COVID-19 Summary Sheet

IDSTEWARDSHIP TRAINING
at www.LearnAntibiotics.com

Some content may become inaccurate as more data emerge. This should be taken as a general summary and not an exhaustive appraisal of existing medical literature.

General Notes

- Coronavirus 2019 (aka SARS-CoV-2) can cause a disease called COVID-19
- Dexamethasone is currently recommended for COVID-19, previously corticosteroids were not recommended
- Use of nebulized bronchodilators can potentially aerosolize the virus, so use of metered dose inhalers is generally preferred to help reduce possible spread of the virus
- Empiric antibiotics are generally NOT recommended for patients with COVID-19 and should be stopped if started empirically and super-infection is ruled out
    - Co-infections are possible (e.g., influenza, community acquired pneumonia), but should not be the norm
- Lymphopenia is commonly seen upon presentation with COVID-19
- COVID-19 is not expected to increase procalcitonin, but it can increase CRP and inflammatory markers
- Use of neuraminidase inhibitors to target COVID-19 (e.g., oseltamivir [Tamiflu]) is not currently indicated
- As COVID-19 progresses patients may experience acute respiratory distress syndrome (ARDS)
    - Since fluids can exacerbate ARDS, consider avoiding fluids unless indicated for dehydration, sepsis, or other
    - Severe COVID-19 can require intubation and many patients are placed in a prone position due to ARDS
- Patients with severe disease may experience cytokine storm, which is associated with fever, increased levels of IL-6, CRP, D-Dimer, LDH, and ferritin, with decreased levels of fibrinogen
- Some patients are at increased risk for mortality or negative outcomes
    - Age is a strong risk factor for death from COVID-19, with highest death rates in people over 80 years
    - Underlying medical conditions (e.g., diabetes, cardiovascular disease, chronic respiratory disease, hypertension, cancer) are associated with higher death rates
    - Heart disease, hypertension, prior stroke, diabetes, chronic lung disease, and chronic kidney disease are associated with more severe disease and worse outcomes
- Lopinavir/ritonavir (Kaletra®) monotherapy should not be used for COVID-19 treatment
- There are a long list of other drugs and modalities being studied for COVID-19

Hydroxychloroquine (Plaquenil®) and Chloroquine

- Garnered substantial attention initially, but data from randomized controlled trials have not shown a benefit in:
    - Hospitalized patients with severe disease
    - Hospitalized patients with mild-moderate disease
    - Non-hospitalized patients
    - For post-exposure prophylaxis
- Currently no professional guideline is recommending either hydroxychloroquine or chloroquine for COVID-19 outside of a clinical trial and the FDA Emergency Use Authorization has been retracted for these drugs
- Importantly, hydroxychloroquine may interact with remdesivir and render remdesivir less effective. Given the long half-life of hydroxychloroquine, use even days prior to remdesivir may be detrimental

Tocilizumab (Actemra®)

- Lacks antiviral effects, but may be beneficial towards cytokine release syndrome (CRS, cytokine storm) as an IL-6 antagonist which may reduce cytokines and acute phase reactants
- The first randomized controlled trial of tocilizumab for COVID-19 has not shown it to be effective for improved clinical status or reduced mortality, greatly reducing enthusiasm for tocilizumab and similar drugs.

Remdesivir (Veklury®, GS-5734)

- Remdesivir is a direct acting nucleoside RNA polymerase inhibitor and antiviral drug developed by Gilead Sciences
- Is available for IV administration in the U.S. under an Emergency Use Authorization (is not FDA approved) at $520/vial
- Requires a loading dose (200 mg in adults) usually followed by 4 days of 100mg daily for a 5-day course
- Requires baseline and daily lab monitoring and beware infusion-mediated reactions
    - Generally avoid if CrCl is below 30 mL/min due to accumulation of cyclodextrin, but not a contraindication
    - ALT 5x ULN at baseline or on therapy is a cause for discontinuation or not to start
- Beware drug-drug interactions through CYP2C8, CYP2D6, CYP3A4, OATP1B1, BSEP, MRP4, and p-glycoprotein
- Visit www.remdesivir.com for full information and the Patient Fact Sheet. The NIH guideline may also be helpful.

Abbreviations: CRP = C-reactive protein; FDA = Food and Drug Administration, IL-6 = interleukin 6; NIH = national institutes of health; OAT = organic anion transporter; SARS = severe acute respiratory syndrome; ULN = upper limit of normal