Comparing Short Versus Long Term Antibiotics for Reducing Persistent Lyme Symptoms

Joe Webster
University of North Dakota

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Lyme disease is caused by spirochetes called Borrelia burgdorferi sensu lato that is transmitted to humans by ticks. The transmission happens through injection of tick saliva during feeding. Infection in humans activate innate and adaptive immune responses that kill spirochetes.

Virulence factors that can cause persistent infection including downregulation of immunogenic surface proteins, alteration of antigenic properties of lipoproteins and binding to components of extracellular matrix.

Horowitz (2013) described that Borrelia has 3 major forms: cell wall, cystic, and intracellular which can protect itself from the body’s immune system depending on the internal environment it’s in.

Bratron (2008) reported Lyme Borrelia spirochetes are susceptible to tetracyclines, penicillins, macrolides, and 2nd and 3rd cephalosporins.

IDSA recommends treatment with antibiotics 14-21 days and ILADS recommends using treatment regimens of minimum of 4-6 weeks.

Borgermans (2014) found when Lyme is treated early, the outcomes are good. 20% of people display recurrent symptoms after antibiotic treatment.

Cameron (2014) found that 34% of patients were ill an average of 6.2 years after standard antibiotic treatment. A meta-analysis of 504 patients treated for Lyme disease found this group had more fatigue, musculoskeletal pain and neurocognitive difficulties.

IDSA and ILADS, have different sets of guidelines for treating Lyme disease. IDSA does not recognize the efficiency of long term antibiotic treatments to help with symptoms of fatigue, pain, cognition and function.

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Discussion

Both short term and long term treatment regimens can be beneficial for reducing the persistent symptoms of Lyme disease.

Preboth (2001) found IDSA recommends antibiotic treatment for 10-21 days for erythema migrans rash.

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More research is needed for the use of combined antibiotic treatments and durations.

Cameron (2014) found 75% of patients with acute Lyme disease treated with antibiotics for 10 days or less continued to have symptoms within 6 months of treatment and received an additional 4 week course of IV ceftriaxone were found to have improved function and pain levels.

Krupp (2003) reported that when patients received 28 days of IV ceftriaxone, after being treated with the standard course of 21 days of antibiotics, within 6 months of treatment they were found to have improvements in fatigue but not cognitive function (95% CI, P<0.001).

Horowitz (2013) reports that 75% of patients with acute Lyme disease will have resolution of symptoms in <2 months if all 3 forms of Lyme Borrelia are treated with different regimens of antibiotics. Close to 25% of patients may need a longer course >2 months of antibiotic treatment if symptoms persist.

Applicability to Clinical Practice

Most clinicians in the United States use the IDSA guidelines for treatment of Lyme disease of 14-21 days.

Improvements are seen in the majority of patients when treated early.

Be aware of ongoing symptoms of Lyme disease which can include: fatigue, arthralgias, myalgias, headaches, sleep insomnia and numbness or tingling in the extremities.

Testing for Lyme disease with the current diagnostic tests has low specificity and sensitivity. A clinical diagnosis is usually needed.

Lyme disease treatments should be clinical and patient based.

Horowitz questionnaire is a great tool to use for initial screening to help with clinical diagnosis of Lyme disease.

References


