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Clinical Infectious Diseases 2010;50(12):1683
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DOI: 10.1086/653004

Long-Term Outcomes in Patients with Early Lyme Disease: More False Hope?

To the Editor—In their recent article, Kowalski et al [1] conclude that when patients are treated for early Lyme disease with short-course antibiotic therapy, treatment failure is “exceedingly rare.” Unfortunately, the design of their study ignores findings at failing implants. Clin Oral Implants Res 1999; 10:339–345.


Ng CY, Teng CL, Li T, et al. Staphylococcus aureus infection, which were due to staphylococcal species in 58% of the episodes [2]. We also performed a subset analysis of 35 episodes of prosthetic joint infection that were due to organisms traditionally recognized as part of the oral flora. In both analyses, the risk of prosthetic joint infection following dental procedures was not increased.

Acknowledgments

Potential conflicts of interest. All authors: no conflicts.
of patients had persistent subjective symptoms after short-course treatment for early Lyme disease. This finding conforms with that of a recent Norwegian study of neurologic Lyme disease [7], in which 48% of treated patients had persistent symptoms at 1 year of follow-up. Other studies have shown a similar excess of chronic symptoms in patients treated for Lyme disease with short-course antibiotic regimens, compared with matched control subjects [2–6].

Although Kowalski and colleagues claim that there is no "convincing scientific evidence" for persistent B. burgdorferi infection in patients with chronic Lyme symptoms, their documentation of persistent symptoms after short-course antibiotic therapy underscores the probable infectious cause of these symptoms due to treatment failure, as has been shown in gerbils, hamsters, mice, dogs, horses, monkeys, and humans [8–10].

Acknowledgments

Potential conflicts of interest. R.B.S. serves without compensation on the medical advisory panel for QMedRx; he has no financial ties to the company. L.J. has no conflicts to declare.

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Reply to Stricker and Johnson

To the Editor—We appreciate the attention paid to our article [1] by Stricker and Johnson [2] but disagree with their conclusions on statistical and scientific grounds. They suggest performing intention-to-treat statistical analysis on our cohort and counting those who did not return surveys as having experienced treatment failure. This is neither a plausible nor appropriate analytic strategy. First, our definition of treatment failure was based on clinical data obtained from a review of medical records over an average follow-up period of 2.9 years. The survey had no effect on the determination of treatment failure, making their point irrelevant. Second, intention-to-treatment analysis is to be applied to prospective, randomized clinical trials seeking pragmatic treatment-effectiveness end points [3]. To apply intention-to-treat methodology to a retrospective cohort study is nonsensical. We analyzed our data using Kaplan-Meier methodology and compared differences between the nonrandomized treatment groups using the log-rank test, consistent with published recommendations for cohort studies [4]. We wish to reaffirm our study findings: the 2-year treatment failure–free rate for all patients was 98.9%–99.2%, using predetermined definitions of treatment failure [1].

Stricker and Johnson also claim that treatment failure was defined too stringently [2]. We counter that nonspecific subjective complaints such as fatigue, musculoskeletal complaints, and insomnia are ubiquitous; of themselves, they cannot possibly be used to discern whether someone is suffering from Borrelia burgdorferi infection or countless other acute and chronic physical, emotional, and psychological maladies that manifest identically. For a cohort study to maintain scientific integrity, it is necessary to use clear, objective, unambiguous, and measurable outcome criteria that are defined in advance, so as to avoid uninterpretable results [4]. Our study end point for treatment failure was chosen with such criteria in mind. It is well recognized that some patients have various subjective complaints after treatment for Lyme disease [5–7]. In our experience as infectious disease clinicians, many (and perhaps most) patients with systemic infectious diseases complain of fatigue, musculoskeletal pain, and various body aches well after cure of their infection. However, such complaints are not an appropriate indication to continue or reinitiate therapy for an infection that is otherwise cured. Furthermore, well-designed prospective clinical trials have shown that patients with a history of appropriately treated Lyme disease do not have residual symptoms more frequently than healthy control subjects [8] and do not benefit from prolonged intravenous antibiotic therapy [9].

Stricker and Johnson’s emphasis on the persistence of subjective complaints in our population does emphasize the key take-home point of our study: longer antibiotic courses did not decrease symptoms better than shorter courses in patients with ear-