

March 2020

Use of Hydroxychloroquine with/without Azithromycin for the treatment of COVID-19

COVID-19 = the name of a highly contagious pulmonary disease
Coronavirus = another name for COVID-19
SARS-CoV-2 = the name of the virus that causes COVID-19

Hydroxychloroquine is a medication that has been used for many years in the treatment of malaria, rheumatoid arthritis, systemic lupus erythematosus and porphyria cutanea tarda. It is currently promoted as a *potential* treatment for COVID-19. Numerous media resources, celebrities, and social media services have highlighted this treatment and raised awareness among the public without providing limitations of how much we do not yet know.

Hydroxychloroquine has shown in-vitro activity against the SARS-CoV-2 virus,¹ ²clinical trials and experience in humans is limited. It is being used as a treatment for COVID-19 in some patients in China and other countries but there is little data supporting the effectiveness, dosing, and risks of therapy. A small French study of 36 patients observed an increase in the number of patients who recovered from COVID-19 after 6 days of hydroxychloroquine therapy compared to no therapy. ³

Treatment	% of patients who recovered from COVID-19 by day 6 of treatment
No treatment	2/16 patients (12.5%)
Hydroxychloroquine	8/14 patients (70%)
Hydroxychloroquine + Azithromycin	6/6 patients (100%)

While these results look promising, it is important to recognize that the study had a very small sample size, was non-randomized, non-blinded, and non-controlled. There were initially 26 patients receiving hydroxychloroquine but 6 were removed from the analysis: 3 were transferred to the ICU, 1 died, 1 discontinued Hydroxychloroquine due to nausea, and 1 patient was lost to follow up.

There have been no randomized controlled trials of hydroxychloroquine therapy for the treatment of COVID-19. From use in other diseases, we know that hydroxychloroquine is associated with a number of serious adverse drug events (ADEs) including cardiomyopathy and conduction problems, dermatitis, bone marrow suppression, acute hepatic failure, and myopathy.

It can cause ADEs that are similar to the symptoms of COVID-19 infection such as emotional lability, fatigue, headache, abdominal pain, nausea, diarrhea, and vomiting.

Patients with diabetes receiving medications that may cause hypoglycemia should be monitored closely because Hydroxychloroquine may enhance the hypoglycemic effect.

Key points to consider:

- The use of hydroxychloroquine is in the news – patients may ask about it.
- There are no clinical trials evaluating the risks and benefits of hydroxychloroquine therapy (with or without azithromycin) for the treatment of COVID-19.
- The dose and duration of hydroxychloroquine for the treatment of COVID-19 is not known.
- There are risks of ADEs with hydroxychloroquine therapy even with short-term use.
- There is no data supporting the use of hydroxychloroquine therapy for preventing COVID-19 infection.
- Hydroxychloroquine is necessary for the management of rheumatoid arthritis and lupus; shortages and reduced access to the medication may result in poor patient outcomes for patients who are currently taking it.
- More information is needed before a recommendation to use hydroxychloroquine for the treatment of COVID-19 can be made.

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1. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, et al. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019nCoV) in vitro. *Cell Res* 2020 Feb 4 [Epub ahead of print] ↵
 2. [Yao X, Ye F, Zhang M, Cui C, Huang B, et al. In Vitro Antiviral Activity and Projection of Optimized Dosing Design of Hydroxychloroquine for the Treatment of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). *Clin Infect Dis*. 2020 Mar 9. pii: ciaa237. doi: 10.1093/cid/ciaa237. [Epub ahead of print] ↵
 3. Philippe Gautret , Jean-Christophe Lagier , Philippe Parola , Van Thuan Hoang , Line Meddeb, et al. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. *International Journal of Antimicrobial Agents* (2020), doi: <https://doi.org/10.1016/j.ijantimicag.2020.105949> ↵