Neural Degeneration

Restoring Optimal Brain Function

All of us go through the process of neural degeneration. When we are born, it is estimated that our brains have approximately 100 billion neurons. Neurons (or nerve cells) are the core components of our brain, spinal cord and peripheral nerves. Neurons naturally die as a process of living.

Neurons do not go through mitosis (or cell division) as do other types of cells and usually cannot be replaced after being destroyed. Other tissue in the body can regenerate. For example, skin cells can regenerate. Gut mucosa can regenerate. When our neurons degenerate they are gone – forever. Thus, (for the most part) we have all the neurons we are ever going to have at birth.

Neurodegeneration is the umbrella term for the progressive loss of structure or function of neurons including the death of neurons.

It is important that we differentiate normal neural degeneration from accelerated neural degeneration and neurodegenerative disease. We are all losing neurons every single second of the day. In a two hour period, the average person will lose about 6500 neurons. But some of us may lose a great deal more. Some will lose 60,000 neurons. Others may lose 600,000 neurons. It's different for every one of us.

The primary focus of this paper is on the subject of accelerated neural degeneration, how to recognize this process in our lives, the factors that can create it, how to slow this process down and how to improve or restore optimal brain function.

We will also discuss neural inflammation and its role in neural degeneration and look at the myriad effects of neural inflammation and neural degeneration on the body.

Aging

What is aging? When a person gets older, what do we see as the signs of aging?

- A person who can't remember things
- A person who is mentally and physically slower
- A person who cannot see well or hear well
- A person whose bowel and bladder functions diminish
- A person who has a tremor

But these are not signs of normal aging. These are all signs of advanced neurodegeneration. People who are aging well do not have much neurodegeneration. The quality of our lives and the quality of our aging process has everything to do with slowing down neural degeneration.

Fortunately, there is much that we can do.

Signs of Accelerated Neurodegeneration

Neurodegenerative Diseases are roughly divided into two basic groups:

- Conditions causing problems with movements (e.g. Parkinson's disease)
- Conditions affecting memory (e.g. Alzheimer's disease)

Neurodegenerative diseases are progressive in nature. Treatment methods in Western Medicine are usually quite limited and far from ideal. Diagnosis is usually not made until a disease is fairly progressed and considerable symptomology is present. Consequently, diagnosis of neurodegenerative disease tends to occur after a patient has already suffered the majority of neural damages.

What if we could intervene much earlier in the progression of neurodegeneration?

Indeed, we can observe earlier signs of accelerated neurodegeneration. Here is a partial list of cognitive and emotional signs of neurodegeneration:

- Memory noticeably declining
- Focus declining
- Reduced attention span
- Slower mental response
- Difficulty learning new things
- Fuzzy headedness
- Anxiety and Panic
- Depression
- Increased bouts of anger and frustration
- Fatigue when driving compared to the past
- Fatigue when reading compared to the past

I am not stating here that all conditions of anxiety and depression are signs of accelerated neurodegeneration. We need to look at the entire complex of symptoms. However, chronic depression and anxiety disorders of long-term duration, especially ones that have proven difficult to successfully treat, may well have their basis in neurodegeneration and may benefit from the ideas presented here.

Factors Contributing to Accelerated Neurodegeneration

Many factors can promote neuronal degeneration. These include:

- Head/Brain Injuries (concussions, forceps births, etc.)
- Psychological Traumas
- Chronic Stress
- Drug and/or Alcohol Abuse
- Gluten Sensitivity
- Blood Sugar Imbalances
- Hormonal Imbalances
- Environmental Toxins (Heavy Metal and Chemical Exposures)
- Nutritional Deficiencies
- Immune Challenges (Viral, Lyme, Mycoplasmal and Parasitic Infections)
- All Inflammatory Responses

The Microglia and Neurodegeneration

The immune system within the brain is very different from the immune system throughout the body. Our body's immune system consists of specialized cells (macrophages, natural killer cells, suppressor and regulator cells etc.) that target specific areas of antigen attack and is (for the most part) self-regulating. For example, if you have a bronchial infection, the immune cells will specifically target the attack in the lungs and other related areas and leave our healthy cells alone.

Within the brain and central nervous system (CNS) the microglial cells are the only immune cells available, to respond to inflammatory situations. Microglia are constantly moving within and analyzing the CNS for damaged neurons, plaques and infectious agents. The brain is separated from the rest of the body by a tightly-packed series of endothelial cells known as the blood-brain barrier, which prevents most infections from reaching the vulnerable nervous tissue.

In the case where infectious agents are directly introduced to the brain, or cross the blood-brain barrier, microglial cells must react quickly before they damage the sensitive neural tissue. Since this process must be done quickly to prevent potentially fatal damage, microglia are extremely sensitive to even small pathological changes in the CNS. They function very differently than our normal immune cells. In the case of any inflammatory response, microglial cells are recruited to the site of the distress and become activated.

Once activated, their attack is non-specific. They attack everything in sight. Hence, there is the potential for a tremendous amount of collateral neuronal damage. What occurs is a neurodegenerative cascade, as healthy cells are indiscriminately targeted. The dying cells release chemicals that actually trigger the activation of more microglial cell activity which then attacks other healthy cells. This vicious cycle can go on indefinitely, even after the actual inflammatory trigger is long over. Hence, a head injury in childhood, a period of drug or alcohol abuse in one's twenties or a hormonal imbalance during peri-menopause can have very long-term ramifications.

The majority of people with chronic illnesses (autoimmune disorders, chronic digestive/bowel disorders, chronic fatigue, fibromyalgia and chronic immune problems like Candida or Lyme disease) have accelerated levels of neurodegeneration.

The nervous system and the brain (in specific), is the most vulnerable tissue in the body to any systemic inflammatory response. Any inflammatory response will take its toll on the brain. The chronically sick population has increased neurodegeneration due to the chronic inflammatory nature of their condition.

It is also important to note here, the relation of chronic GI disorders to neurodegeneration. One of the most saturated areas of neurons in the body is the GI tract. If there is a neurodegenerative attack in the brain, the GI tract is also attacked. Over time, it is very common, in these conditions, to see a degradation of both the blood-brain barrier and the protective membranes of the GI tract leading to whole array of symptoms including headaches, fuzzy-headedness, food allergies and digestive distress. Chronic GI disorders have a very strong likelihood of having a neurodegenerative basis.

Dampening Microglial Activity

To slow down the accelerated degeneration, this neurodegenerative cascade must be stopped. To accomplish this, we must slow down microglial activity. Fortunately, medical researchers have recently discovered that a number of natural flavonoid substances can dampen microglial activity and quench neuro-inflammation to turn down this immune attack.

These beneficial substances include:

- Apigenin: a bioflavonoid found in parsley, artichoke basil and celery
- Luteolin: a bioflavonoid found in celery and green peppers
- Baicalein: a flavonoid derived from a variety of skullcap known as scutellaria baicalensis
- Resveratrol: a compound found in grapes and wine
- Rutin: a citrus flavonoid
- Catechin: an antioxidant plant metabolite abundant in various tea leafs including green tea
- Curcumin: an antioxidant compound found in the Indian spice of turmeric

These substances are all included in the product **NeuroFlam***.

Supportive Nutrients

Certain other nutrients are supportive to dampen the neurodegenerative cascade and shift the energy metabolism away from this cycle leading to neuronal death. These include nutrients that support and protect our neurons against free radical activity and support normal neuronal mitochondrial activity.

These beneficial substances include:

- Alpha Lipoic Acid
- Alpha Ketoglutarate
- N-Acetyl Cysteine
- N-Acteyl Carnitine
- Creatinine Monohydrate
- Milk Thistle
- CoQ 10
- Vitamin E

These substances are all included in the product **Neuro-PTX***.

In addition, we use specific nutrients to support healthy circulation and blood flow to the brain, support oxygenation of the neurons and support healthy platelet aggregation and blood viscosity.

These beneficial substances include:

- Feverfew extract
- Butcher's broom extract
- Ginkgo Biloba
- Cayenne (Capsaicin)
- Vinpocetine

These substances are all included in the product **NeurO2***.

Conclusion

The clinical response to this treatment protocol has been very promising. While there are many other issues to deal with in treating any chronic condition, dampening the accelerated neurodegeneration is the crucial first step to health. This treatment program also has the benefit of restoring the integrity of the blood-brain barrier and improving the GI situation which has considerable benefits.

In addition, to the above treatment protocol, it is often necessary to balance neurotransmitter levels as they are often dys-regulated due to the chronic neuro-inflammatory state. This subject is covered, in detail, in my article on Brain Chemistry. Also discussed in this article is the subject of neuroplasticity, the natural repair process within the brain by which we can dramatically improve our brain function. While we cannot repair or restore the neurons we have lost, we can definitely improve our cognitive functioning.

Finally, we must evaluate and address the presence of any aggravating or causative factors (as listed above). When all related factors are successfully treated, it is possible to slow down the neurodegenerative process and improve all aspects of brain function and health.

For a personalized evaluation, please contact Healing Partnership at 760.943.7848 or email us at drstern@healingpartnership.com

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