Multiple Sclerosis Assessment

Multiple sclerosis is a chronic degenerative neurologic disorder characterized by nerve fiber demyelination. Although the disorder is commonly diagnosed in women between 20-50 years of age, affected individuals also include young teens, adult males, and older adults. Symptoms of multiple sclerosis include numbness, spasticity, and fatigue. The disorder causes motor issues such as paralysis and cerebellar signs such as nystagmus. Additional complications include urinary incontinence and optic neuritis. The patient may experience relapse and remission of symptoms. Refer to the Picmonic on "Multiple Sclerosis Interventions" for additional information.



PLAY PICMONIC

Cause/Mechanism

Nerve Fiber Demyelination
Nerve Fiber Unraveling-myelin
Multiple sclerosis is a chronic, progressive, and degenerative disorder that affects the central nervous system. Environmental factors or viral infections may trigger chronic inflammation, leading to disseminated demyelination of nerve fibers in the brain and spinal cord.

Assessment

Motor Issues
Motor with Issues
Multiple sclerosis causes motor symptoms such as tremors and weakness of the limbs, trunk, or head. Weakness may progress to paralysis. This weakness results from slowed transmission of nerve impulses due to inflammatory damage to the myelin sheath. Chronic inflammation can impair the myelin's ability to regenerate, leading to axonal injury and permanent loss of nerve function, which may result in paralysis.

Cerebellar Signs
Silver-cerebellum-bell Sign
Chronic inflammation may lead to the development of glial scar tissue and the formation of hard, sclerotic plaques. These plaques can occur throughout the white matter of the central nervous system and may involve the cerebellum. Nystagmus, or involuntary eye movement, is a common sign of cerebellar involvement. Additional cerebellar manifestations include scanning speech, ataxia, dysarthria, and dysphagia.

Fatigue
Sleepy-guy
A significant proportion of patients with multiple sclerosis experience fatigue that can interfere with their ability to perform activities of daily living. Fatigue may be exacerbated by heat, humidity, or medication side effects. Pharmacologic options for managing fatigue include amantadine (Symmetrel) and modafinil (Provigil). Methylphenidate (Ritalin) may also be used in select cases. Pemoline (Cylert) is no longer recommended due to the risk of hepatotoxicity.

Paresthesias
Paris-t-shirt with Pins-and-needles
Paresthesia refers to a tingling or numb sensation and is a common symptom associated with demyelination of nerve fibers. Patients may experience sensory disturbances such as tingling, numbness, or pain.

Spasticity
Spast-tick
Patients with multiple sclerosis may experience muscle spasticity in areas chronically affected by demyelination of nerve fibers. Muscle relaxants are indicated to help manage spasticity.

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Urinary Incontinence

Urine In-continents

If sclerotic plaques resulting from chronic inflammation are located in areas of the central nervous system that regulate elimination, the patient may experience bowel and bladder dysfunction. Patients with multiple sclerosis may develop a spastic or uninhibited bladder, leading to urinary urgency and frequency. In contrast, a lesion involving the reflex arc that controls bladder function can result in a flaccid or hypotonic bladder. Because these patients lack the sensation or urge to void, they often develop a large bladder capacity. Anticholinergic medications may be used to manage bladder dysfunction.

Optic Neuritis

Optics Nerve-on-fire

Patients with multiple sclerosis may develop optic neuritis, an inflammation of the optic nerve that causes visual disturbances. Evoked potential testing, which records electrical activity in response to visual stimuli, can help detect abnormalities such as optic neuritis.

Considerations

Women Between 20-50 Years Old

Women with (20) dollar bill and (50) Cent

Multiple sclerosis most commonly affects adults between the ages of 20 and 50. Adult females are affected two to three times more often than males. Although less common, multiple sclerosis can also occur in adolescents and older adults.

Relapse and Remission of Symptoms

Play and Pause button

Individuals with multiple sclerosis often experience periods of symptom relapse and remission. Demyelination causes neurologic symptoms such as weakness; however, partial remyelination may occur, leading to temporary improvement. Symptom remission may be followed by relapse when the inflammatory process reactivates and causes further damage to the myelin. Over time, repeated exacerbations can lead to progressive deterioration of neurologic function.

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