

## **Opinions of Neurological Lyme Disease Experts on the Use of IV Ceftriaxone & Diagnosis Challenges**

### **Brian A. Fallon, MD, MPH, director of the Center for Neuroinflammatory Disorders and Biobehavioral Medicine and director of the Lyme and Tick-Borne Diseases Research Center at Columbia University**

“Patients with disseminated Lyme disease, such as neurologic Lyme disease affecting the central nervous system or Lyme arthritis, however, might need a more potent therapy that could cross the blood brain barrier or enter joint spaces more effectively such as intravenous ceftriaxone (Dattwyler et al. 1987).” (*Conquering Lyme Disease*, Pg 23)

“A polymerase chain reaction (PCR) assay test for the DNA of *B burgdorferi* is helpful if positive, but despite high specificity this test is insensitive and is positive in only 25 to 38% of patients with confirmed neurologic Lyme disease in the United States. Cultural assays for *B burgdorferi* in the cerebral spinal fluid are also insensitive and not commonly available.” (*Conquering Lyme Disease*, Pg 40)

“Some patients whose Lyme disease has been left untreated for months or years will develop neurological problems that are less common in the earlier phases of the disease. These complications include encephalopathy, a sensory polyneuropathy, and rarely quite severe presentations such as dementia, **encephalomyelitis**, and stroke like presentations.” (*Conquering Lyme Disease*, Pg 48)

Encephalopathy patients treated with a 4-week course of intravenous ceftriaxone (Logigian et al, 1999).

- “Notable is that improvement was reported by 61% at six months and by 89% at 12 to 24 months, indicating that improvement after treatment can take time.”
- “Also notable is that improvement was reported by so many patients, despite the fact that the initial infection occurred many years earlier (average of six years) and even though the majority had had prior antibiotic therapy (although none had had two or more weeks of intravenous ceftriaxone therapy).”

“For neurologic Lyme disease, the best-tested antibiotic is IV ceftriaxone.” (*Conquering Lyme Disease*, Pg 348)

### **Patricia K. Coyle, MD, Professor of Neurology at Stony Brook University Medical School, Southampton Hospital's Tick-Borne Disease Resource Center**

<https://www.youtube.com/watch?v=pe4JbyZFNss>

31:32 If you intervene with antibiotics as the patient is making an antibody response, you can block it, you can abort the full humoral immune response. How do I know that? There are well-documented cases of EM [rash], spirochete documented to be present. They get antibiotic treatment, 20 to 30% never seroconvert—so they absolutely had Lyme disease—they never become Lyme antibody positive after they got the antibiotics.

38:14 For neurologic disease, we prefer ceftriaxone, 2 grams, once a day, and we prefer 28 days. Why?  
Early on we had 3-4 patients who failed three weeks of IV antibiotics with neurological Lyme disease  
that led us to go to 28 days we don't feel we've had any failure with 28 days

- Consider mid or PICC line
- Infused over 30 minutes once a day
- Acidophilus recommended to lower C diff colitis
- Counsellel online infection/clotting, GI issues, gallbladder drug biliary sludge
- No routine bloods done
- Personal preference for 28 days
- Peripheral facial palsy late encephalopathy considered CNS infection

41:30 Chronic Lyme Disease. I think a very important issue is that did the patient receive a penetrating antibiotic regimen on the possibility that they had a sequestered compartment, like the CNS, involved?  
And if they didn't, then maybe they haven't been appropriately treated.

## Health Insurance Policy Examples [truncated]

### **Anthem Health Insurance**

[https://www.anthem.com/dam/medpolicies/abcbs/active/policies/mp\\_pw\\_a050480.html](https://www.anthem.com/dam/medpolicies/abcbs/active/policies/mp_pw_a050480.html)

A course of up to 4 weeks of intravenous (IV) antibiotic therapy is considered **medically necessary** for individuals with Lyme disease meeting ANY of the following criteria:

- Acute or chronic neurological disease affecting the central or peripheral nervous system, including ANY of the following:
  - Meningitis; or
  - Any neurologic syndrome with cerebrospinal fluid (CSF) pleocytosis; or
  - Peripheral neurologic syndromes with normal CSF (including radiculopathy, diffuse neuropathy, mononeuropathy multiplex, or cranial neuropathy) if severe or following treatment failure with oral antibiotic therapy; or
  - **Encephalomyelitis**; or
  - Encephalopathy.

And antibiotic used is:

- Ceftriaxone (Rocephin®), cefotaxime (Claforan®), or Penicillin G; or
- Azithromycin (Zithromax®) in individuals with betalactam allergy or intolerance.

### **Aetna Health Insurance**

[http://www.aetna.com/cpb/medical/data/200\\_299/0215.html](http://www.aetna.com/cpb/medical/data/200_299/0215.html)

Aetna considers outpatient intravenous (IV) antibiotic therapy **medically necessary** in adult and pediatric members with the diagnosis of Lyme disease. ... Once a definitive diagnosis of Lyme disease is established, Aetna considers an initial 4-week course of outpatient IV antibiotic therapy medically necessary when any of the following conditions is met:

- A. Moderate-to-severe cardiac involvement as evidenced by any of the following:
  - A first-degree heart block with P-R interval greater than 0.4 seconds
  - Congestive heart failure
  - Myopericarditis
  - Second- or higher degree atrio-ventricular block
- B. Neurologic involvement of Lyme disease (neuroborreliosis) as evidenced by any of the following:
  - Encephalopathy/**encephalomyelitis**
  - Meningitis confirmed by CSF analysis showing a lymphocytic pleocytosis with evidence of antibody production against *Borrelia burgdorferi* in the CSF
  - Sensory/motor radiculoneuropathy or peripheral neuropathy (weakness and/or pain in the extremities or chest)