

Multiple sclerosis: Solving the plaque puzzle

GENERAL PURPOSE: To provide information on issues related to MS. **LEARNING OBJECTIVES/OUTCOMES:** After completing this continuing-education activity, you should be able to: **1.** Outline the epidemiology, pathophysiology, diagnosis, and types of MS. **2.** Recognize signs and symptoms of MS. **3.** Select options in the management of MS.

1. Which statement about the incidence of MS is accurate?

- a. It affects men twice as often as women.
- b. It affects women three times more often than men.
- c. It affects both sexes equally.

2. There's an increased incidence and prevalence of MS in people who live

- a. at increased northern distance from the equator.
- b. on or near the equator.
- c. at increased southern distance from the equator.

3. Although MS isn't considered a hereditary condition, there's an overall familial recurrence rate of approximately

- a. 20%.
- b. 30%.
- c. 40%.

4. Relapses or flares in MS happen when T cells cause damage to which cells in the CNS?

- a. ependymal cells
- b. astrocytes
- c. oligodendrocytes

5. Flares are newly appearing neurologic symptoms in the absence of an infection or fever that last longer than at least

- a. 24 hours.
- b. 72 hours.
- c. 1 week.

6. The most common type of MS is

- a. PPMS.
- b. SPMS.
- c. RRMS.

7. What can occur over time secondary to continued damage in the white and gray matter of the CNS?

- a. intracranial hemorrhage
- b. cerebral atrophy
- c. brainstem herniation

8. Which statement is consistent with the diagnosis of CIS?

- a. All patients with CIS eventually go on to develop MS.
- b. The patient has neurologic symptoms for at least 48 hours that point to possible MS.
- c. Neurologic symptoms are followed by a complete or partial recovery.

9. Patients with RRMS converted to SPMS within how many years after developing RRMS?

- a. 1 to 5 years
- b. 10 to 15 years
- c. 25 to 30 years

10. Which statement about PPMS is accurate?

- a. Relapses and remissions can occur as often as every month.
- b. It affects men more than women at a rate of 4:1.
- c. It starts to affect patients in their late 30s.

11. Charcot neurologic triad occurs from a breakdown in communication between neurons in which region of the brain?

- a. cerebellum
- b. corpus callosum
- c. thalamus

12. The first part of Charcot neurologic triad is

- a. seizures.
- b. difficulty reading and writing.
- c. nystagmus.

13. Optic nerve plaques can cause

- a. color distortion.
- b. scotomas.
- c. flashes.

14. The second factor in Charcot neurologic triad is

- a. poor cognitive abilities.
- b. intention tremor.
- c. decreased alertness.

15. The dysarthria that occurs in people with MS results from plaques in the

- a. amygdala.
- b. hypothalamus.
- c. brainstem.

16. Lhermitte sign is an electric shock type of sensation that moves down the spine with

- a. neck flexion.
- b. arm abduction.
- c. shoulder shrugging.

17. ANS disorders that can stem from spinal cord involvement in MS include

- a. hair loss.
- b. incontinence.
- c. loss of the sense of smell.

18. One of the most common complaints in patients with MS is

- a. excruciating muscle pain.
- b. memory problems.
- c. unrelenting fatigue.

19. Which statement about lassitude is accurate?

- a. It's just a reflection of laziness.
- b. It often occurs around the same time each day.
- c. It occurs after intense physical activity.

20. Uhthoff phenomenon is a temporary worsening of MS symptoms caused by

- a. an increase in temperature.
- b. high-stress situations.
- c. a change in medications.

21. MS is diagnosed by

- a. genetic testing.
- b. an acetylcholine level.
- c. MRI.

22. An injectable immunomodulator that has antiviral properties and may modify the course of MS is

- a. fostamatinib.
- b. interferon beta-1a.
- c. ecallantide.

23. Which of the following is an oral immunomodulator with antioxidant properties that helps protect brain cells and the spinal cord?

- a. fingolimod
- b. rilonacept
- c. siltuximab

24. Mitoxantrone may increase the risk of

- a. leukemia.
- b. suicidal ideation.
- c. renal failure.

25. The first monoclonal antibody approved for the management of MS is

- a. abciximab.
- b. natalizumab.
- c. bezlotoxumab.

26. Ocrelizumab is approved to treat all of the following except

- a. RRMS.
- b. early PPMS.
- c. SPMS.

27. The use of cannabinoids in patients with MS may decrease

- a. the inflammation of optic neuritis.
- b. the severity of sleep disorders.
- c. neuropathic pain.



28. Which alternative therapy may increase the quality of life in some patients with MS?

- a. yoga
- b. meditation
- c. tai chi

29. What benefit of dalfampridine has been demonstrated in patients with MS?

- a. improved concentration
- b. decreased muscle spasticity
- c. improved walking speed

30. When injected into specific muscles, what substance has been shown to improve dystonia?

- a. onabotulinum toxin A
- b. C1 esterase inhibitor recombinant
- c. 6-mercaptopurine

31. Baclofen works by inhibiting the transmission of nerve cells in the brain to allow for

- a. improvement in tinnitus.
- b. decreased nocturia.
- c. muscle relaxation.

32. Amantadine and modafinil are medications approved for patients with primary MS to treat

- a. dizziness.
- b. fatigue.
- c. skin numbness.