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Iodine for Covid

Technical Report · March 2020

DOI: 10.1111/jvim.14903

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Iodine for Covid-19

Raising daily iodine intake from 150mcg (the RDA) to 1100mcg (the UL, the upper tolerable limit) shows good probability to both reduce Covid-19 infection and mortality. Evidence of its efficacy against Coronavirus exists and it is known to be safe at UL dosing. Also, there is, or should be, ample supply, including emergency supplies kept by states. Further, iodine works well with Vitamin D and zinc; there is low risk in supplementing all three to their UL.

Evidence of Iodine Efficacy to Prevent Covid-19 Infection

1. It is reported in the literature that sufficient iodine supplementation makes the nasal mucus replete with iodine which then kills virus on contact, thus reducing the chance of infection. (See for example, animal study at <https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.14903>)
2. Iodine is known to destroy Covid-19 at a concentration of .023% iodine. That corresponds to 230mcg of iodine per gram of mucus, more than the RDA, less than the UL. More precisely the UL is 14mcg per pound of weight, which provides a range from 1000mcg to over 3000mcg, allowing for more iodine-replete mucus for larger people.
3. A commercial firm has an iodine nasal spray in development, which suggests that they have done the same analysis, and are convinced enough by it to invest their own funds. When that is available, its efficacy can be compared to that of simple oral supplementation.

Evidence of Iodine Efficacy to Reduce Covid-19 Infection Severity and Transmission

1. Covid-19 virus infects cells in order to replicate and thus spread in the body and among people. Iodine is known to function in the body's mechanism that destroys infected cells (apoptosis). Specifically, iodine attacks the mitochondria in cells that the body flags for destruction.
2. Since the body uses apoptosis also to suppress cancers, analysis of cancer rates in human population provides clinical evidence of iodine's value in apoptosis. In particular, Japanese consume approximately the UL of iodine, but only average levels other immune support factors (zinc and vitamin D), and Japan has much low cancer rates than the U.S. Further, U.S cancer rates were similar to Japan's when Americans consumed about 500mcg of iodine. U.S cancer rates have since risen dramatically as American iodine consumption has dropped over decades to 150mcg. Further, when Japanese move to the U.S. and adopt a western diet their cancer rates rise. This isn't a gold standard double-blind study, but it is a very large sample with excellent statistical significance that suggests that the Covid-19 emergency provides a perfect opportunity to do such a study.

General Evidence That Iodine Has Immune Function Roles, Unrelated to Its Role in the Thyroid.

1. Direct from <https://www.rxlist.com/iodine/supplements.htm>, "Iodine is applied to the skin for skin inflammation (dermatitis) and other skin disorders such as eczema and psoriasis, to kill germs and heal wounds, to prevent soreness inside the mouth or along the digestive tract (mucositis), and Iodine is also applied inside the mouth to treat gum disease (periodontitis) Iodine can also be used as a throat rinse to reduce symptoms of pneumonia."
2. Successful treatment of pneumonia with iodine dates at least as far back as 1904. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5205649/?page=1>

Iodine's Signature in Covid-19 Infection Data (<http://worldometers.info/>, <http://datagraver.com>),

1. Low child mortality – Three easily provided, important nutrients for the immune system are: Vitamin D (for flu), zinc (for colds) and iodine. After birth, body stores of zinc and vitamin D deplete

relatively quickly, while iodine stores can take years to deplete. Thus, children will likely have higher mortality for diseases that require zinc or Vitamin D. Since coronavirus has low childhood mortality this again suggests value for iodine fighting coronavirus.

2. Japan – Japan with its high iodine consumption but average zinc and Vitamin D has much lower Covid-19 transmission and mortality than other countries despite an older population, a higher population density and less social distancing, all of which should otherwise raise their transmission and mortality rates. Every state in the United States is following the same exponential curve as European countries. Japan is also following an exponential curve but at about 1/3 the growth rate. Some may claim that their low transmission rate is due to patient contact tracing. Maybe it partially is, but countries where that has been important show a non-exponential infection curve (Taiwan, China, Korea), while Japan's is a simple exponential, just flatter.
3. Male vs female mortality – Men are dying at higher rate than women, even in Japan. Men and women get similar amounts of iodine (Japan tracks such things). However, that amount is at the UL for a woman but less than the UL for men, because men, being larger, have a higher UL. Thus, the fact that more men are dying suggests that using the weight dependent UL is important.

Safety

1. The UL defined for each nutrient is the highest level of nutrient intake that is likely to pose no risk of adverse health effects for almost all individuals. So, the UL for iodine is already known to be safe.
2. Doses at 50 and 100 times the UL are safely given for days and weeks in other emergencies. Also, doctors give 25 times the UL for three months. So, again, intake of the UL of iodine is safe.
3. Hypothyroid is the main side effect of long-term iodine intake in excess of the UL – a much lower risk than Covid-19. Australia is having a hypothyroid issue – they are adding iodine to their diet by eating seaweed. However, iodine content in seaweed varies by a factor of 400; many are getting excess iodine by choosing the wrong seaweed for the wrong meal. Thus, Australia's issue is really only evidence that, for now, we should get the UL of iodine from well dosed sources.

Dosing

1. One drop of Lugol's Solution 2% (any brand) has 2.4mg (2400mcg) of iodine, about the UL for an American man. It is taken orally after dilution.
2. Three kelp pills (at 325mcg per pill) taken orally provides the UL for a tween or small adult.

Emergency Additional Iodine Sources:

Emergency supplies of high-dose potassium iodide pills are stored in case of nuclear emergency – for nuclear emergencies the pills prevent thyroid cancer. Each pill provides 50 to 100 UL doses of iodine. For the Covid-19 emergency, each pill can be diluted to provide months of UL doses. Distribution across the population may be an issue depending on how that is addressed in the nuclear emergency playbook.

Testing

Evidence of safety and of potential value is more than sufficient to put iodine supplementation near the top of the list of things to try against Covid-19. A first iodine test could be by volunteers among medical staff treating Covid-19 or others with high exposure. They can continue with their PPE (personal protection equipment) and just add the iodine. To accelerate testing, high doses much above the UL, for a couple of weeks and then cut back to the UL. If the test shows reduced infection, testing can rapidly expand to their patients and beyond. UL doses with Lugol's cost a penny each so cost is not issue.

Success could reduce infection and death rates by a factor three or more.