Lyme Disease Testing Algorithm

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Erythema migrans
AND/OR
documented tick exposure or bite

No

TEST FOR LYME DISEASEa
B. burgdorferi VlsE1/pepC10 Antibodies, Total by ELISA

CONSIDER
Coinfection testingb
- Tick-Borne Disease Panel by PCR, Blood
  (screens for diseases that may be found in Lyme disease areas, including Babesia microti and Anaplasma phagocytophilum)
- Relapsing Fever Borrelia Species by PCR
  (includes B. miyamotoi)

Positive for tickborne PCR

No further testing on initial specimen; test convalescent specimen if suspicion still exists
Consider other tickborne diseases if not tested concurrently above

Treat based on test results

<4 weeks after onset of disease

ORDER
B. burgdorferi Antibodies, IgG and IgM by Immunoblot

IgG negative
IgM positive
Lyme disease or false-positive IgM

ORDER
B. burgdorferi Antibody, IgG by Immunoblot (within 30 days) to help confirm Lyme disease and rule out false-positive IgM immunoblot

IgG positive
IgM negative
Lyme disease

If strong suspicion exists, consider repeat testing
Also consider other possible causes of false-positive ELISA (eg, autoimmune conditions)

≥4 weeks after onset of disease

ORDER
B. burgdorferi Antibody, IgG by Immunoblot

If strong suspicion exists, consider repeat testing
Also consider other possible causes of false-positive ELISA (eg, autoimmune conditions)

IgG negative
IgM negative
If strong suspicion exists, consider retesting after 2-4 days

IgG positive
IgM negative
Lyme disease

Neurologic symptoms present (eg, meningoradiculitis, meningitis, cranial nerve deficits)

ORDER
Full meningitis workup (CSF studies)
AND
B. burgdorferi Antibody, IgG by Immunoblot (CSF)

Positive Borrelia test

Suggests neuroborreliosis

Negative Borrelia test

Neuroborreliosis not indicated; continue with meningitis workup
If suspicion persists, consider retesting after 2-4 days

Presumed negative for Lyme disease

Abbreviations
IgG Immunoglobulin G
IgM Immunoglobulin M
CSF Cerebrospinal fluid
ELISA Enzyme-linked immunosorbent assay
PCR Polymerase chain reaction

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