

What We Can Learn from Kids About COVID-19: The melatonin and vitamin C connections

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Medical Disclaimer: *The information in this article is for general information purposes only and does not constitute medical advice. Contact your health care provider about any questions concerning your health.*

One of the striking characteristics of COVID-19 is that young children seem to resist it. As of March 2020, there is not a single report of a child under the age of ten, dying in this pandemic. The major risk to them seems to be boredom because of the lockdown. Before age 20, the risk of fatality remains negligible but rises in a straight line until the 14.8% rate in people over 80 years old. If there was ever a time to wish you were a six-year-old, this is it.

While this coronavirus is a mild disease in most, it turns ugly if the immune system is slow to confront the infestation and overreacts. Messenger molecules called cytokines, send too many immune cell and pro-inflammation signals to the lungs. A cytokine storm ensues which leads to acute respiratory distress syndrome (ARDS), serious lung injury and a stint on a respirator or the sufferer will run out of oxygen.

A cytokine named IL-1 β , has been implicated as a key troublemaker in ARDS. One of its jobs is to initiate a drop in oxygen levels in the blood. It does this when NLRP3 inflammasome, another pretentiously named regulating molecule, tells it to. A 2019 study found NLRP3 inflammasome instigates cytokine storms in other situations and other research suggests coronaviruses activate NLRP3 inflammasomes. In theory, coronaviruses become dangerous when they take control of NLRP3 inflammasome regulation and signal IL-1 β to start a storm.

Melatonin Regulates NLRP3 Inflammasomes

Melatonin is a hormone made by the pineal gland in the brain. Most people take it on trips to prevent jet lag or take a milligram or so before bed to help them fall asleep. It naturally goes up when it gets dark and turns up the, "its bedtime and you need to sleep" signal. It also has immune and antioxidant properties. Specifically, it inhibits NLRP2 inflammasome.

Children before age 5 can have melatonin levels that are 10 times or more than adults over age 75. From age 5 to 11 they still make 5 times or more melatonin than the elderly. This could be why they rarely have symptoms from COVID-19 exposure. In animal studies, melatonin prevented inflammation in mice with sepsis (a deadly complication of infection that killed Kermit the Frog creator, Jim Henson). Melatonin also reduced lung damage in infected rats and ventilator-induced lung injury in more rodents conscripted in other studies.

In more good news, vitamin C also inhibits NLRP3 inflammasomes and decreases iL-1 β release without any known toxicity. The effect is dose dependent, but the theory was tested in poor little rodents, again so no direct dosing guidelines. After all, rats and mice make their own vitamin C already, so this nutrient is not essential for them as it is for humans and guinea pigs. (https://www.researchgate.net/publication/305624280_Vitamin_C_inhibits_the_activation_of_the_NLRP3_inflammasome_by_scavenging_mitochondrial_ROS)

What is a Human to do?

The possibility that melatonin and vitamin C can help fight and/or soften the impact of COVID-19 is promising but unproven. There are anecdotal reports of doctors in China using IV vitamin C to successfully treat infected patients, but nobody knows for sure. I will share what I and the adults in my family are doing. This is not medical advice. Consult with a knowledgeable medical practitioner before making medical decisions.

For prevention, we take 500-1000mg of vitamin C twice a day. Vitamin C is in short supply as it is a well-known immune enhancer at many levels. People absorb as much as they need but will get loose stools/diarrhea once they have crossed their limit. This is called bowel tolerance. There is no reason to take more than a person can absorb. It is available in mineral buffered or ester forms for those with touchy tummies. The amount of calcium or magnesium used to buffer the normally acidic vitamin C is small. There are food derived vitamin C supplements which contain cofactors that may help the utilization of vitamin C but are less concentrated and much more expensive.

Melatonin production goes up when people are exposed to sunshine during the day. This may be another reason (after higher temperatures) that the flu season is from fall to spring and seems to dribble off in the summer. We are all getting outside as the weather allows. (While practicing social distancing but waving to a lot of people.)

Though I am a sleeping savant, I now take a small dose of melatonin every night before bed. The strong sleepers and younger adults in my family have added .5 to 1 mg. The terrible sleepers are adding 2.5 to 5mg even if it has not helped them sleep better in the past. Melatonin works best to help people fall asleep but not stay asleep. Typically, the most challenging toss and turners fall asleep easily but wake in the middle of the night, have trouble getting back to sleep or do not get restful sleep.

From Prevention to Response

One middle-aged woman in Europe who is infected with COVID-19 and had trouble breathing is consuming gigantic doses of melatonin and vitamin C and to date has stabilized her situation and is at home. This is one case and she has not shared all the details of what she is doing. She is still sick and busy at the moment.

My plan if I or a family member gets infected is to increase vitamin C to 1000mg every few hours to bowel tolerance. There is some thought that bowel tolerance will be very high if you get this coronavirus. In my experience, bowel tolerance goes up in illness and people tolerate much more than under normal circumstances.

As for melatonin, I bought a bottle of 10mg tablets to hold in reserve. If I get infected but have mild symptoms, I will increase melatonin before bed probably to 3 to 5mg. If I start having trouble breathing, I plan to take 20-50mg and see if I can find a doctor who will take me that does IV vitamin C. This is completely theoretical so I don't know what it might take to prevent a cytokine storm but if at any point I feel like I am in danger, I will make a bee line to the hospital.

Research on post-traumatic stress syndrome has found that victims get traumatized while those who are pro-active or do not consider themselves victims, do not. Nelson Mandela felt free the 25 years he was in prison because he knew nobody could imprison his mind unless he allowed it. I aspire to his level of mental freedom but recognize this whole virus situation has mental prison potential.

Ultimately, I aspire to Mandela's level of mastery. In the meantime, I don't know if any of this information will help but noticed a tremendous sense of calm which normally take hours of dedicated meditation after I read about it. I hope it does the same for you.

Thanks to Doris Loh for her brilliant and well-researched article which inspired and is the basis of this article. And thank you Christiane West for sending it to me.

<https://www.evolutamente.it/covid-19-pneumonia-inflammasomes-the-melatonin-connection/>