

How accurate are the tests for Lyme disease? Not nearly as accurate as HIV testing according to a recent analysis.

Modern medicine and clinical practice are now supported by a broad range of high technology tools that can assist with the diagnosis of disease. These range from high resolution X-ray and MRI systems, to blood and urine tests for many of the thousands of human diseases.

It is generally assumed that these are accurate and clinicians frequently rely on the results to define treatment. Many of them are extremely accurate and deserve full confidence from clinicians. For example, HIV tests typically have sensitivities (the probability of disease given a positive test) greater than 99%, and specificity (the probability of not having the disease given a negative test) of greater than 99.5%. However high accuracy is not always the case and for Lyme disease the sensitivity of tests is poor as demonstrated in recently published papers.

Lyme disease (Lyme borreliosis) is generally caused by the bite of a tick infected with one or more of many species of borrelia bacteria. Three recent papers with 25 authors detail the results from more than 70 independent studies of the sensitivity of Lyme disease test kits. These show that when commercial antibody test kits are used soon after an infected tick bite they typically identify 20% of cases, (80% of cases misdiagnosed) and with samples that were proven positive, only 59% were found to be positive (41% of cases misdiagnosed).

This is problematic since in the earliest stages of Lyme disease the symptoms are non-specific and include fatigue, and possibly joint and/or muscle pain. If not diagnosed and treated with antibiotics the borrelia bacteria disseminate to all regions of the body including the central nervous system and brain. The tests are more accurate at this later stage. However one analysis demonstrates that the test widely recommended by medical authorities where positive samples from an initial test are submitted to a second test (the so called two-tier test) misdiagnosed 74.9% of cases, a sensitivity of 25.1%.

In comparison to the methods used for HIV, Lyme disease testing can generate between 170 and 560 times as many false negative results. This degree of inaccuracy is probably unknown to the majority of clinicians and patients.

A negative test does not mean that Lyme disease is absent, and if not treated promptly can result in serious and long term illness.

References:

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