Lyme Neuroborreliosis MAYO CLINIC LABORATORIES **Diagnostic Algorithm** Neuroinvasive Lyme disease should be considered in patients, with exposure to ticks in a Lyme-endemic region, who present with 1 or more of the following symptoms: Cranial neuropathy (eg, facial nerve palsy) Radiculoneuritis (motor and/or sensory) Lymphocytic meningitis Bannwarth syndrome Order LNBAB / Lyme CNS Infection IgG with Antibody Index Reflex, Serum and Spinal Fluid Cerebrospinal fluid (CSF) and serum are both required: CSF and serum should be collected within 24 hours of each other CSF specimen is screened first, using an anti-Borrelia IgG ELISA* POSITIVE NEGATIVE Anti-Borrelia IgG detected in CSF** No anti-Borrelia IgG detected Reflex testing of paired CSF and Reflex testing of serum serum initiated specimen not indicated Paired CSF and serum specimens tested by reflex for: Anti-Borrelia IgG Clickable PDF Total IgG Albumin Results will be used to determine the Lyme CNS Antibody Index (AI)*** POSITIVE EQUIVOCAL NEGATIVE INVALID Lyme CNS AI value >1.5 Lyme CNS AI value 1.3-1.5 Lyme CNS AI value 0.6-<1.3 Lyme CNS AI value < 0.6 Results indicate the presence Low level of intrathecal Results indicate lack of Result is due to abnormally of intrathecal antibody antibody synthesis to Lyme intrathecal antibody synthesis elevated total IgG levels in synthesis to Lyme diseasedisease-associated Borrelia to Lyme disease-associated CSF. This may be due to associated Borrelia species, species detected. Borrelia species. This suggests passive diffusion through suggesting neuroinvasive the absence of neuroinvasive the blood-brain barrier or Lyme disease. Results should be correlated Lyme disease. contamination of the CSF with exposure history and with blood during a traumatic Results should be correlated clinical presentation to The initial screen-reactive result lumbar puncture. with exposure history and establish a diagnosis of may be due to anti-Borrelia clinical presentation to neuroinvasive Lyme disease. species antibodies present Repeat testing may be establish the diagnosis. in the CSF due to increased considered.

permeability of the blood-brain barrier or transient introduction during lumbar puncture.

* Anti-Borrelia IgG ELISA detects IgG-class antibodies to the Borrelia burgdorferi sensu lato genospecies.

** Patient management decisions should not be made based on a screen-reactive result alone

*** Reiber H, Lange P: Quantification of virus-specific antibodies in cerebrospinal fluid and serum: sensitive and specific detection of antibody synthesis in brain. Clin Chem 1991;37(7):1153-1160

See Acute Tick-Bourne Disease Testing Algorithm for more information.