



**Medical
Blueprints**

TAKING ON TICKS: OLIVIA'S STORY REPORT #2776

BACKGROUND: Lyme disease is the most common vector-borne disease in the United States. It is transmitted to humans through the bite of infected blacklegged ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash. If left untreated, infection can spread to joints, the heart, and the nervous system. Lyme disease is the number 1 vector-borne disease and the number 2 infectious disease in the U.S. It can be very difficult to diagnose because the most common diagnostic tests are inaccurate about 50% of the time, especially early or late in the disease process. If you have or had a “bull’s-eye” rash anywhere, or any rash at the site of the bite you most likely have the disease and immediate and thorough treatment is needed. Treatment is typically 21 to 28 days. According to the CDC, the presence of a bull’s-eye rash is confirmation of infection.

(Source: <https://www.cdc.gov/lyme/index.html> and <http://www.lymeactionnetwork.org/about-lyme-disease/>)

SIGNS, SYMPTOMS AND TREATMENT: Some signs of Lyme disease that can appear days to months after a tick bite include: severe headaches and neck stiffness; facial palsy (loss of muscle tone or droop on one or both sides of the face); intermittent pain in tendons, muscles, joints, and bones; episodes of dizziness or shortness of breath; nerve pain; or shooting pains, numbness, or tingling in the hands or feet. People treated with antibiotics in the early stages of Lyme disease usually recover quickly and completely. Antibiotics commonly used for oral treatment include doxycycline, amoxicillin, or cefuroxime axetil. People with certain neurological or cardiac forms of illness may require intravenous treatment with antibiotics such as ceftriaxone or penicillin. The National Institutes of Health (NIH) has funded several studies on the treatment of Lyme disease that show most people recover when treated within a few weeks of antibiotics taken orally.

(Source: https://www.cdc.gov/lyme/signs_symptoms/index.html and <https://www.cdc.gov/lyme/treatment/index.html>)

POTENTIAL TREATMENT KILLS BACTERIA THAT CAUSES SYMPTOMS: A new Stanford study in lab dishes and mice provides evidence that the drug azlocillin completely kills off the disease-causing bacteria, *Borrelia burgdorferi*, at the onset of the illness. The study suggests it could also be effective for treating patients infected with drug-tolerant bacteria that may cause lingering symptoms. “This compound is just amazing,” said Jayakumar Rajadas, PhD, assistant professor of medicine and director of the Biomaterials and Advanced Drug Delivery Laboratory at the Stanford School of Medicine. “It clears the infection without a lot of side effects. We are hoping to repurpose it as an oral treatment for Lyme disease.” They have tested 50 molecules, and the most effective and safest molecules were tested in animal models.

(Source: <https://med.stanford.edu/news/all-news/2020/03/potential-treatment-for-lingering-lyme-disease.html>)

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