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Laboratory Testing for Lyme Neuroborreliosis

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In Reply We agree with Lautner and colleagues that, in addition to the ratio of *Borrelia burgdorferi* antibodies between cerebrospinal fluid (CSF) and serum, tests, such as CSF white blood cell count, can be useful in the assessment of neuroborreliosis. Indeed, CSF analysis is a pivotal tool in making a diagnosis of meningitis. However, whether liberal use of CSF testing to assess for possible neuroborreliosis among patients not suspected to have meningitis would be practiced (given barriers to obtaining samples) or aid in enhancing diagnosis is uncertain.

Early neuroborreliosis—with its most common manifestations of facial nerve palsy, aseptic meningitis, and neuroradiculitis—should only be entertained when patients at epidemiologic risk come to attention with compelling clinical findings. Among such patients, peripheral blood serologic testing for *B burgdorferi* is highly sensitive; for persons initially seronegative, convalescent serologies help confirm the diagnosis.¹ Lyme C6 peptide antibody testing can also be very valuable in this setting and has been shown to be more sensitive than standard 2-tier antibody testing in persons with early neuroborreliosis.² However, antibodies to *B burgdorferi* in CSF may be negative during early infection.³ Furthermore, while patients with facial nerve palsy attributable to Lyme disease often have a lymphocytic CSF pleocytosis, CSF analysis is not needed for patients without signs or symptoms of meningitis who are suspected to have this diagnosis owing to its excellent response to treatment with oral doxycycline.⁴

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Late Lyme encephalomyelitis—meaning genuine infection of the brain parenchyma and/or spinal cord by *B burgdorferi*—is exceptionally uncommon.⁵ This rare diagnosis should only be considered for patients at appropriate risk for infection who have objective neurologic deficits with corresponding imaging study abnormalities. While CSF study results for such patients are abnormal, given the rarity of this entity, initial Lyme disease–related testing should include only peripheral blood serologic testing, as such patients will be *B burgdorferi* seropositive.

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