Vitamin D and Schizophrenia

H1N1 Swine Flu and Vitamin D – A Brief Word

As the H1N1 pandemic looms, it is heartening that Dr. Alexandra Yamschchikov and colleagues at Emory University conducted the first meta-analysis of randomized controlled trials of vitamin D treatment of infections, concluding that significant scientific evidence exists to support further research of vitamin D treating, not just preventing, infections like the flu. The only mistake I can see is that she confused activated vitamin D and one of its analogs with vitamin D.¹

If you have been taking 5,000 IU per day for several years, you know that vitamin D helps, but certainly does not prevent, all respiratory infections. Because H1N1 may be deadly, besides taking 5,000 IU per day every day (1,000 IU for every 25 pounds of body weight for children) to prevent deficiency, make sure you have some 50,000 IU capsules of vitamin D on hand this winter.²

I recommend 2,000 IU per day per kilogram of body weight (which is about 1,000 IU per day for every pound of body weight) for three days at the first sign of influenza. While there are no randomized controlled trials showing that it will help, there is a randomized controlled trial showing that such doses will not hurt. This month, Dr. Bacon and colleagues at the University of Auckland found that a single dose of 500,000 IU (half a million units) did no harm to the elderly; a month after a single 500,000 IU dose, vitamin D levels were about 40 to 50 ng/ml; two months later they were deficient again, only 30 ng/ml.³

As many readers know, the influenza and vitamin D theory was published on the Internet before it was published in scientific journals.⁴ Our group then published two papers about vitamin D and influenza; the second one is available for download in its entirety for free.⁵ Some months later, our group responded to a critical letter by Radonovich et al., and you can read our reply for free.⁶

Dear Dr. Cannell:

My son has schizophrenia. Will vitamin D help him? He started hearing voices 12 years ago and our lives have been a nightmare since then. He stayed with us for 8 years but we never knew when he would come home, when he was taking his meds, when he would become paranoid, and when he would lose his temper. He disappeared for weeks at a time and would show up at our door homeless and in trouble with the law. He became increasingly violent when he was home.

My husband and I had to have him arrested after he attacked his sister and he was eventually sent to prison, where he was finally made to take his medications. We feel so guilty about our role in sending him to prison but we were afraid for our lives.

I know he does not get sunlight in prison and the doctors there will not test his vitamin D levels. They won’t let us send him supplements to take. Can the Vitamin D Council do anything about this?

Joanne, Sacramento, CA

Dear Joanne:

In my experience at Atascadero State Hospital, treating hundreds of patients with schizophrenia, adjuvant vitamin D does not reduce hallucinations, paranoia, or psychosis but it does improve mood, reduce tremors, may reduce the amount of antipsychotic medications needed, and helps prevent diabetes and the metabolic syndrome, which are common side-effects of “modern” antipsychotic medications. Care must be taken however, as the same cytochrome P-450 enzymes that metabolize vitamin D are many of the same enzymes psychotropic medications utilize. Little or nothing is known about such vitamin D and psychotropic drug interactions, thus vitamin D levels are mandatory when treating vitamin D deficiency in someone taking psychiatric medications.

As you are writing from Sacramento, I assume your son is incarcerated in the California Department of Corrections and Rehabilitation (CDCR). At my hospital, we get hundreds of schizophrenic patients per year directly from CDCR, and I have yet to find one who was not vitamin D deficient (> 50 ng/ml) and I have yet to find one who was prescribed vitamin D by CDCR physicians. I find this ironic, as CDCR is under a federal court mandate to improve the health care of inmates.

For those not familiar with schizophrenia, the course you describe is common, especially the pain and guilt schizophrenia inflicts on families. Schizophrenia is such a debilitating disease (losing your mind while knowing you are losing your mind) that about 10% of schizophrenics cure their disease by committing suicide. Of all the diseases I know, schizophrenia is the most vicious.

Recently, researchers at Harvard published an incredible paper.⁷ What Drs. Dennis Kinney, Emerald Huang, and colleagues did was nothing short of brilliant. I discussed their paper briefly in a past newsletter [June 2009], but this month I want to spend the time this paper deserves.

Like autism, schizophrenia has strong genetic roots. However, just like autism, genetic predisposition is not predestination. That is, for reasons no one has yet understood, one
identical twin will get schizophrenia but the other one has a 50% chance of escaping the disease; the identical twin concordance rate is about 50%. This implies an environmental trigger.

We can get a clue to that trigger by looking at identical twins and multiple sclerosis. Although their genes are identical, the identical twin who went out in the sun when young was much less likely to get multiple sclerosis than the other twin. For example the adolescent identical twin who listened to the dermatologists and avoided sun-tanning was 2.5 times more likely to later get MS than his/her identical sibling who ignored the dermatologists and tanned. (I predict similar studies will be published concerning identical twins in both autism and schizophrenia.)

Unlike autism, schizophrenia takes about 25 years to manifest itself; as Professor Robert Heaney would say, it is a long-latency disease. That is, the average age of onset until recently was about 25, which explains why the incidence of schizophrenia has not yet dramatically increased. In fact, autism used to be called infantile schizophrenia and it seems likely, as the current crop of autistic children ages, some will later be rediagnosed with schizophrenia.

Recent studies, compared with studies published in the 1980s and 1990s, show that schizophrenia is increasing, especially among teenagers. In fact, all of the studies I could find published in the 21st century, as opposed to earlier studies, show that schizophrenia is increasing.

(If you want to read something scary, read this article about two large US government autism studies about to be released. In ten years you will be reading the same story about schizophrenia: "Autism Rate Now at One Percent of All US Children?" by David Kirby, Huffington Post. Aug. 11, 2009. www.huffingtonpost.com/david-kirby/autism-rate-now-at-one-pe_b_256141.html.)

Before I describe the remarkable paper from Harvard, I want to compliment researchers at the St. Bartholomew's Hospital in England for almost saying what most psychiatrists already know: the incidence of schizophrenia is much higher in people with dark skin. In the 1970s and 1980s, that was an accepted fact, until charges of racism were leveled against the American Psychiatric Association (APA). The spineless APA promptly did retrospective chart analyses and announced the incidence of schizophrenia is exactly – precisely – the same for whites as it is for blacks. The ethnicity question is important, as the vitamin D theory is not tenable unless darker skin means a higher incidence.13

Actually, in 2007, a group at Columbia University appears to be the first to break with the APA's political correctness. Dr. Micheline Bresnahan and her colleagues followed 12,000 children for up to 28 years after birth. African Americans were 3 (three) times more likely to develop schizophrenia than whites, and socioeconomic factors could not explain away their findings.14

Getting back to the Kinney et al. paper: They examined 188 studies to find 49 studies that used similar diagnostic methods. The authors were quite strict on only looking at the 49 studies that used similar diagnostic criteria, as the authors are aware that most psychiatrists dismiss any latitudinal variation in the prevalence of schizophrenia by saying that doctors around the equator are too stupid to make a correct diagnosis of schizophrenia.

Then, the authors explored the three most common theories for the environmental trigger of schizophrenia:
1. poor prenatal care;
2. low omega-3 fatty acid consumption;
3. prenatal exposure to infections, especially influenza.

First, they found a 10-fold variance in the prevalence of schizophrenia in the world, from a high of 28 cases per 1,000 in Oxford Bay, Canada, near the Arctic Circle, to a low of 1 per 1,000 around the equator, confirming Dr. E. F. Torrey's landmark latitudinal findings published in 1987. Kinney et al. confirmed that latitude and cold climate broadly and strongly determine the prevalence of schizophrenia. The majority of the 49 studies the authors reviewed were completed before the sun scare, which has driven many equatorial mothers out of the sun, so I predict that the incidence of schizophrenia around the equator will soon be increasing.

Second, if you were born in countries around the equator with high infant mortality (a proxy for poor prenatal care), the incidence of schizophrenia was very low. In other words, around the equator it didn't matter if you had poor prenatal care; you still did not get schizophrenia. But, at latitudes away from the sun, prenatal care did matter, and it mattered more and more the farther you got from the equator. It appears that high maternal vitamin D levels around the equator overwhelmed the effect of poor prenatal care.

Third, around the equator, it did not matter if mothers ate vitamin-D containing fish; it only mattered the farther you got away from the equator. That is, latitude overwhelmed the effect of fish consumption; consumption of vitamin-D containing fish only began to matter when the sun was not available to make vitamin D. If omega-3 fatty acid consumption was the cause of schizophrenia, latitude variation in omega-3 consumption would not matter.

Fourth, they found that skin color only mattered away from the equator; that is, in the very dark-skinned equatorial Indians and equatorial Africans, skin color hardly mattered; the prevalence of schizophrenia was quite low. However, the further poleward you live, dark skin preventing maternal vitamin D production becomes an increasingly significant risk factor for schizophrenia.

The authors could not dismiss the influenza theory of schizophrenia,
but as I hope readers are aware, the association between influenza and schizophrenia is probably mediated by vitamin D. That is, influenza is a symptom of vitamin D deficiency:

...the characteristic microbe of a disease might be a symptom instead of a cause.

George Bernard Shaw
Preface to The Doctor's Dilemma, 1911

Kinney et al. concluded that the vitamin D hypothesis correctly predicted the associations between prevalence and skin color, fish consumption, infant mortality, latitude, and temperature. The vitamin D effect "overwhelms" the effects of other known risk factors. That is, maternal vitamin D deficiency is not just "a" cause, but is probably "the" cause of schizophrenia.

I love epidemiological studies like this, and I'm sure that Professor John McGrath in Australia does as well. It was McGrath who first hypothesized that gestational vitamin D deficiency causes schizophrenia. I often despair that I have had to wait two years for the world to learn that autism is triggered by gestational and early childhood vitamin D deficiency. John McGrath has had to wait 10 years for his theory to be accepted and will probably still be waiting 10 years from now.15

I'd like to add one prediction to McGrath's theory. The vitamin D theory of schizophrenia predicts that the age of onset of schizophrenia should be getting younger. That is, as more pregnant women listened to dermatologists, their children are not only more likely to develop schizophrenia, but are more likely to develop more severe cases that present at a younger age. That is exactly what appears to be happening.16,17

If you know any pregnant women, make sure they read our recent newsletter about pregnancy and Vitamin D.

Dear Dr. Canneli:
How much magnesium do you need to allow vitamin D to work properly?

Sarah, New York

Dear Sarah:
Severe magnesium deficiencies severely impair vitamin D's ability to work. What is not known is how mild to moderate Mg deficiencies, like most Americans have, affect vitamin D metabolism. The safe thing to do is to eat green leafy vegetables and a handful of sunflower seeds and nuts every day (Trader Joe's sells a variety of seeds). If you can't, won't, or don't end up doing that, then take a vitamin D supplement with added magnesium. Bio-Tech Pharmacal now sells such a supplement, Vitamin D3 Plus [www.vitamin3plus.com], and will make a contribution of $1 to the Council for every bottle sold. Bio-Tech's phone number: 479-443-9148.

Bio Tech's new Vitamin D3 Plus formula also contains zinc (the base of the fingers of the vitamin D receptor each contains a zinc molecule), vitamin K2 (vitamin K helps direct vitamin D to calcify the proper organs), boron (boron is involved in the rapid, nongenomic action of vitamin D on the cell wall), a small amount of genistein (about one-half the amount that the average Japanese consumes every day), which helps activated vitamin D stay around longer at the receptor site, and a tiny amount of vitamin A. Again, the wisest thing to do is to eat green leafy vegetables and a handful of seeds every day, as that combination contains the cofactors that vitamin D needs, the cofactors that many Americans are deficient in.

Dear Dr. Canneli:
With H1N1 on the way, what is more important, vitamin D or the flu shot? I'm afraid of the side-effects of the flu shot.

About 1,000 readers.

Dear Readers:
I don't know. I'm going to do both. The only caveat I have is that if you're going to take vitamin D, take enough so that your 25(OH)D level is between 50 and 80 ng/ml. I am not concerned about side-effects of the flu shot, like Guillain-Barré syndrome, because my vitamin D level is high. When immunizations cause side effects, and they do, it is through an autoimmune phenomenon, like Guillain-Barré. I believe, but cannot prove, that vitamin D will prevent such immunization side effects. (Perhaps prevent a significant antibody response to the flu shot, thus negating its sole purpose. I say "perhaps," because no one knows about antibody response in vitamin–D sufficient people, but I think even small amounts of antibodies against H1N1 are better than none.)

Many people cite the swine flu scare of 1976 as the reason that they will not get the H1N1 vaccine. What they forget is that the epidemic never materialized, so there was no way for epidemiologists to compare the incidence of Guillain-Barré after H1N1 immunization with the incidence of Guillain-Barré after H1N1 influenza infection. One of the most common causes of Guillain-Barré is influenza itself.

Furthermore, the world is divided between those who think that we must eliminate or prevent toxic substances, whether they be influenza, mercury, lead, or arsenic, and those, like me, who think that our bodies, if vitamin–D replete, will and have handled such insults for millions of years.

Take lead poisoning among African American children. The only good lead level is zero, goes conventional wisdom. Actually, we know a lot about lead poisoning in vitamin–D deficient children; we know next to nothing about lead poisoning in vitamin–D sufficient children. For example, at first blush it is concerning that black children have higher lead levels (more lead poisoning) in the summer than the winter. Furthermore, the higher the summertime vitamin D level, the worse the lead poisoning. Yes, higher vitamin D levels are associated with worse lead poisoning!18

What is really happening? Ask Dr. Alan Kalueff, recently at the NIH.19 As he explains in this paper, vitamin D
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Notes
4. Cannell JJ. Pascal’s wager and antiviral peptide, cathelicidin, will overwhelm D’s defenses. That is what upregulates, or increases, the expression of these genes. As many readers will find this winter, vitamin D’s upregulation of the naturally occurring antiviral peptide, cathelicidin, will keep many of us well this winter while H1N1 injures or kills the vitamin-D deficient.

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