



Detecting Symptoms and Preventing the Impact of Tick-Borne Lyme Disease

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DESCRIPTION

Lyme disease is a tick-borne illness that has gained increasing attention in recent years due to its rising incidence and potential long-term health effects. It is caused by the bacterium *Borrelia burgdorferi* and transmitted to humans through the bite of infected black-legged ticks. One of the germs that cause Lyme disease in people is the bacterial species *Borrelia burgdorferi*, which belongs to the genus *Borrelia* and is a type of spirochete. It constitutes the species complex of *Borrelia burgdorferi sensu lato* along with a few related genospecies, some of which also cause Lyme disease. Twenty approved and three proposed genospecies are currently present in the complex. The only known cause of Lyme disease in North America up until 2016 is *B. Burgdorferi sensu stricto*, which is found in both North America and Eurasia. Species of *Borrelia* are Gram-negative.

Transmission and causes

Lyme disease is primarily transmitted through the bite of infected black-legged ticks, commonly found in grassy and wooded areas. Ticks become infected by feeding on small mammals, such as mice and deer, which carry the bacteria. When an infected tick attaches to a human host, the bacterium can be transmitted. It is important to note that not all tick bites result in Lyme disease, and prompt removal of ticks reduces the risk of transmission.

Clinical manifestations

Lyme disease presents a wide range of symptoms that can vary among individuals. The characteristic early sign is a circular rash, known as erythema migrans, which expands over time. Other early symptoms may include flu-like symptoms, fatigue, muscle and joint aches, and fever. If left untreated, Lyme disease can progress to more severe symptoms, including joint swelling and pain, heart palpitations, neurological issues, and cognitive impairments.

Diagnosis and early detection

Diagnosing Lyme disease can be challenging due to the Variability of symptoms and the potential for false-negative test results. Clinical

evaluation, including a thorough medical history and physical examination, is crucial. Laboratory testing, such as Enzyme Immunoassay (EIA) and Western blot, may aid in confirming the diagnosis. However, early detection is important to preventing complications, as treatment is most effective in the early stages of the disease.

Treatment and management

A course of antibiotics, usually doxycycline, amoxicillin, or cefuroxime, is the main treatment for Lyme disease. The duration and choice of antibiotics depend on the stage of the disease and individual factors. Early-stage Lyme disease usually responds well to treatment. However, if the infection progresses to a later stage or becomes chronic, a more extended course of antibiotics may be required. Pain management, physical therapy, and supportive care may also be recommended to address lingering symptoms.

Prevention

The Centres for disease (CDC) advises soaking or spraying clothing, footwear, and camping supplies including tents, backpacks, and sleeping bags with a 0.5% permethrin solution and letting them air dry before use as a precaution. Although odourless and safe for people, permethrin is extremely harmful to ticks. Tick nymphs only need 10–20 seconds to crawl on permethrin-treated fabric before they get irritated, fall off, or die. The number of bites from nymphs that make initial contact with a pair of permethrin-treated shorts or closed-toed shoes is reduced by 74 times (because nymphs often seek out the ground), which is a typical case.

CONCLUSION

Lyme disease is a significant health concern, emphasizing the need for awareness, prevention, and early detection. Understanding the causes, recognizing the symptoms, and seeking prompt medical attention are crucial steps in managing this tick-borne illness. By adopting preventive measures and promoting early intervention, it can mitigate the impact of Lyme disease and safeguard our well-being.

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