Clinical Practice Guidelines by the Infectious Diseases Society of America, American Academy of Neurology, and American College of Rheumatology

2020 Guidelines for the Prevention, Diagnosis, and Treatment of Lyme Disease


Abstract

This evidence-based clinical practice guideline for the prevention, diagnosis, and treatment of Lyme disease was developed by a multidisciplinary panel representing the Infectious Diseases Society of America (IDSA), the American Academy of Neurology (AAN), and the American College of Rheumatology (ACR). The scope of this guideline includes prevention of Lyme disease, and the diagnosis and treatment of Lyme disease presenting as erythema migrans, Lyme disease complicated by neurologic, cardiac, and rheumatologic manifestations, Eurasian manifestations of Lyme disease, and Lyme disease complicated by coinfection with other tick-borne pathogens. This guideline does not include comprehensive recommendations for babesiosis and tick-borne rickettsial infections, which are published in separate guidelines. The target audience for this guideline includes primary care physicians and specialists caring for this condition such as infectious diseases specialists, emergency physicians, internists, pediatricians, family physicians, neurologists, rheumatologists, cardiologists and dermatologists in North America.
Summarized below are the 2020 recommendations for the prevention, diagnosis, and treatment of Lyme disease. The panel followed a systematic process used in the development of other Infectious Diseases Society of America (IDSA), American Academy of Neurology (AAN), and American College of Rheumatology (ACR) clinical practice guidelines, which included a standardized methodology for rating the certainty of the evidence and strength of recommendation using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach (figure). A detailed description of background, methods, evidence summary and rationale that support each recommendation, and knowledge gaps can be found online in the full text (https://www.aan.com/Guidelines/home/GuidelineDetail/1015).

I. Which Measures Should Be Used to Prevent Tick Bites and Tick-Borne Infections?

(A) Personal Protective Measures

Recommendation
1. Individuals at risk of exposure should implement personal protective measures to reduce the risk of tick exposure and infection with tick-borne pathogens (good practice statement).

(B) Repellents to Prevent Tick Bites

Recommendation
1. For the prevention of tick bites, we recommend N,N-diethyl-meta-toluamide (DEET), picaridin, ethyl-3-(N-n-butyl-N-acetyl)aminopropionate (IR3535), oil of lemon eucalyptus (OLE), p-menthane-3,8-diol (PMD), 2-undecanone, or permethrin (strong recommendation, moderate-quality evidence).

(C) Removal of Attached Ticks

Recommendations
1. We recommend promptly removing attached ticks by mechanical means using a clean fine-tipped tweezer (or a comparable device) inserted between the tick body and the skin (good practice statement).
2. We recommend against burning an attached tick (with a match or other heat device) or applying noxious chemicals or petroleum products to coax its detachment (good practice statement).

II. Which Diagnostic Tests Should Be Used Following a Tick Bite?

(A) Diagnostic Tick Testing

Recommendations
1. We recommend submitting the removed tick for species identification (good practice statement).

2. We recommend against testing a removed *Ixodes* tick for *Borrelia burgdorferi* (strong recommendation, moderate-quality evidence). **Comment:** The presence or absence of *B. burgdorferi* in an *Ixodes* tick removed from a person does not reliably predict the likelihood of clinical infection.

(B) Diagnostic Testing of Asymptomatic Patients Following Tick Bites

Recommendation
1. We recommend against testing asymptomatic patients for exposure to *B. burgdorferi* following an *Ixodes* spp. tick bite (strong recommendation, moderate-quality evidence).

III. Who Should Receive Antibiotic Prophylaxis to Prevent Lyme Disease Following Presentation With a Tick Bite?

Recommendation
1. We recommend that prophylactic antibiotic therapy be given only to adults and children within 72 hours of removal of an identified high-risk tick bite, but not for bites that are equivocal risk or low risk (strong recommendation, high-quality evidence). **Comment:** If a tick bite cannot be classified with a high level of certainty as a high-risk bite, a wait-and-watch approach is recommended. A tick bite is considered to be high risk only if it meets the following 3 criteria: the tick bite was from (a) an identified *Ixodes* spp. vector species, (b) it occurred in a highly endemic area, and (c) the tick was attached for ≥36 hours.

IV. What Is the Preferred Antibiotic Regimen for the Chemoprophylaxis of Lyme Disease Following a High-Risk Tick Bite?

Recommendation
1. For high-risk *Ixodes* spp. bites in all age groups, we recommend the administration of a single dose of oral doxycycline within 72 hours of tick removal over observation (strong recommendation, moderate-quality evidence). **Comment:** Doxycycline is given as a single oral dose, 200 mg for adults and 4.4 mg/kg (up to a maximum dose of 200 mg) for children.

V. What Is the Preferred Diagnostic Testing Strategy for Erythema Migrans?

Recommendations
1. In patients with potential tick exposure in a Lyme disease endemic area who have 1 or more skin lesions compatible with erythema migrans, we recommend clinical diagnosis
rather than laboratory testing (strong recommendation, moderate quality evidence).

2. In patients with 1 or more skin lesions suggestive of, but atypical for erythema migrans, we suggest antibody testing performed on an acute-phase serum sample (followed by a convalescent-phase serum sample if the initial result is negative) rather than currently available direct detection methods such as PCR or culture performed on blood or skin samples (weak recommendation, low-quality evidence). **Comment:** If needed, the convalescent-phase serum sample should be collected at least 2–3 weeks after collection of the acute-phase serum sample.

**VI. What Are the Preferred Antibiotic Regimens for the Treatment of Erythema Migrans?**

**Recommendation**

1. For patients with erythema migrans, we recommend using oral antibiotic therapy with doxycycline, amoxicillin, or cefuroxime axetil (strong recommendation; moderate quality of evidence). **Comment:** For patients unable to take both doxycycline and beta-lactam antibiotics, the preferred secondline agent is azithromycin.

**VII. How Long Should a Patient With Erythema Migrans Be Treated?**

**Recommendation**

1. We recommend that patients with erythema migrans be treated with either a 10-day course of doxycycline or a 14-day course of amoxicillin or cefuroxime axetil rather than longer treatment courses (strong recommendation, moderate quality of evidence). **Comment:** If azithromycin is used, the indicated duration is 5–10 days, with a 7-day course preferred in the United States, as this duration of therapy was used in the largest clinical trial performed in the United States. ³

**VIII. Should Patients With the Southern Tick-Associated Rash Illness (STARI) Be Treated With Antibiotics?**

**Recommendation**

1. In patients who develop an erythema migrans–like skin lesion following the bite of the lone star tick (Amblyomma americanum), an illness referred to as STARI, we make no recommendation for or against the use of antibiotics (no recommendation; knowledge gap). **Comment:** In certain geographic regions, both STARI and Lyme disease are endemic. ⁴ Distinguishing single erythema migrans due to Lyme disease from STARI may not be possible clinically unless the responsible tick has been identified. ⁵ When STARI cannot be distinguished from Lyme disease–associated erythema migrans in areas endemic for both conditions, antibiotic therapy directed toward Lyme disease is indicated.

**IX. What Is the Preferred Diagnostic Testing Strategy for Lyme Neuroborreliosis?**

**Recommendations**

1. When assessing patients for possible Lyme neuroborreliosis involving either the PNS or the CNS, we recommend serum antibody testing rather than PCR or culture of either CSF or serum (strong recommendation, moderate-quality of evidence).

2. If CSF testing is performed in patients with suspected Lyme neuroborreliosis involving the CNS, we (a) recommend obtaining simultaneous samples of CSF and serum for determination of the CSF:serum antibody index, performed by a laboratory using validated methodology, (b) recommend against CSF serology without measurement of the CSF:serum antibody index, and (c) recommend against routine PCR or culture of CSF or serum (strong recommendation, moderate-quality evidence).

**X. For Which Neurologic Presentations Should Patients Be Tested for Lyme Disease?**

**Recommendations**

1. In patients presenting with 1 or more of the following acute disorders: meningitis, painful radiculoneuritis, mononeuropathy multiplex including confluent mononeuropathy multiplex, acute cranial neuropathies (particularly VII and VIII and less commonly III, V, VI, and others), or in patients with evidence of spinal cord (or rarely brain) inflammation, the former particularly in association with painful radiculitis involving related spinal cord segments, and with epidemiologically plausible exposure to ticks infected with B burgdorferi, we recommend testing for Lyme disease (strong recommendation, moderate-quality evidence).

2. In patients with typical amyotrophic lateral sclerosis, relapsing-remitting multiple sclerosis, Parkinson disease, dementia or cognitive decline, or new-onset seizures, we recommend against routine testing for Lyme disease (strong recommendation, low-quality evidence).

3. In patients with neurologic syndromes other than those listed in (1) or (2), in the absence of a history of other clinical or epidemiologic support for the diagnosis of Lyme disease, we recommend against screening for...
Lyme disease (strong recommendation, low-quality evidence).

4. In patients presenting with nonspecific MRI white matter abnormalities confined to the brain in the absence of a history of other clinical or epidemiologic support for the diagnosis of Lyme disease, we suggest against testing for Lyme disease (weak recommendation, low-quality evidence).

XI. Should Adult Patients With Psychiatric Illnesses Be Tested for Lyme Disease?

Recommendation
1. In patients with psychiatric illness, we recommend against routine testing for Lyme disease (strong recommendation, low-quality evidence).

XII. Should Children With Developmental, Behavioral, or Psychiatric Disorders Be Tested for Lyme Disease?

Recommendation
1. In children presenting with developmental, behavioral, or psychiatric disorders, we suggest against routinely testing for Lyme disease (weak recommendation, low-quality evidence).

XIII. What Are the Preferred Antibiotic Regimens for the Treatment of Acute Neurologic Manifestations of Lyme Disease Without Parenchymal Involvement of the Brain or Spinal Cord?

Recommendation
1. In patients with Lyme disease–associated meningitis, cranial neuropathy, radiculoneuropathy, or with other peripheral nervous system (PNS) manifestations, we recommend using IV ceftriaxone, cefotaxime, penicillin G, or oral doxycycline over other antimicrobials (strong recommendation, moderate-quality evidence). Comment: Decisions about the choice of antibiotic among these, including the route of administration, should primarily be made based on individual factors such as side effect profile, ease of administration, ability to tolerate oral medication, and concerns about compliance unrelated to effectiveness. Treatment route may be changed from IV to oral during treatment. The preferred antibiotic duration is 14–21 days.

XIV. Should Patients With Lyme Disease–Related Parenchymal Involvement of the Brain or Spinal Cord Be Treated With Oral or IV Antibiotics?

Recommendation
1. In patients with Lyme disease–associated parenchymal involvement of the brain or spinal cord, we recommend using IV over oral antibiotics (strong recommendation, moderate-quality evidence).

XV. Should Patients With Lyme Disease and Facial Nerve Palsy Receive Corticosteroids in Addition to Antimicrobial Therapy?

Recommendation
1. In patients with Lyme disease–associated facial nerve palsy, we make no recommendation on the use of corticosteroids in addition to antibiotics (no recommendation; knowledge gap). Comment: In patients aged 16 years or older presenting with acute facial nerve palsy but without other objective clinical or serologic evidence of Lyme disease, corticosteroid treatment should be administered within 72 hours in accordance with current facial nerve palsy guideline recommendations.6

XVI. Should All Patients With Early Lyme Disease Receive an ECG to Screen for Lyme Carditis?

Recommendation
1. We suggest performing an ECG only in patients with signs or symptoms consistent with Lyme carditis (weak recommendation, low-quality evidence). Comment: Symptoms and signs of cardiac involvement in Lyme disease include dyspnea, edema, palpitations, lightheadedness, chest pain, and syncope.

XVII. Which Patients With Lyme Carditis Require Hospitalization?

Recommendation
1. In patients with or at risk of severe cardiac complications of Lyme disease including those with significant PR prolongation (PR > 300 milliseconds), other arrhythmias, or clinical manifestations of myopericarditis, we recommend hospital admission with continuous ECG monitoring (strong recommendation, very-low-quality evidence). Comment: Clinical manifestations of Lyme carditis include exercise intolerance, palpitations, presyncope, syncope, pericarditic pain, evidence of pericardial effusion, elevated biomarkers (such as troponin), edema, and shortness of breath.
XVIII. What Pacing Modality Should Be Used if Needed for the Management of Lyme Carditis?

**Recommendation**
1. For patients with symptomatic bradycardia due to Lyme carditis that cannot be managed medically, we recommend temporary pacing modalities rather than implanting a permanent pacemaker (strong recommendation, moderate-quality evidence).

XIX. What Are the Preferred Antibiotic Regimens for the Treatment of Lyme Carditis?

**Recommendations**
1. In outpatients with Lyme carditis, we suggest oral antibiotics over IV antibiotics (weak recommendation, very-low-quality evidence).

XX. Should Patients Being Evaluated for Acute Myocarditis/Pericarditis or Chronic Cardiomyopathy of Unknown Cause Be Tested for Lyme Disease?

**Recommendations**
1. In patients with acute myocarditis/ pericarditis of unknown cause in an appropriate epidemiologic setting, we...
recommend testing for Lyme disease (strong recommendation, low-quality evidence).
2. In patients with chronic cardiomyopathy of unknown cause, we suggest against routine testing for Lyme disease (weak recommendation, low-quality evidence).

XXI. What Is the Preferred Diagnostic Testing Strategy for Lyme Arthritis?

Recommendations
1. When assessing possible Lyme arthritis, we recommend serum antibody testing over PCR or culture of blood or synovial fluid/tissue (strong recommendation, moderate quality of evidence).
2. In seropositive patients for whom the diagnosis of Lyme arthritis is being considered but treatment decisions require more definitive information, we recommend PCR applied to synovial fluid or tissue rather than *Borrelia* culture of those samples (strong recommendation, moderate quality of evidence).

XXII. What Are the Preferred Antibiotic Regimens for the Initial Treatment of Lyme Arthritis?

Recommendation
1. For patients with Lyme arthritis, we recommend using oral antibiotic therapy for 28 days (strong recommendation, moderate-quality evidence).

XXIII. What Are the Approaches to Patients in Whom Lyme Arthritis Has Not Completely Resolved?

Recommendations
1. In patients with Lyme arthritis with partial response (mild residual joint swelling) after a first course of oral antibiotic, we make no recommendation for a second course of antibiotic vs observation (no recommendation, knowledge gap). Comment: Consideration should be given to exclusion of other causes of joint swelling than Lyme arthritis, medication adherence, duration of arthritis before initial treatment, degree of synovial proliferation vs joint swelling, patient preferences, and cost. A second course of oral antibiotics for up to 1 month may be a reasonable alternative for patients in whom synovial proliferation is modest compared with joint swelling and for those who prefer repeating a course of oral antibiotics before considering IV therapy.
2. In patients with Lyme arthritis with no or minimal response (moderate to severe joint swelling with minimal reduction of the joint effusion) to an initial course of oral antibiotic, we suggest a 2- to 4-week course of IV ceftiraxone over a second course of oral antibiotics (weak recommendation, low-quality evidence).

XXIV. How Should Postantibiotic (Previously Term antibiotic-Refractory) Lyme Arthritis Be Treated?

Recommendation
1. In patients who have failed 1 course of oral antibiotics and 1 course of IV antibiotics, we suggest a referral to a rheumatologist or other trained specialist for consideration of the use of disease-modifying antirheumatic drugs (DMARDs), biologic agents, intra-articular steroids, or arthroscopic synovectomy (weak recommendation, very-low-quality evidence). Comment: Antibiotic therapy for longer than 8 weeks is not expected to provide additional benefit to patients with persistent arthritis if that treatment has included 1 course of IV therapy.

XXV. Should Patients With Persistent Symptoms Following Standard Treatment of Lyme Disease Receive Additional Antibiotics?

Recommendation
1. For patients who have persistent or recurring nonspecific symptoms such as fatigue, pain, or cognitive impairment following recommended treatment for Lyme disease, but who lack objective evidence of reinfection or treatment failure, we recommend against additional antibiotic therapy (strong recommendation, moderate-quality evidence). Comment: Evidence of persistent infection or treatment failure would include objective signs of disease activity, such as arthritis, meningitis, or neuropathy.

XXVI. What Is the Preferred Antibiotic Regimen for the Treatment of Borrelial Lymphocytoma?

Recommendation
1. In patients with borrelial lymphocytoma, we suggest oral antibiotic therapy for 14 days (weak recommendation, low-quality evidence).

XXVII. What Is the Preferred Antibiotic Regimen for the Treatment of Acrodermatitis Chronica Atrophicans?

Recommendation
1. In patients with acrodermatitis chronica atrophicans, we suggest oral antibiotic therapy for 21–28 days over shorter durations (weak recommendation, low-quality evidence).
XXVIII. Under What Circumstances Should a Patient With Lyme Disease Be Evaluated for Coinfection With *Anaplasma Phagocytophilum* or *Babesia Microti*?

** Recommendation **

1. In patients with Lyme disease who have a high-grade fever or characteristic laboratory abnormalities, clinicians should assess for possible coinfection with *A phagocytophilum* and/or *B microti* infection in geographic regions where these infections are endemic (good practice statement). **Comment:** Coinfection should be investigated in patients who have a persistent fever for >1 day while on antibiotic treatment for Lyme disease. If fever persists despite treatment with doxycycline, *B microti* infection is an important consideration. Characteristic laboratory abnormalities found in both anaplasmosis and babesiosis include thrombocytopenia, leukopenia, neutropenia, and/or anemia. Evidence of hemolysis such as elevated indirect bilirubin level, anemia, and elevated lactate dehydrogenase is particularly suggestive of babesiosis.

** Supplementary Data **

Supplementary materials are available at *Clinical Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

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**Disclosure**

See the Methodology section for approach to COI by the IDSA/AAN/ACR COI review group. The following list is a reflection of what has been reported to the IDSA/AAN/ACR COI review group. To provide thorough transparency, the IDSA/AAN/ACR requires full disclosure of all relationships, regardless of relevancy to the guideline topic. The assessment of disclosed relationships for possible COI is based on the relative weight of the financial relationship (i.e., monetary amount) and the relevance of the relationship (i.e., the degree to which an association might reasonably be interpreted by an independent observer as related to the topic or recommendation of consideration). The reader of these guidelines should be mindful of this when the list of disclosures is reviewed. M. A. R. serves as a council member for the New York City chapter of the American Society of Microbiology (ASM) and as a board member of the American Lyme Disease Foundation; has provided legal testimony and consultation regarding Lyme disease and tick-borne diseases; and has received research grants from the NIH, BioFire, New York State Department of Health, and ViraMed. P. G. A. receives research funding from the Fisher Center for Environmental
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L. S. Z. has served as an advisor for Novartis Promotional Speakers Bureau. No disclosures reported: K. B., R. R. B., V. L., M. C. O., J. R., E. E. V., and the 3 patient representatives. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed. Go to Neurology.org/N for full disclosures.

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References


Clinical Practice Guidelines by the Infectious Diseases Society of America, American Academy of Neurology, and American College of Rheumatology: 2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease (see p. 262)

In the first segment, Dr. Jason Crowell talks with Dr. Jeffrey Rumbaugh about the latest Lyme Disease Guidelines. In the second part of the podcast, Dr. Fabio Nascimento talks with Dr. Elizabeth Thiele in the second of a 4-part series called “Update in Epilepsy.”

Disclosures can be found at Neurology.org.

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Editors’ Note: Evaluation of Efficacy and Tolerability of First-Line Therapies in NMOSD

In the article, “Evaluation of Efficacy and Tolerability of First-Line Therapies in NMOSD,” Dr. Poupart et al. compared the efficacy and risk of severe infectious events of immunosuppressive agents used early as first-line therapy in patients with neuromyelitis optica spectrum disorder (NMOSD). Among 136 patients, they found that the use of first-line rituximab seemed more effective than mycophenolate mofetil (MMF) in suppressing clinical activity, independent of the antibody status. In response, Dr. Leite notes that rituximab is currently used as second-line therapy in most countries, but because rituximab and MMF have similar tolerability but rituximab had superior efficacy, an argument could be made for considering rituximab as a first-line therapy. In addition to noting that the apparent similarity in efficacy of rituximab and azathioprine was unexpected and contradicts other studies, Dr. Leite raises a couple of concerns about rituximab, including (1) rituximab-associated hypogammaglobulinemia (assessment of which would require analyses of plasma immunoglobulin levels) and (2) potential differences in the role of rituximab for chronic management between NMOSD patients with aquaporin-4 (AQP4) antibodies vs myelin oligodendrocyte (MOG) antibodies, who were analyzed together in this study. Responding to these comments, the authors note the small sample size of the azathioprine group, which limited statistical power. They also report that 22.7% of 44 patients treated with rituximab who had immunoglobulin results available met their definition of hypogammaglobulinemia, with one such patient having a serious infection. They agree that MOG and AQP4 diseases are different processes but note that they chose to focus on the broader NMOSD phenotype because the optimal management of MOG-positive patients is also uncertain. The authors note that there was no significant difference in therapeutic response based on the antibody status. This exchange highlights the need to further examine the commonly used treatment regimens for NMOSD in controlled trials, both in those that are MOG positive and those that harbor AQP4 antibodies.

Aravind Ganesh, MD, DPhil (Oxon), and Steven Galetta, MD

Neurology® 2021;96:294. doi:10.1212/WNL.0000000000011400

Reader Response: Evaluation of Efficacy and Tolerability of First-Line Therapies in NMOSD

M. Isabel Leite (Oxford, UK)


I read with interest the article by Poupart et al.1 It reports the efficacy and tolerability of first-line immunotherapy in 136 patients with neuromyelitis optica spectrum disorder (NMOSD) with antibodies (Abs) against aquaporin-4 (AQP4, AQP4-Abs) or myelin oligodendrocyte (MOG, MOG-Abs).

The authors show the effect of first-line rituximab (RTX), which is used as second-line therapy in most countries. RTX shows superiority in efficacy compared with mycophenolate mofetil (MMF); azathioprine (AZA)-treated patients have responded as efficiently as those on RTX,
which contradicts other studies (see table 4). However, looking at figure 2, it seems that, in the long-term, RTX remains the best of the 3 immunotherapies.

Knowing that the tolerability of RTX and MMF is similar and probably acceptable, one wonders whether RTX should—more often—be considered first-line immunotherapy for patients with NMOSD. However, concerns may be raised regarding 2 distinct issues, which this study could have addressed.

First, on hypogammaglobulinemia in RTX-treated patients: RTX-associated hypogammaglobulinemia has been reported widely, but most of the studies include patients on long-term RTX and often on other concurrent or previous immunosuppressive agents. Missing is the analysis of the plasma immunoglobulin levels—particularly in RTX-treated patients—even knowing that this is a retrospective study.

Second, on treating unnecessarily MOG-Ab patients with RTX, the authors analyzed together both AQP4-Ab and MOG-Ab subgroups, when there is increasing evidence that these two conditions are distinct. Therefore, their chronic management requirements may be different. It would be of value to explore—in depth and for longer—the efficacy of first-line RTX in AQP-4-Ab patients.

We thank Maria Isabel Leite for her comments on our article.1 First, from this observational study, regarding the risk of relapse for azathioprine (AZA) vs rituximab (RTX), we can only state that we did not observe any difference by interpreting a nonsignificant result. Moreover, the effect size was similar to those observed in other studies. We pointed out the small size of the AZA group (n = 23), which led to a low statistical power. Second, we can provide some data on hypogammaglobulinemia—as defined with immunoglobulin G (IgG) level <6 g/L2—in 44/62 RTX-treated patients. Among them, 10 patients (22.7%) presented hypogammaglobulinemia (mean [SD] = 4.2 [2] g/L). Five patients had a serious infectious disease, but the information on hypogammaglobulinemia was available in 3 patients. Among them, one had hypogammaglobulinemia. Because the data were partial, these results should be interpreted with caution. Third, we agree that antimyelin oligodendrocyte glycoprotein (MOG) and antiaquaporin-4 (AQP4) diseases reflect different pathologic processes.3 Considering that the right treatment strategy in patients with anti-MOG remains unsolved, we focused on NMOSD phenotype either with anti-AQP4 or anti-MOG antibodies. For the specific question addressed in the article, the interaction test was not significant.
meaning that no difference of therapeutic response level to the different antibody status was observed. We also conducted statistical analysis only in patients with anti-AQP4. We agree that in the issue addressing the best first-line strategy in NMOSD, this study probably contributes more to the perspective of anti-AQP4 NMOSD patients than anti-MOG in general.

3. Leite MI, Sozo DK. MOG-antibody-associated disease is different from MS and NMOSD and should be considered as a distinct disease entity. Mult Scler 2020;26:272–274.

Clinical Practice Guidelines by the Infectious Diseases Society of America, American Academy of Neurology, and American College of Rheumatology

2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease

Neurology® 2021;96:296. doi:10.1212/WNL.0000000000001422

In the first online publication of Special Article "Clinical Practice Guidelines by the Infectious Diseases Society of America, American Academy of Neurology, and American College of Rheumatology: 2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease" by Lantos et al. on November 30, 2020, the abstract was erroneously omitted by Clinical Infectious Diseases production staff. The following abstract has been added to the final published version of the guideline:

This evidence-based clinical practice guideline for the prevention, diagnosis, and treatment of Lyme disease was developed by a multidisciplinary panel representing the Infectious Diseases Society of America (IDSA), the American Academy of Neurology (AAN), and the American College of Rheumatology (ACR). The scope of this guideline includes prevention of Lyme disease, and the diagnosis and treatment of Lyme disease presenting as erythema migrans, Lyme disease complicated by neurologic, cardiac, and rheumatologic manifestations, Eurasian manifestations of Lyme disease, and Lyme disease complicated by coinfection with other tick-borne pathogens. This guideline does not include comprehensive recommendations for babesiosis and tick-borne rickettsial infections, which are published in separate guidelines. The target audience for this guideline includes primary care physicians and specialists caring for this condition such as infectious diseases specialists, emergency physicians, internists, pediatricians, family physicians, neurologists, rheumatologists, cardiologists and dermatologists in North America.

Oxford University Press regrets the omission.

The first online publication on November 30, 2020, also included an incorrect web address and hyperlink for the full-length guideline. The web address should have read, “aan.com/ Guidelines/home/ GuidelineDetail/ 1015,” and linked to aan.com/Guidelines/home/GuidelineDetail/1015. The final published version of the guideline includes the correct web address and hyperlink. The AAN Guidelines Publications Staff regret the error.

Reference