

# Lyme Carditis

Lyme disease is the most common vector borne illness in the US, spread by the Deer tick and caused by infection with the bacteria *Borrelia burgdorferi*. Although a common infectious illness that effects multiple body systems, it may uncommonly affect the heart. First described in 1977, the term “Lyme carditis” is used to describe the variety of cardiac abnormalities found in patients with Lyme disease. Although cardiac involvement is estimated to occur in 4% of patients with untreated Lyme disease, the true incidence is likely under reported.

## Symptoms

Due to widely varied clinical presentations, the diagnosis of Lyme carditis demands a high level of suspicion in endemic areas. Typically, cardiac involvement occurs weeks to months after initial infection, and is most commonly manifests with AV nodal block (impaired electrical conduction between the atria in the top of the heart and the ventricles on the bottom of the heart) on electrocardiogram (EKG). Other clinical manifestations may include nonspecific symptoms such as palpitations, chest pain, or shortness of breath. Infrequently, infection may lead to inflammation of the heart (myocarditis) or surrounding tissue (pericarditis), and has been implicated as a rare cause of heart failure and sudden death.

## Diagnosis

Accurate diagnosis is imperative, and depends upon two, sequential blood tests (Enzyme linked immunosorbent assay (ELISA), and Western blot). These tests have a poor sensitivity during the acute phase, and may be inaccurate early in the course of infection. However, since cardiac involvement is a manifestation of the later, disseminated stage of Lyme disease, those with negative blood tests are unlikely to have Lyme carditis.

## Treatment

Lyme carditis has an excellent overall prognosis, and is treated with a 21-day course of antibiotics. In certain patients, hospitalization may be required for heart monitoring or temporary pacemaker for the heart. In those patients, intravenous antibiotics are recommended until the electrical conduction through the heart improves (usually within 1 week). Permanent pacemaker placement is not indicated for Lyme carditis, and there are no known long-term cardiac complications among patients whose infection has been eradicated. Future research is needed to assess whether the inflammation caused by Lyme carditis presents a risk for the development of heart failure.



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