

# Hydroxychloroquine and COVID-19

Sarah Bush Lincoln Health System does not recommend the use of hydroxychloroquine for treatment or prevention of COVID-19 infection. The rationale for this position is stated below.

As many of you know, early in the COVID-19 pandemic there was enthusiasm for the use of hydroxychloroquine to treat patients with active COVID-19 and some advocated using it to prevent COVID-19 altogether. In March 2020 a letter to the editor was published by Chinese researchers in the journal *Cell Discovery* stating that they had found that chloroquine phosphate “inhibited SARS-CoV-2 infection in vitro.” They determined this by studying the effects of chloroquine on African green monkey kidney cells in test tubes. A French study published in the *International Journal of Antimicrobial Agents* also done in March 2020 tested the combination of hydroxychloroquine and azithromycin on 36 patients. On day six, they took nasopharyngeal samples of the patients and found that they were less likely to detect the virus in the patients that had hydroxychloroquine.

Initial enthusiasm was also fed by anecdotal reports by individual clinicians who believed that hydroxychloroquine improved outcomes in their patients. Many of these claims were circulated on social media, and several were picked up by mainstream media. This initial enthusiasm caused the medical community to perform several clinical trials to see if hydroxychloroquine did or did not provide benefit for COVID-19. The overall conclusions have been that hydroxychloroquine does not provide benefit for patients with COVID-19, nor does it prevent people from getting the disease. It does not help reduce mortality rates or severity of illness in patients whether it is given when they are early in the disease or late stages. I will summarize some of the more well-designed studies below.

June 5, researchers from the United Kingdom announced the results of The Recovery Trial, which consisted of 1542 hospitalized patients treated with hydroxychloroquine. After 28 days, 26% of those patients had died compared to 24% of a group of 3132 patients who had received only standard care.

June 15, 2020, the FDA revoked the emergency use authorization for hydroxychloroquine and chloroquine to treat COVID-19 outside clinical trials. July 1, 2020, the FDA announced that they found a number of safety issues in patients that had received hydroxychloroquine and chloroquine for treatment of COVID-19. There were reports of serious heart rhythm problems, blood and lymph system disorders, kidney injuries, and liver problems and failure.

June 15, 2020 a large Spanish study which involved 2300 participants tested the efficacy of hydroxychloroquine for preventing COVID-19 disease in people who are exposed. This study showed no significant effect in preventing people who received hydroxychloroquine from getting the disease.

June 18, 2020 *New England Journal of Medicine* published an article retrospectively studying 1376 patients to see if hydroxychloroquine helped decrease their chances of requiring intubation, or death. 59% of those patients received hydroxychloroquine. There was no significant benefit from the hydroxychloroquine at preventing intubation or death.

June 20, 2020 the National Institute of Health halted a clinical trial of hydroxychloroquine use for treating adults hospitalized with coronavirus prematurely because the preliminary results were showing that it was extremely unlikely that hydroxychloroquine was beneficial.

On July 2, 2020 the Henry Ford Health System published a study in the *International Journal of Infectious Diseases* involving 2541 patients out of Detroit that did show treatment with hydroxychloroquine lowered death rate significantly and sick patients hospitalized with COVID-19. The methodology of this study was criticized in an editorial published in the same journal.

July 23, 2020 New England Journal of Medicine published a multicenter, randomized, open label, controlled trial involving 667 hospitalized patients with suspected or confirmed COVID-19 who required no more than 4 L of oxygen. One third of the patients received standard care, one third received standard care plus hydroxychloroquine 400 mg twice daily, one third received hydroxychloroquine 400 mg twice daily plus azithromycin 500 mg daily. They assess the patient's 15 days after enrollment in the trial, and there was no improvement in either the hydroxychloroquine group or hydroxychloroquine plus azithromycin group.

August 6, 2020 New England Journal of Medicine published a randomized, double-blind, placebo-controlled trial across the United States and parts of Canada testing whether hydroxychloroquine prevented 821 people who were exposed to COVID-19 from getting the disease. There was no significant difference in the incidence of COVID-19 between participants who received hydroxychloroquine, and those receiving placebo.

There is a very long list of other articles that are not mentioned here that reach the same conclusions. It is clear that prescribing hydroxychloroquine to prevent or treat COVID-19 is not supported by evidence, and may expose patients to significant risk without providing significant benefit.