**Clinical Alignment Summary: COVID-19 Infectious Disease Treatment**

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

**OVERVIEW**
- There are no proven or approved treatments for COVID-19, all patients should receive standard supportive therapy.
- Risk stratify patients (Table 1).
- Patients with moderate to severe disease or at high risk for disease progression should be offered antiviral medications (Table 2).
- Avoid medications which have shown to be ineffective or harmful to patients with COVID-19 (Table 5).

<table>
<thead>
<tr>
<th>TABLE 1. Risk factors for COVID-19 disease progression (3). The severity of COVID-19 is categorized into mild (symptoms but no dyspnea or abnormal imaging), moderate (lower respiratory disease w/ SpO2 &gt;94% on room air), severe* (SpO2 ≤ 94% on room air, requiring supplemental oxygen, mechanical ventilation, or extracorporeal membrane oxygenation). These definitions vary in the literature (3).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epidemiological – Category 1</strong></td>
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<tr>
<td>Age &gt; 55</td>
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<tr>
<td>Pre-existing pulmonary disease</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
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<tr>
<td>Diabetes with A1c &gt; 7.6%</td>
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<tr>
<td>History of hypertension</td>
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<tr>
<td>History of cardiovascular disease</td>
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<tr>
<td>Use of biologics**</td>
</tr>
<tr>
<td>History of transplant or other immunosuppression** including chronic corticosteroid &gt;20 mg/d of prednisone</td>
</tr>
<tr>
<td>HIV with CD4 cell count &lt;200 or unknown**</td>
</tr>
</tbody>
</table>

**Not yet proven as risk factors for progression, inferred from other infections. Other factors include poverty, racism, recent cancer chemotherapy, recent surgery (3)**

**TABLE 2. Recommended antiviral therapy**
- Recommended for treatment of COVID-19 in hospitalized patients including pregnant patients with severe* disease (1,2,3,4).
- In situations where supplies are limited, recommend prioritized for use in hospitalized patients with COVID-19 who require supplemental oxygen but who are not on high flow O2, mechanically ventilated, or on ECMO (1,3,4,5), appears to demonstrate the most benefit for these patients (4).
  - If a patient who is on supplemental oxygen while receiving remdesivir progresses to requiring high-flow oxygen, noninvasive or invasive mechanical ventilation, or ECMO, the course should be completed (5).
  - Because there is uncertainty regarding whether starting remdesivir for patients who require high-flow O2, noninvasive ventilation, mechanical ventilation, or ECMO confers clinical benefit in these groups of patients, cannot make a recommendation either for or against starting remdesivir (5).
- Insufficient data to recommend for or against for the treatment of patients with mild or moderate COVID-19 (1,3,5); suggest against routine use in patients without need for supplemental oxygen and SpO2 >94% on room air (4).
- Participation in trials including this drug should be prioritized over other trials that may preclude ability to access remdesivir through trials (2).

**Remdesivir**
TABLE 3. Other recommended medications

- Recommended for patients who are mechanically ventilated and those on supplemental O₂ (1,2,3,4,7)
- Use in pregnancy:
  - Given the potential benefit of decreased maternal mortality and the low risk of fetal adverse effects for this short course of therapy, recommends using dexamethasone in pregnant women with COVID-19 who are mechanically ventilated or who require supplemental oxygen but who are not mechanically ventilated (7)
  - Crosses the placenta and should be discussed with OB/Maternal-Fetal Medicine before administration (1,2)
  - After consultation with Maternal-Fetal Medicine, treatment with one of the alternative regimens may be considered. If there is concern for risk of preterm birth, betamethasone is the preferred regimen for that indication (3)
- There is no data to support the use of dexamethasone and remdesivir in combination, but co-administration is allowable (3)
- If dexamethasone is not available, recommends using alternative glucocorticoids such as prednisone, methylprednisolone, or hydrocortisone (7)

Dexamethasone

TABLE 4. Other therapies

- Recommended only in the context of a clinical trial (1,2,4)
- Should not be considered standard of care for treatment of patients with COVID-19, but may be considered via the expanded access program if deemed clinically appropriate by the treating team (1,2)
- Insufficient clinical data to recommend either for or against use; should not be considered standard of care for treatment of patients with COVID-19 (6)

Convalescent Plasma

- Insufficient data for the COVID-19 Treatment Guidelines Panel (the Panel) to recommend either for or against the use of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) immunoglobulins (6)
- Non-SARS-CoV-2-specific intravenous immune globulin (IVIG) not recommended, except in the context of a clinical trial (1,6)
- This should not preclude the use of IVIG when it is otherwise indicated for the treatment of complications that arise during the course of COVID-19 (6), including multisystem inflammatory syndrome (3)
### Statins
- Continue statins if already prescribed (3,7)
- For those who have a guideline indication, and if no contraindication (e.g. pregnancy), consider starting alorvastatin 40 mg daily (3)
- Statin therapy not recommended as treatment for COVID-19 outside clinical trial (7)

### Interferon beta
- Recommended only in the context of a clinical trial (2)
- Insufficient clinical data to recommend either for or against the treatment of early (i.e., <7 days from symptom onset), mild, and moderate COVID (6)

### IL-1 inhibitors: Anakinra
- Insufficient clinical data to recommend either for or against (6)

### TABLE 5. Medications not currently recommended

#### Antibiotics
- Avoid routine empiric antibiotics (1,3)
- For patients for whom antibiotics are indicated for presumptive secondary bacterial pneumonia, ceftriaxone and doxycycline is preferred over azithromycin in non-pregnant patients (3)

#### Other medications
- **Dexamethasone** is not recommended for patients who do not require O₂ support unless there is another indication for corticosteroids (1,3,4,7)
- **Hydroxychloroquine/chloroquine:**
  - Among hospitalized patients with COVID-19, recommend against hydroxychloroquine (1,4,5)
  - In non-hospitalized patients, recommend against the use of chloroquine or hydroxychloroquine for the treatment of COVID-19, except in a clinical trial (4,5)
  - Recommended only in the context of a clinical trial (3)
  - Chloroquine antagonizes remdesivir in vitro against RSV; chloroquine and HCQ should not be co-administered with remdesivir (3)
  - The use of hydroxychloroquine plus azithromycin for the treatment of COVID-19 is not recommended, except in the context of a clinical trial (5)
  - Among hospitalized patients with COVID-19, recommend against hydroxychloroquine plus azithromycin (4)
- **Ivermectin** should be reserved for other FDA approved indications (1,3), or only in the context of a clinical trial (5)
- **Interferons alpha or beta:** Recommend against use for severe or critical COVID-19 (6)
- **IL-6 inhibitors (Tocilizumab):** Recommend against routine use (1,4,6); consider only in the context of a clinical trial (1,2,4,6)
- **Lopinavir/Ritonavir:** Not recommended (1,3,5) or considered only in the context of a clinical trial (2,4,5)
- **Ribavirin:** Not recommended (3) or considered only in the context of a clinical trial (2)
- **ACE inhibitors and ARB’s** not recommended outside standard indications (3) or outside clinical trial (7).
  - American Heart Association, Heart Failure Society of America, and American College of Cardiology all recommend that ACE inhibitors or ARBs be continued in people who have an indication for these medications
Recommendations are aligned across institutions/organizations with the exceptions as marked:

SOURCES
2. University of California at San Francisco Inpatient Adult COVID-19 Management Guidelines, Updated 7/27/20
3. Massachusetts General Hospital COVID-19 Treatment Guidance, Updated 9/23/20
4. Infectious Diseases Society of America Guidelines on the Treatment and Management of Patients with COVID-19, Updated 9/25/20
7. NIH COVID-19 Treatment Guidelines: Considerations for Certain Concomitant Medications in Patients with COVID-19, Updated 7/30/20

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