THE TUESDAY MINUTE

IT'S TIME TO FEEL GOOD AGAIN

THIS WEEK'S TOPIC

Treating Brain Injury & Other Neurological Issues

"If we know the processes taking place in a brain injury, we can be at the cutting edge of any therapeutic intervention."

When treating the brain for injury or any neurological issue, here's something to consider. I was surprised to learn that there are 4 major biological processes taking place simultaneously. And if we know these processes, we can be at the cutting edge of any therapeutic intervention. Most of the research has been done with TBIs (traumatic brain injuries); however, the same processes occur in MS, Alzheimer's, Parkinson's, ALS as well as in other neurological debilitating diseases. The common ground is striking.

We commonly think of a TBI as severe hard blows to the head involving concussions like boxing, a severe football injury, auto accident or strokes. But in fact, any really hard blow to the head is enough to injure the brain.

My thanks to Dr. Steve Haltiwanger who presented this information at the 2014 IAACN meeting in New Orleans this year. He shared how he personally read 1,000 articles to give his 4 hour lecture. I promise I won't keep you 4 hours but this Tuesday Minute

is one you will want to file away so when injury strikes you'll have concrete direction.

One of the key concepts in this field is that "any injury which causes cell death is not only deadly for the cells that are directly impacted but also for a radius that surrounds the injury which is affected by oxidative stress caused by free radicals, excitotoxicity and inflammation. The result of these three processes causes an increased demand for energy to repair the damage. The dilemma is that as the need for energy increases, the available energy decreases.

A fourth process to address beyond the oxidative stress, excitotoxicity and inflammation is mitochondrial support. A brain injury may continue to affect someone 30 years after the accident due to cell death but primarily because of the ongoing damage to the surrounding tissue. "The neurological damage can progress over many years and result in early dementia. So cognitive dysfunction may slowly progress over time due to persistent chronic inflammation that is untreated and the neurological deficits may often be very subtle until late in the disease process."

Let's just look at one of these four biological processes, the sensitivity of brain cells to oxidative stress. Here's how Dr. Haltiwanger described it, "Oxidative stress is a significant mechanism involved in the pathology of traumatic brain injuries and neurodegenerative diseases. Poorly controlled free radicals damage structures like cell membranes, DNA and protein/enzymes. Brain neurons are highly susceptible to damage from free radicals because their membranes contain large amounts of polyunsaturated fatty acids. Neurons in the hippocampus are particularly susceptible to oxidative damage in traumatic brain injury patients. When neuronal cell membranes are damaged by free radicals the membranes can become stiff due to lipid peroxidation and they can become depleted of critical phospholipids. Cell membrane damage affects many functions of the cells including genetic expression, energy production, and nutrient transport."

In terms of timing, the sooner you start therapy the more you protect the patient from cognitive damage especially learning and memory issues. One nutrient that you may avoid in large amounts would be vitamin E until you are sure any bleeding has stopped.

In animal studies reductions in antioxidants occur within three hours of post trauma with increasing oxidative stress that can peak over the first 48 hours. Some degree of continued oxidative stress however can be prolonged for years. "Trauma produces depletion of antioxidant systems, proteins/enzymes and membranes. Mitochondria are damaged. Synaptic function and plasticity are also adversely affected."

As I mentioned earlier, after an injury, energy requirements for the brain increase but available energy decreases. Since glucose transport and utilization is compromised, the secondary source of fuel for the brain is ketones. So medium chain triglycerides like MCT oil or coconut oil as well as longer chain fatty acids like EPA/DHA are very therapeutic.

Dr. Haltiwanger said the research is so strong he would give as much EPA/DHA as the patient could handle taking them right to the point prior to diarrhea.

Biotics Research Corporation makes Biomega-3 Liquid... each tablespoons contains 4,200 mg of EPA and DHA. Biotics' MCT oil is called Bio-MCT. One tablespoon contains 14g of 100% Caprylic Triglycerides.

Supporting energy pathways means supporting mitochondrial health. A revolutionary product in the Biotics line which supports mitochondrial health is VasculoSirt. Dr. Mark Houston developed VasculoSirt to support endothelial blood vessel repair. VasculoSirt has all the co-factors necessary for mitochondrial support.

To be effective in neurological therapies we want to use nutrients that cross the blood brain barrier. We want to get the foods and nutrients as close to the injury as possible. Some of the nutrients that Dr. Haltiwanger suggested which cross the blood brain barrier are: Acetyl-L-Carnitine, lipothiamine, (a fat soluble form of B1), lipoic acid, vitamin C, oxaloacetate, (a Krebs cycle intermediate), curcumin, EPA/DHA, choline, dimethlyglycine, magnesium, vitamin B6 as P-5-P, and Coenzyme Q10. Interestingly, many of those substances are in VasculoSirt.

I have some of Dr. Haltiwanger's ideas with Biotics conversions on a form below. But remember, as you formulate your own program, start as soon as you can to address the four biological processes that are occurring: oxidative stress, excitotoxity, inflammation and the increased energy demands with mitochondrial and fatty acid support.

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