

Can't trust single-dose doxycycline to prevent Lyme disease. Perspective:

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I can't trust single-dose doxycycline to prevent Lyme disease. A perspective: A single 200 mg dose of doxycycline administered orally was reported to have been successfully used to prevent the development of erythema migrans at the bite site of *Ixodes scapularis* ticks," writes Wormser in an article entitled "[Doxycycline for Prevention of Spirochetal Infections-Status Report.](#)" [1]

Wormser offers no evidence that a single 200 mg dose of doxycycline is effective at preventing other manifestations of Lyme disease, besides an erythema migrans rash.

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Instead, he focuses on the prevention of a rash in a small study which he claims supports the prophylactic use of doxycycline to prevent Lyme disease. The study found 8 erythema migrans rashes at the site of a tick bite in individuals who were treated with a placebo. But only 1 erythema migrans rash at the site of a tick bite in individuals who were treated with a single 200 mg dose of doxycycline. [2]

However, the actual efficacy rate is uncertain in such a small sample. "The efficacy rate was 87%, but the 95% CI was wide-ranging from as high as 98% to as low as 25% based on the test-based method," writes Wormser. [1]

The study did not look at whether a single 200 mg dose of doxycycline was effective at preventing manifestations of Lyme disease that can be devastating to patients, such as Lyme encephalopathy, [3] Neuropsychiatric Lyme disease, [4] Lyme arthritis, [5] and Post-Treatment Lyme disease syndrome. [6,7]

In the 2000 and 2006 Infectious Diseases Society of America (IDSA) treatment guidelines, Wormser and colleagues recommended a [single 200 mg dose of doxycycline to prevent an erythema migrans rash](#) at the site of a tick bite. [8]

The IDSA guidelines' authors did not discuss whether a single 200 mg dose of doxycycline was effective at preventing other manifestations of Lyme disease.

Meanwhile, the [2014 International Lyme and Associated Diseases Society \(ILADS\) guidelines](#) advised against a single 200 mg dose of doxycycline without evidence that this dosage would effectively prevent other manifestations of Lyme disease. [9]

The 2014 ILADS guidelines raised a concern that a single 200 mg dose of doxycycline might lead to a negative test. ILADS, instead, recommends a 3-week course of antibiotics or watchful waiting.

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Wormser and colleagues did not address the concerns raised by the ILADS guidelines' authors. Furthermore, Wormser was not certain that a single dose of doxycycline to prevent Lyme disease might also prevent the tick-borne infections *Anaplasma phagocytophilum* or *Borrelia miyamotoi*.

Wormser did not propose further studies to examine the effectiveness of a single dose of doxycycline. Instead, he suggested conducting a study that would include administering 200 mg doses of doxycycline on a weekly basis, from late June through July, the peak season for ticks in the Northeastern USA.

Editor's note: For the purpose of full transparency, I'm an author of the 2014 ILADS guidelines. I remain opposed to the proposed weekly study until doctors can demonstrate that a single 200 mg dose can prevent other manifestations of Lyme disease, besides an EM rash.

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References:

1. Wormser GP. Doxycycline for Prevention of Spirochetal Infections-Status Report. Clin Infect Dis. 2020.
2. Nadelman RB, Nowakowski J, Fish D, et al. Prophylaxis with single-dose doxycycline for the prevention of Lyme disease after an Ixodes scapularis tick bite. N Engl J Med. 2001;345(2):79-84.
3. Logigian EL, Kaplan RF, Steere AC. Chronic neurologic manifestations of Lyme disease. N Engl J Med. 1990;323(21):1438-1444.
4. Fallon BA, Nields JA. Lyme disease: a neuropsychiatric illness. Am J Psychiatry. 1994;151(11):1571-1583.
5. Steere AC, Malawista SE, Hardin JA, Ruddy S, Askenase W, Andiman WA. Erythema chronicum migrans and Lyme arthritis. The enlarging clinical spectrum. Ann Intern Med. 1977;86(6):685-698.
6. Rebman AW, Bechtold KT, Yang T, et al. The Clinical, Symptom, and Quality-of-Life Characterization of a Well-Defined Group of Patients with Posttreatment Lyme Disease Syndrome. Front Med (Lausanne). 2017;4:224.
7. Wormser GP, Dattwyler RJ, Shapiro ED, et al. The clinical assessment, treatment, and prevention of Lyme disease, human granulocytic anaplasmosis, and babesiosis: clinical practice guidelines by

- the Infectious Diseases Society of America. Clin Infect Dis. 2006;43(9):1089-1134.
8. Wormser GP, Nadelman RB, Dattwyler RJ, et al. Practice guidelines for the treatment of Lyme disease. The Infectious Diseases Society of America. Clin Infect Dis. 2000;31 Suppl 1:1-14.
 9. Cameron DJ, Johnson LB, Maloney EL. Evidence assessments and guideline recommendations in Lyme disease: the clinical management of known tick bites, erythema migrans rashes and persistent disease. Expert Rev Anti Infect Ther. 2014;12(9):1103-1135.

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