The Vitamin D Newsletter

October, 2008

This is a periodic newsletter from the Vitamin D Council , a non-profit trying to end the epidemic of vitamin D deficiency. This newsletter is not copyrighted. Please reproduce it and post it on Internet sites. I will post this newsletter on the website.

I decided to focus on children in this newsletter but before we start, you should know Oliver Gillie recently published a landmark work. Instead of concentrating on a group at risk for vitamin D deficiency, such as the aged, the dark-skinned, pregnant women, or young children, Oliver concentrated on an entire country, Scotland. His remarkable report is free for download.

Scotland's Health Deficit: an Explanation and a Plan

Dear Dr. Cannell:

Two years ago in March, my five month old baby girl died from heart failure, called "idiopathic cardiomyopathy." She was my first child, I breast fed her, we did everything her pediatrician said to do; he told us not to let her into the sun and to always use sunblock if we went outside. He never mentioned vitamin D. The heart doctors did everything they could think of before she died but they never measured her vitamin D level. I just read about a study that found my baby may have died from untreated vitamin D deficiency. Do you know about that study?

Jena, New York.

Dear Jena:

I'm sorry to tell you that I do. It appears likely that infantile idiopathic cardiomyopathy may just be another word for undiagnosed and untreated vitamin D deficiency. English cardiologists recently concluded that "the heart failure associated with vitamin D deficiency in infants is surprising," but added "the outcome is good" in the children treated with vitamin D. They should have said the "outcome is good if the diagnosis is made." The outcome is often fatal when the diagnosis is missed. It appears to me that the major mistake is that unless the serum calcium is low, pediatric cardiologists never measure vitamin D levels. Of course, if they did measure vitamin D levels, would they order the right test? If they did order the right test would they know how to interpret it or would they rely on the outdated and dangerous reference ranges of American labs, such as LabCorp and Quest? As you will see below, genetics plays a much bigger role in 25(OH)D levels than anyone suspected and we must assume the same is true of tissue levels of activated vitamin D. Thus these children should be given enough vitamin D to normalize the kinetics of 25(OH)D, enough to get their 25(OH)D levels into the upper part of the reference range, 60-80 ng/ml.

Maiya S, et al. Hypocalcaemia and vitamin D deficiency: an important, but preventable, cause of life-threatening infant heart failure. Heart. 2008 May;94(5):581-4.

Five years ago, the New England Journal of Medicine reported on 435 cases of pediatric cardiomyopathy in the USA and failed to make the diagnosis of vitamin D deficiency in even one of the children. Sixty-eight percent of the cases were idiopathic, that is, no known cause. However, if the authors or the editors would have just looked at their data a little closer; children in the north were more likely to get cardiomyopathy than children in the south and the disease more common in black

children than white children. Those two facts alone should have alerted the authors and the NEJM editors that vitamin D deficiency may be a common (and equally important, easily treatable) cause of pediatric cardiomyopathy.

Lipshultz SE et al. The incidence of pediatric cardiomyopathy in two regions of the United States. N Engl J Med. 2003 Apr 24;348(17):1647-55.

Jena, it appears quite possible that your baby girl died from lack of vitamin D. Just think, in the year 2008, infants in the United States are dying from the lack of a simple vitamin, from lack of sunshine. I hope Dr. Barbara Gilchrist and the dermatologists (or should I say cosmetologists) soon stop blaspheming the Sun God or the Sun God's wrath will take even more of our children.

Dear Dr. Cannell:

My two children (age 5 and 7) have had asthma almost since they were born. In the winter, they are in and out of the hospital, it's horrible it is to see your child struggling for breath. Last fall I started both of my children on 2,000 IU of vitamin D a day and over the last year the asthma has just faded away. I'm afraid to stop their asthma medications but they don't seem to need them anymore. When I forget to give their asthma meds, I can't see any difference. Before the vitamin D, if I missed a dose of their asthma meds, I would know it very quickly. Could it be the vitamin D?

Joanne, Minnesota

Dear Joanne:

It seems increasingly likely that childhood asthma is but another presentation of vitamin D deficiency. At least two researchers at Harvard think so; they think it is the result of maternal vitamin D deficiency.

Litonjua AA, Weiss ST. Is vitamin D deficiency to blame for the asthma epidemic? J Allergy Clin Immunol. 2007 Nov;120(5):1031-5.

Weiss ST, Litonjua AA. Maternal diet vs lack of exposure to sunlight as the cause of the epidemic of asthma, allergies and other autoimmune diseases. Thorax. 2007 Sep;62(9):746-8.

However, I have heard from a number of parents who wrote to tell me their child's asthma went away after taking vitamin D. Also, a paper is in press that shows low vitamin D levels are a risk factor for exacerbations of asthma in children.

Low vitamin D levels linked to asthma exacerbations

So, it appears that childhood asthma can also be caused by simple childhood vitamin D deficiency, and thus perhaps cured by simple vitamin D. If so, asthma is yet another disease the dermatologists worsened, one killing about 200 American children every year, by imprecating the Sun God.

Dear Dr. Cannell:

My teenage son has type 2 diabetes. I started him on 5,000 IU of vitamin D a day about 6 months ago. Three things have happened so far, he started losing weight, his blood sugars improved, and

his acne went away. I know you have written about diabetes and weight loss with vitamin D but I can't remember anything about acne?

Mary, North Dakota

Dear Mary:

I have had some reports that vitamin D cured acne but frankly, I didn't believe them. Then I ran across this 1938 paper. You can read the entire paper yourself and see what 5,000 to 14,000 IU per day did for these patients with severe acne. When I was a kid, I always wondered why my pimples got better in the summer and worse in the winter.

Maynard MT. Vitamin D in Acne: A Comparison with X-Ray Treatment. Cal West Med. 1938 Aug;49(2):127-32.

As far as vitamin D improving type-2 diabetes, in my experience, that is the rule not the exception. How much it will improve it probably depends on how much vitamin D you give and how much weight the child loses together with his diet. Higher levels 25(OH)D prevent the disease but so far, I am not aware of any randomized controlled trials showing a treatment effect but, in the past, about half my adult type-2 patients were eventually able to go off their diabetic meds with proper doses of vitamin D. Dr. Knekt, at the National Public Health Institute in Finland, just discovered that men with the highest 25(OH)D levels (>30 ng/ml) had an 82% lower risk of developing type-2 diabetes in the future compared to men with the lowest levels but no effect was found in women. And get this, in Finland the average 25(OH)D level for all 7503 people tested was 43 nmol/L or 17 ng/m. For men it was 18 ng/ml and for women only 15 ng/m and that was a representative sample of Finnish adults!!!

Knekt P, et al. Serum vitamin D and subsequent occurrence of type 2 diabetes. Epidemiology. 2008 Sep;19(5):666-71.

Dear Dr. Cannell:

I read somewhere that cavities in children are a sign of vitamin D deficiency. Is that true?

George, Utah

Dear George:

Yes, it is true. Several months after your child begins taking adequate doses of vitamin D, cavities will stop forming. Actually, Professor McBeath did a placebo controlled trial in New York City orphanages in 1934 of 425 children. The children received either no vitamin D or 330, 465, or about 1,000 IU (The paper uses Steenbock units, one Steenbock unit is 3.3 IUs) of vitamin D a day as cod liver oil. Also, remember, cod liver oil in the 1930s had much more vitamin D than modern cod liver oil. McBeath said he conducted this study because several earlier studies showed ultraviolet irradiation gave "striking results" in stopping cavity formation. McBeath's results were quite amazing in preventing new cavities. Like the paper on acne above, you can read the entire study yourself. Remember that 1,000 IU of vitamin D is not enough for many children to obtain levels of 50 ng/ml, however, this study showed that even 1,000 IU virtually stopped new caries from developing.

McBeath EC. Vitamin D Studies, 1933-1934. Am J Public Health Nations Health. 1934;24(10):1028-30.

Dear Dr. Cannell:

I don't understand what you have against vitamin A. All vitamins are good and have to be taken together, especially A and D. I give both my children a tablespoon of Nordic Naturals Arctic Cod Liver Oil every day. Also, I disagree with what you have written about vitamin D preventing colds and flu, my children are sick most of the winter.

Mary, Pennsylvania

Dear Mary:

Did you ever stop to read what is on the label of Nordic Naturals Arctic Cod Liver Oil ? You are giving your children between 3,000 to 6,000 IU of vitamin A per day but only 3-60 IU of vitamin D. In fact, you are slowly poisoning your children.

A recent Cochrane review found vitamin A supplements increased total mortality by 16%, perhaps through its antagonism of vitamin D.

Bjelakovic G, et al. Antioxidant supplements for prevention of mortality in healthy participants and patients with various diseases. Cochrane Database Syst Rev. 2008;(2):CD007176.

Another, recent Cochrane review concluded that, although vitamin A significantly reduced the incidence of acute lower respiratory tract infections in children with low retinol, as occurs in the third world, it appears to increase risk and/or worsen the clinical course of such infections in children in developed nations.

Chen H, et al. Vitamin A for preventing acute lower respiratory tract infections in children up to seven years of age. Cochrane Database Syst Rev. 2008;(1):CD006090.

As for the evidence that vitamin D decreases respiratory infections, Wayse et al compared 80 children with lower respiratory infections to healthy controls and found children with the lowest 25(OH)D levels were eleven times more likely to become infected. Furthermore, sixty thousand IU of vitamin D a week administered for six weeks to 27 children suffering from frequent respiratory infections resulted in a complete disappearance of such infections for the following six months.

Wayse V, Yousafzai A, Mogale K, Filteau S. Association of subclinical vitamin D deficiency with severe acute lower respiratory infection in Indian children under 5 y. Eur J Clin Nutr 2004;58:563-567.

Rehman PK. Sub-clinical rickets and recurrent infection. J Trop Pediatr 1994;40:58.

As readers know, I first hypothesized vitamin D will prevent colds and flu in November of 2005 in this newsletter . Also, our second paper on influenza is the third most accessed paper in Virology Journal this year, in spite of being out only six months. It is free to download.

On the Epidemiology of Influenza

As to all vitamins being good, I assume you mean all vitamins are good in the proper doses and if the body is not getting enough from diet. Vitamin A deficiency in the USA is practically non-existent. The real problem is subclinical vitamin A toxicity, which appears to be fairly common. Please stop poisoning your children with cod liver oil and start them on adequate doses of vitamin D.

Dear Dr. Cannell:

How much vitamin D should I give my children?

Robert, New Mexico

Dear Robert:

It depends on their preexisting blood levels of 25-hydroxy-vitamin D. How much sun do your children get in New Mexico? How much do they weigh? Do they use sunblock? How much milk or fish do they consume? Let me add one more thing, a stunner. It also depends on their genetics. Three twin studies, one in osteoarthritis, one is asthma, and one in multiple sclerosis, all found a significant heritability for 25(OH)D. (Heritability should not be mistaken for genetic percentage.)

Hunter D, et al. Genetic contribution to bone metabolism, calcium excretion, and vitamin D and parathyroid hormone regulation. J Bone Miner Res. 2001 Feb;16(2):371-8.

Wjst M, et al. A genome-wide linkage scan for 25-OH-D(3) and 1,25-(OH)2-D3 serum levels in asthma families. J Steroid Biochem Mol Biol. 2007 Mar;103(3-5):799-802.

Orton SM, et al. Evidence for genetic regulation of vitamin D status in twins with multiple sclerosis. Am J Clin Nutr. 2008 Aug;88(2):441-7.

The heritability of 25(OH)D levels may also explain the enormous variation in 25(OH)D response that people show when they take vitamin D. Some only show slight increases and others more robust increases in 25(OH)D, perhaps due to genetic variations in how quickly 25(OH)D is made and how quickly it is catabolized. Furthermore, Orton et al found a significant association of 25(OH)D levels with the enzyme that activates vitamin D, which is a mystery, at least to me.

What this probably means is that how much activated vitamin D you have in any tissue of your body is under both genetic and environmental control. It varies between children, explaining why one child gets sick and the other does not. Activated vitamin D almost assuredly varies among organs as well, explaining why one vitamin D deficient child gets asthma, another frequent infections, another heart disease, another rickets, another diabetes, and another cavities. When the vitamin D deficiency occurs in the womb, the results also vary in later life, from autism to type-1 diabetes to cancer. All this is simply another argument for the need for 25(OH)D testing and supplementation to the mid point of the normal reference range. Do not accept 40 ng/ml as adequate, it is not.

However, as a general rule, breast fed infants need 1,000 IU per day, bottle fed infants an extra 600 IU per day. Children generally need about 1,000 IU for every 25 pounds of body weight. So a 75 pound nine-year-old needs about 3,000 IU per day. This is in the absence of significant sun-exposure, that is, they don't need to take it in the summer if they spend time outside without sunblock. However, tremendous individual variation exists in 25(OH)D response to vitamin D.

Dear Dr. Cannell:

What vitamin D should I use?

Vincent, California

Dear Vincent:

Anywhere. Vitamin D in 1,000 IU tablets by Nature Made are available in most pharmacies in the USA and Canada. On the internet, Bio Tech Pharmacal has prices that are hard to beat and has 1,000 and 5,000 IU capsules and they send a $1,000.00 check to the Vitamin D Council every month. Life Extension Foundation also has 1,000 and 5,000 IU capsules. Ddrops are now available in the USA from Carlson with 400, 1,000 and 2,000 IU per drop, perfect for children. LifeSpan Nutrition has a variety of vitamin D preperations. LifeSpan was the earliest financial supporter of the Vitamin D Council.

If price is no object, and you want the most expensive product on the market, Purity Products will soon begin telemarketing Dr. Cannell's Advanced Vitamin D . The idea is to bring vitamin D into people's living rooms, via radio and TV, no inexpensive task, that is, to get people taking vitamin D who are not taking it now. To do so, I helped develop a preparation that contains cofactors vitamin D seems to need to work optimally in the body and that are often lacking in modern diets, such as zinc, boron, magnesium, vitamin K, etc. If the product survives its test marketing, Purity will mass market it on thousands of radio shows and, hopefully, tens of thousands of people not taking vitamin D will begin taking it. If that happens, my family will make enough money so I can start researching and writing about vitamin D full-time. However, in the interest of full disclosure, you can save some money and get the same cofactors by taking less expensive vitamin D and eating spinach every day.

Dear Dr. Cannell:

Anything new on your theory that vitamin D is involved in autism?

Sally, New York

Dear Sally:

Science News reported that two Swedish doctors recently proposed vitamin D deficiency is linked to autism.

Doctors eye vitamin D link to autism

Another article looked at the amazingly high rate of autism in dark-skinned immigrants in Minnesota.

A mysterious connection: autism and Minneapolis' Somali children

Of course, the vitamin D theory of autism, first published in this newsletter in May of 2007 and subsequently published in Medical Hypothesis in October of 2007, predicts exactly such a dramatic increase in autism in the children of dark-skinned immigrants.

Furthermore, I continue to get reports from parents with autistic children that adequate doses of vitamin D sometimes has a treatment effect in autistic children, mainly younger children who developed signs of autism around the age of weaning, improving repetitive behavior, sleep disorders, and screaming spells. In rats, pups born to deficient mothers can regain some brain function if they are started on vitamin D at birth. Unfortunately, the recovery in rat pups brain damaged by maternal vitamin D deficiency is never complete.

I have come up with a protocol for diagnosing and treating vitamin D deficiency in autistic children but it can be used in any child. Remember, the worst thing that can happen is that children will have stronger bones:

1. Advise parents to stop giving children all preformed retinol, such as cod liver oil, and all vitamins or supplements containing retinyl palmitate and retinyl acetate. Preformed retinol antagonizes the action of vitamin D, probably at the vitamin D receptor site. Beta carotene does not have this same effect but children only need extra beta carotene if their diet is poor in colorful fruits and vegetables, dairy products, or fortified breakfast cereals.

2. Order a 25-hydroxy-vitamin D [25(OH)D] blood test. Do not order a 1,25-dihydroxy-vitamin D as it is often elevated in vitamin D deficiency and will mislead you.

3. If the 25(OH)D level is less than 70 ng/ml, the mid range of American references labs (30 - 100 ng/ml), give your child vitamin D3 supplements. Generally children require 1,000 IU per 25 pounds of body weight per day. However, great individual variation exists and autistic children need to be retested and the dose adjusted about every month until levels are at least 50 ng/ml in healthy children and at least 70 ng/ml in any child with autism, diabetes, frequent infections, or any chronic illness.

4. Test for 25(OH)D every month and treat with enough vitamin D until 25(OH)D levels are stable. Vitamin D toxicity has never been reported, in adults or children, with 25(OH)D levels below 200 ng/ml.

As far as the cause of idiopathic autism, I'm more convinced my theory is true than ever, so I wrote a poem of sorts.

To an Older God

Long before our current gods, the people worshiped an older god, the Sun God, their first God. They knew life receded when she receded and returned when she returned and called her Amaterasu and Liza and Surya and Ra and Apollo and Helios and Sol and many other names, but dared not look upon her face knowing the Sun God blinds those so arrogant. Pregnant women lay in the sun, held their infants up to the sun, and sent young children to play under the sun. The Sun God's blessing was calcitriol, which she carefully deposited into the tiniest of developing brains. With it, the children waxed lean and strong and brown with vibrant brains for calcitriol, the Sun God's gift, orchestrated brain growth.

Then, new priests of science and medicine, told the people the Sun God was only a star, one of trillions, nothing special. Great temples called hospitals and research institutes arose, which admitted only filtered sunlight and where the people offered sacrifices to the gods of science and medicine, sacrifices that enriched the new priests. Then, twenty years ago, the new priests of dermatology told the people to shun the Sun God. "Banish her from your lives," they said, "She is evil." The people listened to the new priests and kept their pregnant women out of the Sun Gods warmth, and told their children she was wicked. The people stayed inside, their children with them and traveled behind glass in their cars and wore sunblock and sunhats to keep the Sun God away.

The Sun God grew vengeful. She withdrew her gift of calcitriol. Without it, fetal brains grew without a grower, sang the song of development without a conductor. The infants cried and would not look into their mother's eyes and the children rocked for hours and banged their heads and couldn't sleep and threw appalling tantrums. The people brought their brain-damaged children to see the new priests and sacrificed dearly, but all the people's offerings were in vain. The new gods of science and medicine could do nothing.

For the Sun God had sent a plague and her wrath was upon the people. A great wailing arose in the houses and a gnashing of teeth and tears of anguish, as the people tasted the bitterness of autism.

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