Save the two-tier Lyme disease test

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However, the western blot TTT has allowed doctors serologic confirmation for some early Lyme disease cases. The test requires that positive or equivocal ELISA tests be confirmed with 2 of 3 IgM bands or 5 of 10 IgG bands. The western blot based TTT has been considered sensitive for chronic manifestations by some doctors [2] but not others. [3]

Given its lack of sensitivity, researchers have proposed utilizing a combination of several other serologic tests. The study's authors evaluated a combination of a whole-cell sonicate (WCS) EIA, a C6 EIA, and/or a VlsE chemiluminescence immunoassay (CLIA). [1]

The sensitivity of these proposed protocols was not much better, however, than the western blot TTT test, which had sensitivity ranging from 36% to 54% for early Lyme disease. [1] The sensitivity of the proposed modified 2-tier testing (MTTT) protocols ranged from 66% to 72% on convalescence. [1]

Branda and colleagues, from the Departments of Pathology, Massachusetts General Hospital and Harvard Medical School, suggest eliminating the western blot based TTT in favor of a modified 2-tier testing.

"Although there were minor differences in sensitivity and specificity among MTTT protocols, each provides comparable or greater sensitivity in acute EM, and similar specificity compared with conventional 2-tiered testing, obviating the need for Western blots," argues Branda. [1]

Any recommendation to eliminate the western blot TTT in favor of a combination of a (WCS) EIA, C6 EIA, and VlsE (CLIA) test is inarguably premature. A sensitivity of 36% to 54% for early Lyme disease and 66% to 72% for convalescent Lyme disease is still low.

Moreover, the sensitivity of a combination of a (WCS) EIA, C6 EIA, and/or VlsE (CLIA) was based on only 55 erythema migrans patients. Finally, the sensitivity of a combination of a (WCS) EIA, C6 EIA, and/or VlsE (CLIA) for chronic manifestations of Lyme disease has not been determined.

For now, it would be reasonable to save the western blot TTT. Since its adoption in 1994, it has provided serologic confirmation for some Lyme disease patients.

References:

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the Infectious Diseases Society of America. Clin Infect Dis, 43(9), 1089-1134 (2006).
3. Cameron DJ, Johnson LB, Maloney EL. Evidence assessments and guideline recommendations in Lyme disease: the clinical management of known tick bites, erythema migrans rashes and persistent disease. Expert Rev Anti Infect Ther, 1-33 (2014).

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