

# Bartonella infection associated with rheumatoid illnesses in humans

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A bacterium historically associated with cat scratch fever and transmitted predominately by fleas may also play a role in human rheumatoid illnesses such as arthritis, according to new research from North Carolina State University.

*Bartonella* is a [bacterium](#) that is maintained in nature by fleas, ticks and other biting insects. It can be transmitted to humans both by these parasites as well as by bites or scratches from infected cats and dogs. The most commonly known *Bartonella*-related illness is cat scratch disease, caused by *B. henselae*, a species of *Bartonella* that can be carried in a cat's blood for months to years.

In collaboration with Dr. Robert Mozayeni, a rheumatologist based in Maryland, and Dr. Ricardo Maggi, a research assistant professor at NC State, Dr. Ed Breitschwerdt, professor of internal medicine at NC State's College of Veterinary Medicine and adjunct professor of medicine at Duke University, tested blood samples from 296 [patients](#) for evidence of *Bartonella* infection. The patients had previously been diagnosed with conditions ranging from [Lyme disease](#) to arthritis to [chronic fatigue](#). Since rheumatic symptoms have sometimes been reported following cat scratch disease, the researchers wanted to see if these patients tested positive for *B. henselae*.

Of the 296 patients, 62 percent had *Bartonella* antibodies, which supported prior exposure to these bacteria. [Bacterial DNA](#) was found in 41 percent of patient samples, allowing investigators to narrow the

species of *Bartonella* present, with *B. henselae*, *B. koehlerae* and *B. vinsonii* subsp. *berkhoffii* the most prevalent. The study appears in [Emerging Infectious Diseases](#).

"Based upon this one study we can't definitively say that a subset of rheumatoid illnesses have an infectious origin," Breitschwerdt says.

"However, our results thus far do implicate *Bartonella* as a factor in at least some cases. If the link between *Bartonella* and rheumatoid illnesses is valid, it may also open up more directed treatment options for patients with rheumatoid illnesses."

**More information:** "Bartonella spp. Bacteremia and Rheumatic Symptoms in Patients from Lyme Disease–endemic Region" Ricardo G. Maggi, et al. Online ahead of print in *Emerging Infectious Diseases*.

### **Abstract**

*Bartonella* spp. infection has been reported in association with an expanding spectrum of symptoms and lesions. Among 296 patients examined by a rheumatologist, prevalence of antibodies against *Bartonella henselae*, *B. koehlerae*, or *B. vinsonii* subsp. *berkhoffii* (185 [62%]) and *Bartonella* spp. bacteremia (122 [41.1%]) was high. Conditions diagnosed before referral included Lyme disease (46.6%), arthralgia/arthritis (20.6%), chronic fatigue (19.6%), and fibromyalgia (6.1%). *B. henselae* bacteremia was significantly associated with prior referral to a neurologist, most often for blurred vision, subcortical neurologic deficits, or numbness in the extremities, whereas *B. koehlerae* bacteremia was associated with examination by an infectious disease physician. This cross-sectional study cannot establish a causal link between *Bartonella* spp. infection and the high frequency of neurologic symptoms, myalgia, joint pain, or progressive arthropathy in this population; however, the contribution of *Bartonella* spp. infection, if any, to these symptoms should be systematically investigated.

Provided by North Carolina State University

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