



HEALTH & WELLNESS / LIFESTYLE

Identifying and Fixing Brain Chemical Imbalances

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We all have friends and family members with health issues, including depression, anxiety, migraines and dementia. But what most of us don't know is that we all have blood sugar problems that can lead to these brain chemistry problems.

So what leads to these blood sugar imbalances? How exactly does blood sugar imbalances lead to deficits in brain chemicals like serotonin? And, how do these imbalances cause brain dysfunction - specifically depression, anxiety, migraine headaches and dementia?

Let's first spend some time with the numbers:

- Mental disorders affect 1 in 4 worldwide.
- 16 percent of adults are at risk of depression during their lifetime. Of these, 50 percent will also suffer anxiety disorder.
- Approximately 3.4 million Americans 71 and older have dementia. Of those, 9.7 percent - or 2.4 million Americans - have been diagnosed with Alzheimers.
- Between 12 percent and 28 percent of Americans have migraines during their lifetime.

An obvious conclusion is that these are prevalent diseases and they touch every one of us in some way. But how is this connected with our blood sugar?

The simple answer is, your brain needs fuel to make serotonin and the other chemicals that make us happy and energetic. If the brain does not get this chemical, consistently and over time, we feel like we are lacking, either in energy or good humor. If you have depression or know someone who does, you know low energy and depression go together.

One in four Americans have "metabolic syndrome" otherwise known as "insulin resistance." (In my practice, I encounter far more patients with this resistance - as much as 80 percent.) Insulin resistance causes wild fluctuations in blood sugar levels.

The brain is the most dependent part of your body to glucose, or sugar. Your brain needs sugar for the brain to change one molecule into another - in other words it needs a sufficient amount of biological energy called ATP. This happens during the conversion of tryptophan into serotonin. That energy is derived from the sugars in our food in the form of glucose (sugar, or blood sugar).

When the brain does not have enough energy, and especially over many years, a depletion of serotonin is the result. With a depletion of serotonin, our brains cannot respond to pleasurable events and the result is depression. This is called endogenous depression; i.e. depression is due primarily to a chemical imbalance in the brain. Mainstream medicine and psychology often fail to help people with this type of depression, because they have no proper explanation as to what causes "endogenous" depression.

If a person has fluctuations in the level of glucose in their blood over time, they are vulnerable to having low levels of the brain chemicals called neurotransmitters, which control mood, energy levels, memory and pain. This is the cause of the mental diseases that I have listed above, including depression, anxiety/panic attacks, migraine headaches and dementia.

(I am an acupuncturist and clinician, so there will be some physicians, psychiatrists, neurologists and scientists who disagree about migraines and dementia being in the category of brain chemical imbalance, but from a clinician/treatment perspective, patients respond well to these treatments.)

What are some solutions?

For depression: Current medical solutions include anti-depressant drugs. These can be very effective, especially in the short-term. They do have side effects ranging from mild to severe, but these drugs are used with shocking frequency and volume. A large percentage of my chronic patients have been on them for many years and have no plans to get off of them.

One problem I have with the drugs (aside from the side effects) is that it does nothing to address the underlying problem of blood sugar imbalance. (We are speaking of the connection between blood sugar and depression, but thyroid function plays a huge roll also.)

Anxiety is also treated with anti-depressants, unless it is severe, and then it is often treated with valium-type drugs like Xanax. These drugs really pump up the GABA (one of the neurotransmitters, mostly responsible for calming) which is great for someone with anxiety attacks, but it is really difficult to stop taking these "diazepam" once the brain gets dependent on them.

Migraine headaches are also treated with drugs. There are drugs for when a person is having a severe headache - some are tartans, or narcotic pain medication. The side effects of tartans can be severe, and narcotics have the effect of not being able to work or drive. And this treatment strategy addresses the severe episodes, but not the cause, which can be ongoing for decades.

There are drugs for preventing attacks, but all of these drugs are primarily for other diseases and have been found to be moderately effective for preventing migraine headaches. The types of drugs are interesting in that they all either affect the central nervous system, or relieve the effects of stress peripherally. These drugs are anti-depressants, anti-histamines, anti-seizure drugs and botulinum toxin (Botox).

According to the Mayo Clinic website: "In most cases, preventive medications don't eliminate headaches completely, and some cause serious side effects."

The common thread through all of these diseases is that drug therapies help control the symptoms of the imbalance, but do nothing to address the underlying cause of the neurotransmitter

imbalance, which is glucose level fluctuations in the blood.

So, how can we fix the underlying cause of these brain chemical imbalances?

Clearing up depression, anxiety, and migraine headaches using acupuncture, herbal medicine and dietary changes is very successful, but it takes a commitment of time and energy (money and lifestyle change) from the patient. Here is the simple-to-say protocol:

1. Acupuncture twice a month.
2. Eat in a way that keeps a constant, but slow flow of glucose to your blood. This means starting with a protein-rich breakfast and a snack every two to three hours with protein in it. There aren't many protein snacks (nuts, eggs, meat, beans, seaweed, protein shake) but we all get used to eating these. Don't finish meals with a sugar-rich dessert. And, do not eat simple carbohydrates, like bread, baked goods, bagels, etc. between meals. These products will make your blood sugar spike like crazy.
3. Take supplements and herbal medicines that fix the chemical pathways that are broken to restore insulin sensitivity.

When my patients do these things for a few months, most of the brain chemistry imbalances described above slowly disappear.

When brain chemistry deficits are the result of blood sugar fluctuations, the problem is not cleared up quickly. Blood sugar levels need to be maintained for the brain to produce the neurotransmitters and then it takes time for those chemicals to reach normal levels again. Most patients start to see improvement in two to four weeks, but don't feel normal again for months.

If nothing is done to correct insulin resistance, the result is often Type II diabetes. This is the most severe form of insulin resistance, at it's most severe the body loses the ability to produce insulin and the patient is dependent on insulin shots for the rest of their life. And that result is one we should all be inspired to avoid.

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