

## Should ibuprofen be used to treat COVID-19?

### Background

- Ibuprofen is a nonsteroidal anti-inflammatory drug (NSAID). Other examples are naproxen, ketoprofen, celecoxib, and meloxicam. NSAIDs are used for the temporary relief of minor aches and pains, and to temporarily reduce fever. They are available as over-the-counter (OTC) and prescription drugs.
- In May 2019, French health workers were advised by the Safety of Medicines and Health Products to not treat fever/infections with ibuprofen.<sup>1,2</sup>
- On March 14, 2020, France's health minister Oliver Véran, MD, tweeted that individuals with suspected COVID-19 should avoid anti-inflammatory drugs, and if fever is present, take paracetamol (acetaminophen).
  - These comments were based on reports from an infectious diseases physician, in southwest France, of 4 young patients with COVID-19 and no underlying health problems who developed serious symptoms after using NSAIDs in the early stages of their symptoms.

### Pertinent Literature

- *The Lancet* reported that drugs, such as ibuprofen, thiazolidinediones, angiotensin II type-I receptor blockers (ARBs), and angiotensin-converting enzyme (ACE) inhibitors, increase angiotensin-converting enzyme 2 (ACE2).<sup>3</sup>
- Severe acute respiratory syndrome coronavirus [SARS-CoV] and COVID-19 bind to target cells through ACE2, expressed by epithelial cells of the lungs, intestine, kidneys, and blood vessels.
- The authors suggested that patients treated with ACE2-increasing drugs are at higher risk for severe COVID-19 infection.

### Recommendations from Governmental Agencies – March 2020

- The Food and Drug Administration (FDA) stated they were *not aware of scientific evidence connecting the use of NSAIDs, including ibuprofen, with worsening COVID-19 symptoms*.<sup>4</sup> The FDA's press release also states, "[f]or those who wish to use treatment options other than NSAIDs, there are multiple OTC and prescription medications approved for pain relief and fever reduction." The FDA does not recommend any particular OTC treatment for the management of fever associated with COVID-19.
- The European Medicines Agency (EMA) reported there is *no scientific evidence establishing a link between ibuprofen and worsening of COVID-19*.<sup>5</sup>
- The World Health Organization (WHO) changed their initial position statement regarding the use of NSAIDs for the treatment of COVID-19 from their initial recommended avoidance of ibuprofen based on warnings from French officials.<sup>6</sup> Currently, WHO *does not recommend against the use of ibuprofen*.
- The Spanish Ministry of Health stated there is no evidence that NSAIDs worsen COVID-19 infections, but that ibuprofen product labels suggest the drug may mask symptoms of infections, in general.<sup>7</sup>
- **The British National Health Service has updated its advice to recommend acetaminophen for infection, in general.**<sup>7</sup>

### Conclusion

- To-date, only observational study results are available regarding use of ibuprofen in patients with COVID-19. Based on the reviewed information, **as of March 25, 2020, there is not enough information to determine if use of ibuprofen in patients with COVID-19 should be avoided.**

**References:** 1) Nessel J. Researchers, physicians warn against anti-inflammatory use for COVID-19 symptoms. *Pharmacy Times*. <https://www.pharmacytimes.com/news/researchers-physicians-warn-against-anti-inflammatory-use-for-covid-19-symptoms>. 2) Day M. Covid-19: ibuprofen should not be used for managing symptoms, say doctors and scientists. *BMJ* website. <https://doi.org/10.1136/bmj.m1086>. 3) Fang L et al. Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? *The Lancet*. Published March 11, 2020. [https://doi.org/10.1016/S2213-2600\(20\)30116-8](https://doi.org/10.1016/S2213-2600(20)30116-8). 4) FDA. FDA advises patients on use of non-steroidal anti-inflammatory drugs (NSAIDs) for COVID-19 [Press Release]. [https://www.fda.gov/drugs/drug-safety-and-availability/fda-advises-patients-use-non-steroidal-anti-inflammatory-drugs-nsaids-covid-19?utm\\_campaign=FDA%20advises%20patients%20on%20use%20of%20NSAIDs%20for%20COVID-19&utm\\_medium=email&utm\\_source=Eloqua](https://www.fda.gov/drugs/drug-safety-and-availability/fda-advises-patients-use-non-steroidal-anti-inflammatory-drugs-nsaids-covid-19?utm_campaign=FDA%20advises%20patients%20on%20use%20of%20NSAIDs%20for%20COVID-19&utm_medium=email&utm_source=Eloqua). 5) EMA. EMA gives advice on the use of non-steroidal anti-inflammatories for COVID-19 [Press Release]. March 18, 2020. <https://www.ema.europa.eu/en/news/ema-gives-advice-use-non-steroidal-anti-inflammatories-covid-19>. 6) WHO Updated: WHO now doesn't recommend avoiding ibuprofen for COVID-19 symptoms. <https://www.sciencealert.com/who-recommends-to-avoid-taking-ibuprofen-for-covid-19-symptoms>. 7) Melville A. Are warnings against NSAIDs in COVID-19 warranted? [https://www.medscape.com/viewarticle/926940?nlid=134635\\_4822&src=WNL\\_mdplsfeat\\_200324\\_mscpedit\\_phar&uac=92217AV&spon=30&implD=2323218&faf=1](https://www.medscape.com/viewarticle/926940?nlid=134635_4822&src=WNL_mdplsfeat_200324_mscpedit_phar&uac=92217AV&spon=30&implD=2323218&faf=1).