LETTER TO THE EDITOR

Over-the-Counter Use of Ibuprofen and COVID-19 – A Controversy Resolved?

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Dear Editor,

As the coronavirus (COVID-19) pandemic grows exponentially, new information and research reach to us daily. Because this is a novel virus, information we receive is, at best, extrapolation of data. Regrettably, this can often lead to faulty predictions and advice. One topic recently presented to the public is that the consumption of nonsteroidal anti-inflammatory drugs (NSAIDs) puts patients who otherwise might have mild or asymptomatic infection from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)—the virus that causes COVID-19—at risk of more severe disease. We are told that individuals taking NSAIDs for other reasons should stop doing so for fear of increasing their COVID-19 risk.[1]

This letter to editor focusses to appraise the evidence and ascertain whether or not this claim is correct. The pathophysiology behind this claim seems that Coronaviruses bind to their target cells through angiotensin-converting enzyme 2 (ACE2), which is expressed by epithelial cells of the lung, intestine, kidney, and blood vessels.[2] NSAIDs such as ibuprofen increase levels of ACE2 on the surface of cells that theoretically will give this virus more binding sites in which to enter the cell.[3]

This information was published in a letter to the Lancet with the recommendation that people avoid NSAIDs such ibuprofen in favor of acetaminophen. In addition, the letter suggests that patients with diabetes and hypertension who are treated with ACE inhibitors should consult with their physician about switching this medication during the current pandemic as they are "at risk for a more severe COVID-19 infection".[4]

Based on all available information we are providing here, there seems currently no proven scientific evidence linking over-the-counter use of ibuprofen to the aggravation (worsening) of COVID-19.

According to the **World Health Organization** (WHO) "WHO does not recommend against the use of ibuprofen. 'WHO are consulting with physicians treating COVID-19 patients and are not aware of reports of any negative effects of ibuprofen, beyond the usual known side effects that limit its use in certain populations'.[5]

Similarly, the **European Medicines Agency** (EMA) recently stated:

'When starting treatment for fever or pain in COVID-19, patients and healthcare professionals should consider all available treatment options including paracetamol and NSAIDs.'[6]

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Along-side the **US Food & Drug Administration** (FDA) states:

'At this time, FDA is not aware of scientific evidence connecting the use of NSAIDs, like ibuprofen, with worsening COVID-19 symptoms.'[7]

Therefore, the current evidence does not support the thought that NSAIDs exacerbate the symptoms of the Coronavirus. Individuals who take these medications for arthritis and other pain should not stop. There are some concerns, however, that those who take NSAIDs to lower fever during infection may be at increased risk for kidney problems. Because these drugs affect the kidneys, if a person is dehydrated due to fever during viral infection and takes NSAIDs, a greater strain may be placed on the kidneys. Finally, according to Paul A. Offit, an infectious disease expert at the University of Pennsylvania and the Children's Hospital of Philadelphia, the immune system works better when body temperature is higher, enabling it to more efficiently kill viruses and bacteria.[8] Therefore, by taking any medication to reduce fever, you are decreasing your body's natural defense system against viral agents and increasing both the length of time you will be sick as well as the time you are actively shedding the virus.

CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

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Author's Contribution

WH, MJK: Conception of study, acquisition of data, drafting of manuscript, approval of the final version to be published

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