Coronavirus, PEMF and Vitamins D3 and C

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At the moment the illness commonly called the coronavirus is a matter of worldwide importance. On January 30, 2020, the World Health Organization declared the outbreak of this respiratory disease caused by a novel (new) coronavirus a "public health emergency of international concern." (PHEIC). https://www.cdc.gov/coronavirus/2019-ncov/summary.html. As of Mar 11, 2020, there have been 121,230 confirmed cases globally, 4,378 deaths and 120 countries with cases. https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd.

There is global concern that this virus could conceivably end up causing a pandemic like the Spanish flu. To put that into perspective, the Spanish flu pandemic of 1918, the deadliest in history, infected an estimated 500 million people worldwide—about one-third of the planet's population—and killed an estimated 20 million to 50 million victims, including some 675,000 Americans. https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html
Scientists are particularly concerned because there is no known cure for the current coronavirus, and the course of an acute infection with this virus is unpredictable. The epidemic has already had significant impacts on the economy and travel and put a strain on healthcare and public health services.

Suffice it to say, then, the "coronavirus disease 2019" ("COVID-19") epidemic, like other similar epidemics before it, requires careful attention. Both as individuals and collectively, we should consider taking various strong preventive measures including routinely recommended public health measures and probably more aggressive actions as well.

That said, it's important to maintain a sense of perspective. So far at least, more people die per year from influenza viruses, which are by far more common, than from COVID-19.

The cause of death from "coronavirus disease 2019," is usually due to acute respiratory distress syndrome (ARDS). ARDS can also be induced by other viruses including influenza and respiratory viruses that cause viral pneumonia, either community-acquired or from Herpes viruses.

Pandemic viruses head the list of respiratory viruses that can affect the lung and cause ARDS, with influenza viruses H5N1 and H1N1 2009 being the most recently identified. Other viruses, however, can also cause severe ARDS. Notably, another novel coronavirus was responsible for the severe ARDS outbreak in 2003. Still, apart from these pandemic viruses, the vast majority of respiratory viruses rarely cause viral pneumonia and ARDS.

So, what can be done about respiratory virus infections and ARDS? Below, I will discuss two measures most other sources of recommendations will not. Both may be helpful not only to prevent but also to treat those infected.

But first, some background.

Coronavirus disease 2019

This coronavirus, first detected in China, has now been detected in 60 locations internationally including the United States. The virus has been named "SARS-CoV-2" and the disease it causes has been named "coronavirus disease 2019" (abbreviated "COVID-19").

Source and Spread of the Virus

Common human coronaviruses, including types 229E, NL63, OC43, and HKU1, usually cause mild to moderate upper-respiratory tract illnesses like the common cold. Most people get infected with one or more of these viruses at some point in their lives. Human coronaviruses can sometimes cause lower-respiratory tract illnesses such as pneumonia or bronchitis. This is more common in people with cardiopulmonary disease, people with weakened immune systems, infants, and older adults.

Coronaviruses are a large family of viruses that are common in people and many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people. This was the case with MERS-CoV, SARS-CoV, and now with this new virus (named SARS-CoV-2).

The SARS-CoV-2 virus is a betacoronavirus like MERS-CoV and SARS-CoV. All three of these viruses have their origins in bats. The sequences from U.S. patients are similar to the one that China initially posted, suggesting a likely single, recent emergence of this virus from an animal reservoir.

Early on, many of those infected at the epicenter of the outbreak in Wuhan, China had some link to a large seafood and live animal market. This suggests animal-to-person spread. Later, a growing number of patients reportedly did not have exposure to animal markets. This indicates person-to-person spread. Person-to-person spread was subsequently reported outside China, including in the United States.

Doctors believe person-to-spread occurs between individuals who are within six feet of one another. The ill person sneezes or coughs, and respiratory droplets reach the other person's mouth or nose or are inhaled. Person-to-person is likely the means by which the current coronavirus illness is most commonly spread.

Some scientists also speculate that a person can catch the virus by touching a surface or object on which it is present and then touching his or her mouth, nose, or possibly even the eyes.

Additionally, some international destinations now have apparent community spread of the COVID-19 virus. This means some people have been infected who are not sure how or where they became infected.

Risk factors for severe illness include older people and individuals with chronic medical conditions including diabetes, hypertension, and cardiovascular disease.

Clinical picture

Both MERS-CoV and SARS-CoV have been known to cause severe illness in people. The complete clinical picture with regard to COVID-19 is not fully understood, but reported illnesses have ranged from mild to severe, including illness resulting in death.

The incubation period is estimated at ~5 days (range, 4-7 days). Data from human infection with other coronaviruses (e.g. MERS-CoV, SARS-CoV) suggest the incubation may range from 2-14 days. Frequently reported signs and symptoms include fever (83–98%), cough (46%–82%), muscle aches or fatigue (11–44%), and shortness of breath (31%) at illness onset. Other symptoms may include sore

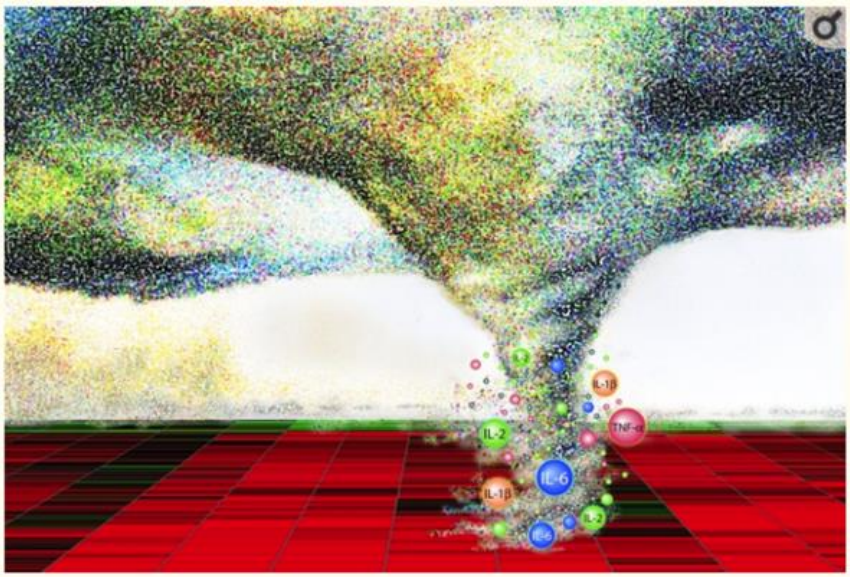
throat, sputum, headache, spitting up blood, and diarrhea. Fever may be prolonged and intermittent. Asymptomatic infection has been observed even with chest CT scan abnormalities.

The potential for clinical deterioration is more likely during the second week of illness. Among patients with confirmed COVID-19 and pneumonia, just over half developed shortness of breath about 8 days after illness onset (range: 5–13 days). In one report, the average time from illness onset to hospital admission with pneumonia was 9 days, results likely reflecting underlying general health, immune vitality and other health conditions.

In more severe cases, ARDS [Acute Respiratory Disease Syndrome] developed in 17–29% of those hospitalized, secondary bacterial infection developed in 10%, and median time from symptom onset to ARDS was 8 days. 23–32% of those hospitalized with COVID-19 and pneumonia required intensive care for respiratory support. Other reported complications include acute cardiac injury, arrhythmia, shock, and acute kidney injury. Among those hospitalized with pneumonia, the case fatality proportion has been reported as 4–15%. Because this mortality rate is only for those hospitalized, it is higher than would be true in the community. Chest CT images have shown bilateral involvement in most patients.

SARS-CoV-2 RNA has been detected in blood and stool specimens, but whether it is infectious from these sources is unknown. It is possible that viral RNA could be detected for weeks, which has occurred in some cases of MERS-CoV or SARS-CoV infection. Viable SARS-CoV virus has been found in respiratory, blood, urine, and stool specimens. Viable MERS-CoV, however, has only been isolated from respiratory tract specimens. It is unknown yet whether COVID-19 would have any of these properties.

Cytokine storm



From Tisoncik

A recent article in The Lancet, "Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China" notes there are high levels of circulating inflammatory cytokines, a so-called "cytokine storm," in more severe infections with COVID-19.

Cytokine release syndrome (CRS), is a systemic inflammatory response syndrome as a complication of infections. When severe it has been called cytokine storm. CRS occurs when large numbers of white blood cells are activated and release inflammatory cytokines, which in turn activate yet more white blood cells (WBCs). These WBCs are activated by infected cells that die.

This cytokine release occurs when the immune system is fighting invading organisms. Cytokines signal WBCs to travel to the site of infection. In addition, cytokines activate those cells, stimulating them to produce even more cytokines, and so on, and so on, hence a "storm" develops.

This "cytokine storm" can trigger a viral sepsis in coronavirus infection, where viral replication and excessive, uncontrolled systemic inflammation can lead to pneumonia, ARDS, respiratory failure, shock, organ failure, secondary bacterial pneumonia, and potentially death. This same scenario connecting cytokine storm and severity of illness was observed before in both SARS and MERS patients.

Thus a rapidly spiraling infection with COVID-19 can lead to cytokine storm and hence a rapidly changing downward health spiral. Preventing cytokine storm is an important component of a strategy to control the more severe possibilities involved with COVID-19 infection.

Since ARDS can result from other respiratory viruses, the same concerns about cytokine storm apply to them as well.

Treatment and prevention of COVAD-19 infections

At this time, there is no vaccine to protect against COVID-19 and no medications are approved to treat it. The CDC says "non-pharmaceutical interventions would be the most important response strategy."

This means the CDC recommends you avoid touching your face if you can remember not to and wash your hands frequently and thoroughly before eating, after using the bathroom, after you cough, sneeze, or blow your nose, and whenever you notice your hands are dirty. You should wash for at least 20 seconds using soap and water when available and an alcohol-based disinfectant that's at least 60% alcohol if they're not.

If you cough or sneeze, cover the cough or sneeze with a tissue and then toss the tissue in the trash. Avoid close contact with those who are sick, and if you're the one who's sick, stay home.

To guard against possible infection from surfaces or objects on which the virus is present, disinfect them. Switch wipes often, and wipe in one direction. If you go in both directions, you can remove contamination only to lay it right back down on the surface again. Remember to leave surfaces wet for long enough to kill viruses, The label on the container will often tell you how long that is.

These common-sense recommendations have a certain value, but clearly, in light of this rapidly expanding coronavirus epidemic, new approaches to dealing with this infection are needed urgently. The purpose of this blog is to recommend two options for helping with COVID-19 prevention and treatment. These include the use of vitamin D3 and the use of PEMFs.

Vitamin C

There are reports of intravenous (IV) vitamin C being used in China to treat COVID-19. There are also apparently several studies in looking into the use of vitamin C for this purpose. https://www.globalresearch.ca/three-intravenous-vitamin-c-research-studies-approved-treating-covid-19/5705405

The primary limiting factors in doing IV vitamin C is to find a source and the cost. There are many holistic, integrative, alternative medical doctors around the US who provide this service.

A significant media disinformation campaign is being mounted to discredit this possible option.

While it's possible that vitamin C taken orally may help with maintaining antioxidant status of the body, is not known whether it can help with treating or preventing COVID-19. The main limiting factor in using vitamin C is gastrointestinal tolerance. Dr. Thomas Levy has written a book about the viral killing properties of vitamin C. (Levy)

Vitamin D3

Vitamin D3 has been found to have immune modulation and antiviral properties. (Zdrenghea, Beard)

In vitro studies show that vitamin D has immunomodulatory functions including inhibiting cell proliferation, inducing cell differentiation and apoptosis in normal human cell types (normal human bronchial epithelial cells and monocyte- derived macrophages), and decreasing proinflammatory cytokine production. In addition, vitamin D increases antiviral protein production, suggesting an important role in antiviral protection. These functions are discussed in turn below.

Vitamin D decreases pro-inflammatory cytokines in the lung. It also facilitates intracellular adaptive immunity by decreasing pro-inflammatory cytokines and increasing anti-inflammatory cytokines and regulatory WBCs. In a study, 4000 IU per day of D3 for 2 months, as compared to 400 IU per day, significantly reduced activation. (Konijeti)

Human airway cells have vitamin D receptors. These airway cells can produce increased antimicrobial peptides. These peptides have been found to have antiviral activity with Influenza A and RSV. The mechanism is destabilizing the viral envelope. At this point, there is o proof that vitamin D lowers viral load. Still, vitamin D may be significantly helpful in preventing infection by stabilizing the immune system and the health of the respiratory cells. It may also be useful in helping to fight an ongoing infection.

Studies have shown that vitamin D deficiency increases susceptibility to acute viral respiratory infections, especially those caused by enveloped viruses like the coronavirus. Levels of Vitamin D deficiency are more common during the winter, when respiratory virus infections are more common. A number of studies have shown that respiratory infections correlated with vitamin D deficiencies are more common in both healthy individuals and those with respiratory disorders, such as asthma.

Children with asthma who received vitamin D3 supplementation were less likely to develop upper respiratory infections. (Zdrenghea) Vitamin D replacement as adjunctive therapy may accelerate inflammation resolution in hospitalized COPD patients. (Dastan)

The recommended form of D for supplementation is vitamin D3 [cholecalciferol]. Vitamin D3 has been shown to be 87% more potent in raising and maintaining serum 25 (OH)D concentrations and to produce up to 3- fold greater storage of vitamin D as compared with vitamin D2. Also and importantly, vitamin D3's protective effect against respiratory infections relies on daily dosing. For example, 250,000 IU of D3 given once was found to significantly affect D3 levels after 5 days, but after 90 days this effect was lost.

Results of studies for the use of vitamin D to prevent airway infections are inconsistent. This is the result of research protocols that vary significantly as to the type of D used, whether it was taken daily or intermittently, and types of test subject/patient groups with differing health conditions.

The safety profile of vitamin D supplementation is similar for doses of 400, 4000 and 10000 IU/day. (Billington) Even in vulnerable children, higher doses appear to be safe. (Dougherty) Vitamin D3 35,000 IU/day given over 6 months was found safe. (Finamor)

Because the use of vitamin D 3 supplementation even at high doses has not been found to cause significant risk and may be helpful in preventing and treating respiratory infections and improving immune function, the use of higher doses of vitamin D to protect against coronavirus infections appears to be safe and reasonable.

As a result, I am recommending a daily dose of 10,000 IU of vitamin D3. I've been taking this level myself for several years with no significant health issues.

Use of PEMFs to treat infections

This topic is covered in more depth in my book Power Tools for Health: how pulsed magnetic fields (PEMFs) help you. Therefore I will only provide a summary of the value of PEMFs in dealing with infections here and only deal with viral infections. Please note that there is no research evidence to support the use of PEMFs specifically to help with coronavirus infections at this time.

Still, that being said, since PEMFs provide some benefits in the management of other types of infections, it is worth considering the use of PEMFs to help with not only dealing with viruses specifically but also with keeping tissues healthier to decrease the likelihood of infection and help recovery from current infections. Through much of the book and on the website drpawluk.com, we cover the many different aspects of PEMFs and how they help to support the body.

Inadequate approaches to dealing with infections focus too often on simply dealing with the infectious agents themselves by employing mostly antibiotics, antifungals, antivirals, etc. Both consumers and members of the medical community may rely exclusively on such methods, but they do not constitute a complete solution. We should certainly get rid of the infectious agents themselves, but we should also improve overall health of the body to fight the infection and repair tissue damaged by the infection. The sooner and the more aggressively we act to support the body and regenerate and heal damaged tissue, the sooner the patient will recover to regain full health. This is especially important in dealing with infections in the lungs.

A PEMF applied to herpes virus-infected cells did not affect the growth and viability of the cells. However, the viruses developing under PEMF exposure had mainly defective viral particles. This

weakness would therefore give the PEMF an opportunity to heal the tissue while potentially rendering the virus less active.

Viral infections stimulate the production of natural, nonspecific inhibitors including interferon. After infections, these can be detected in fluid, tissues and cells in vivo and in vitro.

Cellular resistance to virus injections in cultures of animal and human cells exposed to PEMFs and the production and characterization of antivirus substances induced by these exposures has been studied. PEMF exposures were uniform 60 Hz of 1 gauss. Laboratory exposure of cells to the PEMF for at least twenty-four hours induced (1) a state of significant cellular resistance to virus challenge by adenovirus type 5, herpesvirus Type 1, coxsackievirus B3, and vesicular stomatitis virus and (2) the production of substances that markedly suppress virus infections when transferred to unexposed cells. The virus suppressor substances induced by the magnetic field are importantly neither virus- nor species-specific, are not apparently interferon-like, and help control virus replication.

This becomes important in dealing with coronavirus since what we are talking about is a general adaptation response of the body to any viral invasion. Since only one Gauss was used in this study, in a lab setting, the intensity of the magnetic field becomes an essential question with regard to controlling viral invasion. To this end, it's important to know that decreasing inflammation in the tissues for health maintenance is important to reducing the risk of invasion by viruses. From this perspective, this blog is illuminating in terms of dealing with inflammation and the appropriate magnetic field intensity needed to help with infection, especially when reaching the lungs. https://www.drpawluk.com/blog/pemfs-and-adenosine/

In various studies, PEMFs have been found to significantly decrease cytokine levels by decreasing inflammation. Clearly, it would be better to prevent cytokine storm from happening than to have to deal with it after the fact. I strongly recommend using PEMF therapies for the whole body or perhaps simply to the lungs at the onset of any kind of upper respiratory infection. PEMF therapy can be applied to the upper chest to stimulate the thymus gland, which is the source of T lymphocyte cells. These cells are important for regulating responses to infections and inflammation.

For those who already own and are using PEMFs on a regular basis, whole body units with intensities greater than 70 Gauss or higher intensity systems with body pads are both appropriate for daily use for preventive purposes. Otherwise, I recommend higher intensity whole body PEMF systems for your protection, preventing infection, and treating it as necessary. Very low intensity whole body systems (which are not carried on drpawluk.com) or systems of less than 70 Gauss cannot be expected to provide enough protection or benefit.

PEMF therapies work best when bodies are properly supported with adequate lifestyle approaches such as proper rest, healthy nutrition, the use of supplements, stress reduction, healthy mental and spiritual attitudes, proper activity and/or exercise, etc. The possible use supplements is too complex a subject to deal with fully here, but we should note that at the very least they increase antioxidant support, boost the immune system, support sleep, and provide natural anti-infectives.

Summary

The "coronavirus disease 2019" ("COVID-19") epidemic, like other similar epidemics before it, requires careful attention and consideration of various preventive measures including routinely recommended

public health measures and other more aggressive measures. Similar measures can be reasonably applied for other types of respiratory viral infections commonly seen in the winter. Such measures should be strongly considered especially for those most vulnerable. These aggressive measures include starting or increasing the daily intake of vitamin D3 at the level of at least 10,000 IU per day and initiating or continuing higher intensity PEMF therapies daily to the whole body and/or to the lungs. This therapy can be administered at home.

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