

Understanding Autism and Its Treatment

How A Generation Was Poisoned and How to Correct It

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In 1996 a young woman came to my office and asked if I would help her son with autism. At the time I had not seen an autistic child since my medical school days in the early 1970's when I took a "field trip" to visit a home for 6 autistic children. Back then autism was a rarely seen disorder that was being diagnosed in 1-2 per 10,000 children. It was felt at that time to be due to cold, indifferent mothering, the so called "refrigerator mom." This was never the case, but it did not stop medical authorities declaring that the mothers were at fault.

Today we are diagnosing autism in one in every 80-100 children. This is at a crisis level and the numbers are still rising. In the face of this epidemic, some authorities are still declaring that autism is due to a genetic defect that is present at birth and only becomes visible at 15-24 months of age. This suggestion flies in the face of any understanding about genetics and ignores the statements of parents who describe in great detail the happy, healthy, typically developing child who suddenly, and often precipitously, "disappears" into autism.

Let me be absolutely clear, there has never been, and could never be, an epidemic of a genetic disease. Genes are inherited from the grandparents to the parents to the child. Once inherited a genetic variation would only affect that one child. It is impossible to have a sudden explosion of some new gene in one generation. On the other hand if there was a genetic predisposition, a susceptibility to something in the environment, and if there were a sudden change in the environment, then we would see a sudden explosion of symptoms in genetically predisposed individuals.

This is exactly what we are seeing today. The genetics are being revealed with careful studies and are very similar to genetic susceptibility to cardiovascular diseases, autoimmune diseases, neurodegenerative diseases and certain kinds of cancers. In fact we have noted a high frequency of these diseases in families of autistic children. The biochemistry is complex and beyond the scope of this brief article, but much of what we see entails a weakness in the genetic ability to methylate and to detoxify. Methylation is an extremely important process that is essential to our health. It activates brain-signaling molecules and inactivates DNA and RNA (this inactivation of DNA is how liver cells become different from muscle cells and it is also how we inactivate invading viruses). Impairment of the methylation mechanism impairs another process called sulfation. Sulfation is necessary to produce many substances including the protective coating of the digestive tract and the connective tissues of the body. It is also the source of the most important detoxifying substance in our body, glutathione. This substance is so important that if its level falls below a certain amount in any cell, that cell will self-destruct. Glutathione is also the essential mechanism to remove toxic metals from inside the cells.

When we study children on the spectrum we very often find deficiencies in vitamins such as B12, B6 and minerals especially magnesium and zinc. Magnesium and B6 are vital cofactors in many biological processes and appropriate supplementation can be vital in helping the child's metabolism improve. Zinc is necessary to activate certain digestive enzymes necessary for getting nourishment from our food and adding zinc often helps control diarrhea and improves appetite for more varied food. Another substance, metallothioneine, is dependant on zinc levels for its production. Metallothioneine binds to toxic metals preventing them from gaining entrance to our body and brain by binding to these metals at the surface of the GI tract and at the blood-brain barrier. This barrier protects the brain from dangerous substances that may be circulating in our blood stream.

When we study the genetics of autistic children and their parents we see weakness in methylation, sulfation, glutathione production and low metallothioneine levels. It must be stated though that these weaknesses would have no negative impact if there were not some environmental insult(s) that play upon the weaknesses.

Many of the children we see have “gut issues”. This may be extremely severe diarrhea often with a remarkably foul odor. Other children have severe constipation with stools that routinely block the toilets or cause distended abdomens not unlike what we see in starving children from Biafra. Some children suffer with severe abdominal pains that they relieve by bending over furniture to apply pressure that helps to relieve the pain. GI specialists have reported abnormal inflammatory lymphatic nodules lining the colon and many have inflammation resembling Crohn’s disease. Many of these abnormalities improve with certain dietary changes or anti-inflammatory treatments. Rarely anti-inflammatory medications need to be used.

So what new environmental toxin has entered our world and caused this epidemic in the past 40 years?

Much attention has been given to mercury and other heavy metals. Mercury is accepted to be the most toxic non-radioactive element on the planet and it has become a pervasive element in our environment. In this country alone we dump 200 tons of mercury into the atmosphere every year. This rains back to the ground and eventually finds its way to our waterways and into our fish. More importantly dentists place 100 million “silver” amalgams containing 27.5 tons of mercury onto our teeth every year. This unstable silver-mercury amalgam results in huge amounts of mercury leaching into our body year after year. Any mercury present in a pregnant mother is concentrated 8 fold by the placenta. Thimerosal in childhood vaccines has been a great concern to many physicians and parents.

Not to down-play mercury but when we test children for toxic metals we find more lead, often accompanied by arsenic, cadmium and antimony, in the children. All toxic metals are just that, toxic. There is no safe level of any of these substances and developing brains are much more susceptible to damage from toxicants than adult brains.

Plastic byproducts are also a concern. Phthalates are used to soften plastics and are found in teething rings, bottle nipples, plastic toys and cosmetics (they hold the fragrance in place). Bisphenol A (BPA) is used to harden plastics such as Nalgene type water bottles and many baby bottles as well as dental sealants and that glossy lining in tin cans (highest levels were found in chicken soup, ravioli and infant formula). Plastic wrap is a polyvinyl chloride product. Each of these substances is known to be toxic and each of them cause biological abnormalities that have been associated with disrupting hormone function, energy production and brain function. Each of these abnormalities is observed in children with autism.

Pesticides are not only sprayed on our lawns and gardens and in our homes but they are also used in ever increasing amounts on our food supply. In fact non-organic food is now considered the major source of exposure to this terrible family of toxicants. These pesticides damage energy production, interfere with enzyme activity and specifically interfere with methylation, sulfation and digestive enzyme function. What better reason is there to support local organic farmers?

Flame retardants in our furniture and children’s clothing contain the toxic metal antimony and the very toxic poly-brominated diphenyl ethers (PBDE’s) that are similar in structure and toxicity to PCBs and dioxin. This is concentrated in house dust and children absorb it through their skin and lick it off their hands

I am telling you these things both to make the point that we have dramatically increased the amount of toxicants in our environment and to draw attention to the relationship between these toxicants and increased frequency of autism in our children. Perhaps the toxic metals including mercury and aluminum or other toxic substances in vaccines like formaldehyde play a role in the age of onset of symptoms, perhaps not.

But I said autism is treatable so what can we do?

These children have multiple problems that each needs to be addressed to achieve full recovery. Because they were genetically susceptible and because toxic substances and metals affect so many biochemical processes it is not unfair to say they are biochemical train wrecks. Each child is unique and has to be approached individually, but there are common themes.

We already discussed replacement of some of the needed vitamins and minerals. There are many other nutrients that are helpful in the recovery process such as fish oils. Another intestinal enzyme that needs to be understood is called DPP IV. This enzyme is very severely damaged by mercury and pesticides. This enzyme is the only enzyme capable of breaking down exorphin peptides found almost exclusively in the protein in dairy and wheat related grains. These exorphin peptides have the same effect on the brain as morphine. The vast majority of these exorphines come from dairy and the gluten containing grains wheat, barley and rye. In essence, the child is being constantly exposed to mind numbing drugs from their food. Simply eliminating these foods from the child's diet can have immense benefits.

Having identified and removed offending foods and supplementing with appropriate enzymes and other vitamins and minerals, we then direct our efforts to bypassing the methylation defects with methylation intermediates like methylated folic acid, methylated vitamin B 12, **trimethylglycine**, or **dimethylglycine**. These supplements are very often remarkably helpful and prepare the child for further interventions that may include steps to replace glutathione and ultimately to remove the toxic metals and other toxic substances.

Some of the more interesting treatment options include immune balancing therapies and sometimes hyperbaric oxygen therapy. The natural hormone oxytocin can improve socialization abilities and natural substances like carnitine and Tryptophan can improve muscle tone and mood. We are learning more options as we continue our search for cures of this travesty. We are also participating in clinical trials that someday will yield the "placebo controlled double blind" status that will hopefully encourage more doctors to learn about these treatments.

Recovery of our children is a process that requires incredibly hard work by often exhausted but diligent parents. But recovery is possible and there are over a thousand recovered children on record with the Autism Research Institute (ARI) to attest to this statement. These children have recovered following pathways that I have outlined here. There is no single roadmap to recovery, but at ARI we are discovering a map of roads. I have been honored to be a physician member of the Think Tank for ARI. The members include some of the leading scientists and researchers from around the world, all dedicated to understanding the causes and treatments for autism. The discoveries that are being made regarding autism will impact all of medicine in the years to come. This is some of the most exciting and provocative science of our day. We have no funding other than donations and no members of the Think Tank receive any remuneration for their work. If you would like to contribute, please go to www.vianow.org to help a needy child receive biomedical treatments. If you would like to learn more about ARI or would like to attend a DAN! (Defeat Autism Now!) conference, please visit the ARI web site www.autism.com.