Reinfection versus Relapse in Patients with Lyme Disease: Not Enough Evidence

To the Editor—In the 15 October 2007 issue of Clinical Infectious Diseases, Nadelman and Wormser [1] describe the “surprising” number of patients with “reinfection” following treatment of an initial episode of Lyme disease. The distinction between reinfection and relapse in these patients is based on the presence of a recurrent erythema migrans (EM) rash and successful completion of a standard 2- to 4-week course of appropriate antibiotics. These parameters are insufficient to distinguish between the 2 clinical possibilities.

Recurrence EM rashes have been noted in cases of persistent Lyme disease [2], and the Lyme spirochete Borrelia burgdorferi has been cultivated from normal-appearing skin specimens after resolution of the EM rash [3]. Although the presence of a punctum in a recurrent EM rash might suggest a new tick bite, the authors provide no evidence to support this hypothesis. Furthermore, failure of standard therapy for Lyme disease was first documented in 1989 [4], and since that time, numerous studies have confirmed the failure of short-course antibiotic regimens in patients with Lyme disease [5, 6]. Thus, the clinical features touted by the authors fail to distinguish reinfection from relapse.

An intriguing explanation for recurrent EM following short-course antibiotic therapy is based on the premise that patients may be infected with >1 strain of B. burgdorferi [7-10]. In studies from the United States and Europe, this type of mixed-strain spirochetal infection has been documented in up to 44% of patients with Lyme disease and mirrors mixed-strain infection in up to 52% of tick vectors and reservoir mammals [7-10]. It is possible that short-course antibiotic therapy may suppress one strain of Borrelia but allow another strain to emerge in the same host, leading to recurrent Lyme disease symptoms. The presence of Borrelia strains with different OspC genotypes in the same patient [8] and detection of spirochetal strains with different OspC genotypes in patients with recurrent EM rashes [11] support this hypothesis. To establish reinfection versus relapse with a different Borrelia strain, additional molecular studies of mixed-strain infections are needed to evaluate the effect of short-course antibiotics in Lyme disease. These studies could also determine whether longer courses of antibiotic treatment are more effective in patients with persistent symptoms of tickborne illness [12].

Acknowledgments


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References


Reply to Stricker et al.

We emphatically disagree with Stricker et al. [1]. The vast majority of patients with recurrent erythema migrans (EM) have compelling evidence to support the diagnosis of a new infection rather than relapse of a past infection. In one published study of 28 patients with recurrent EM, recurrences were in an entirely different anatomic location in virtually every patient [2]. Furthermore, none of the cases occurred within 12 months after anti-