caution should be used in patients already on high amounts of O$_2$ 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)

Goals for ARDS patients: (1,2,3,7,8)
- Low tidal volume (6 mL/kg IBW)
- SpO$_2$ > 92% (2), SaO$_2$ 90-96% (3)
- pH > 7.25, plateau pressure <30 cm H$_2$O
- 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 PaO$_2$/FlO$_2$ ratio <150 (1,2,3)

INTUBATION

- 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)

EXTUBATION

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

INFECTION DISEASE
### 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 (7)

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

### Palliative Care
- Consult the palliative care service upon admission to ICU (1)
- Consider video visitation for families (5)

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

### GASTROINTESTINAL
- Early initiation of enteral feeds (1,2)

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