DASON COVID-19 Weekly Treatment Literature Update 5/18/2020
Prepared by: Angelina Davis, PharmD, MS, April Dyer, PharmD, MBA, MSCR, Elizabeth Dodds Ashley, PharmD, MHS, Melissa Johnson, PharmD, MHS, S. Shaefer Spires, MD, Travis Jones, PharmD

The following summarizes key literature pertaining to treatment of COVID-19 during the past week.

*Note: some of the data discussed below is in pre-print form that has not yet been peer-reviewed. We have noted some discrepancies in some of this data, and final printed versions may ultimately differ from what is shown here. We will update as soon as possible; caution is advised when interpreting this literature.

Remdesivir Access: Additional shipments continue to be distributed to state health departments. We have heard from many of you regarding your supply of remdesivir. If we can be of any assistance to you through the allocation process, please reach out to your DASON liaison.

Hydroxychloroquine Data: Please note, the summary table has also been updated and is available at this link: https://dason.medicine.duke.edu/summary-recent-clinical-data-use-hydroxychloroquine-and-chloroquine-covid-19


This was a multicenter retrospective cohort study of 1438 randomly selected patients admitted to 25 New York metro area hospitals with a positive PCR test for SARS-CoV-2 from March 15 to March 28, 2020. A team of nurses and epidemiologists under physician supervision abstracted records for all patients into a standardized digital system. 46% of patients were >= 65 years of age, and 60% were male with obesity, diabetes (35%) and cardiovascular disease (30%) as most common comorbidities. 26% were black, 30% were Hispanic, and 22% were white. 63% had O2 saturation >93% on room air at baseline; with 15% with an O2 saturation <90%. 86% had abnormal findings on pulmonary imaging. 735 (51.1%) received hydroxychloroquine (HCQ) + azithromycin (AZ), 271 (18.8%) received HCQ alone, 211 (14.7%) received AZ alone, and 221 (15.4%) received neither drug. There were a number of factors that were different between treatment groups at baseline. After adjustment for these factors, no significant differences in mortality were found for the 3 therapy groups (HCQ + AZ, HCQ alone, AZ alone) compared to neither drug. In addition, no significant mortality difference in mortality was found for HCQ vs AZ alone. After adjusting for sex, age, underlying diseases and abnormal chest imaging, cardiac arrest was more common in those receiving HCQ + AZ compared to neither drug, and HCQ alone compared to AZ alone. Limitations of the study include retrospective nature of the study, non-controlled design, and potential inability to control for factors related to the treatment received. In addition, some patients were still hospitalized at the time the data were analyzed. Time to viral clearance was not reported. Furthermore, adverse events were recorded from the entire hospitalization, so events occurring before treatment initiation were potentially captured (although HCQ and AZ were initiated at a mean of day 1 and day 0 of hospitalization, respectively).


This was a retrospective cohort study of patients admitted to 4 New York University Langone Health (NYULH) hospitals between March 2 and April 5, 2020 with confirmed COVID-19 infection. Outcomes among patients that received hydroxychloroquine (HCQ, 400 mg x1, followed by 200 mg BID) and azithromycin (IAZ, 500 mg QD) were compared to those that received zinc sulfate (200 mg BID for 5 days) with HCQ and AZ. Zinc was routinely added to HCQ and AZ at NYULH after 3/25/20. Patients that received other agents such as tocilizumab, nitazoxanide, rituximab, anakinra, remdesivir, or
lopinavir/ritonavir were excluded from the study. Subjects were mostly male (63%) with cardiovascular disease (43%) or diabetes (25%), and only 46% were identified as white.

No severity of illness scores were used by the investigators, but there were statistically significant differences in baseline respiratory rate, lymphocyte count, troponin and procalcitonin between the two treatment groups. It is unclear if these differences or any factors associated with zinc treatment were accounted for in the models comparing outcomes by treatment group, although the time period (before or after March 25) was controlled for in the final model. This model suggested that use of zinc was associated with an increase in discharge to home (OR 1.53, 95% CI 1.12-2.09) and decreased mortality/transition to hospice (which was driven by the non-ICU patients) (OR 0.559 0.385-0.811). Limitations of this study include its retrospective nature, non-controlled design, and potential inability to control for factors related to the treatment received. Time to viral clearance was not reported. Severity of illness was not stated, and since patients receiving other agents were excluded, the study participants might represent a less severely ill patient population.


This was a multicenter retrospective cohort study of 181 patients 18-80 years of age admitted to 4 French hospitals from March 12 to March 30, 2020 with PCR-confirmed SARS-CoV-2 infection requiring oxygen from nasal cannula or mask. Patients were mostly male (72%) with a median age of 60 years (IQR 52-68 years), and a median interval between symptom onset and hospital admission was 7 days (IQR 5-10 days). 51% had a history of cardiovascular disease. In an analysis adjusting for factors associated with likelihood to receive HCQ therapy, there were no differences in survival without transfer to the ICU at 21 days (76% HCQ, 75% SOC, weighted HR 0.9 [95% CI 0.4-2.1]). Overall survival at day 21 and survival without ARDS, weaning from O2 at day 21 or discharge to home was no different for HCQ vs SOC treatment groups. 10% of HCQ patients (who received it within the first 48h of hospitalization) had ECG changes requiring treatment discontinuation (at a median of 4 days [IQR 3-9 days] after initiation). 7/8 of these patients had QTc interval prolongation >60 msec. Limitations of the study include retrospective nature of the study, non-controlled design, and potential inability to control for factors related to the treatment received. Time to viral clearance was not reported. It is also difficult to evaluate the impact of azithromycin in this study, since it was uncontrolled and given to a small subset of patients in each treatment group (18% HCQ, 29% SOC).


We previously summarized this pre-print that has now been published in the British Medical Journal. Briefly, this was a multicenter randomized open-label study comparing hydroxychloroquine (HCQ) to standard of care (SOC) with 150 patients (75 in each group) with COVID-19. 99% of patients had mild-moderate COVID-19. The mean interval between symptom onset and study entry was 16.6 days (SD 10.5) and 60% of patients had received other medication treatment before study randomization. The study found no difference in 28-day time to PCR negativity between the two treatment groups; it was 85.4% [95% CI 73.8%- 93.8%] for HCQ and 81.3% [95%CI, 71.2% to 89.6%] for SOC. Adverse events were significantly higher with HCQ (30%) than SOC (8.8%). There were two serious adverse events, both in HCQ group (1 disease progression, 1 upper respiratory infection). The study was stopped early, and was underpowered for many of the secondary outcomes. HCQ was used in a higher dose scheme in this study than some others, which may have contributed to the adverse events. One patient with moderate disease in the hydroxychloroquine group progressed to severe covid-19, and no patients died during follow-up. Given the mild-moderate nature of COVID-19 infection in this study and low mortality, this study population is likely not representative of hospitalized patients in the United States.