

Several of these multiple-choice questions were originally published in *Continuum: Lifelong Learning in Neurology—Multiple Sclerosis and Other Demyelinating Diseases, Volume 22, Issue 3, June 2016* based on the content in the issue developed by the following faculty:

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34. A 25-year-old woman is involved in a motor vehicle accident and has a closed head injury. She has persistent headaches after the accident and is referred for a brain MRI. Her MRI is abnormal, with five ovoid periventricular and subcortical white matter lesions that are suggestive of demyelination, one of which is enhancing. She has no history of neurologic symptoms other than the posttraumatic headaches. What is this patient's approximate risk of developing multiple sclerosis (MS) within the next 5 years?

- A. 5%
- B. 10%
- C. 33%
- D. 66%
- E. 90%

35. A 27-year-old woman is seen in clinic for management of newly diagnosed multiple sclerosis. She has recently married and plans to start her family soon; she would like to use a disease-modifying therapy that is considered safest during pregnancy. Which of the following options has the best available evidence regarding safety during pregnancy?

- A. fingolimod
- B. glatiramer acetate
- C. interferon
- D. natalizumab
- E. teriflunomide

36. A 63-year-old woman has an 18-year history of multiple sclerosis (MS). She had multiple exacerbations earlier in her disease course. She has been treated with interferon beta for many years; however, she has not had any recent exacerbations in over 5 years and has had a slowly progressive worsening of her gait over the past 2 years. She asks if she can stop her interferon beta treatment. Which of the following factors would most strongly support continued treatment with a disease-modifying agent?

- A. current gadolinium-enhancing lesions**
- B. Expanded Disability Status Scale (EDSS) score
- C. patient age
- D. patient sex
- E. presence of cerebral atrophy

37. A 29-year-old man who was diagnosed with multiple sclerosis at age 25 has experienced multiple clinical relapses and evidence of additional disease activity on imaging studies despite initial treatment with glatiramer acetate, followed by fingolimod. Treatment with alemtuzumab is considered. For which of the following adverse effects specific to alemtuzumab should he be monitored very closely?

- A. cardiotoxicity
- B. emergence of other autoimmune conditions
- C. increased risk of bladder cancer
- D. progressive multifocal leukoencephalopathy
- E . toxic epidermal necrolysis

38. A 36-year-old woman with relapsing multiple sclerosis presents with lancinating pain involving her right jaw. The pain is paroxysmal and is triggered by speaking, chewing, touch to the area, or even the breeze from a fan. Which of the following medications is supported by Level A evidence of efficacy for the treatment of this clinical manifestation of multiple sclerosis?

- A. baclofen
- B. carbamazepine
- C. gabapentin
- D. lamotrigine
- E . oxcarbazepine

39. A 43-year-old woman is seen in clinic after an MRI ordered by her primary care physician demonstrated multiple nonspecific whitematter hyperintensities. She had one episode of vertigo 4 years previously that was attributed to vestibular neuritis but has not had other spells of neurologic dysfunction. Which of the following imaging or clinical features would be most suggestive of demyelinating disease as the cause of her imaging findings?

- A. confluent white matter changes
- B. family history of similar imaging findings
- C. normal cervical and thoracic spinal cord imaging
- D. presence of at least two oligoclonal bands on CSF testing
- E . prominent involvement of external capsule

40. A 34-year-old woman is seen in the emergency department for 4 days of worsening right eye pain and visual loss in the right eye. Examination is notable for blurring of the disc margin on the right and a right relative afferent pupillary defect. Which of the following best describes the evidence for treatment in this setting?

- A. adrenocorticotrophic hormone gel is more effective than IV steroids
- B. IV methylprednisolone is more effective than low-dose oral prednisone
- C. low-dose oral steroids are equally effective as IV steroids
- D. no treatment has been shown to be more effective than placebo
- E . plasma exchange is considered first-line therapy

41. A 50-year-old woman with relapsing multiple sclerosis was recently hospitalized after she developed diplopia and right-sided ataxia. An MRI of the brain at that time showed an enhancing lesion in the pons, and she was treated with 5 days of IV methylprednisolone. She is seen in clinic 2 weeks later and reports no subjective improvement in her symptoms; her examination is also unchanged. Which of the following is the best next option in management?

- A. additional 3 days of IV steroids

- B. IVIg
- C. natalizumab
- D. oral prednisone therapy
- E. plasma exchange

42. A 62-year-old woman with a long-standing history of relapsing-remitting multiple sclerosis (MS) maintained on interferon beta-1a presents with a 1-year history of gradual worsening of her gait with increasing leg spasms and deteriorating balance. Her neurologic examination is remarkable for 4/5 strength in hip flexors and 4/5 strength in her knee flexors and ankle dorsiflexors. Her sensory examination is notable for patchy decrease in pinprick sensation in her right distal leg and foot and a moderate decrease in vibration sense in both legs up to the knees. Hyperreflexia, spasticity, and extensor plantar responses are present bilaterally. Her recent brain MRI shows stable MS lesion load; cervical spine MRI shows no evidence of critical stenosis or other superimposed conditions that might cause myelopathy. Which of the following is the best next step in management?

- A. change her disease-modifying therapy to fingolimod
- B. check for interferon beta neutralizing antibodies
- C. increase vitamin D3 supplementation dose
- D. order an antiJCV virus antibody
- E. order serum vitamin B12 level

43. A 34-year-old patient with relapsing multiple sclerosis (MS) is asked to consider smoking cessation because of the deleterious effects of smoking on MS course. Which of the following is one of the known mechanisms of tobacco use in worsening of MS?

- A. decrease in Fas (CD95) expression on lymphocytes
- B. decrease in matrix metalloproteinase
- C. increase in antiapoptotic milieu
- D. injury of the blood-brain barrier
- E. reduction of oxidative stress