

Substituting Vitamins and Supplements for Pharmaceuticals in Type 2 Diabetes

Commentary by Stuart Lindsey, PharmD

(OMNS May 28, 2012) Just when you thought it was safe to go back into the drugstore, we are going to question authority yet again. Readers may remember Dr. Stuart Lindsey as the Frustrated Pharmacist (<http://orthomolecular.org/resources/omns/v08n05.shtml>). He's back and at it once more, this time presenting an important supplement-based approach to type 2 diabetes. This essay presents ideas that are very possibly a large part of the solution. As with all OMNS releases, it is not meant to substitute for medical advice. Persons should consult their own doctor before making any health decision. - Andrew W. Saul, Editor

The current treatment of diabetes is among the least successful in medicine, despite billions of dollars spent on research. Many scientists make a career of studying diabetes. Medicine has succeeded in making diabetes very expensive for the patient while making the disease a cash cow for the numerous businesses that cater to the diabetic. We should expect to see some improvement in diabetic treatment, but in fact the basic protocols haven't changed much in twenty years. Is research getting close to a solution? In my opinion as a practicing pharmacist, the answer is no.

For fifteen years I was the pharmacy manager for an independent neighborhood drug store. I saw the results of many people over the long term as they were introduced to the "sugar-med treadmill." After prolonged consumption of their diabetic medications, their health did not improve. This was disturbing to me. The long term diabetics all seemed to have the same group of symptoms: they were overweight (due to hyper-insulinemia), edematous (having swelling under the skin), and they all suffered from poor exercise tolerance and had a generally unhealthy appearance. Many of them had peripheral neuropathy (malfunction of nerves), often associated with pain in their hands and feet. Only rarely did they believe their diabetes treatment was actually improving their health.

My interest in the lack of results from standard treatment of diabetes came into sharp focus when pain in my feet led to my being diagnosed with type 2 diabetes. From my observations at work, I already knew that the drug treatments for peripheral neuropathy were questionable. Introducing amitriptyline, gabapentin and Lyrica, which are sedatives and pain killers, made the people sleep a lot. Medically, it's obvious that sedating nerves doesn't solve anything. When such patients step up to daily long term narcotics and finally get some pain relief, they still haven't solved their problems.

Current medical practice relies on the HgbA1c (glycated hemoglobin) level as a measure of blood sugar over several months. The glycated hemoglobin is caused by high levels of sugar binding to hemoglobin inside red blood cells. When it builds up, this means that the body's biochemicals and organs are being damaged by too much sugar. It was interesting to note how many of the diabetic patients were in the normal range (i.e. HgbA1c < 6.5) but were still in agony over their feet. The problem was that seeing a normal value of HgbA1c, the doctor would hesitate to change the treatment. Apparently, severe foot pain wasn't a symptom that needed attention.

I decided to explore the whole HgbA1c issue. The biggest argument you see in diabetes is that diabetes is a 'disposal' issue. A high level of blood sugar is a type of metabolic malfunction that needs to be corrected. Blood sugar has a geography problem. The body seems driven to urinate the sugars out of the body instead of jamming the sugars across supposedly malfunctioning membranes and burning the sugars intracellularly. Medical practice can apply insulin and many types of drugs to insure that the body's tissues metabolize the sugars. Most current diabetic research is targeted at 'breaching the barrier' and making the supposedly malfunctioning membranes more permeable to carbohydrates. When those extra sugar calories are crammed into cells you get advanced glycation end-products (AGE's) that are a threat to the body.

In 2005, a UK researcher named Paul Thornalley wrote a paper detailing how many diabetic symptoms are due to a deficiency of thiamine (B-1).[1] Elevated blood sugar promotes a type of toxicity in the kidneys that causes thiamine to be excreted by the kidney at a rate much higher (sixteen to twenty-five times higher) than normal, leading to an acute deficiency of thiamine. From other studies, it is known that deficiencies in all B vitamins, as well as vitamin C and D are common in diabetics.[2] This can cause most of the symptoms of type 2 diabetes, which include: polyneuropathy, nephropathy (kidney damage), retinopathy (eye damage) and eventually heart failure. This raises the question of whether the symptoms are from diabetes or acute beriberi?

When I was diagnosed with type II diabetes, I immediately balked at taking the standard diabetic drugs. My doctor wanted to place me on statins, metformin and Byetta, all of which I refused to take. Having researched Dr. Thornalley's theory of diabetes being an acute thiamine deficiency, I started a regimen of vitamin and mineral supplements. Although the pain in my feet was quite severe, I wanted to avoid the regular drug regimen because it relied upon taking lots of pain killers that don't cure the problem. I reasoned that when the body's B vitamin levels are depleted due to high blood sugar, replenishing body stores through diet alone is difficult, so supplementation will be necessary.

I started taking a dietary supplement of thiamine (**benfotiamine, 250mg 4x/day**). I also added of vitamin B-6 (250mg/day) and pyridoxal 5 phosphate (P5P, 100mg/day) magnesium (aspartate, citrate, malate, or chloride) and acetyl-L-carnitine (1000 mg/day) depending on the severity of my peripheral neuropathy symptoms. More recently I've learned of the importance of taking vitamin C to reduce inflammation and prevent oxidation from high blood sugar levels.[2] My doctor did not approve of my self-treatment but was curious. I told him that I was willing to go back to the standard of care if this didn't work.

"Positive factors for treating type 2 diabetes are magnesium, exercise, weight control, chromium, dietary fiber, the B-vitamins, vitamin E, vanadium, vitamin C, and complex carbohydrates. I have been using the positive factors for the past 40 years. When patients followed such a program, the results are very good." Abram Hoffer, MD, PhD [3]

The most overt of the neuropathy symptoms started to subside rapidly. Within a week, the shooting pains in my ankles were mostly gone. All of the other symptoms of numbness of the toes and overall pain of the feet including the "boot effect" (the feeling that you have your boots or socks on) were mostly gone in three weeks. Now I know this treatment may not be a cure for diabetes. But it is a valid and reasonably inexpensive way to control the symptoms, which are held at bay as long as you keep your thiamine levels high. If you quit taking thiamine and the other B vitamins, the symptoms come roaring back.

I looked for the inevitable deterioration of my health that had been predicted. Ignore your blood sugar levels at your peril I was told. I was going to have kidney problems, my pancreas would stop cooperating and my vision would become blurry as the elevated sugars damaged my retinas. But the only sign of an active problem was the neuropathies in my feet which were quite painful at times: numbness of my toe area and shooting pains in my foot joints. I also had the feeling that the circulation of my feet was poor as my feet were always cold.

After two years I finally got blood tests. I still felt very good having lost some weight, with no vision problems, and my energy level and psychological attitude were all fine. I was actually afraid to look at the results and finding out that I had finally outsmarted myself and got hurt. There is a quite a propaganda machine built around the treatment of diabetes. As I drove over to retrieve my blood tests I did a mental check of how I felt. I decided I couldn't have a lot wrong with me as I just felt too good. My blood tests were amazingly free of problems related to elevated blood sugar, and I had few other related discernible health defects. This thiamine treatment did not change my HgbA1c (which is currently 9.1, and that is high) or my resting blood sugars (fasting blood sugars still between 180-190, and those also are high). Values like these are supposed to indicate a poor quality of health. My recent blood tests indicated:

Creatinine, urine 86.7mg/dl. Scale 20-370; low normal.

Microalbumin/Creatinine ratio 9.2mg/GCr. Scale 0-30; low normal.

Creatinine and microalbuminuria values are the so called "Canary in the Coal Mine" indicators. The kidneys are supposed to go first when Advanced Glycation Endproducts (AGEs) have started your march to health failure because you didn't keep your HgbA1c values within range. I think my two-plus years is long enough for this to play out. I had my eyes checked for sugar damage to my retinas. I have no sugar damage to my eyes whatsoever. I am 61 years old and have 20-25 vision in both eyes. Jonathan Wright, MD, is among those who have noted that skin tags may be connected to diabetes; interestingly enough the skin tags on my arms have all disappeared.

However, my health hasn't failed due to hyperglycemia, although it is still a problem. In my case, the unusual positive results are evidently due to my nutritional approach. I substituted supplements of several essential nutrients for pharmaceuticals and stayed in relatively good health. And I continue to try supplementing with other nutrients such as antioxidants which are known to help prevent diabetes. [2] This suggests that the health issues are actually caused by nutritional deficiencies that can be easily prevented.

I am hoping this simple (and non-toxic) experiment on myself will lead the field to discussing the validity of substituting vitamins in diabetes treatment. The treatment of diabetes as it now stands is complicated and expensive. I am spending about \$130/month on supplements, and during this two year experiment I have not given my doctor a single dime for advice on how to regulate my HgbA1c value. I imagine I've saved more than twice that amount by avoiding paying for drugs and doctor visits. Is this justified? If my health remains good and I have no other serious problems, I believe it is.

If all diabetics would supplement with B vitamins and vitamins C, D, and E, and minerals such as calcium and magnesium, they would lessen their problems with insulin and blood sugar, and the other serious symptoms of diabetes.[2] The reason is that most people in our society, especially including diabetics, have deficiencies of these essential nutrients that are

known to be related to diabetes. But this essay is also an attempt to unseat some basic tenets of the medical fiasco known as diabetes. The prevalence in 2011 of type II world-wide according to the World Health Organization (WHO) is 346 million, and some 3.4 million people dies in 2004 as a consequence of the disease. The WHO predicts that the deaths attributable to diabetes will double between 2005 and 2030. [4] With this kind of projection a "Manhattan Project" kind of response seems necessary.

So what is the intellectual problem that seems so intractable to the medical research community? The standard treatments to lower blood sugar and HgbA1c were recently tested in medical trials. The ACCORD trials were meant to validate once and for all that the closer a patient got to a HgbA1c level of 6% the healthier a person became. Instead there was 22% increase in mortality from heart failure.[5] This unexpected value caused the FDA to terminate the trial midstream. Is it possible that the HgbA1c value should not be a primary goal in evaluating diabetes treatments?

If you go to PubMed and enter the keywords "thiamine deficiency" and "diabetes" you will get dozens of references that describe how many symptoms of diabetes are caused by a thiamine deficiency it generates. Deficiencies of B vitamins and other essential nutrients are important in diabetes.[2] This should be required reading for all doctors who treat or research diabetes. Currently in conventional management of diabetes, supplement based nutrition therapy is utterly neglected. The National Diabetes Fact Sheet reported that in 2007, the direct medical costs of diabetes nationally was estimated at \$116 billion (USD). [6]

Diabetic patients can feel overwhelmed by a diagnosis of hyperglycemia, but are often comforted by the complicated explanations and sudden increase in activity and attention directed at them. The possibility that they are being misled just doesn't come up. Even if patients decide to do their own research it can be confusing. The cause of diabetes is basically unknown, but they are told that with some major alterations to one's lifestyle and lots of drugs liberally applied they can lead a relatively normal life. However for the truly curious, a large block of mainstream nutrition ideas of which the doctors are mostly ignorant can be freely accessed on the internet. When a patient presents this alternative information to the doctor today, they are comforted and told that they are already getting the cutting edge treatment. But even three years after the revelations of the ACCORD trials there has been no major correction of the type II treatment protocols that addresses the unexplained mortality issues revealed by the trials.

Even if my vitamin arguments are only partially correct, the implications for mainstream medicine are staggering. These ideas need wide discussion the field, because patients with diabetes need some new ideas.

For further reading:

Melvyn R. Werbach's *Nutritional Influences on Illness* contains a valuable review of research indicating the therapeutic value of supplements, and their specific dosages, for diabetics. Third Line Press, 2nd Edition, 1996 ISBN-10: 0961855053; ISBN-13: 978-0961855055.

Endocrinologist and Professor of Medicine (University of Kentucky) J. W. Anderson is perhaps the world's leading researcher on fiber and diabetes.
http://www.doctoryourself.com/biblio_anderson.html

As much a book about fiber as it is about overconsumption of sugar, *The Saccharine Disease* by T. L. Cleave (1975) is available in its entirety for free online at
http://www.cybernaut.com.au/optimal_nutrition/information/library/saccharine_disease.pdf
and also at http://journeytoforever.org/farm_library/Cleave/cleave_toc.html

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