Tuesday Minute Transcript

This Week's Topic

Alzheimer's: Brain On Fire

Encouraging Research

"I'd like to share some encouraging research on a common B vitamin & a study done on mice with Alzheimer's."

Alzheimer's, the very word brings sadness, and many of us have experienced the sadness of witnessing someone we love gradually decline, losing their mental faculties. As I begin this week, I want to make sure it's understood I'm not presenting a cure for the disease of Alzheimer's. Today let's focus on some of the common things that can cause brain inflammation, which we know is linked to Alzheimer's. Let's consider ideas on how to screen patients, and I'd like to share some encouraging research on a common B vitamin and a study used on mice with Alzheimer's.

Let's take a few seconds to review the scope of this problem and the costs. According to the Alzheimer' Association and their publication "2009 Alzheimer's Disease Facts and Figures" it is estimated that 5.3 million Americans have Alzheimer's. They claim in the United States, it is the 6th leading cause of death. For Americans 65 and older, healthcare costs triple for Alzheimer's disease. More than 148 billion of direct and indirect costs to Medicare, Medicaid, and other businesses are attributed to Alzheimer's disease. Those are enormous costs. And costs keep growing!

Let's go back to our model of inflammation. One of the current theories of Alzheimer's is that the brain is on fire, the fire of inflammation. The 2007 journal "Current Alzheimer Research" discussed that oxidative stress and inflammatory factors such as NF-kappaB are also associated with Alzheimer's disease. There is a link below that discusses NF-kappaB in more detail. Their work also showed that acute exposure to copper and lead are also considered triggers in affecting gene expression related to Alzheimer's disease.

Well if acute exposure can cause inflammation, how about chronic levels with deficiencies of trace minerals? Trace minerals can be the precipitating factor to displace heavy metals or other essential minerals like copper which may be in excess. Anyone who tests minerals on a regular basis can testify that our patients are suffering from gross trace mineral deficiencies. Drs. Dietrich Klinghart, Russell Blaylock and many others have discussed how mercury and other heavy metals can cause both oxidation and inflammation. So heavy metals and mineral deficiencies can cause brain inflammation and should be evaluated for someone with cognitive difficulties.

Another factor that increases brain inflammation has been heralded by the neurosurgeon Russell Blaylock. He discusses how MSG and its related cousins are considered neurotoxins. These neurotoxins cause

over excitation, excess oxidation, and can cause death in brain neurons. I have provided a link below where he discusses his research.

Two other areas to consider as we reduce inflammation are food sensitivities, particularly gluten and gliadin, and blood levels of vitamin D. The standard American diet is so loaded with toxins and additives that anything which may cause increased gut permeability or leaky gut should be avoided whenever possible. One of the reasons vitamin D helps so many conditions is its role in repairing and maintaining healthy GI function.

Next, let's look at homocysteine levels as another inflammatory marker and a way to screen for B12, Folic acid, and B6 deficiencies. Nutritional deficiencies such as folate and B12, as well as oxidative stress, can alter DNA by reducing the activity of enzymes which result in hypomethylation. Hypomethylation results in an accumulation of heavy metals among other things. In 2002, The New England Journal of Medicine reported that with a plasma homocysteine level greater than 14.25 micromoles per liter, the risk of Alzheimer's disease nearly doubled. Their conclusion: An increased plasma homocysteine level is a strong, independent risk factor for the development of dementia and Alzheimer's disease. Elevated homocysteine will cause inflammation in many parts of the body. So why should we wait till it gets over 14. Many clinicians use 10 or less as a goal.

Let's get to the exciting part, B3 niacinamide. I love when simple things have a potential for huge payoffs. Researchers from the University of California Irvine published a study in the Journal of Neuroscience in November of 2008 describing how niacinamide restored cognition in Alzheimer diseased mice. In the abstract of their paper, they report "we evaluated the efficacy of nicotinamide (or niacinamide) and found that it restored cognitive deficits associated with pathology." You can find the study on a link below. They went on to say in a later interview "niacinamide brought the mice back to the level they'd be if they didn't have the pathology. It actually improved behavior in non-demented animals as well."

Further quoting one of the co-authors, "This suggests that not only is it good for Alzheimer's disease, but if normal people take it, some aspects of their memory might improve." The mechanism isn't clear on exactly how it works but here are some thoughts articulated in their paper. Microtubules are tube like proteins that provide structure and a network for the transport of vital nutrients and messages, and breakdown of this network leads to synaptic loss and neurodegeneration. In other words, healthy microtubules facilitate healthy neurons and healthy brain function.

Among other things, it seems clear that niacinamide facilitates healthy microtubules and helps reduce some of the factors which denature them. So niacinamide may not reduce the plaqing that has been suggested as an underlying cause of Alzheimer's disease, however in this study, it has been shown to prevent cognitive deficits in animals genetically bred to have Alzheimer's disease. What's so exciting about a product of this nature is that it has been used safely and extensively for over 60 years. Dr. William Kaufman, a psychiatrist with a Ph.D. and MD, wrote 2 books during the 40's about niacinamide and its effects on brain function and later on degenerative arthritis.

Dose range is 100-1000 mg three times a day. Biotics makes a product called Bio-B3 Plus 250 which contains 250 mg of niacinamide per capsule. One of my heroes, Dr. Jonathon Wright has written that if someone experiences nausea with niacinamide, reduce the dose to comfort levels. He suggests that one of the mechanisms of increased cognition may be in the fact that niacinamide assists in the regulation of insulin resistance.

With so many potential benefits and literally no side effects it makes sense for anyone who is experiencing cognitive difficulties to give niacinamide a clinical trial for 3 months. These cognitive difficulties include things like poor attention or concentration, experiencing periodic mental fog, impaired or slow thought process, and difficulty comprehending or making decisions.

Of course, we want to do all the things we know to do to keep inflammation to a minimum. Also test for heavy metals, trace minerals, homocysteine, vitamin D, and food sensitivities. As you put together your protocol, make sure sufficient levels of niacinamide are present. In fact after reviewing all this research, I am going to get a bottle right now to start a trial on myself. I'll keep you posted on a trial of one.

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