THE TUESDAY MINUTE

THIS WEEK'S TOPIC

Nutritional Support Against Brain Inflammation

"There is a cyclical pattern of inflammation that is created by our lifestyle and can be treated and in many cases reversed."

Inflammation and pain can be the result of a dysregulated immune system. When this happens in the body, we call it autoimmunity. The immune system in the brain can also be dysregulated and create inflammation that manifests in a variety of neurologic conditions. Conditions like fibromyalgia, migraine headaches, seizures, depression, fatigue, pain, hyperalgesia or an increased sensitivity to pain, neurodegenerative dementia and many cases of autism can be the result of brain inflammation. We've discussed brain inflammation in other videos, but I wanted to return to the subject based on Dr. Vasquez webinar titled "Nutritional Support Against Brain Inflammation."

Although brain inflammation can be caused by trauma or infection, Dr. Vasquez articulates a cyclical pattern of inflammation that is created by our lifestyle and can be treated and in many cases reversed. It focuses on microglial activation.

The term microglial activation is one that you will be hearing more about in the coming years. It refers to the overexpression of microglial cells. Microglial cells are a type of glial cell that are the resident macrophages of the brain and spinal cord. They represent the first and main form of active immune defense. Microglia constitute 10-15% of all cells found within the brain.

Regulation of microglial activity is critically important in brain protection because these specialized immune cells can either be beneficial or quite destructive, depending on what state they are in. On the positive side, microglia cells use phagocytosis to clean up dangerous debris collected in the brain, such as dead or dying brain cell components, especially beta amyloid, the substance seen in Alzheimer's disease.

On the negative side overexpression of the microglial, called microglial activation, can cause inflammation through a variety of mechanisms. Triggers that cause activation of microglial cells include diet, injury, head trauma in sports, lack of sleep, obesity, infection, lipopolysaccharides from a leaky gut and immunizations. Once stimulated, microglial activation can

remain in play for years after the primary stimulation.

Incidentally, as we age, the microglia in our brain becomes progressively more activated. In people with Alzheimer's and dementia, there is widespread, intense microglial activation.

In his webinar, Dr. Vasquez highlighted the relationship of microglial cells to another group of glial cells called astrocytes. Astrocytes perform a variety of essential brain maintenance functions but when overstimulated release an excess of an excitatory amino acid called glutamate. Glutamate is needed to make the antioxidant glutathione. However, excess glutamate creates a deficiency of neuroprotective and neurotrophic factors. Excess glutamate creates an enhanced neurotransmitter sensitivity and exaggerated sensation of pain. So part of Dr. Vasquez's treatment plan is to reduce excess glutamate.

Vitamin B6 promotes the conversion of glutamate to the inhibitory amino acid GABA. This radically shifts the ratio from excitation towards inhibition. Zinc and magnesium both modulate or reduce the sensitivity of the glutaminergic NMDA receptor. So even if glutamate is present in excess amounts, less will be absorbed. Reasonable doses are 250 mg of B6, 600 mg of magnesium, 25 to 50 mg of zinc.

Microglial activation also creates: intra-cerebral inflammation, oxidative stress, a depletion of neuroprotective antioxidants and brain mitochondrial dysfunction. This scenario also sets the stage for enhanced viral and or bacterial replication. The result clinically is a hyper excitation of pain, depression, fatigue, migraine and neurodegeneration. This is one reason Dr. Vasquez suggests using a high potency therapeutic multivitamin/mineral with every patient. Both ProMulti-Plus, a formula he developed, and VasculoSirt provide support for oxidative stress, inflammation and brain mitochondrial dysfunction.

Vitamin D not only has a systemic anti-inflammatory effect but has a brain specific anti-inflammatory effect as identified in the article "Regulatory Effect of 25-hydroxyvitamin D3 on Nitric Oxide Production in Activated Microglia". Bio-D-Mulsion Forte contains 2000 IUs of vitamin D3 per drop. Use 2 to 5 drops or until patient achieves a 50 ng/mL blood level.

Combination fatty acid therapy has unquestionably been shown to have anti-inflammatory and immunomodulatory benefits. Dr. Vasquez recommends a daily dosage of Optimal EFAs high enough to supply 3 grams of EPA and DHA. This will also yield more than 1200 mg of GLA and 3 g of alpha-linolenic acid from organic flax seeds.

By the way, whenever we talk about inflammation we always have to mention food sensitivities. See a link below on how food sensitivities can cause leaky gut and how leaky gut will ramp up the immune system by releasing LPS, lipopolysaccharides. Remember, a leaky gut is usually an indication for a leaky blood brain barrier. A leaky blood brain barrier means the microglial cells will be activated, hence ongoing inflammation. So a good food sensitivity screen is important to use with any chronic condition.

I've also provided another resource that highlights a discussion from Dr. Steven Haltiwanger's 2014 IAACN presentation on "Brain Injuries." I hope you can see why teaching our patients to live on an anti-inflammatory diet, maintaining sufficient levels of vitamin D, proper levels of EFAs and the use of a high potency daily multivitamin have profound and far reaching effects.

In light of Dr. Vasquez's webinar on microglial activation, a wellness lifestyle makes a convincing strategy.

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