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4/22/2020

Attn: Dr Gary Noskin, Dr James Adams, Dr Dean Harrison, Dr Michael Angarone
Northwestern Medicine

RE: Vitamin D3 Recommendation For The Public at Large

Dear Northwestern Medicine Physicians:

Prologue:

> *Did you know that there is no such thing as the 24 hour flu? Think about the last time a "flu" went through your house: Johnny got the "24 hour type", little Suzie got an ear infection and Pops got a bronchitis that lasted for 2 months. Guess what? It was all the same "flu". Johnny's immune system had seen it before and eradicated it immediately, Suzie's immune system almost won but her weak ear tubes were taken advantage of, and Pops immune system had a real hard time in his lungs, because he is a smoker with asthma, but still won in the end.*

Basic Science, Problem and Recommendations:

The human immune system is best explained as metaphor of the armed forces. It has multiple layers, and just enough redundancies to cover gaps when they occur. Our immune forces will increase in size when threats arise and decrease in peaceful times. When at war, our immune system can recognize and neutralize foreign invaders of all types (including COVID-19), autoimmune traitors and cancers, and can even support inadequacies in our genetic code, all without the constraints of the Geneva Convention. Most people don't realize that when we are sick, our immune soldiers are fighting for our lives every time. Not surprisingly, if our forces become tired, over-occupied, annoyed and nutritionally depleted, they will have a hard time keeping up when they meet a new opponent. That's why we should respectfully support our immune system, so it can do its job. It WILL take care of us.

Yet, out of uncertainty or secondary gain, modern day medical inquiry may miss the point. Most doctors, scientists and pharmaceutical companies find themselves chasing a "one ailment-one cause-one cure" paradigm, instead of recognizing that our own GENETICS and HABITS are to blame. Quite simply, some people are born to rash, or cough, or hurt, or not process sugar, or be nervous, or sneeze, or vomit, or have anatomical anomalies of any kind. We call these problems genetic weak spots. Then when our bad habits pile up and times get tough, our weak spots start flaring because our immune system is strained and malnourished. Add a novel virus on top of it all and at some point the immune system exhausts all reserves and succumbs to this final insult, which undoubtedly gets the blame, but is merely the straw that broke the camel's back.

Rather than focusing solely on the virus and scurrying for a billion dollar "cure", or relying on an indefinite containment strategy, we should be ramping up immune supportive behavior in everyone NOW and for less than 20 cents a day. As such, we are forwarding our recommendations for 3 simple immune supportive measures for the public at large that we have been successfully implementing in our practice for over 10 years.

The first recommendation is the focus of this letter, and the other two are bad habits to avoid, which we would be happy to debate later:

1. **Do** supplement with Vitamin D3- 4000-6000 IU/day in everyone over 100 pounds, or 1000 IU/day of Vitamin D3 per 25 pounds of weight up to 100 pounds for children.
2. **Do not** eat food or drink within 2 hours of bedtime
3. **Do not** take ibuprofen or other NSAIDs during illness (acetaminophen is OK)

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Rationale and Supporting Data for Vitamin D3 supplementation:

Vitamin D is a vital steroid hormone that regulates our molecular physiology and behavior. Discussions of Vitamin D should not be lumped in with other vitamins. Vitamin D also functions as a vital immunomodulator which means that it helps our immune soldiers do their job on multiple fronts. Many studies over the last decade, from cancer to autoimmune disease to infectious disease, highlight Vitamin D's role in supporting both our innate and adaptive immune responses through various pathways, including modulating our cytokine storm when we are under attack. In other words, if we have adequate Vitamin D on board, we won't bomb the heck out of our enemy on our own soil destroying ourselves in the process. Vitamin D appears to do more than we could have imagined and it is still astounding investigators today.

Maintaining an optimal Vitamin D status for immune health is overwhelmingly both directly and indirectly supported by the literature across all specialties and countries [see a small sampling of citations below]. Special attention should be given to the article entitled "Meta-analysis of All-Cause Mortality According to Serum 25-Hydroxyvitamin D" by Garland et al, with acknowledgements from CAPT Gregory Utz, MD, US Navy Medical Corps, who was the commanding officer of the Naval Health Research Center from 2011 to 2013 at the time of publication. This article summarizes Vitamin D history, status, specific doses and safety concerns and also outlines serum levels found to be immune supportive. These studies among others have looked at genetic weak spots such as diabetes, heart disease, and respiratory disease and suggest that an "optimal" blood level of 40-60 ng/ml be obtained for best outcomes. Garland et al illustrates that when levels dip below 30 ng/ml there is a steep rise in mortality hazard. Endocrinology groups also agree with keeping levels well above 30 ng/ml and note that this may require higher levels of supplementation than what the current RDA considers "sufficient" for basic bone health.

Vitamin D is fat soluble and thus its dosing should be weight based, which is why a daily glass of fortified Vitamin D milk for a 25 pound child gives a higher blood level than the same daily glass of milk for a 200 pound parent. The parent would need to drink 8 glasses per serving to have an equivalent dose. Body weight, skin color, adherence and sun exposure may play in to deciding on a supplementation dose, but most specialists recommend dosing to effect, which can be achieved reliably and safely by a starting dose of 4000-6000 IU/day of Vitamin D3 in adults over 100 pounds, or 1000 IU/day of Vitamin D3 per 25 pounds of weight up to 100 pounds for children. Vitamin D studies have also noted that overdosing is extremely rare when supplementation is kept below 10,000 IU/day in adults and below 4000 IU/day in children. Since the current RDA for basic bone health is 400-1000 IU/day for most ages, the "optimal" immune dosing suggested here falls in the middle of these published extremes, so as not to over or undershoot the target.

Many insist that our skin can make Vitamin D from the sun but it isn't enough due to our modern habits of indoor living, sunscreen and incessant bathing. Whatever the culprit, numerous studies have shown that much of the adult world population is deficient in Vitamin D, with some of the lowest levels occurring in Italian elders, people of the Middle East and Central China, nursing home residents, and in dark skinned urban non-equatorial people. Highest levels are found in rural equatorial regions and surprisingly in places such as Sweden and Finland due to aggressive food supplementation. The rest of the people of the world generally fall into the insufficient to severely deficient range. What is interesting is that if we overlie the Vitamin D deficient world maps, with Covid-19 mortality, it aligns pretty well. It also fits that children and adolescents are usually not as severely Vitamin D deficient as adults, due to outdoor sun exposure, formula and milk supplementation, decreased bathing habits and lower body weight.

For illustration we are happy to share a summary of our raw clinical data of Vitamin D status in a cohort of 400 young adult patients, aged 18-26 years, which was obtained at our Allergy/Immunology practice in Buffalo Grove, IL, Vernon Hills, IL and Highland Park, IL from Jan 2018-Jan2020. Serum levels of Vitamin D, 25-OH (Total D2/D3) were measured in ng/ml by HealthLab with lab reference values below: (nmol/L =2.5 x ng/ml for some comparative references in the literature).

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This 2-year snapshot of Vitamin D blood levels is consistent with what we have observed in our entire pediatric-adult population going back to 2010. That is, the vast majority (**96%**) of our Chicagoland patients have **suboptimal** immune support from Vitamin D3. An alarming **41%** (37% + 4%) are **deficient** to **severely deficient** and **85%** (41% + 37% + 4%) have an **increased mortality hazard** with levels less than 30 ng/ml.

Summary of Vitamin D status in 400 young adult allergy/immunology patients (age range 18-26 years):

4% (n=16) had serum level <10 = **severely deficient**

37% (n=148) had serum level 10-19 = **deficient**

41% (n=164) had serum level 20-29 = **insufficient**

14% (n=55) had serum level 30-39 = **sufficient**

4% (n=17) had serum level 40-82 = **optimal**

As such since 2010 we have been optimizing Vitamin D status with supplementation as described here, in all 10,000+ of our patients, while closely following their clinical improvement. With Vitamin D3 supplementation and good adherence to a treatment plan including no late night eating and NSAID avoidance, severe asthmatics downgrade to mild, immune deficient patients breeze through their illnesses, anaphylaxis doesn't occur under usual circumstances, blood pressure improves, sinuses clear, blood sugars stabilize, mental illness improves, the list goes on. For 10 years, we have also asked our patients to share these recommendations with friends and family. It is our hope that they are already protecting our central Lake county and north central Cook county residents during this epidemic. And, consistent with the continuing medical literature, our patients of all ages do extremely well with the dosing strategy mentioned here, with no toxicity or sequelae due to overdosing.

In conclusion, vitamin D3 helps the immune system do its job, which has been proven in the peer-reviewed literature, and is evident in our private practice. We also live in a modern time that is not conducive to Vitamin D support, as shown in our Chicagoland patients and in the world literature. As such, we recommend supplementation of Vitamin D3 4000-6000 IU/day for all American adults and 1000 IU/day of Vitamin D3 per 25 pounds of weight up to 100 pounds for children, to maintain a steady state of optimal immune support during the Covid-19 crisis and beyond. We are also recommending no food or drink 2 hours before bed and no NSAIDs such as ibuprofen during illness (including COVID-19), as these two habits tend to occupy and annoy our immune systems unnecessarily. At your request, we can expand on the two bonus recommendations. Please remember that a robust immunity, much like a military, can handle just about anything.

Thank you for your time and consideration.

Sincerely,

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Disclaimer: I have no financial interest or attachment to any part of the medical, pharmaceutical or insurance industry other than to my own small private practice in suburban Chicagoland. I also maintain a non-profit coalition website for independent physicians on the North Shore of Chicago. As of this publication, I do not sell nor plan to sell in the near future, products of any kind. Suggestions made here stem from my own clinical experiences and judgement, but they do respect a discipline in evidence based medicine, as gained from my training and board certifications. This may include discussions of off label uses of FDA-approved medications and over the counter supplements. I have professional memberships to various medical societies and regional hospitals, but my advice is not meant to represent their views in any way. My advice is not expected to treat, cure or manage any disease or ailment without the approval of your personal physician.

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