Grady

Treatment Guidelines for SARS-CoV-2 (COVID-19) Infection

Updated 3.20.20

General Concepts:

- **Infectious Diseases approval is required for all patients prior to initiating treatment of COVID-19.**
  - **Patients who are admitted to the ICU and are designated as a PUI (person under investigation) by the ID provider**
- The recommendations below are subject to change based on emerging data or drug shortage information
  - **Empiric treatment can be initiated prior to confirmation of a positive COVID-19 test for patients who are admitted to the ICU and designated as a PUI by the ID provider.**
  - **Please contact one of the ID Pharmacists (404-938-6446) when initiating patients on treatment so any potential drug supply issues can be addressed up front.**
- The treatment options discussed below are **not** FDA-approved for the treatment of COVID-19; furthermore, these recommendations are based on very limited data, with some recommendations being extrapolated from experience with other, similar viral pathogens. Therefore decisions to use these treatments should be based on risk-benefit discussion with individual patients
- CDC and WHO recommend avoiding corticosteroids in COVID-19 management given risk of prolonged viral shedding and toxicities **except** in cases of acute respiratory distress syndrome (ARDS)
- **WHO recommends avoiding NSAIDs in COVID-19 management**

Patient Characteristic Definitions:

1. Mild illness = no hypoxia or radiographic evidence of pneumonia
2. Risk factors for disease progression includes:
   - Hypoxia (SpO_2 <90% on room air) requiring supplemental oxygen in a patient who has one of the below co-morbidities **OR**
   - Radiographic evidence of pneumonia in a patient who has one of the below co-morbidities:
   - **Comorbidities include:**
     - Immunocompromising conditions or medications
     - Structural lung disease
     - Hypertension
     - Coronary artery disease
     - Diabetes
     - Age >60 years
3. Multi-organ failure = ALT >5x upper limit of normal, CrCl < 30 mL/min, or on any form of renal replacement therapy

<table>
<tr><th>Patient Characteristics</th><th>Treatment Recommendation</th><th>Special Considerations</th></tr>
<tr><td>Mild illness[1], regardless of hospitalization
Mild illness = no hypoxia or radiographic evidence of pneumonia</td><td colspan="2" rowspan="2">Symptomatic treatment and monitoring</td></tr>
<tr><td>Non-critically ill hospitalized patient with <u>NO</u> risk factors for disease progression[2]</td></tr>
<tr><td>Non-critically ill hospitalized patients with risk factors for disease progression[2]
Risk factors for disease progression includes:
• Hypoxia (SpO_2 <90% on room air) requiring supplemental oxygen in a patient who has one of the below co-morbidities <u>OR</u>
• Radiographic evidence of pneumonia in a patient who has one of the below co-morbidities:
• Co-morbidities include:
4. Immunocompromising conditions/medications
5. Structural lung disease
6. Hypertension
7. Coronary artery disease
8. Diabetes
9. Age >60 years</td><td>Hydroxychloroquine 400 mg PO q12h x 1 day, then 200 mg PO q12h x 4 days*</td><td>• Hydroxychloroquine has the potential to prolong QT interval
• Check EKG prior to initiation
▪ Do not use in QTc >500 msec
▪ For QTc >470 msec, please recheck after next dose of hydroxychlroroquine
• Risk of QT prolongation is increased in patients on other QT-prolonging agents
• Other risks to monitor (not full list):
▪ Arrhythmia
▪ Cardiomyopathy
▪ Bone marrow suppression
▪ Hypoglycemia</td></tr>
<tr><td rowspan="2">Critically ill, mechanically ventilated patients without multi-organ failure[3] or vasopressor requirement
Multi-organ failure = ALT >5x upper limit of normal, CrCl < 30 mL/min, or on any form of renal replacement therapy</td><td>Remdesivir 200 mg IV load, then 100 mg IV q24h

OR</td><td>• Remdesivir is ONLY AVAILABLE THROUGH COMPASSIONATE USE (see below for procurement protocol) or enrollment in clinical trial
• Drug-drug interactions possible especially with CYP3A4 inhibitors (i.e. ritonavir or rifampin)
• Elevated transaminases, reversible kidney injury, and hypotension during infusion have been reported</td></tr>
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Patient Characteristics	Treatment Recommendation	Special Considerations

Critically ill, mechanically ventilated patients with multi-organ failure[3] or vasopressor requirement
 	
Multi-organ failure = ALT >5x upper limit of normal, CrCl < 30 mL/min, or on any form of renal replacement therapy
	Hydroxychloroquine 400 mg PO q12h x 1 day, then 200 mg PO q12h x 4 days*	• Hydroxychloroquine has the potential to prolong QT interval
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		• Risk of QT prolongation is increased in patients on other QT-prolonging agents
		• Other risks to monitor (not full list):
		  ▪ Arrhythmia
		  ▪ Cardiomyopathy
		  ▪ Bone marrow suppression
		  ▪ Hypoglycemia

*Can consider shortening or prolonging therapy based on patient's clinical status

Remdesivir compassionate use procedure (NOTE: the anecdotal turn-around time for approval and procurement of remdesivir is 5 days):
The following patient criteria must currently be met in order to submit a compassionate use request for remdesivir:

Key Inclusion criteria:
- Hospitalization
- SARS-CoV-2 by PCR
- Mechanical ventilation

Key Exclusion criteria:
- Multi-organ failure
- Vasopressor requirement
- ALT > 5x ULN
- CrCl < 30 mL/min, dialysis, or CVVH
- Concomitant use of other experimental antiviral agents (e.g. lopinavir/ritonavir)

To start a request for remdesivir through Gilead's compassionate use program, follow the steps outlined below:
1. Complete forms at https://rdvcu.gilead.com;
2. **After form completion email Shreena Advani at sadvani@gmh.edu and Sheena Kandiah at Sheetal.kandiah@emory.edu**
3. Email Gilead IT at PortalTechSupport@gilead.com to confirm they received your request.
4. Once Gilead approval received, fill-out FDA's Individual Patient Expanded Access Investigational New Drug Application (FDA form 3926) and send to their email DAVPEINDREQUEST@fda.hhs.gov.
5. FDA will e-mail you with the eIND number if approved.
6. Send FDA approval notification / eIND number over to Gilead via the email they gave during initial approval.
7. Notify your IRB, Grady investigational pharmacy (ppowers@gmh.edu), and Clinical Trials Dept. and work with them on their requirements.
8. Wait for Gilead to reply back with physician agreement, investigator brochure, informed consent form, pharmacy manual, clinical baseline form, and clinical update form. Physician and patient must sign agreement and send back to Gilead before they'll start processing shipping.
9. Fill out clinical baseline form and send to Gilead before starting remdesivir; send clinical update form each day to Gilead while on treatment.
   Email Gilead at coronavirus.response@gilead.com for any issues throughout the process.

References:

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COVID-19 Treatment Guidance	
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