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What You Don't Know About Excitotoxins Can Kill You!

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Excitotoxin and excitotoxicity are words most people have never heard before. Among neuroscientists, excitotoxicity is something that is connected with virtually everything bad that can happen to the brain—strokes, brain injury, brain tumors, severe hypoglycemia, multiple sclerosis, asphyxia, heavy metal poisoning and most of the neurodegenerative diseases (Alzheimer's, Parkinson's and Lou Gehrig's disease). Excitotoxicity is considered to be the central mechanism for all these disorders of the brain.

So, what is excitotoxicity? Brain cells communicate mostly by way of special chemical messengers called neurotransmitters. By secreting small amounts of these special chemicals, brain cells can "excite" nearby brain cells, thereby sending signals.

A Frightening Discovery

Dozens of these communicating neurotransmitter chemicals have been identified. Until fairly recently, we thought these chemical messengers were benign. Then in 1969, neuroscientist Dr. John Olney discovered that two of these neurotransmitters, glutamate and aspartate, could damage the brain. Ironically, both of these neurotransmitters are now used in food products (monosodium glutamate - MSG) and artificial sweeteners (NutraSweet, Equal). Foods containing these chemicals must be avoided or at least minimized because they result in excessive exposure and brain damage.

Dr. Olney's early studies found that both of these neurotransmitters could kill brain cells, as well as retinal cells of the eye, by exciting them to death, hence the name excitotoxin. While glutamate is the most abundant neurotransmitter in the brain and spinal cord, it won't hurt us unless it is outside the brain's cells. As long as it is tucked away safe inside brain cells, all is well. The brain has an elaborate system to make sure any released glutamate or aspartate is quickly whisked away to safety.

We can get into trouble, however, when too much glutamate or aspartate is ingested from our food or under certain conditions released by the brain itself. Especially vulnerable are areas of the brain called the hypothalamus and the hippocampus. Hypothalamic injury disrupts the endocrine system, leading to low levels of growth hormone, thyroid hormone, the sex hormones and the adrenal hormones. Hippocampal injury affects memory and emotions. But other brain cells are also injured—in the cortex, the cerebellum and a special emotional control system called the amygdala. Even the spinal cord can be damaged.

The Neurodegenerative Diseases and Excitotoxins

Experiments have shown that exposing brain cells to excitotoxins can produce the exact type of injury we see with diseases such as Alzheimer's and Parkinson's. Likewise, when scientists examined the brains of people dying from these diseases they found excitotoxic injury.

It took scientists many years to finally agree that excitotoxicity was a major, if not the major mechanism causing these diseases. The only question now is what is causing the excitotoxicity. There are a number of possibilities.

We know that certain heavy metals, such as mercury, iron, lead and aluminum can interfere with the special mechanism that protects the brain against glutamate excess. Free radicals and lipid peroxidation

products can also cause glutamate to build up in toxic concentrations. This explains why Alzheimer's disease and Parkinson's disease are significantly less common in people who eat a healthy diet and take nutrient supplements. (Nutrients that block excitotoxicity include antioxidants, alpha-lipoic acid, acetyl-L-carnitine, DHA, flavonoids, curcumin, Ginkgo biloba, vinpocetine, methylcobalamin and magnesium.) Viruses can also trigger excitotoxicity by causing immune cells in the brain to release glutamate and other damaging chemicals.

The Vaccine Connection

A recent study found that the incidence of Alzheimer's disease increased 1000 percent in those over age 55 who took the flu vaccine 3 to 4 times over a 5-year period. Another recent study found that people taking the Hepatitis B vaccine are 300 percent more likely to develop multiple sclerosis within three years of taking the vaccine than the general public.

There is compelling evidence that excessive vaccination, especially with vaccines containing mercury (Thimerosol), can produce significant long-term brain damage. This is because by overstimulating the body's immune system, you also overstimulate the brain's special immune system, which then releases a torrent of excitotoxins as well as damaging immune chemicals.

In other words, the excessive immune stimulation over a prolonged period of time injuries the brain by excitotoxicity. Mercury does its damage by interfering with the brain's special mechanism for protecting against excessive amounts of glutamate, even at very low doses. But mercury also tends to accumulate in the brain, compounding the problem. In addition, mercury itself activates the brains immune cells.

Another way mercury gets in the brain is by the vapor released from dental fillings made from amalgam. These silver-looking fillings release mercury vapor, which is then absorbed into the tissues of the mouth, and enter the olfactory nerves in the nose. The olfactory nerves lead directly to the hippocampus. The site at which mercury enters the brain is also the site of the earliest changes in Alzheimer's disease.

Babies Are Special

While excess glutamate and aspartate are toxic to adult brains, the baby and infant brain is five times more sensitive to damage. Both babies and the elderly have weaknesses in their protective blood-brain barrier, making them more vulnerable to excitotoxins present in the blood. (There are also a number of conditions in which this barrier is impaired, including hypertension, diabetes, exposure to pesticides and herbicides, mercury, lead, fluoride, heat stroke, head injury, brain tumors, strokes and exposure to cell phone microwaves.)

What makes babies different is that their brains are undergoing rapid development, especially during the last three months of pregnancy and the first two years after birth. Excess glutamate and other excitotoxins have been shown to alter how the brain is formed, leading to varying degrees of brain maldevelopment, from mild behavioral and learning problems to full-blown ADD, ADHD or autism.

Pregnant women drinking diet cola sweetened with aspartame are exposing their babies to high levels of excitotoxins as well as other toxins. In addition, most pregnant women and small children are consuming diets loaded with a number of excitotoxins added to processed foods, such as MSG, hydrolyzed proteins, soy products, natural flavoring, broth and textured proteins.

The amounts of these excitotoxins being added to foods doubles every ten years. Many foods contain two to as many as five different forms of excitotoxins. Why do they add these toxic products? They enhance the taste of foods. This is why Doritos are so delicious. Our children are gorging themselves on these harmful products on a daily basis.

The Obesity-Diabetes Connection

One of the initial observations when animals were fed MSG was that they became grossly obese. Since then, dozens of independent laboratories have confirmed the connection between gross obesity and exposure to MSG early in life. It occurs in all animals tested.

This obesity has some special characteristics that closely resemble what we are seeing in our children today: the obesity epidemic is resistant to dieting and exercise; the animals prefer "junk" high calorie foods to nutritious foods and the obesity lasts for a lifetime.

More recent studies have also found that exposure to MSG early in life induces type-2 diabetes. In genetically prone animals, it will also induce type-1 (insulin dependent or juvenile) diabetes. Gross obesity and type-2 diabetes occur in the same exposed animal. In fact, the animals develop Syndrome-X, which includes hypertension and abnormal blood lipids. We have a society that has dramatically increased its intake of excitotoxin-containing foods *and* is experiencing an explosion of childhood gross obesity and type-2 diabetes.

Glutamate as a Cancer Fertilizer

While early research concentrated on the effects of glutamate on the brain, more recent studies have discovered that glutamate receptors exist throughout the body and they act much like the receptors in the brain. The first study connecting glutamate to cancer growth was concerned with primary brain tumors. It was found that glutamate caused brain tumors to grow much faster and spread further.

Then scientists discovered that glutamate also made some other tumors grow faster, especially cancers of the breast, colon, lung, ovary and pancreas. It was like putting fertilizer on crab grass. Not only did the tumors grow faster, but they were more likely to metastasize all over the body.

Despite these ground-breaking discoveries, oncologists do not tell their patients to avoid excitotoxin-containing foods. In fact, a review of the diets suggested by oncologists show that many recommended foods are filled with numerous types of excitotoxins.

Other Dangers

Because glutamate receptors are found in so many organs and tissues, high levels of food-borne excitotoxins pose many other threats. The insulin-secreting cells of the pancreas contain glutamate receptors, which explain the diabetes connection. The ovaries contain glutamate receptors, which may explain reproductive problems seen in many young women.

The adrenal glands also contain glutamate receptors. Several recent studies have shown that MSG can cause the release of adrenal stress hormones, which is connected to Alzheimer's disease. It is also adrenal stimulation that causes hypoglycemia symptoms. This means a diet high in excitotoxins will greatly magnify problems associated with low blood sugar.

One of the most frightening connections is with sudden cardiac death. It is known that the heart's electrical conduction system contains a number of glutamate receptors, as does the heart muscle itself. If these receptors are overstimulated, fatal arrhythmias can result. Many have suffered fatal heart attacks after consuming glutamate-containing restaurant food.

Low magnesium levels can greatly magnify the effect of excitotoxins on the heart. Numerous studies have shown that most of us are deficient in magnesium. Many medications, including birth control pills, can lower magnesium levels. Under such conditions, excitotoxins can result in sudden cardiac death. This

may explain the dramatic rise in sudden cardiac death in young athletes, as they lose magnesium through sweating and the stress of exercise.

Conclusions

The full impact of our obsession with excitotoxin-containing foods and beverages has yet to be realized. What we do know is that such enormous consumption of excitotoxins can damage the developing brain of babies. It can at least add to the damage associated with the neurodegenerative diseases. There is a strong connection to childhood obesity and diabetes. There is a strong connection between cancer growth and spread and glutamate in the diet. Despite this powerful research, the public is being told nothing. Truly, our lives, and the lives of those we love, are in our own hands.

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