

To: All YNHHS Medical Staff

From: Teresa Crino, PharmD  
Clinical Pharmacist, Lawrence & Memorial Hospital

Phu Huynh, PharmD, BCPS  
Senior Clinical Pharmacist, Drug Information; Yale-New Haven Hospital

Subject: NSAIDs and COVID-19

Date: March 30<sup>th</sup>, 2020

---

**S:** Confusion exists regarding the usage of NSAIDs in suspected or confirmed COVID-19 patients.

**B:** There has been controversial guidance to avoid ibuprofen in patients with COVID-19. On 3/14/20, France's minister of health advised to avoid NSAIDs because it may worsen the effects of the COVID-19. This statement was made due to studies that suggest ibuprofen increases ACE2 expression, which allows COVID-19 to enter the cells in our lungs, in addition to a letter published in the Lancet on March 11, 2020.<sup>1,2,3,6</sup> However, there is no specific clinical data that supports NSAIDs worsen the COVID-19 infection.

While NSAIDs, in general, should be used with caution in patients with renal dysfunction or at high risk of renal dysfunction, there is no specific clinical data that supports NSAIDs should be avoided in COVID-19 patients due to an increased risk of worsening renal function.

On 3/18/20, the World Health Organization (WHO) stated they do not recommend against the use of ibuprofen in COVID-19 patients.<sup>5</sup> In addition, the European Medicines Agency (EMA) recommended continuing NSAIDs following package insert guidance as there was no connection between ibuprofen and COVID-19.<sup>4</sup> The Food and Drug Administration also issued a statement that they are not aware of any scientific evidence connecting NSAID use and worsening COVID-19 symptoms.<sup>7</sup>

**A:** Without strong evidence linking NSAIDs to adverse clinical outcomes in patients with suspected or confirmed COVID-19, it is recommended to follow guidance from WHO and EMA and not discontinue NSAIDs in these patients based primarily on a COVID-19 diagnosis. Considerations for NSAID prescribing should include the inherent adverse effects of NSAIDs such as the risk for renal dysfunction.

**R:** There is no specific contraindication or precaution to using NSAIDs in COVID-19 patients. Considerations for NSAID prescribing should always include the inherent adverse effects of NSAIDs such as the risk for renal dysfunction regardless of a COVID-19 diagnosis.

**References:**

- 1) Li W, Moore MJ, Vasilieva N, et al. Angiotensin-converting enzyme 2 is a functional receptor for the SARS coronavirus [Internet]. Nature (2003). Available from: <https://www.nature.com/articles/nature02145>
- 2) Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin [Internet]. Nature (2020). Available from: <https://www.nature.com/articles/s41586-020-2012-7.pdf>
- 3) Hamming I, Timens W, Bultuis MLC, et al. Tissue distribution of ACE2 protein, the functional receptor for SARS coronavirus. A first step in understanding SARS pathogenesis [Internet]. The Journal of Pathology (2004). Available from: <https://onlinelibrary.wiley.com/doi/full/10.1002/path.1570>
- 4) Are Warnings Against NSAIDs in COVID-19 Warranted? Medscape: March 17, 2020. Available from: <https://www.medscape.com/viewarticle/926940>
- 5) EMA gives advice on the use of non-steroidal anti-inflammatories for COVID-19 [Internet]. 2020. EMA. Available from: [https://www.ema.europa.eu/en/news/ema-gives-advice-use-non-steroidal-anti-inflammatories-covid-19?mod=article\\_inline](https://www.ema.europa.eu/en/news/ema-gives-advice-use-non-steroidal-anti-inflammatories-covid-19?mod=article_inline)
- 6) Fang L, Karakiulakis G, Roth M, et al. Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? *Lancet Respir Med*. 2020. [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(20\)30116-8/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext)
- 7) FDA advises patients on use of non-steroidal anti-inflammatory drugs (NSAIDs) for COVID-19. Food and Drug Administration (FDA): March 19, 2020. Available from: <https://www.fda.gov/drugs/drug-safety-and-availability/fda-advises-patients-use-non-steroidal-anti-inflammatory-drugs-nsaids-covid-19>

**Reviewed by:**

Individual Stakeholder Name	Month/Day/Year
YNHHS COVID-19 Inpatient Care	3-30-2020
YNHHS Pharmacy COVID-19 Drug Use Policy Team	3-30-2020