Ambulatory Pharmacy Treatment Guide

Limited treatment data are available and clinical judgment is warranted – Updated 5/21/20

Considerations for Certain Medications and COVID-19			
Drug	**Mechanism**	**Rationale of possible efficacy**	**Recommendation and Rationale**
Vitamin D2 (ergocalciferol)/ Vitamin D3 (cholecalciferol)	Immune system modulation[1]	• Lower viral replication[2] • Reduce mortality[2] • Vitamin D deficiency linked with cytokine storm biomarkers[3-5]	• **There is insufficient evidence to recommend for or against vitamin D for prevention of COVID-19** • **Patients who require vitamin D replacement can continue or be initiated as appropriate** • There are no completed randomized clinical trials evaluating usage of Vitamin D for COVID-19. There are ongoing clinical trials assessing potential benefit.[6, 7] • Some recently published retrospective observational studies concluded that patients with COVID-19 had lower levels of vitamin D.[21,22] While these patients may need vitamin D replacement regardless of COVID-19 prevention, further clinical trials are necessary to connect its relationship with COVID-19. • There is conflicting evidence regarding the benefits of Vitamin D in preventing other respiratory viral infections, such as influenza. In these studies, several studies using lower doses of Vitamin D support its benefit in preventing respiratory tract infections[8, 9, 10], while another showed opposite effects in pediatric patients[11], and other studies showed mixed results.[12]
HMG-CoA reductase inhibitors (statins)	HMG-CoA reductase inhibition[13]	• Inhibition of MYD88 pathway related to immunity[14-16] • Lower incidence of viral pneumonia[17-19]	• **There is insufficient evidence to recommend statins for prevention of COVID-19** • **Patients who require statins for non-COVID indications should be continued or initiated** • No published peer review studies in medical literature were found to support the usage of statins based solely on COVID positive status. Further studies are necessary to connect its relationship with COVID-19. Current NIH COVID-19 guidance does not recommend to use statins to treat COVID.[13]

Dextromethorphan	Antitussive[20]	Promotes viral activity[20]	• **Appropriate to use as an antitussive agent in COVID-19 patients.** • No published peer review studies in medical literature were found to support dextromethorphan worsening COVID-19 infections. Further studies are necessary to connect its relationship with COVID-19. • Theoretical adverse effects of dextromethorphan in COVID-19 is based on the proteins involved with viral infection and replication and promotion of viral activity.[20]
Nonsteroidal Anti-Inflammatory Drugs (NSAIDS)	COX-1/2 inhibition	Potential increase ACE2 expression and worsen COVID-19 infection	• **Appropriate to use in COVID-19 patients** • **Considerations for NSAID prescribing should always include evaluation of inherent NSAID side effects (i.e. risk of renal dysfunction), regardless of COVID-19 diagnosis** • No published peer reviewed studies support NSAIDs worsening COVID-19 infections. • European Medicines Agency (EMA) and the Food and Drug Administration (FDA) issued statements that there is no scientific evidence connecting NSAID use and worsening COVID-19 symptoms[23,24]
Renin-Angiotensin-Aldosterone System (RAAS) Inhibitors	ACE inhibition and ARB antagonist	Potential increase ACE2 expression and worsen COVID-19 infection	• **RAAS antagonists should be continued for patients currently prescribed such agents for indications for which these agents are known to be beneficial, such as heart failure, hypertension, or ischemic heart disease.** • **In the event patients with cardiovascular disease are diagnosed with COVID-19, individualized treatment decisions should be made according to each patient's hemodynamic status and clinical presentation.** • No published peer reviewed studies support RAAS antagonists worsening COVID-19 infections. • A joint statement from the Heart Failure Society of America (HFSA), the American College of Cardiology (ACC), and the American Heart Association (AHA) was released specifically addressing this topic. The Statement acknowledges uncertainty regarding the potential effects of ACE and/or ARB use in the setting of COVID-19, and that recommendations are shifting in response to emerging data.[25]

Aspirin	COX-1/2 inhibition	Potential predisposition to arterial and venous micro/macro thrombotic disease	• **There is insufficient evidence to recommend aspirin continuation after discharge in COVID-19 patients** • **There is insufficient evidence for or against the use of aspirin in the outpatient setting for COVID-19 patients** • **Patients who require aspirin for an existing indication can continue or be initiated as appropriate** • Initial analysis of thromboelastography in COVID-19 positive patients reveals a hypercoagulopathy state that is dissimilar to disseminated intravascular coagulation. Markers of platelet hyperfunction and excess von Willebrand factor indicative of endothelial cell activation have raised the question as to whether the addition of platelet inhibitors to the current anticoagulation pathways for COVID-19 patients would be appropriate. • An in-house analysis has suggested that the addition of aspirin does not significantly increase bleeding risk although its efficacy is unclear. Given its low-risk safety profile, it is reasonable to consider adding aspirin as an antiplatelet agent to the treatment of COVID-19 patients unless contraindicated while hospitalized only.

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