



National MS Society Information Sourcebook

www.nationalmssociety.org/sourcebook

Lyme Disease

Lyme disease is an illness caused by the organism *Borrelia burgdorferi*, a bacterium known as a spirochete that is carried by a deer tick. The spirochete can be transmitted to people or animals by the bite of a tick. Some of the neurologic symptoms of Lyme disease are similar to those of MS.

The first signs of Lyme disease develop within days to months after the tick bite. From 60-80% of those infected with Lyme disease get a large, reddish rash sometimes described as a bulls-eye. Other symptoms include a flu-like illness with fever, headache, stiff neck, and muscle and joint pains.

Neurologic Symptoms Can Be Similar to Those of MS

There may also be delayed neurologic symptoms similar to those seen in MS, such as weakness, blurred vision caused by optic neuritis, dysesthesias (sensations of itching, burning, stabbing pain, or “pins and needles”), confusion and cognitive dysfunction, and fatigue. Lyme disease symptoms may also have a relapsing-remitting course.

Lyme disease occasionally produces similar abnormalities in tests that are used to diagnose MS. These include MRI (magnetic resonance imaging) scans of the brain and analysis of cerebrospinal fluid.

All of these similarities in symptoms and test results have led some people with MS to be tested for the presence of antibodies to *Borrelia*, with the expectation that their neurologic symptoms are the result of Lyme disease rather than MS. The distinction is important because Lyme disease, especially when treated early, often responds to antibiotic therapy, whereas MS does not.

Studies Examine Overlap in Diagnosis of Lyme Disease and MS

Two studies have examined the overlap in diagnosis of MS and Lyme disease. The studies were conducted in parts of Long Island, New York, an area where Lyme disease is endemic, or regularly found.

In the first study, people who had *Borrelia* antibodies in their blood as well as a variety of neurologic symptoms considered to be “MS-like,” were evaluated with MRI, evoked potentials, and cerebrospinal fluid analysis, including a test for the presence of *Borrelia* antibodies in the spinal fluid.

While those with the MS-like illness had the highest incidence of abnormal MRIs and were the only ones among those studied to have abnormal evoked potentials and oligoclonal bands in their spinal fluid (indicating an abnormal immune response), they did not prove to have any *Borrelia* antibody in their spinal fluid. The

researchers concluded that the few patients with the MS-like symptoms probably had these symptoms due to MS and had also been exposed to the Borrelia bacteria.

A companion study looked for the presence of Borrelia antibodies in the blood of 100 people with the diagnosis of possible MS. Of 89 people who in fact turned out to have definite MS, only one had Borrelia antibodies. The researcher concluded that "...infection with Borrelia is infrequent in MS patients who live in an endemic area. Lyme disease is unlikely to be a significant factor in the differential diagnosis of MS."

For More Information

To obtain more information about Lyme disease, current research, and services available for people with Lyme disease, contact:

Lyme Disease Association, Inc.

PO Box 1438

Jackson, NJ 08527

Phone: (888) 366-6611

Fax: (732) 938-7215

LYMELITER@aol.com

www.lymediseaseassociation.org

See also...

Sourcebook

- Cerebrospinal Fluid (CSF)
- Epidemiology
- Etiology (Cause of MS)
- Diagnosis
- Diagnosis of Demyelinating Diseases
- Evoked Potentials

Society Web Resources

- Diagnosis of MS
www.nationalmssociety.org/Diagnosis
- What Causes MS?
www.nationalmssociety.org/Causes

The National Multiple Sclerosis Society is proud to be a source of information about multiple sclerosis. Our comments are based on professional advice, published experience, and expert opinion, but do not represent individual therapeutic recommendations or prescription. For specific information and advice, consult your personal physician.

To contact your chapter, call **1-800-FIGHT-MS** (1-800-344-4867) or visit the National MS Society web site: www.nationalmssociety.org.