

COVID-19: Rumor vs Truth – Hydroxychloroquine (Plaquenil®)

Rumor	Truth
<p>Rumor: Old antimalarial drugs, hydroxychloroquine (HCQ) and chloroquine, will cure COVID-19 illness and prevent the virus from shedding and infecting others.</p> <p><i>Speculation:</i> Based on an in vitro study of HCQ, a few ongoing studies if chloroquine or HCQ in China (< 100 patients) and France (24 patients). HCQ is more potent than chloroquine and has a more tolerable side effect profile. Yao et al, propose treatment dosing is HCQ 400mg PO BID x1 day, then 200mg BID x 4 days. The Marseille protocol (Gautret et al) advises HCQ 200mg PO TID x 10 days with the addition of azithromycin 500mg PO x1day, then 250mg QD x 4 days.</p> <p>Source</p> <ul style="list-style-type: none"> • Yao X 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) <i>Clin Infect Dis</i> 2020 March 9 • Colson P et al. Chloroquine and hydroxychloroquine as available weapons to fight COVID-19 <i>Int J Antimicrob Agent</i> 2020; March 14 • Gautret P et al. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open label non-randomized clinical trial <i>Int J Antimicrob Agent</i>; 2020; March 17 	<p>Truth: Active clinical trials are in progress in China, Korea, France, and US evaluating safety and effectiveness of HCQ for treatment and post-exposure prophylaxis for COVID-19. Based on the mechanism of action of HCQ, it's possible that HCQ may impair the ability of the coronavirus to attach to a cell and may prevent viral replication.</p> <p><i>Response:</i> HCQ has antiviral effect and immunomodulation effect and has been used to treat malaria an auto-immune disorders [(rheumatoid arthritis (RA), systemic lupus erythematosus (SLE))]. Not enough information at this point to recommend widespread use of HCQ +/- azithromycin either for treatment or prevention of COVID-19. Safety and efficacy have not been established to support off-label prescribing for most patients</p> <ul style="list-style-type: none"> • HCQ has significant drug interactions, including risk of QT prolongation, cardiomyopathy, ventricular arrhythmia. Patients with underlying cardiac disease are already at increased risk of morbidity and mortality from COVID-19. • HCQ can cause bone marrow suppression, hypoglycemia, myopathy, neuropathy, retinal toxicity, especially with higher dosing as proposed in the Marseille protocol. • HCQ is in nationwide shortage and should be reserved for patients requiring use for FDA-approved indications: SLE, RA, malaria. • Although expert opinion seems to favor use of HCQ or chloroquine, significant ethical, efficacy, and safety questions remain to be answered about use for COVID-19. Treatment decisions should not be driven by speculation and panic. <p>Source</p> <ul style="list-style-type: none"> • Lexi-Drugs Online. Lexicomp. Wolters Kluwer; Hudson, OH. Accessed March 19, 2020 • Cortegiani A et al A systematic review on the efficacy and safety of chloroquine for the treatment of COVID-19. <i>J Crit Care</i> 2020; March 10

COVID-19: Rumor vs Truth – ACE Inhibitors (ACEI) and Angiotensin Receptor Blockers (ARB)

Rumor	Truth
<p>Rumor: Angiotensin-converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARB) increase the risk of infection and increase severity of COVID-19 illness so all patients should stop taking them immediately</p> <p><i>Speculation:</i> COVID-19 may bind to an ACE2 enzyme as the mechanism of infecting the cell and patients' ACE2 levels are increased during treatment with ACEI or ARB</p> <p>Source: Fang L, Karakiulakis G, Roth M. Correspondence: Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? <i>Lancet Resp Med.</i> March 11, 2020 https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext</p>	<p>Truth: This hypothesis was posed in a correspondence letter to the <i>Lancet Respiratory Medicine</i>. The Fang et al letter was based their identification of a subset of 52 patients from an earlier, retrospective, observational study of 710 patients in Wuhan, China, who were already in critical condition in an ICU.</p> <p>Fang et al also suggest that ACE2 expression and increased sensitivity to the virus could be linked to a known genetic polymorphism that is prevalent in the Asian population. However, social media has latched on to the easier to understand part of the letter that suggests that a medication is to blame and therefore a simple fix is possible.</p> <p><i>Response:</i> National and international heart societies [American Heart Association (AHA), American College of Cardiology (ACC), Heart Failure Society of America (HFSA), European Cardiology Society (ECS)] have released statements to dispel this hypothesis and recommend patients continue taking their ACEI or ARB as prescribed.</p> <p>Source: Access the ACC COVID-19 hub or the ACC/AHA/HFSA Joint Statement</p>

COVID-19: Rumor vs Truth – Ibuprofen and NSAIDs

Rumor	Truth
<p>Rumor: Nonsteroidal anti-inflammatory drugs (NSAID), especially ibuprofen must be avoided because they increase mortality from COVID-19.</p> <p><i>Speculation:</i> A French Health Dept Minister sent a tweet that warned that anti-inflammatory drugs like ibuprofen could make the COVID-19 infection worse and that patients with fever should take only acetaminophen (paracetamol) based on the Fang et al letter to a <i>Lancet</i> journal. During a press conference, a WHO spokesperson was asked about the concern and his response was that the WHO was “looking into it” and that the WHO recommended using “paracetamol and do not use ibuprofen as a self-medication”. There doesn’t seem to be a video recording of this WHO conference with reporters.</p> <p>Source: French Health Minister Olivier Veran twitter statement, 17 March 2020 Fang L, Karakiulakis G, Roth M. Correspondence: Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? <i>Lancet Resp Med.</i> March 11, 2020 https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext</p>	<p>Truth: This hypothesis was posed in a correspondence letter to the <i>Lancet Respiratory Medicine</i>. The Fang et al letter was based their identification of a subset of 52 patients from an earlier, retrospective, observational study of 710 patients in Wuhan, China, who were already in critical condition in an ICU. The Fang et al letter mentions ibuprofen, thiazolidinediones, ACE inhibitors, and angiotensin receptor blockers in a hypothesis on increased expression of ACE2 leading to facilitated viral infection of cells and consequently more severe illness.</p> <p>Fang et al also pose a potential conflict in their hypothesis that reducing inflammation with anti-inflammatories and increased ACE2 enzyme could be a beneficial therapeutic target for inflammatory lung disease. However, because the French health dept official highlighted a very small and controversial portion of the letter, social media amplified the link to a well-known and very commonly used medication for fever, ibuprofen.</p> <p><i>Response:</i> No research supports avoiding ibuprofen or any NSAID to manage symptoms of COVID-19 illness. For those caring for themselves or family members at home, acetaminophen, when used within approved doses (< 4000mg/day) may be a safer medication to use as initial therapy for managing fever and mild aches/pains compared to NSAIDs. This is not at all related to COVID-19 illness, but because NSAIDs have known adverse effects including dyspepsia, increases in blood pressure, and worsened renal impairment, especially in elderly and frail patients.</p> <p>Source:</p> <ul style="list-style-type: none"> • Access the WHO COVID-19 Response Information • Melville N. Are Warnings Against NSAIDs in COVID-19 Warranted? <i>Medscape Medical News</i> March 17, 2020 Accessed March 18, 2020 • Lexi-Drugs Online. Lexicomp. Wolters Kluwer; Hudson, OH. Accessed March 18, 2020

COVID-19: Rumor vs Truth – Nebulized Medications

Rumor	Truth
<p>Rumor: Nebulizers spread the virus and increase the risk of infecting people around the person using the nebulizer</p> <p><i>Speculation:</i> In a letter to the editor in <i>CMAJ</i>, Canadian pulmonologists proposed that because nebulizers create aerosolized droplets, the nebulization process would facilitate transport of bacteria and virus into the lungs during patient use. Additionally, they suggest the nebulizer device may propel those droplets into the surrounding environment and that the large particle size will trigger patient and bystander coughing to further spread virus. They conclude that nebulizers should be avoided and patients switched to metered dose inhalers with a valved holding chamber (VHC).</p> <p><i>Note:</i> One of the authors of the <i>CMAJ</i> letter is employed by a company that produces VHCs.</p> <p>Source: Tang J et al Factors involved in the aerosol transmission of infection and control of ventilation in healthcare premises. <i>J Hospital Infect</i> 2006;64(2):100-114 Amirav I, Newhouse M. RE: Transmission of Corona Virus by Nebulizer- a serious, underappreciated risk! <i>CMAJ</i> March 3 2020</p>	<p>Truth: Distinguishing the viral transmission source between droplets produced from the nebulizer device vs those produced by patients' coughing would be difficult. There are a few published case reports from last decade's SARS outbreak in Hong Kong that suggest transmission of virus via aerosolized particles from a patient using a nebulizer is possible.</p> <p><i>Response:</i> Canadian guidance errs on the side of caution and recommends using metered dose inhalers with VHC over nebulizers for infection control during influenza pandemic. However, there are exceptions noted for this recommendation and these exceptions cover the vast majority of patients in hospice care:</p> <ol style="list-style-type: none"> 1. Severe, life-threatening respiratory disease 2. Patients unable to use an MDI correctly 3. Patients with poor response to MDI and spacer <p>In hospice care, benefits of nebulizers continue to outweigh risks for patients with dementia, end-stage pulmonary disease, severe respiratory symptoms, and those who are unable to demonstrate proper inhaler technique. We recommend:</p> <ul style="list-style-type: none"> • Reinforce cleaning and disinfecting the nebulizer frequently, ideally after each treatment. • Nebulizers are for single-patient use only. • Single-dose vials of medication are preferred over multidose. <p>Source:</p> <ul style="list-style-type: none"> • O'Malley C. Device Cleaning and Infection Control in Aerosol Therapy. <i>Respir Care</i> 2015;60(6):917-927 • Gardenhire D, et al. Guide to aerosol delivery devices for respiratory therapists. 4th ed. American Association for Respiratory Care (AARC). 2017 • Simonds A, et al Evaluation of droplet dispersion during non-invasive ventilation, oxygen therapy, nebuliser treatment and chest physiotherapy in clinical practice: implications for management of pandemic influenza and other airborne infections <i>Health Tech Assess</i> 201014(46):131-172 • Lexi-Drugs Online. Lexicomp. Wolters Kluwer; Hudson, OH. Accessed March 18, 2020

