



DIABETES

A secondary clinical feature related to Mitochondrial dysfunction?

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As of April 2016 the World Health Organization stated the number of adults, globally, living with Diabetes has QUADRUPLED since 1980. The number of adults living with the disease has surged from 108 million in 1980 to a whopping 422 million in 2014 and currently skyrocketing on the chart of your “burnt out” insulin-producing pancreas like a bullet.

Your Allopathic MD has flooded your body with Metformin, Januvia, multiple daily Insulin injections and whatever new drug they can offer for the last 35 years to “cure” Diabetes and it has quadrupled? Many noble efforts have appeared to fail in eradicating and controlling a disease, by what the WHO states, “is one of the leading killers in the world today.

THE ECONOMIC & PHYSICAL TOLL

The WHO estimates the annual global cost of diabetes, including health management needs, exceeds \$827 billion dollars. Citing a separate study, the agency said the global GDP losses linked to diabetes will reach \$1.7 Trillion dollars by 2030.

25,000 cases of blindness are diagnosed every year due to diabetes. One half of all limb amputations in the US, alone, are caused by diabetes, which equates into over 55,000 amputations and climbing. Diabetes is the leading cause of kidney failure and the need for dialysis and kidney transplants.

WHAT IS DIABETES? The simple answer is, it is a disease you don’t want. The next simple easy answer, because you always want a simple easy solution, is it is a devastating disease not only to the individual, but also to the family, the friends, the community, the states, the countries and the globe. Almost \$2 Trillion lost on a preventable disease. It is that serious.

WHAT DIABETES IS NOT IS GENETIC. Yes, you might have a predisposition because your mother had it, however, that does not mean you have been given a sentence shackled to medication for the rest of your life. It means you are epigenetically predisposed and you can successfully manage that predisposition without medication and symptoms, thru nutrition and exercise depending on the type, of course.

THE PHYSIOLOGY

The most frequent kind of diabetes is diabetes mellitus, a chronic degenerative disease caused when the pancreas either fails to produce a hormone called insulin or the body's cells are resistant to the action of insulin. Without insulin, the body cannot process and use glucose, a blood sugar, which is a chief source of energy for living organisms and is found in certain foods like fruit, veggies and more.

TYPES

Type I, also called insulin dependent, occurs mostly in children and young adults. 5-10% of diabetics are Type I, and it means that the body cannot produce insulin, which causes glucose (sugar) to build up in the bloodstream. Symptoms include excessive thirst, hunger, urination, dehydration, blurred vision, tingling or numbness in the limbs, bruises that seem to heal slower than usual and often weight loss. Insulin injections must be taken daily to keep blood glucose levels stable. In this type, the body's own immune system mistakenly attacks beta cells and over a period of time the beta cells stop performing. This is considered an autoimmune disease and is caused by a variety of factors, as we will discuss later in the essay.

Type II occurs primarily in middle age and makes up 90% of all diagnosed cases of diabetes. The pancreas still produces insulin, however the body's cells are resistant to the action of insulin and the cells do not properly absorb glucose.

Insulin Resistance (IR)

Insulin resistance occurs when more insulin needs to be secreted by the pancreas (burn out). If this compensatory increase does not occur, blood glucose concentrations increase and Type 2 diabetes occurs.

IR in muscle:

Decreased glucose uptake and storage of glucose as glycogen for performance.

IR in liver cells:

Decreased glycogen synthesis and storage for performance

IR in fat cells:

Decreased effects of insulin on lipids and results in reduced uptake of circulating lipids and increased hydrolysis of stored triglycerides

Signs & Symptoms:

Fatigue, brain fog, increased blood sugar, intestinal bloating from not being able to digest and absorb grains (sugar), weight gain, fat storage in abdomen, increased triglycerides, increased BP, depression and increased hunger.

Any food or drink containing glucose or digestible carbohydrates such as grains, veggies, fruits, etc. causes blood sugar levels to increase. In normal metabolism the increased blood glucose level makes beta cells in the Islets of Langerhans located in

the pancreas, which release insulin into the blood to metabolize blood glucose into glycogen to be stored in the liver and muscles for energy. The inability of beta cells to produce sufficient insulin in a condition of hyperglycemia often seen after a meal is what characterizes the transition from insulin resistance to Type II diabetes. Insulin resistance is also associated with systemic inflammation.

Insulin stores Magnesium. If you are IR, you cannot store magnesium so you lose it through urination. Intracellular magnesium relaxes muscles and when you cannot store magnesium because the cell is resistant, you lose magnesium (MG+) and your vessels constrict. This in turn can cause high Blood Pressure, Stroke and a reduction in energy since intracellular MG+ is required for all energy producing reactions that take place in the cell. Without adequate Magnesium levels you do not utilize vitamins and 80-90% of all Americans are MG+ deficient. So much for all those Multi-vitamins you pee in the toilet, huh? That is called, very expensive urine.

The way you control blood lipids is thru controlling insulin. Growth hormone cannot do much without insulin. That is what IGF's are all about or what is termed Insulin Like Growth Factors 1-4. All steroid sex hormones are originally derived from cholesterol. Insulin controls manufacture of cholesterol and sex hormone binding globulin is controlled by insulin. Cholesterol is a good thing, not a bad thing. Refer back to my Cholesterol Myth essay for this understanding of how an adequate cholesterol level is crucial and why lowering it is incomprehensible and has never proven to reduce heart disease.

TESTING

Typically when you have a blood test a fasting blood glucose value is ordered. Normal is considered less than 100mg/dl or so. 2 hours after eating (postprandial), levels of 140mg/dl -160mg/dl are considered normal depending on age.

Another test is the A1C. In the simplest terms the A1C is measured in people with diabetes to provide an index of average blood glucose for the previous 3-4 months. A1C is glucose attached to hemoglobin, a protein found in red blood cells that transports oxygen from the lungs to other parts of the body. The normal level of A1C in non-diabetics is approximately 4-6%. Each 1% change in A1C represents a change of approximately 35mg/dl in average blood glucose.

THE ROLE MITOCHONDRIA IN DIABETES

The mitochondria are membranous organelles in which aerobic cellular respiration produces ATP; which is the holy grail of energy. The mitochondria are actually bacteria that are typically referred to as the powerhouses of the cell.

Mitochondrial Resuscitation is the key to healing every disease. That means all disease starts and ends with the health of the mitochondria. Addressing the mitochondria in all types of disease and how to effectively resuscitate them is critical. Regrettably, they are not.

Type II Diabetes occurs as a secondary clinical feature in some disease related to mitochondrial dysfunction such as Mitochondrial Encephalopathy, Lactic Acidosis and Stroke like episodes. Mitochondrial structural injury and impaired function contribute to diabetic heart disease. Further support for mitochondria's role in diabetes is that they are involved in diabetic cardiomyopathy, a heart muscle disease that increases the risk of heart failure and mortality in diabetic patients. Mitochondria generate energy for heart contraction while at the same time producing reactive oxygen species that if produced in overabundance, may damage the mitochondria and the heart. Mitochondrial dysfunction might also be involved in insulin resistance in a cell specific manner, with impaired mitochondrial function.

Documented prescription medications that promote mitochondrial injury and destruction that leads to all disease:

Acid Reflux meds

Alcoholism medications

Analgesics and anti-inflammatories for pain

Anesthetics

Angina meds

Antiarrhythmic meds

Antibiotics

Antidepressants

Antipsychotics

Anxiety meds

Barbiturates

Blood Pressure meds

Cholesterol or Statin meds

Chemotherapy

Dementia meds

Diabetes meds

HIV/AIDS meds

Epilepsy/Seizure meds

Mood Stabilizers

Parkinson's meds

Protecting the Mitochondria

First and foremost is not to create disease thru poor lifestyles so as to need prescription medication. That means eating fresh, organic, clean and some raw, exercising, resting, meditation or prayer and maintaining faith and hope in life.

Mitochondrial re-building

Nutritional supplementation is the key and with laser like precision to include:

Probiotics

CoQ10

PQQ

Creatine Monohydrate

D-Ribose

L-Arginine
L-Carnitine

Omega 3 fatty acids in the Parental Form such as Hemp seed or oil, Evening Primrose oil, Borage oil (never consider concentrated Derivative Omega 3 fish oil supplementation) If you want it from fish, eat wild caught fish. Concentrated Fish oil supplementation is toxic and promotes a pro-inflammatory response in the body which will further Mitochondrial suffocation and injury.

THE ROLE OF GUT BACTERIA (probiotics) IN DIABETES

New Endocrine research suggests a strong link that gut microbes play an important role in the development of Type II Diabetes. Microbes form toxins that enter the gut and cause inflammation in the body, which affects liver and fat cells. As a result, insulin sensitivity and overall metabolism can be altered. Some studies now explore the benefits and protective effects of improving the gut flora with Probiotics in children who have Type I Diabetes. Researchers are intensively working on understanding the relation of these microorganisms on cardiovascular disease and diabetes and possibly help change the gut flora to better mix with natural interventions such as healthier nutrition. They are finding that this triggers the **pancreas's ability to start making insulin again.**

Do you know what that means?

It means even Type I & II Diabetes, thought to be irreversible, may be partially or fully reversible. And they are. You only need ask some of my patients that have done so.

Shucks, all they had to do was ask me. I was told 30 years ago by a, well traveled, biochemist not to "look west young man" but to "look to the mitochondria and the gut flora" as these are implicated in all disease to include our soup du jour, Diabetes.

WANTED DEAD OR ALIVE

The Culprits in Diabetes

Firstly, Current research finds that artificial sweeteners, "mess" (that is researcher medical terminology) with, guess what? GUT BACTERIA and lead to glucose intolerance or Insulin Resistance, a factor in diabetes and other metabolic diseases.

Aspartame
Sucralose
Saccharin
Neotame
Acesulfame Potassium
Stevia
Etc.

All that stuff in those cool pink and blue and yellow and green little packages that sit on your restaurant table. Researchers found that when subjects drank water containing the aforementioned, they developed Insulin Resistance that is linked to Type II Diabetes and other metabolic disease. The result was Obesity, Heart Disease, Diabetes, Cancer and other metabolic diseases. When they drank plain water or water with cane sugar the Insulin Resistance and glucose intolerance disappeared.

Now, here is why the public is confused. Last year an article appeared on a website labeled, "8 Diabetes Diet Myths Debunked" written by Madeline Vann, MPH and reviewed by Farrokh Sohrabi, MD for accuracy. One of the 8 was the following"

Myth: "Artificial Sweeteners are bad for me"

Truth (the authors state): "Artificial Sweeteners are approved safe for consumption"

They go on as follows, "Artificial sweeteners can help satisfy your sweet tooth with fewer calories and carbohydrates than cane sugar. "I tell people you have a choice", says Paula Jacobs, Registered Dietician, on staff with the Diabetes Self-Management Program at Methodist Charlton Medical Center in Dallas, TX, " you can eat something with no sweetness at all, you can eat something loaded with sugar or you can compromise and eat something that is artificially sweetened." It appears you should compromise your health. The authors concur with Jacobs that the FDA considers all artificial sweeteners safe alternatives to cane sugar according to the American Dental Association. By assumption, they believe that diet sodas are also healthy and safe.

"I TRUST YOU UNDERSTAND WHY I AVOID COMMENTING ON THAT LEVEL OF ACADEMIC IGNORANCE". Ugly would be an understatement.

Next to the aforementioned there is no longer debate on the influence grains have on the onset of Diabetes to include whole grains. The glycemic index is a scale that determines how food elevates blood glucose levels, consistently suggests processed and whole grains have higher index ratings than many junk foods. You can review several essays under the Nutrition heading on our Lifestylequixotica.com website for further understanding.

IS DIABETES REMISSION POSSIBLE

Here is what Edward Gregg, the lead author on a report from the Centers For Disease Control, CDC, said, "Kind of a long term assumption really is ,that once you have diabetes there is no turning back on it and there is no remission or cure." However, he continues that "new research we conducted is a reminder that adopting a healthy lifestyle include eating healthy and being physically active is going to help manage peoples diabetes better." The findings were published in the Journal of the American Medical Association in 2012. Now almost 5 years later Diabetes is still skyrocketing.

And Dr. John Buse, a diabetes researcher from the University of North Carolina at Chapel Hill School of Medicine, has posed the following question regarding a healthy lifestyle and diabetes. “The question is, how cost effective is it and what are the long term consequences and how would it really compare with alternative approaches like bariatric surgery and drug therapy.” He was not involved in the study, however I found it interesting that he called surgery and drugs alternatives to a healthy lifestyle. **Once again, I am learning to reserve my comments on academic ignorance to myself.**

However, let us take a look at how expensive having Diabetes could be. Between monthly doctor visits which could take up to two hours, monthly blood labs, glucose meter strips, lancets, wipes, oral meds, insulin, etc and/or bariatric surgery you could be talking several hundred dollars into thousands. Not to include Emergency Room Visits and ambulance rides depending on how irresponsible the patient is which is many with Diabetes, you could be talking another few thousand per month. An ambulance ride in Los Angeles will set you back around \$1,100 or so. Push the sum button and you could be looking at several thousand dollars per month. And because someone else, like your insurance company, pays for your diabetes treatment you really don't know what it costs. Blue Shield is grateful for your cooperation in raising insurance premiums and profits for its investors.

Let us look at adopting a healthy lifestyle. How much healthy nutrient dense food could you buy for several thousand dollars? Or should I ask, how many months would it take you to go thru the several thousand dollars you put toward monthly diabetic treatment toward fresh organic real food? Exercise, rest, meditation, prayer, faith and hope are relatively free so the only thing you are paying for is good food.

Dr. Buse, your thoughts on the cost effectiveness of adopting a healthy lifestyle as opposed to drugs and surgery?

Respond intelligently, even to the unintelligent

Vaya Con Dios