

Treating Lyme disease: When do symptoms resolve in children?

June 23 2017



Adult deer tick, *Ixodes scapularis*. Credit: Scott Bauer/public domain

For many Americans, the warmer weather of summer means more time

spent outside: More gardening and yard work, more hikes in the woods, more backyard barbecues. But for this year in particular, some experts predict warmer weather will lead to more ticks.

That potential boom in ticks could lead to another boom—in Lyme disease, a bacterial illness transmitted specifically by deer ticks. When ticks attach for at least 36 hours—what studies have shown is typically the lower bound needed to transmit Lyme-causing bacteria—many patients develop a bullseye-like rash at the site of the bite within seven to 10 days. If they're not treated quickly, within weeks patients can develop symptoms such as headaches, heart arrhythmias, rashes and facial paralysis. Within months, Lyme can lead to arthritis, most commonly of the knee.

The standard treatment for Lyme disease is a course of antibiotics, such as oral doxycycline if the patient is older than 8 years old or amoxicillin if the child is younger than 8—typically two weeks for early symptoms and longer for late symptoms. While the data showing when symptoms clear has been well established for adults, says Mattia Chason, M.D., a third-year resident at Children's National Health System, little was known about how quickly symptoms typically resolve in children. That paucity of data can leave physicians and their families unsure about whether a child might need a repeat dose of antibiotics—or a different kind—or whether lingering symptoms might have a different cause.

To answer this question, he and colleagues—including Dr. Chason's mentor, Roberta L. DeBiasi, M.D., M.S., chief of Children's Division of Pediatric Infectious Diseases—looked at data in the [electronic medical records](#) of 79 children who were admitted to Children's main hospital with a laboratory-confirmed diagnosis of Lyme disease from June 2008 to May 2015. The research team was particularly interested in children who had a headache—a strong marker of the early disseminated form of the disease—or pain and swelling of the knee, a strong marker of the late

form of the disease.

They found that after children with the early form of Lyme disease started treatment, their Lyme-associated headaches resolved rapidly—most within one to three days—no matter how long headaches were present before they came to the hospital for treatment.

However, for those with knee pain and swelling, the majority took between two to four weeks to resolve. The longer symptoms had been in place before treatment started, Dr. Chason says, the longer they tended to take to disappear.

The team also looked at a phenomenon called post-treatment Lyme disease syndrome, characterized by a constellation of symptoms, such as fatigue, generalized musculoskeletal pain and cognitive slowing, that can occur six months after an initial diagnosis of Lyme. Only two children out of the 79 met the criteria for this diagnosis, suggesting that it's exceedingly rare in the pediatric population.

Taken as a whole, Dr. Chason says the findings provide a guide to doctors and family members alike on when to expect relief from Lyme symptoms. "Patients who come in with early symptoms tend to resolve rather quickly," he says. "But for those with later symptoms, resolution can take quite some time. Those patients should see their doctors if there's any suspicion of Lyme to get treatment sooner rather than later."

Children's infectious disease experts routinely advise parents about how to protect their [children](#) from Lyme disease. Their tips:

- Help kids avoid exposure by either wearing long sleeves and pants—a tough sell in warm weather—or using repellents with 20 percent to 30 percent DEET. These repellents can be used on babies as young as 2 months old, Dr. Chason says, and are safe

for most individuals.

- Check for ticks anytime a child has spent time outside. The best way to perform them, Dr. Chason says, is to check the child each night. Before bath or bedtime, remove the child's clothes and check every part of his or her body, including their hair, armpits, buttock region and the creases of the knee.
- Remove ticks gently with tweezers to try to get as much of the arachnid out as possible.
- Know what deer ticks look like. If you are unsure how to identify this species, save the tick or take a photo for your pediatrician to view.
- If a tick has been attached for at least 36 hours, consult your child's pediatrician for advice on whether the child will need prophylactic antibiotics.

Provided by Children's National Medical Center

Citation: Treating Lyme disease: When do symptoms resolve in children? (2017, June 23)
retrieved 3 May 2024 from

<https://medicalxpress.com/news/2017-06-lyme-disease-symptoms-children.html>

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