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Notes from Presentation – April 7, 2020

Lessons learned…week 2: <u>COVID Clinical trends:</u>

Lab work:

- Admission: CMP, CBC with diff, Procalcitonin, LDH, ESR, CRP, Ferritin, Triglycerides, Full coagulation panel, LFTs
- Ferritin >2000 in most of the positive patients
- IL6 levels are sent but take ~5 days to return

Neurologically:

- Due to rapid respiratory decline, paralytics are added early
  - Preferred is cisatricurium infusions: agent is incredibly challenging to purchase right now.
  - HMC back-up plan is a rocuronium infusion – 500mg/50mL infusion
    - Although more expensive – it has been available for purchasing
  - Vecuronium would be a third line agent
- Initial sedation with propofol + fentanyl
  - As others are noting – we are seeing elevations in triglycerides (>800)
  - We are currently getting triglyceride levels at baseline, day 3 and then weekly
  - As far as alternatives:
    - Lorazepam/midazolam infusions are second line (lorazepam >midazolam)
    - Ketamine may be good option in those with history of asthma due to bronchodilator effects
  - Once we remove the paralytic we are switching to dexmedetomidine
  - Further out, tapering with PO clonidine to help reserve our supply of dexmedetomidine

CV:

- 1-2 hours after intubation many become hypotensive and bradycardic
  - Origin of bradycardia is unclear?
    - Viral myocarditis?
    - ECHO are hard to get due to isolation
  - Have used dopamine in 2 patients
- Most do require a low dose of norepinephrine (0.02-0.06 mcg/kg)
    - Possibly due to high dose sedation with propofol
- Continuing statin therapy if patient was on one at home or has an indication
  - Not adding across the board
- Significant QTc prolongation in some patients early on – we switched from azithromycin + hydroxychloroquine to doxycycline + hydroxychloroquine (doxycycline or azithromycin for CAP treatment)

Respiratory:

- Many present with SOB and quickly go from nasal cannula to nonrebreather.
  - **Intubate early

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- Hypoxia responds to high PEEP (16-24) and FiO2 100%
- So far we have proned 2 intubated patients – but are having our other patients self-prone
- Albuterol MDI standing on asthmatics. The remaining patients kept on PRNs
- More recent finding is that many pts are mucus plugging and requiring frequent suctioning and lavage by respiratory therapy.
    - Tried mucomyst lavage in one patient since we are not using currently utilizing nebulizations
    - Discussed dornase alpha lavages…only case reports indicate efficacy
    - HOPE trial: which is the nebulized heparin, n-acetylcycysteine in COVID patients by evaluation of pulmonary function trial
        - Spike protein on the surface of the virus which interacts with 3 molecules on the surface of lung cells. These interactions are needed to infect cells. The theory is that heparin and NAC would coat the outside of the virus and prevent it from getting into the lungs. Ultimately eliminating the need for mechanical ventilation

GI/renal:

- AKI in 100% of patients – so far ~30% needed CRRT

Heme:

- Patients on CRRT have needed heparin through circuit + systemic heparin. We initially tried a lower aptt goal but have needed to use the therapeutic drip (goal 65-105)
- Possible some improvement from a respiratory standpoint while on infusion?

ID: AS stated above we have moved from azithromycin + hydroxychloroquine to doxycycline + hydroxychloroquine due to QTc prolongation.

- Secondary infections hard to rule out. Many patients end up on broad spectrum antimicrobials later in their stay.

Some other pharmacy tips to consider:

- Creating larger bags for infusions – limiting the number of bag changes:
    - Norepinephrine 32mg/500mL
    - Fentanyl 5000mcg/100mL
    - Dexmedetomidine 1600mcg/400mL
- Aligning administration times for scheduled meds
- COVID crash kits: small scale crash cart. Remains outside the room in case of emergency
    - 4 epi syringes
    - 1 calcium
    - 1 bicarb
    - 1 atropine
    - 1 adenosine
    - 4g magnesium
    - 10 flushes