

Brain Health Strategies

"Elevated glutamate in the brain becomes a powerful poison to certain neurons and we get cell death from overstimulation."

My thanks to Dr. Alex Vasquez for a very provocative webinar where he details his strategy for optimal brain health. I counted over 20 different strategies to consider. Some of his information is repeated from earlier webinars which is nice because he covers over 140 slides. I encourage you to watch the webinar below, but here are a couple of key points that really made me wake up and pay attention.

Dr. Russell Blaylock, a neurosurgeon and author, has shared the chemistry of how the neurotransmitter glutamate is an excitatory amino acid and a source of brain excitation. Glutamate is essential for healthy brain function when in balance. However, when it accumulates in concentrations higher than needed, it then becomes a powerful poison to certain neurons and we get cell death from overstimulation.

Elevated glutamate in the brain has been linked to many



chronic debilitating neurologic diseases but it also causes chronic pain, anxiety, depression, autistic manifestations and migraine headaches.

Dr. Vasquez shared one way to rapidly lower glutamate in the brain is to use high doses of B6 and magnesium which then allows glutamate to convert into the neuro-inhibitory transmitter GABA. But then he asks the question; "What causes excess glutamate levels in the first place? Is it just a B6, magnesium deficiency?" Let's take a few seconds

and review some over simplified cellular geography in the brain.

Microglia are the cells that make up the immune system of the brain. They help fight infection by secreting various cytokines. Astrocytes function as connective tissue and supporting cells in the brain. We have the blood brain barrier to protect the brain from infection and harmful chemicals. And of course the energy hungry neurons which transmit signals cell to cell.

When the microglia are stimulated, one of their functions is to activate the astrocytes which in turn cause increases in the amino acid glutamate.

So what causes increases in microglia activation? Lots of things but two factors are advanced glycation end products or AGEs and lipopolysaccharides or LPS. I've commented on each of these before and you can see links to them below. But the short version is that AGEs come from processed foods, primarily from burning or caramelizing sugars or fats on protein. This causes a foreign protein complex that the body has to break down and eliminate when it crosses the blood brain barrier. That's where the immune system activation comes into play.

Lipopolysaccharides or LPS is the major component of the outer membrane of gram-negative bacteria and comes from, you guessed it, a leaky gut. As the dysbiotic gut bacteria begin to expire they release their byproducts as lipopolysaccharides. It is an endotoxin and induces a strong response from the immune system. It's these lipopolysaccharides that signal the cytokines in the bowel, blood and brain to create an inflammatory assault to break them up and get rid of them.

So advanced glycation end products (AGEs) and lipopolysaccharides (LPS) from refined diets cause an over stimulation of microglia cells which stimulate astrocytes and increase glutamate levels in the brain. So we come back to fixing the gut via probiotics, increasing levels of whole food and reducing junk foods. Remember the real value of the food we eat may not be in the vitamins, minerals and amino acids. It may be the fibers and phytochemicals

that feed the bugs in our gut that modulate inflammation.

There are many approaches to heal a leaky gut. Here are my favorites: Bio-D-Mulsion Forte, 2-5 drops a day, IPS or intestinal permeability support, 2 capsules, three times a day; Optimal EFAs, 2 capsules, three times a day or 1 tablespoon of the liquid; and BioDoph-7 Plus, 1-2 capsules, twice a day.

Whenever we talk about the brain we also have to think in terms of energy. The brain needs energy. The two most intense centers of energy utilization are the brain and the heart. So if a patient comes to you with low energy, consider that the brain and heart may be suffering. Therefore we want to make sure we have the necessary ingredients available for mitochondrial repair and optimization. My favorites for mitochondrial health are the multi-vitamin mineral ProMulti-Plus, Optimal EFAs, CoQ-Zyme 100 Plus, Acetyl-L-Carnitine and Lipoic Acid.

We have covered some of these topics before especially about the gut brain connection, but I thought it was particularly interesting about AGEs and LPS fanning the glutamate flame which can cause neuron cell death. This was just one of the strategies Dr. Vasquez covered in the webinar below.

Conversations like this are a reminder that you are doing more for your patient's brain than you realize. Encouraging your patients to live a "true wellness" model will optimize brain function in ways we are just beginning to understand.

Thanks for reading this week's edition. I'll see you next Tuesday.