Genetic ADHD??

By Colleen Sonntag and Brenda Strand

So, the code has finally been cracked. Or has it? What exactly does that mean? What I am talking about is a discovery recently made about ADHD, attention deficit hyperactivity disorder. Findings of a study done by scientists from Cardiff University suggest that ADHD should be classified as a neurodevelopmental disorder and not a behavioral disorder. We have known for years that ADHD tends to run in families, but until now no genetic evidence has ever been found.

These researchers compared genetic DNA samples from 366 children aged 5 to 17 with ADHD but not schizophrenia or autism to the DNA from 1047 people without the condition. What they found was the children with ADHD have a much higher rate of chunks of DNA that are either duplicated or missing. A normal genome usually has 2 copies of each chromosome, but approximately 15% of these children had just one copy (a deletion) or 3 or more copies of the same chromosome (duplications). When one researcher stated "If a gene is included in one of these variant chunks it can have a deleterious consequence", that perhaps is an understatement. These variants also overlap with chromosomal regions that have previously been linked to autism and schizophrenia. Even though these disorders are thought to be completely separate, there are some learning difficulties and symptoms that overlap between ADHD and autism. So, this suggests that there could be some shared biological basis for the two conditions.

This finding gives us the first direct genetic link to ADHD. That's the good news. The bad news is there doesn't seem to be any single gene behind ADHD, that they have determined yet, although the most significant variants were in a specific region of chromosome 16 which includes a number of genes that affect brain development. However, they are still in the beginning of their research of this link. It doesn't sound too promising though, since of the 366 children tested, only 57 (15%) had the genetic variant supposedly causing the illness, and the study was limited to people of European Caucasian descent. Other studies have shown that the brain chemical Dopamine may also play a role in ADHD. The DRD4 gene which is associated with the dopamine receptor in the brain is being studied. Children that have a certain variation of that gene are more likely to have ADHD, but also a higher IQ than other children with ADHD and show improvement in symptoms over time.

Their hope is that this research will unravel the biological basis of ADHD

which could lead to new treatments, more objective diagnosis criteria and clear up some of the misunderstanding and social stigma of this disorder. My hope is that they don't think since they can find a gene link, that they stop considering other contributing factors. There are many theories about the causes of ADHD. Many parents of ADHD children believe a number of environmental factors have contributed to their child's disorder or even caused it, but so far there has not been any evidence that shows a direct cause for ADHD. It is probably more likely that ADHD is a combination of genetic and environmental factors.

So, what are the other possibilities for causes of ADHD? One culprit that has been named is artificial food coloring added to your processed foods by every big food producer out there. Don't misunderstand; there are food coloring additives that are natural, and not harmful to us. But here we go again, the synthesized (man made) additives (chemicals) is what I am talking about.

The FDA classified additive colors as either subject to certification or exempt from certification and only one (Yellow #5) has to be identified on the package label. Those exempt are pigments with vegetable, mineral or animal origin, or in other words those derived from nature. The manmade colors, of which there are nine the FDA approved in the United States, had to be certified. There is no evidence that food additives cause ADHD, but there are an increasing number of studies that show certain food colorings and preservatives may cause or worsen hyperactive behavior. Food additives that have been implicated so far have been Sodium Benzoate, FD&C Yellow #6, D&C Yellow #10, FD&C Yellow #5, FD&C Red #40. The Center for Science in the Public Interest (CSPI) however, claims that studies suggest health risks for several of the nine approved colors, and in fact none of the dyes have been proven safe yet. Neither the Food and Drug Administration, nor the Environmental Protection Agency require specific and detailed testing regarding the effects on neurological processes by the chemicals allowed in processed foods.

So why do we know these pose a problem? As far back as the mid-1970s, there have been advisories to educate the public on the risks associated with ingesting artificial colorants that have been routinely added to food since the 1950s. These voices, raised primarily by scientific researchers were concerned about petroleum and coal based chemicals that were used and insinuated into the developing processed food industry. Of course as with everything to do with greed, they have largely been stifled by the big corporations that profit from the chemicals and government agencies that either do not have the power to regulate or, more likely, are simply beholden to large corporate interests rather than the interests of actual citizens. Such chemical derivatives are popular because they are intense, uniform, generally tasteless and cheap. When allergy specialist Ben Feingold found that his patients improved after changing their diets to remove artificial food colorings, flavorings, and preservatives back in the 1970s (as reported in *Medical News Today*), it became clear to him that there were chemical causes affecting children's behavior.

Clinical studies from 1980 onward have associated behavioral problems in children with food dyes. While tests on animals continue to imply a link between dyes and cancer, and a number of dyes are derived from known carcinogens, it is the effect on children that caused the 2008 regulation in the European Union requiring warning labels on foods that contain six artificial colors commonly in use. Yet we have none here. Why?

So, while some parents believe that an elimination diet is helpful in improving their child's behavior other believe it is a change in the parent/child interaction while the child is on the diet that makes the difference. Processed foods include soft drinks, refined white flour, loads of refined white sugar, plenty of fried foods and most packaged foods are processed to preserve them. Take a child off these manufactured substances and start feeding them real food and the symptoms of ADHD may improve and actually in some cases, it has vanished in a matter of weeks. Some research in the Netherlands is being conducted to evaluate the role of food allergies or sensitivity that may exhibit the same behavior patterns that are seen with ADHD. If a specific food allergy is found then eliminating that food could very well eliminate the behavior problems. From a nutritional standpoint adjusting their diet cannot hurt. A nutritious diet with less sugar, increased fiber, whole grains, fruit, vegetables and no processed foods is certainly overall better for anyone's health. A diet of avoiding sugar alone however, does not help and there is no evidence that "mega doses" of vitamins help either. Investigation is still ongoing regarding Omega-3 supplementation.

Researchers at Harvard School of Public Health found an association between pesticide exposure and ADHD. In studying 1,139 children ages 8-15 years about 10% of them had ADHD. When testing their urine, they found that the children with ADHD had significantly higher levels of byproducts of insecticides. These children were exposed to normal levels of insecticides, they did not live on farms or near pesticide manufacturing plants. High lead levels has also been linked to disruptive and sometimes violent behavior as well as short attention span. Obviously this needs to be studied further, but it is a possibility.

Prenatal risks that have been found in the studies include mothers that smoke or drink during pregnancy or who had a difficult pregnancy are at higher risk of having a child with ADHD and ADHD is higher in children who had a low birth weight or jaundice.

Every person is different and since we don't really know what the actual triggers or cause is for this disease, we can only try different therapies as treatment. Many children have controlled and some even "cured" their ADHD with homeopathy products. This has all been succinctly demonstrated through other clinical studies and you will find many parents truthfully attesting to

their child's reaction be it good, bad or slight.
Whether this new genetic discovery actually helps cure ADHD, simply helps provide new treatments, or does nothing will definitely take some time. I don't know when ADHD started, but I don't think it was that many years ago. If you or anyone you know has ADHD and were able to go the natural route please leave a comment on SpiritDance about what you did, and how well it did or did not work. We would love to hear from you.