

## Dr. Prem Bajaj

MD, PhD, MMedSc (Sheffield, UK), MPM (Cardiff, Wales)

Tlf Nr: 0044 (0) 2088450017

E-mail: [pbajaj@modernhealthltd.com](mailto:pbajaj@modernhealthltd.com)



# LYME DISEASE

Acute Lyme disease is caused by *Borrelia burgdorferi* and may be present as non-specific "flu-like" symptoms, and/or presence of typical erythema migrans rash or atypical rash. Clinically Lyme disease can be diagnosed based on medical history, symptoms, physical examination and this may or may not be confirmed by lab tests. *Borrelia* is a spirochete bacterium and is transmitted to humans by tick vectors, primarily *Ixodes scapularis*. When testing blood for evidence of antibodies against the Lyme disease bacteria, first enzyme immunoassay (ELISA) is done and if this is positive "Western Blot" test is performed. These tests can be performed by the same blood sample. Late Lyme disease presents with joint swelling, Bell's palsy, or even as meningitis and carditis weeks after the initial infection. Post-Lyme disease is a persisting or relapsing symptoms of Lyme disease after 1-2 months of antibiotic treatment. Chronic Lyme disease has persisting or relapsing symptoms.

According to Lyme Disease Association recent report (see reference 1.) dated 27th August 2013 Lyme disease has spread world wide in 80+ countries and these include Algeria, Andorra, Argentina, Australia, Austria, Belarus, Belgium, Belize, Bolivia, Brazil, Br.Columbia, Bulgaria, Canada, Chile, China, Colombia, Croatia, Cuba, Cyprus, Czech Rp, Denmark, Egypt, England, Estonia, Finland, France, Georgia, Greece, Germany, Herzegovina, Honduras, Hungary Iceland India, Iran, Iraq, Ireland, Israel, Italy Japan, Kazakhstan, Kenya, Korea, Dem. Korea, Rep. Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia Mali, Malta, Mauritania, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Netherlands, Norway, Peru, Poland, Portugal, Romania, Russia, Scotland, Senegal, Serbia, Siberia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, Tajikistan, Tunisia, Turkey, Ukraine, Uruguay, Uzbekistan, Venezuela, Wales.

It is important to know in children suspected of Autism Spectrum Disease patterns if their symptoms started occurring when they were diagnosed with Lyme disease. If yes, then was their Western Blot reported positive for which of the following bands (9, 12, 18, 20, 21, 22, 23, 24, 25, 31, 34, 35, 37, 38, 39, 41, 83). Was the child reported positive for any of the infections such as Babesia, Bartonella, Mycoplasma, Ehrlichia, or any other infection. Did you notice that a child acquired skill like language, eye contact or meaningful interaction with peers and then lost this skill and it corresponded with the Lyme diagnosis. What was the duration and the name of medicine used for treating the Lyme disease and if the child improved and reached an important developmental milestone during treatment. Were the parents or siblings tested positive for Lyme Disease or coinfections.

Recently an important study reported 124 patients—53 with neuroborreliosis, 48 with erythema migrans, and 23 with Lyme arthritis—were tested in a prospective study for the presence of the DNA of *Borrelia burgdorferi sensu lato* in plasma, cerebrospinal fluid (CSF), urine, and synovial fluid by nested polymerase chain reaction (PCR) targeting chromosomal genes encoding 16S rDNA, flagellin, and p66; and two plasmid sequences of *OspA* and *OspC* before and after treatment and again after 3 and 6 months. Before treatment, the specific DNA was detected in 78 patients (62.9%). Forty-one neuroborreliosis patients were DNA positive (77.4%), with CSF positivity in 26 patients, urine in 25, and plasma in 16. Twenty-six erythema migrans patients were

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DNA-positive (54.2 %), with plasma positivity in 18 cases and urine in 14. Eleven Lyme arthritis cases (47.8 %) were DNA positive (six in urine, five in plasma, and four in synovial fluid). The frequency of PCR positives was comparable in CSF and urine, and it was lower by approximately 50 % in plasma. Specific DNAs were also found in a significant number of patients in later testing periods: 48 patients after treatment, 29 patients after 3 months, and 6 patients after 6 months. The prolonged PCR positivity was not explainable by persistent infection according to the clinical manifestations of the disease. Possible explanations of the problem are discussed in the full length paper (see reference 2.).

Awareness of Lyme disease and educating the public for prevention is the key aspect in helping to prevent transmission of infection. Tick bite protection and tick-borne disease prevention measures promotion is a key step in preventing Lyme disease. Dr. Prem Bajaj is a member of International Lyme Disease Associated Disease, US and recommends to print the Lyme Disease Questionnaire and fill this up when coming to him for a consultation.

1. **Report published by Lyme Disease Association. Lyme in 80+ countries world wide. 1-2. 13 A.D.** <http://www.lymediseaseassociation.org/index.php?view=article&catid=69%3Acases-stat...>
2. **Picha,D., Moravcova,L., Vanousova,D., Hercogova,J., & Blechova,Z. (2013) DNA persistence after treatment of Lyme borreliosis. Folia Microbiol (Praha)**