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CLINICAL VIGNETTE

A Man with Thrombocytopenia Who Could Not Sleep

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Introduction

We discuss the work-up and treatment of a man that presented with chronic thrombocytopenia, severe insomnia, and debilitating chronic fatigue. He was eventually diagnosed with Lyme Borreliosis. Within months of initiating Lyme disease targeted therapy both the thrombocytopenia and sleep duration significantly improved.

History of Present Illness

The patient is a 77-year-old Caucasian male with a medical history significant for thrombocytopenia, insomnia, gait imbalance, peripheral neuropathy, and strabismus. He initially presented for the evaluation and management of a chronic thrombocytopenia with a platelet count that averaged 20,000.

The thrombocytopenia was evaluated with a bone marrow biopsy and aspiration, which was consistent with idiopathic thrombocytopenia purpura. Once the etiology of the thrombocytopenia was elucidated, he received steroids, Rituximab, and IVIG. He was refractory to the standard therapies and subsequently underwent a splenectomy. Despite the splenectomy, the platelet count did not adequately rise and he was then started on Romiplostim (Nplate). On weekly Romiplostim, the platelet count consistently remained above 50,000.

Despite the improvement in the platelet count, the refractory insomnia, emotional instability, and the chronic fatigue remained active issues. His average sleep time was 2 hours, and he noted fatigue and anhedonia. A sleep study proved to be non-diagnostic. Multiple pharmacologic interventions followed with limited therapeutic response. The agents prescribed included zolpidem, temazepam, mirtazapine, trazodone, quetiapine, bupropion, amitriptyline, doxepin, and primidone. He was also seen by psychiatrists and a sleep specialist with no improvement.

On review of his social history, he noted that he was an avid gardener. He recalled that he was bitten by various insects at different times. He was then tested for and diagnosed with Lyme disease. The CSF antibody studies were equivocal. The brain MRI SPECT suggested Lyme encephalomyelitis.

After consultation by an infectious disease specialist, he was started on parenteral ceftriaxone. After approximately 4-6

months continued antibiotic therapy, the platelet count started stabilizing. The weekly Romiplostim was tapered to monthly, and platelet counts of above 200,000 were routinely seen. Additionally, there was a noticeable improvement of the sleep pattern as well. He was now able to sleep approximately 4-6 hours a night. Currently, the patient continues on parenteral ceftriaxone.

Discussion

The spirochete *Borrelia burgdorferi* is a multisystem disease transmitted to humans by infected ticks. Lyme disease has many challenging clinical aspects. These include rheumatologic, neurologic, ophthalmologic, cardiac, dermatologic, psychiatric, and hematologic manifestations. It is important to note that Lyme disease mimics syphilis in its three stages of presentation. These include early localized disease, early disseminated disease, and late disseminated disease.¹⁻³ In this brief discussion, we focus on the neuropsychiatric and hematologic manifestations of Lyme disease.

The neuropsychiatric manifestations of late Lyme disease are numerous and mostly consist of encephalopathy, polyneuropathy, chronic fatigue, poor sleep, depressive illness, poor concentration, and emotional disturbance.⁴ The neurologic manifestation of Lyme disease may be subtle or very severe, and the incubation period maybe as long as 10-20 years.^{5,6} The association between these neuropsychiatric manifestations and Lyme borreliosis is tenuous. A battery of serologic, CSF, and imaging studies are needed for diagnosis. The treatment consists of long-term antibiotics and the efficacy of which in late disease could easily be scrutinized.⁷

The hematologic manifestations of Lyme disease are also poorly understood, and any correlation remains unproven. The association of Lyme disease with thrombocytopenia² is more widely reported than that of pancytopenia.³ The literature suggests that the hematologic manifestations attributed to Lyme disease may be due to coinfection with the agent of human granulocytic ehrlichiosis.⁸ A recent PubMed search conducted when preparing this report did not reveal evidence correlating Lyme disease to chronic thrombocytopenia.

Conclusion

While remaining on long-term ceftriaxone, the patient has continued to improve clinically. He is now able to sleep 50% longer, and the thrombocytopenia has markedly improved. In this patient, the neurologic and hematologic findings cannot be absolutely attributed to the Lyme disease. Alternate diagnoses were considered and were systematically excluded. However, the apparent response to ceftriaxone strengthens the case for a genuine Lyme-associated neuropsychiatric and hematologic complications.

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