

Tamiflu and Use in Coronavirus (COVID-19)

This response corresponds to your request for information on the use of Tamiflu® (oseltamivir phosphate) for the treatment of novel human coronavirus (COVID-19).

This response was developed according to principles of evidence-based medicine and includes information from case series and reports with 5 or more patients.

In Brief

- There are currently no medicines approved to specifically treat human coronaviruses. Tamiflu is designed to be highly specific to the influenza virus. Due to this high specificity, it is extremely unlikely that Tamiflu would be effective at treating the coronavirus.
- Independent laboratory testing conducted by Hong Kong University, School of Public Health demonstrates that Tamiflu does not have any antiviral effect on the novel coronavirus.
- Two case series describe the use of oseltamivir in patients hospitalized for COVID-19 in Wuhan, China.

Background Information

The World Health Organization (WHO) has declared a Public Health Emergency of International Concern (PHEIC) in response to the 2019-nCoV (novel coronavirus) outbreak, which was first reported from Wuhan City, Hubei province of China.¹

There are currently no medicines approved to specifically treat human coronaviruses. Tamiflu is designed to be highly specific to the influenza virus. Due to this high specificity, it is extremely unlikely that Tamiflu would be effective at treating the coronavirus.² Independent laboratory testing conducted by Hong Kong University, School of Public Health demonstrates that Tamiflu does not have any antiviral effect on the novel coronavirus.³

If people are concerned about their symptoms and have recently travelled to the affected regions, the WHO recommends to seek medical advice. Roche advocates people following the steps outlined by the WHO and the US Center for Disease Control (CDC) to protect themselves and others while travelling. For more information, please see here:

- <https://www.who.int/health-topics/coronavirus>
- <https://wwwnc.cdc.gov/travel/notices/watch/novel-coronavirus-china>

Retrospective Case Series

COVID-19 Infection

Two case series have stated the use of oseltamivir in patients hospitalized with confirmed COVID-19 in Wuhan, China.^{4,5} In a Lancet publication describing 41 patients, 38 patients were empirically treated upon hospital admission with oseltamivir 75 mg twice daily along with antibiotic therapy.⁴ Common symptoms presented by these patients included fever, cough, and myalgia or fatigue. All patients had pneumonia and abnormalities in chest CT images. The median time from onset of symptoms to hospital admission (n=41) was 7 days (range, 4-8). The median time from onset of symptoms to ICU admission (n=16) was 10.5 days (range, 8-17). Oseltamivir treatment was administered in 12 of the 13 patients, who received ICU care, and in 26 of the 28 patients, who did not receive ICU care. There was no statistical difference between the proportion of oseltamivir-treated patients admitted to the ICU compared

with oseltamivir-treated patients not admitted to the ICU (92% vs. 93%, $p=0.46$). This case series was expanded with an additional 58 cases.⁵ Among the total of 99 patients, 75 patients received antiviral treatment including oseltamivir 75 mg every 12 hours, ganciclovir IV 0.25 g every 12 hours, and lopinavir and ritonavir tablets 500 mg twice daily. The duration of antiviral treatment was 3-14 days. No additional information on outcomes for patients who received or did not receive antiviral treatment was reported in the publication.

In a JAMA publication, 138 patients with COVID-19 were admitted to the hospital at a median time of 7 days from the onset of symptoms.⁶ Of the 138 patients, 124 patients received oseltamivir. The dose of oseltamivir was adjusted based on the severity of the disease, and was not reported. The authors noted no effective outcomes were observed.

[COVID-19 and Influenza Coinfection](#)

Among a group of 115 hospitalized patients with COVID-19 pneumonia, Ding et al. reported the clinical characteristics and care for 5 patients who were co-infected with COVID-19 and the influenza virus (3 with influenza A and 2 with influenza B).⁷ The clinical presentation of these co-infected patients was similar to the characteristics that has been reported in COVID-19 patients. All 5 patients were treated with antiviral therapy (including oseltamivir), antibiotics, and supportive care. As the pneumonia progressed, 1 patient had acute respiratory distress syndrome and 3 patients had acute liver injury. None of the patients were admitted to the intensive care unit. All patients recovered and were discharged from hospital.

Ongoing Trial Information

Tamiflu in combination with other medications is currently being studied in clinical trials for the treatment of COVID-19. Clinicians interested in information regarding ongoing clinical research may find the following websites useful:

- WHO International Clinical Trials Registry Platform: <https://www.who.int/ictcp/en/>
- US National Library of Medicine at the NIH: <https://www.clinicaltrials.gov/>
- EU Clinical Trials Register: <https://www.clinicaltrialsregister.eu>

Reference List

1. World Health Organization. Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). Available at [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)). Accessed on February 3, 2020.
2. Mendel DB, Tai CY, Escarpe PA, et al. Oral administration of a prodrug of the influenza virus neuraminidase inhibitor GS 4071 protects mice and ferrets against influenza infection. *Antimicrob Agents Chemother* 1998;42:640-646.
3. Choy KT, Wong AYL, Kaewpreedee P, et al. Remdesivir, lopinavir, emetine, and homoharringtonine inhibit SARS-CoV-2 replication in vitro. *Antiviral Res* 2020;178:104786. <https://www.ncbi.nlm.nih.gov/pubmed/32251767>
4. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China [supplementary appendix appears online]. *Lancet* 2020;395:497-506. <https://www.ncbi.nlm.nih.gov/pubmed/31986264>

5. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet*. E-pub Date: ppublish February 2020. DOI # [10.1016/S0140-6736\(20\)30211-7](https://doi.org/10.1016/S0140-6736(20)30211-7) . <https://www.ncbi.nlm.nih.gov/pubmed/32007143>
6. Wang D, Hu B, Hu C, et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. *JAMA*. E-pub Date: aheadofprint February 2020. DOI # [10.1001/jama.2020.1585](https://doi.org/10.1001/jama.2020.1585) . <https://www.ncbi.nlm.nih.gov/pubmed/32031570>
7. Ding Q, Lu P, Fan Y, et al. The clinical characteristics of pneumonia patients coinfecting with 2019 novel coronavirus and influenza virus in Wuhan, China. *J Med Virol*. E-pub Date: aheadofprint March 2020. DOI # [10.1002/jmv.25781](https://doi.org/10.1002/jmv.25781) . <https://www.ncbi.nlm.nih.gov/pubmed/32196707>