



Lyme Disease Neurological Symptoms

By Miguel Gonzalez, MD, FACP, FCCP

October 2012 - Lyme disease is an infection caused by *Borrelia burgdorferi*, a bacteria transmitted from animals to humans through the bite of a black-legged tick, scientifically known as *Ixodes scapularis*. Lyme disease can be a self limited, flu-like disease for some individuals, although in some cases serious complications involving the heart, joints and neurological symptoms may develop. These Lyme disease neurological symptoms can be severely debilitating for those affected.

The 3 Stages of Lyme Disease Progression

In stage one, flu-like symptoms such as headache, fever, muscle and joint pain, and fatigue may occur. In addition, a characteristic rash for Lyme's disease called erythema migrans may be seen in some people. This rash is red, circular, has a clear center and can reach a diameter up to 20 inches. It is typically known as a bulls-eye rash.

During stage two, experienced in the weeks after the initial exposure, the patient may experience Bell's Palsy (loss of the muscle tone of the face), meningitis induced severe headaches with neck stiffness, heart palpitations, dizziness and shooting pains all over the body and particularly pain in their large joints.

Stage 3 symptoms can occur from weeks to even years after the infection and include arthritis, severe joint pain with swelling and neurological symptoms including tingling or numbness in limbs.

Lyme Disease Neurological Symptoms

While during the first stage of Lyme disease there are very few neurological symptoms, for example, headache associated with flu-like symptoms, a variety of neurological symptoms and conditions may occur during the second stage of Lyme disease.

Bell's palsy, also known as facial paralysis, is described as a sudden paralysis of one side of the face because the nerve that controls that side of the muscles is not functioning properly. This nerve controls not only the muscles, but also the secretion of the salivary glands, the production

of tears and the part of the tongue that detects taste. Patients with Bell's Palsy will experience a loss in their sense of taste, an awkward facial expression, dry eyes or mouth, drooling, inability to wrinkle the forehead or blink, numbness and a heavy sensation in the face area are all common symptoms.

Meningitis is the inflammation of the subarachnoid space, which is the space located within the layers of tissue covering the brain and spinal cord. Symptoms include fever, stiff neck, vomiting, loss of appetite and looking extremely sick. Additionally children may be extremely irritable and drowsy. All bacterial meningitis, including the one caused by *Borrelia burgdorferi* should be treated promptly to avoid further complications and neurological damage. Meningitis is very serious so do not delay in seeking medical care.

Encephalitis is inflammation of the brain that occurs when the bacteria infects the brain. Encephalitis is also a very serious condition and should be promptly treated. Symptoms of encephalitis include fever, headache, seizures, personality change, confusion, and they may experience feeling sleepy, numb, or paralyzed. This condition is confirmed by an MRI.

The peripheral nerves may also be affected during second stage of Lyme's disease. These symptoms may include tingling, numbness and a loss of normal sensation in the hands or feet.

Lyme disease is treated with antibiotics under the supervision of a physician and most individuals that seek treatment soon after infection will respond well have full recovery. In some individuals, neurological symptoms may continue or recur, and in this situation additional antibiotic treatment is warranted. Permanent joint inflammation or damage of the nervous system may develop in those with late-stage Lyme disease who did not follow or did not respond well to the treatment with antibiotics.

I encourage you to seek care from a lyme literate physician who best understands the disease and the treatment protocols. Physicians such as myself, devote much of their time to keeping themselves educated on the latest strategies for treating this debilitating disease.

References:

<http://www.ninds.nih.gov/disorders/lyme/lyme.htm>

http://www.michigan.gov/dnr/0,4570,7-153-10370_12150_12220-26945-,00.html

http://www.merckmanuals.com/home/brain_spinal_cord_and_nerve_disorders/brain_infections