

# CHRONIC INFECTIONS AND AUTISM SPECTRUM DISORDERS

*Specific events can trigger behavioral and sensory symptoms...*

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▶ **STREPTOCOCCUS BACTERIA**—*Strep and other infections like Lyme can trigger an autoimmune response in susceptible individuals.*

Scientific studies show that autism and Autism Spectrum Disorders (ASD) can have multiple causative factors. Recent research has been focused on the roles of molecular mimicry, immunopharmacology, nutrigenomics, chronic underlying coinfections and neuro immune syndromes in the clinical dynamics and prognosis of children diagnosed with ASD. Many children with ASD regress around the age of three, often after a specific event such as reaction to vaccination, infection, stress or trauma implying some epigenetic triggers, and may constitute a distinct phenotype. ASD children respond disproportionately to stress and stress affects the functional vitality of the immune system quite profoundly.

Often children diagnosed with ASD present with certain subtle but distinct clinical characteristics that, upon careful scrutiny, can provide valuable clues to underlying issues and covert infectious pathology.

## BUGS IN THE BRAIN?

Research has established that certain bacteria, viruses, and parasites can infect the brain causing meningitis, encephalitis and widespread inflammation. These can bring about biochemical and physiological changes which in turn result in a wide variety of symptoms that can present as autism and other neurological conditions like mood disorders, depression, obsessive compulsive disorder and more. Some of the infectious microorganisms transmitted through the bite of a tick have been identified as *Borrelia Burgdorferi*, *Bartonella Henselae*, *Babesia Microti*, and *Babesia Duncani*. These and certain viruses and parasites can result in symptoms consistent with the above diagnoses.

Lyme Disease is caused by a spiral-shaped bacteria (spirochete) called *Borrelia burgdorferi*. The Lyme spirochete can cause infection of multiple organs and produce a wide



Robert C. Bransfield, MD, 2011

range of symptoms. Case reports in the medical literature document the protean manifestations of Lyme disease, and familiarity with its varied presentations is key to recognizing disseminated disease.

Research has shown that spirochetes can paralyze multiple aspects of the immune system and the person is left without adequate defenses against many other infections and toxins one may subsequently come in contact with. Based on current statistics, a significant number people who contract Lyme disease are misdiagnosed during the early stages, leading to a chronic form of the disease which can prove even more difficult to diagnose and treat. Lyme disease is often referred to as the “great imitator” because it mimics other conditions including autism, often causing patients to suffer a complicated maze of doctors in search of appropriate treatment.

**WIDESPREAD HEALTH COMPLICATIONS**

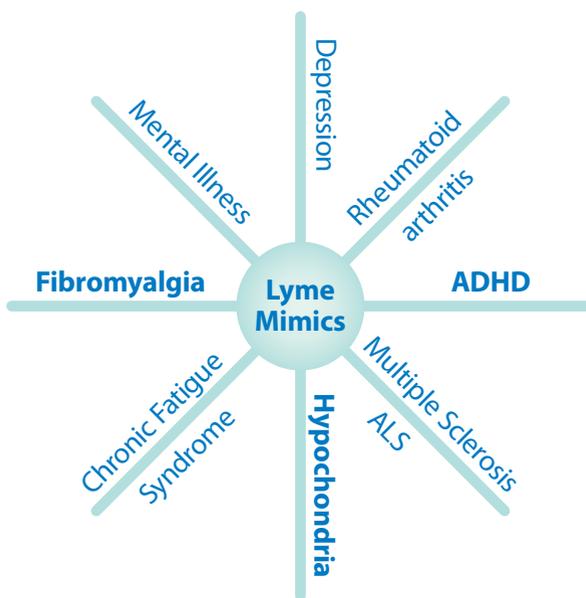
Recently, the CDC released information that nearly 300,000 cases of Lyme are diagnosed in the United States every year. Even if 1% of those are manifesting as or complicating ASD, that’s 3,000 children a year who could be helped. Contrary to popular belief, Lyme disease is not just an “East Coast” problem. In fact, in the last ten years, ticks known to carry Lyme disease have been identified in all 50 states and worldwide.

Often, people don’t recall being bitten by a tick. Nymphal ticks can be as small as a pin head and larval

ticks appear to be a speck of dust but are equally virulent when it comes to transmitting disease. Dog ticks, fleas, head louse, the white footed mouse, mosquitoes, and horse flies are the other vectors known to transmit Lyme disease and co-infections.

These microorganisms have also been shown to influence one of the major detoxification pathways of the body, namely the liver cytochrome p450, and down regulate the activity of this vital pathway. Cytochrome P450 enzymes are present in most tissues of the body, and play important roles in hormone synthesis and breakdown, cholesterol synthesis, and vitamin D metabolism. Cytochrome P450 enzymes also function to metabolize potentially toxic compounds, including drugs and products of endogenous metabolism such as bilirubin, principally in the liver. The Cytochrome p450 issues can also impact sensory processing and cerebellar vestibular pathways and function.

In genetically susceptible children, the presence of some microbes can produce an abnormal immune response of molecular mimicry where the child develops auto antibodies against certain areas of the brain that contain proteins that are similar to microbial proteins. P.A.N.D.A.S. (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Strep) occurs when the presence of *streptococcus* bacteria induces an autoimmune reaction in the body. Lyme and other Tick Borne Infections (TBI) have also been shown to cause autoimmune reactions and the production of anti-neuronal antibodies.



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**THE GREAT IMITATOR**—Lyme disease can produce a wide range of symptoms resembling numerous other conditions making it very difficult to diagnose.



California Department of Public Health.

◀ **TINY THREATS**—Although ticks can be as small as the size of a poppy seed, tick borne illnesses pose serious risks to human health.

**WHERE TO BEGIN?**

The first step is to find a knowledgeable clinician who is able to discern these differences and guide you through further investigation of causative factors and a different treatment regimen.

## BRANDON'S CASE

Diagnosed with ASD at age 2.8 years, Brandon was four years old when I first met him. He had a very poor attention span and severely impaired processing speed; limited speech; deficiencies in auditory, visual, and spatial processing; and problems with ordering, organizing, and planning. He was also noted to have severe separation anxiety and intense obsessive compulsive disorder with several repetitive and ritualistic behaviors. Additionally, he experienced social anxiety, emotional lability, lashing out/hitting/biting, restrictive eating/skipping meals, contamination fears/hallucinations, demanding defiance, OCD measurement rituals, OCD repetitive questioning, movement abnormality, illegible handwriting/fine motor tremor (includes dropping things/clumsiness).

### I also observed that Brandon:

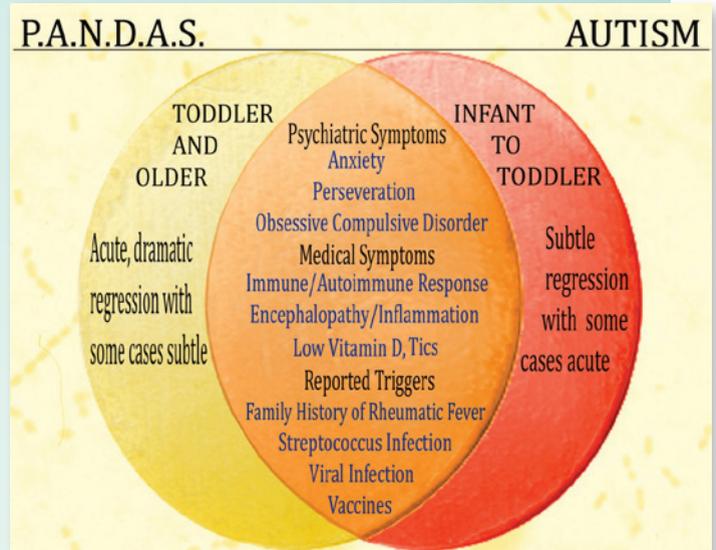
- ▶ Wanted to make friends but didn't know how to engage.
- ▶ Was very bright, with an incredible memory and attention to detail, excellent with puzzles, had multiple areas of academic interest like books, numbers, computers, and music.
- ▶ Was small for his age and appeared to have trouble gaining weight in spite of a good appetite.
- ▶ Was able to achieve skills with sensory integration therapy but never sustained any of those positive changes.
- ▶ Had predominantly vestibular and proprioceptive sensory processing challenges.

Information obtained from the parent interview indicated that Brandon was developing normally until the age of 2.4, and then simply stopped making any further progress in multiple areas of development, especially in social skills and language. At nine months of age, during the summer, he developed a cold with some flu-like symptoms which was deemed a viral infection. A few weeks later, he developed a red rash in small patches on several areas of his body. This was deemed eczema and treated accordingly. Around the age of 18 months, Brandon came down with an episode of high fever with nausea, gagging, refusal to eat, profuse sweating, and rapid eye blinking which lasted less than a week. He would develop these fever episodes every 8-10 weeks and was diagnosed with chronic cyclical fever syndrome.

When I met Brandon, the fevers were still continuing, being treated symptomatically, and Brandon had also recently developed several other "stims" like eye rolling, head nodding and facial grimacing.

Upon laboratory testing, Brandon had positive results for Lyme disease, *Babesia Microti*, *Mycoplasma Pneumoniae*, low IgG, low white blood cell count, anemia, high erythrocyte

sedimentation rate (ESR), high titers for Epstein Barr and Cytomegalo Viruses, positive testing for anti-neuronal antibodies, positive Strep antibodies, and inability to make antibody to vaccines. He was also diagnosed with P.A.N.D.A.S.



Courtesy of Teresa Conrick and Adriana Gamondes, Age of Autism.

### Brandon's treatment and recovery:

- ▶ His parents chose to pursue sensory integration, biomedical and natural therapies along with conventional antibiotics needed to treat the infections.
- ▶ Sensory Integration Therapy focused on regaining and strengthening the vestibular feedback mechanism and processing along with proprioceptive skills and perceptual reframing therapy based on a specialized protocol created by Dr. Dashore for children with ASD comorbid with underlying infections.
- ▶ Strategies were implemented to decrease sensory overload and to minimize exposure to electro magnetic frequencies at home.
- ▶ Biomedical therapy consisted of neuro biofeedback, microbial entrainment, singlet oxygen, pulsed electromagnetic frequencies, Klinghardt Matrix Therapy, Cranial Electrotherapy Stimulation, methylation support, specialized detoxification of microbial endo- and exo-toxins, neurotoxin elimination, homotoxicology treatments, and targeted nutritional protocols based on specific underlying infections found.
- ▶ After 18 months of intensive multifaceted treatment, Brandon went on to make a full recovery. He started growing and gaining weight, and developed language at age appropriate level. The diagnosis of ASD no longer applies and Brandon is in mainstream education.

Parents of children with ASD are not strangers to specialized laboratory tests that are sometimes needed to look at the deeper issues underlying behavioral and sensory manifestations of ASD. (See sidebar.) Currently, there are no reliable biomarkers for ASD. However, there are several biomarkers for inflammation, and for viral, bacterial, fungal and parasitic infections.

## THE ANTIBIOTIC DEBATE

Appropriate antibiotics, in the correct doses, for adequate duration have been shown to result in improvement—and even cure—in a number of cases. If Lyme (or another pathogen) is the underlying etiology for an autism presentation, the child might not improve without adding an antibiotic regimen to the treatment plan.

Many kids with autism-like syndrome associated with TBIs get better on antibiotics when nothing else has worked. They may relapse when antibiotics are stopped. When you see an autism-like presentation, especially if the child is not responding to conventional therapies, put TBIs on the differential diagnosis list, investigate further, run the requisite labs, and rule out underlying infections. Every child deserves a thorough investigation of all possible causative factors before being deemed as autistic for life. There are many new and emerging research studies into vector borne infections.

## ROAD TO RECOVERY

Chronic underlying infections can often be the missing component of neurological and immunological recovery. Adequate treatment and resolution of these infections, and the biochemical and physiological changes brought about, can often dramatically increase positive outcomes for children with ASD. Several children in my practice, including my son, had behaviors that



## RECOVERING FROM CHRONIC INFECTIONS

- ▶ Address all aspects of Lyme and co-infections including:
  - ▶ The presence of spirochete infection and coinfections
  - ▶ The illness-producing effects of microbial exo- and endo-toxins produced in the host in response to microbial triggers
  - ▶ The immune reactions provoked by both the toxins and microbes. These depend on various factors like genetics, epigenetic exposure, and emotional trauma.
- ▶ Treat the underlying infection/s with an adequate dose of medication for an adequate amount of time
- ▶ Control, or ideally eliminate, inflammation using nutritional strategies
- ▶ Enhance and support the immune system
- ▶ Provide mitochondrial support for adequate energy to heal and repair
- ▶ Support methylation. Provide symptomatic support until healing occurs
- ▶ NEVER GIVE UP!

looked very much like ASD and have even been diagnosed as being “on the spectrum” during PANDAS exacerbation. They have since healed medically and psychologically, the ASD behavior set has faded as well, and no one applies that diagnosis any more.

Lyme literate therapists work closely with the treating physicians to coordinate and customize treatment modalities at various stages of recovery. In my clinic, the last year alone, 11 out of 28 children diagnosed with ASD were found to have underlying infections and were treated accordingly. Of those, seven have lost the diagnosis and the others are making excellent progress towards the same.

**Acknowledgement:** I would like to acknowledge my teachers, mentors and guides without who this amazing journey of healing my child and so many others would never have happened. Special thanks to the world renowned healers, Dr. Charles Ray Jones MD, Dr. Dietrich Klinghardt MD, PhD and to [www.ILADS.org](http://www.ILADS.org) for being a great advocate and resource for patients and physicians. ◀

## LOOKING INTO LAB WORK?

If you're just getting on board with biomedical interventions for your child and suspect an underlying infection, ask your health care provider about investigating, starting with these lab panels:

- ▶ WBC (White Blood Count)
- ▶ ESR (Erythrocyte Sedimentation Rate)
- ▶ CRP (C-Reactive Protein)
- ▶ Metabolic Panel
- ▶ Lymphocyte subset panel 1
- ▶ Epstein Barr IgM and IgG
- ▶ Cytomegalo Virus IgM and IgG
- ▶ Mycoplasma Pneumoniae IgM and IgG
- ▶ HHV6 IgM and IgG
- ▶ IgG subclasses 1,2,3 and 4 (Immunoglobulin G)
- ▶ IgA total (Immunoglobulin A)
- ▶ IgE total (Immunoglobulin E)
- ▶ Serum Folate
- ▶ MTHFR mutation (Methyl Tetra Hydrofolate reductase)
- ▶ ASO (strep antibodies)
- ▶ Anti Dnase B (strep antibodies)
- ▶ Lyme Western Blot IgM and IgG
- ▶ Candida IgM, IgA, and IgG