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FREQUENCY OF *BORRELIA BURGDORFERI* WESTERN BLOT, ELISPOT AND LTT POSITIVITY AMONG AUTISM SPECTRUM DISORDERS PATIENTS FROM TURKEY

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ABSTRACT
In Turkey, Borrelia burgdorferi infections are not well known among physicians and almost completely overlooked. On the other hand, a small number of seropositivity studies (3.3%-73%) show that Borrelia burgdorferi is common in Turkey. Only clinical criteria used for diagnosis. These criteria is also compatible with other diseases. Lyme disease is currently among them. It was evaluated 81patients, between ages 3 and 19, with a definite diagnosis of autism spectrum disorders, and it was founded positive Borrelia burgdorferi western blot, Elispot and LTT test results in 59 (72.7%) of them. Only 22 (27.3%) patients have negative test results. Of the patients with autism, 63 were males, 18 were females. The lyme test was positive for the mothers of some of the children who were tested.The results show that LYME disease is very common in Turkey and child and adolescens LYME patients with neurological symptoms are misdiagnosed with autism spectrum disorders.

KEYWORDS: Lyme, Borrelia burgdorferi, Autism Spectrum Disorder, Turkey.

INTRODUCTION
Autism is growing at epidemic rates. The Autism Spectrum Disorder (ASD) has increased over 600% in the world over the last 20 years as an epidemic. The increase rate between 1997 and 2008 was 289.5%. In 2000, 150 births increased to 1, from 1 to 68 in 2010 and from 1 to 45 in 2015. An estimated 1 in 40 American parents report having a child with autism**,** according to a published analysis of the 2016 (NSCH). In 2019, As reported by the Center of Disease Control, one of 35 New Jersey children have been diagnosed with autism. The national average for autism diagnosis in America is 13 in every 1.000 children. New Jersey's average is 28 per every 1.000 children.

For example, according to studies conducted in South Korea, this ratio is 1-38. The results of the South Carolina staudy are pending.[1,2] For Hong Kong ratio is 1-27.[3] Autism, which shows these figures, is increasing rapidly in our world as an epidemic. The disease is seen in all races, ethnic and different socio-economic groups. ASD male children are 4.5 times more than girls.

Autism spectrum disorde**r** (ASD) is characterized by: Ongoing social problems that include difficulty communicating and interacting with others. Repetitive behaviors as well as limited interests or activities. Symptoms that typically are recognized in the first two years of life. Symptoms that hurt the individual's ability to function socially, at school or work, or other areas of life.

Chronic infectious diseases, including tick-born infections such as *Borrelia burgdorferi* may have direct effects, promote other infections and create a weekened, sensitized and immunologically vulnerable state during fetal development and infancy leading to increased vulnerability for developing autism spectrum disorder. There is a evidence that chronic infections and immune reactions associated with them may contribute to causing autism spectrum disorders. These infections include *Borrelia burgdorferi, Bartonella, Babesia, Mycoplasma, Ehrlichia, Chlamydia pneumonia* and Human herpesvirus-6, Epistein-Barr virus (EBV), Parvovirus B-19.

There is considerable scientific evidence that autism is actually a chronic infectious disease with a broad spectrum of pathogens*. Here is one of them;*
****-Bransfield RC. Preventable cases of autism: relationship between chronic infectious diseases and neurological outcome. Pediatric Health. 3(2): 12-140. 2009.***
This study involved a 48-year-old mother, 20 and 23-year-old daughters, and a 26-year-old son.

Prior to a diagnosis of Lyme disease the mother was diagnosed with, Chronic fatigue syndrome, Multiple sclerosis(MS) and depression. The positive results from

laboratory tests included *Borrelia burgdorferi, Babesia duncani, Mycoplasma fermentas, Bartonella henselae, Human herpesvirus (HHV) -6, Episthistein-Barr virus (EBV)* and *gamma streptococci.*

The 26 year old son had been diagnosed with autism since he was 2 years old. Test results were positive for; *Borrelia burgdorferi, Babesia duncani, Bartonella henselae, Mycoplasma fermentas, HHV-6, Streptococal* symptom, *Citrobacter freundii* in feces, *Klebsiella pneumoniae* and *gamma streptococci*.

23-year-old daughter had been diagnosed with Asperger since he was 5 years old and she had recieved another 12 different diagnosis. Positive test results were; *B.burgdorferi, Anaplasma phagocytophilum, M.fermentas, Haemophilus, HHV- &, EBV*, elevated *streptococcal titers, feces toxoplasmosis, cornybacteria* and *gamma streptococci.*

20 year old daughter had been suffering from Autism Spectrum Disorder since she was 14 months old. Test results positive for; *B.burgdorferi, B.henselae, M.fermentas, HHV- &, Parvovirus B-19 in feces, K.pneumoniae, C.freundii and gamma streptococci*.

This study is one of the most important evidence that Lyme spirochaetes is passed from mother to child when pregnant

Another important academic work is by the educationist Mason Kuhn who conducted research with Shannon Grave and Robert Wood from Unıversity of North Dakota, and Dr.Robert Bransfield, and Dr.Steven Harris from Faculty of Medicine, the University of Standfort. The title of this work is "*A Correlation Between Autism Spectrum Disorders and Lyme Disease*".

Mason Kuhn, Shannon Grave, Robert Bransfield, Steven Harris. (2012). Long term antibiotic therapy may be an effective treatment for children co-morbid with Lyme disease and Autism Spectrum Disorder. Medical Hypotheses 78; 606-615.

In scientific studies carried out to date, 24 infections and co-infectious agents have been identified in autistic children. Again, 7 spirochetes of bacteria related to mental symptoms and mental diseases, 21 bacterial species, 2 species of yeast, 1 type of Prion, 24 types of viruses, 5 species of Protozoa, 2 species of parasites and 3 mycoplasma species, with a total 65 pathogens identified.

Some of these pathogens are found in the form of a biofilm matrix, which is formed by pathogens in the chronic infection stage and contains protein, polysaccharide and calcium. In this way, they are protected from the attack of immune cells for many years and continue their vitality under other adverse conditions. At the appropriate time to leave this matrix and continue their pathogenic effects.

Research conducted in different regions abroad in the early 2000s revealed that between 20 and 50 percent of children diagnosed with autism living in these regions were actually Lyme patients. However, as of 2015, these rates have been revised to 20-90% by the experts. (6-43).

RESULTS AND DISCUSSION

It was evaluated 81 patients, between ages 3 and 19, with a definite diagnosis of autism spectrum disorders, and it was founded positive *Borrelia burgdorferi* Western blot, Elispot and LTT test results in 59 (72.7%) of them. Only 22 (27.3%) patients have negative test results. Of the patients with autism, 63 were males, 18 were females. The lyme test was positive for the mothers of some of the children who were tested. The results show that LYME disease is very common in Turkey and child and adolescens LYME patients with neurological symptoms are misdiagnosed with autism spectrum disorders.

Due to the fact that there are no healthy statistics in our country. About one milyon142 thousand individuals with autism is in Turkey and 4 million 568 thousand families affected individual is estimated to be found. Grand National Assembly of Turkey by Down syndrome and autism and other development to help children and families with the disorder on March 27, 2018 Parliamentary Investigation Commission was established.

Turkey has 89 Associations 8 Foundations and 4 Federation carrying out the work on autism. Unfortunately none of these non-governmental organizations have taken the Lyme-Autism relationship seriously.

As for the LYME-AUTISM connection;

The first official group in the world related to Lyme and Autism was the **Lyme-Induced Autism (LIA) Foundation** founded in 2006 by Tami Duncan, a mother of autistic child with, a group of mothers in the United States. The aim of the foundation was to raise awareness among families on these issues and to support scientific studies. In 2008, along with journalist Bryan Rosner, who had Lyme disease, they wrote a 286-page book called **The Lyme-Autism Connection**.

There are numerous scientific studies and articles that prove this important link.

Lyme is detected in the majority of autistic children, many of the mothers arelyme patients. It is scientifically proven that this spirochete bacterium passes through to the fetus during pregnancy.

On the 17th of February 2012, one of the main issues on the evening news of French TV3 was ***Autism and Antibiotics***. The 20-minute interview featured Professor Luc Montagnier, who was the recipient of the **NOBEL PRIZE IN MEDICINE Award in 2008**, and Professor Christian Perronne. They explained for the first time how a group of French doctors applied successful treatment

with antibiotic protocols to 200 children diagnosed with autism over a 6 year period. During that time it was surprising that the symptoms of 4 out of 5 of these children had full symptom relief or had a large decrease in their symptoms. This news hada great impact on the French public.

Dr.Charles Ray Jones, who as mentioned treated more than 10,000 children who had Lyme, found that a large proportion of these children suffered from autism group illness. Dr. Jones, who, as this is being written is 90 years old has been disiplined by the state health authorities including fines and the temporary withdrawal of his licence. This has also occurred to many other Lyme doctors often called Lyme Literated Doctors (LLMDs) whose treat autistic children suffering from Lyme disease with antibiotic protocols.

Another important academic work is by the educationist Mason Kuhn who conducted research with Shannon Grave and Robert Wood from Unıversity of North Dakota, and Robert Bransfield, and Steven Harris from Faculty of Medicine, the University of Standfort. The title of this work: is "*A Correlation Between Autism Spectrum Disorders and Lyme Disease*".

Mason Kuhn, Shannon Grave, Robert Bransfield, Steven Harris. (2012). Long term antibiotic therapy may be an effective treatment for children co-morbid with Lyme disease and Autism Spectrum Disorder. Medical Hypotheses 78; 606-615.

Here is a summary of this study
Patients diagnosed with Lyme disease have the same physical symptoms as those diagnosed with an Autism Spectrum Disorder (ASD). In this study, 4 boys (age 26-55 months) diagnosed with ASD and a boy (18 months) who had consistent ASD behaviour were included in this study. These children were evaluated using the SCERTS Assessment Process Observation (SAP-O) form during treatment. The SAP-O form measures children's ability to use observational and authentic assessment methods in areas of self-regulation through common attention, symbol usage, mutual regulation, and observation of specific behaviors in familiar environments.

SAP-O results of children with positive Lyme disease were evaluated before and after antibiotic treatment (6 months). Each child was given 200 mg Amoxicillin 3 times a day and three of five children were prescribed an additional 50 mg Azithromycin once daily. The scores of all children in the SAP-O assessment improved after 6 months of antibiotic treatment. During the study, anecdotal data such as speech, eye contact, sleep behaviors and reducing repetitive behaviors were also reported.

During these studies, **1st child** (3 years and 10 months) **started to speak the first word on the 10th day of antibiotic treatment**. A 2nd child (4 years and 6 months) followed his teachers instructions at a rate of more than 80% after antibiotic treatment. With the 3rd child (9 years and 9 months) there was marked behavioral advances. In the case of the 4th child (7 years old), antibiotic treatment was extended, and there were some positive improvements. The 5th child (4 years and 6 months) began to speak the first word after 2 weeks of antibiotic treatment ! At the end of the sixth months, he had a vocabulary of more than 100 words.

It is very interesting that educator Mason Kuhn turned to this type of work because his wife and two children were actually Lyme patients. The life stories are as follows; Mason's wife, Lori Kuhn, was diagnosed with Lyme in January 2010, when Jake was 5 months old and his brother Tristan was 2.5 years old (Tristran was diagnosed 6 months later with autism). Mother Lory's test results were positive, and so all family members were tested for Lyme. Tristan was positive with the 4th test. The tests also showed many co-infections. Baby Jake recovered from illness as a result of a 3-month antibiotic treatment. After 2 years of antibiotic treatment the mother recovers her health.

Tristan, who started talking at the age of 12 months, spoke 15 words when he was 18 months old and made perfect eye contact, Then there were inconsistencies in movement, clapping hands and suddenly started hitting his headat night. These changes continued with anger crises and he was diagnosed with autism. In the meantime, he was not responding or communicating. After the mother was diagnosed with Lyme, Tristan was then diagnosed with Lyme. Having not spoke a word for one year after 10 days of antibiotic treatment he stated talking. After 8 months of antibiotic treatment, he returned to normal child behavior. (*Watch Lyme-Autism connection on Youtube).*

I hope this important real life story will help about 1.2 million children in our country who suffering from this disease and it give them hope.
To date, scientific studies have shown that the frequency of autoimmune disease in families with children diagnosed with autism, is higher than in other families. Many of the autistic children who asked for help in our country have Lyme disease and frequenly also the mothers. Unfortunately, they couldn't find a doctor or clinic for treatment.

The following one-to-one overlapping symptoms are observed in children with Lyme as well as in children with autism.

- Fatigue, Sweats(day or night),
- Rashes,
- Muscle Twitching,
- Diminished or absent reflexes,
- Tremor or unexplained shaking,
- Confusion, diffuculty in thinking
- Abnormal blood flow in brain(SPECT),abnormal brain waves,

- Difficulty with concentration or reading,
- Decreased short-term memory, Obsessive-compulsive disorder,
- Disorintation; getting lost, going to wrong place, misplacing things,
- Difficulty with speech (difficulty finding words,slurring,stammering)
- Mood swings, irritability, depression,
- Disturbed sleep, too much, too little, early awakening,
- Dementia, anxiety, panic attacks,
- Muscle pain or cramps, Loss of muscle tone,
- Upset stomach, nausea, vomiting,
- Abdominal pain (especially in children),
- Change in bowel function(constipation,diarrhea),
- Joint stiffness, pain or swelling,
- Arthritis that migrates from joint to joint,
- Double or tunnel vision, sensitivity to light (photophobia),
- Low muscle tone in baby, delayed development in baby,
- Dizziness, poor balance, increased motion sickness,
- Irritable bladder or urine control problems,bowel incontinence.

Children do not typically have all these symptoms, but rather, a cluster of symptoms, particularly involving the neurological system. Lyme can disrupt every system and can also make children more vulnerable to environmental triggers. Experts believe that children with lyme are generally more fragile and susceptible to injury or reactions from vaccines, environmental exposures, and infections.

The level of glutathione, the most important antioxidant substance of our body, which is produced by the liver against free radicals, inflammation and toxic structures, is also very low in autistic children. Therefore, these children also have high amounts of heavy metals. *Borrelia* spirochete bacteria in the mother's abdomen, causes damage to the child's livers and heavy metals in the mother passes to the child. The level of glutathione is also low in all chronic diseases. In addition, with increasing age, production in the body also decreases. The *Glutathione also has a key role in the reduction of cytokine storms or blocking chronic disease.*

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