MULTIPLE SCLEROSIS

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Definition

Multiple sclerosis (MS) is a disease in which your immune system attacks the protective sheath (myelin) that covers your nerves. Myelin damage disrupts communication between your brain and the rest of your body. Ultimately, the nerves themselves may deteriorate, a process that's currently irreversible.

Signs and symptoms vary widely, depending on the amount of damage and which nerves are affected. Some people with severe MS may lose the ability to walk independently or at all, while others experience long periods of remission during which they develop no new symptoms.

There's no cure for multiple sclerosis. However, treatments can help speed recovery from attacks, modify the course of the disease and manage symptoms.

Symptoms

Signs and symptoms of multiple sclerosis vary, depending on the location of affected nerve fibers. MS signs and symptoms may include:

- Numbness or weakness in one or more limbs that typically occurs on one side of your body at a time, or the legs and trunk
- Electric-shock sensations that occur with certain neck movements, especially bending the neck forward
- Partial or complete loss of vision, usually in one eye at a time, often with pain during eye movement
- Double vision or blurring of vision
- Tingling or pain in parts of your body
- Tremor, lack of coordination or unsteady gait
- Slurred speech
- Fatigue
- Dizziness
- Problems with bowel and bladder function
- Disease course

Most people with MS have a relapsing-remitting course, with new symptoms (relapse) that develop over days or weeks and usually improve partially or completely, followed by a quiet period (remission) that can last months or even years. Small increases in body temperature can temporarily worsen signs and symptoms of MS, but that type of event isn't a relapse.

About 60 to 70 percent of people with relapsing-remitting MS eventually develop a steady progression of symptoms, with or without periods of remission (secondary-progressive MS). The worsening symptoms usually include problems with gait. The rate of progression varies greatly among people with secondary-progressive MS.

Some people with MS experience a gradual onset and steady progression of signs and symptoms with no relapses (primary-progressive MS).

Causes

The cause of multiple sclerosis is unknown. It's believed to be an autoimmune disease, in which the body's immune system attacks its own tissues. In MS, this process destroys myelin — the fatty substance that coats and protects nerve fibers in the brain and spinal cord.

Myelin can be compared to the insulation on electrical wires. When myelin is damaged, the messages that travel along that nerve may be slowed or blocked. It isn't clear why MS develops in some people and not others. A combination of factors, ranging from genetics to childhood infections, may play a role.

Risk factors

These factors may increase your risk of developing multiple sclerosis:

- Age: MS can occur at any age, but most commonly affects people between the ages of 15 and 60.
- Sex: Women are about twice as likely as men are to develop MS.
- Family history: If one of your parents or siblings has had MS, you are at higher risk of developing the disease.
- Certain infections: A variety of viruses have been linked to MS, including Epstein-Barr, the virus that causes infectious mononucleosis.
- Race: Looked at worldwide, we see clear differences in the occurrence of MS: it mainly affects people of

Caucasian descent. This could also point to a hereditary factor among the causes of MS. At the moment, for some hereditary diseases we know that it is possible to point to the exact place where the hereditary factor can be found in our genetic material, the chromosomes. Unfortunately, scientific research is not yet so advanced as far as MS is concerned.

- Geography: The place where you grew up also plays a role in determining who is more likely to get multiple sclerosis. MS is more common in cooler areas of the globe, particularly, in Europe, North America and Australia

The differences are not as great as we used to think but we do know that in both the northern and southern hemisphere MS is more frequent the further away a country is from the equator. In the past there have been studies on the effects of emigration. Thus MS occurs relatively less frequently in countries such as Israel and South Africa, and relatively more frequently in England. It would seem that older people who emigrate remain as likely to get MS as if they had stayed in their home country.

But children who emigrate become as likely to get MS as people who have always lived in the country the children emigrate to. There seems to be a turning point somewhere around the age of fifteen that influences the risks of getting MS. Because of this it is thought that the environment people live in could have something to do with the development of MS.

- Certain autoimmune diseases: You have a slightly higher risk of developing MS if you have thyroid disease, type 1 diabetes or inflammatory bowel disease.

- Smoking: Smokers who experience an initial event of symptoms that may signal MS are more likely than nonsmokers to develop a second event that confirms relapsing-remitting MS.

Complications

People with multiple sclerosis also may develop:

- Muscle stiffness or spasms
- Paralysis, typically in the legs
- Problems with bladder, bowel or sexual function
- Depression
- Mental changes, such as forgetfulness or mood swings
- Epilepsy

Tests and diagnosis

- There are no specific tests for MS. The diagnosis relies on ruling out other conditions that might produce similar signs and symptoms.

- Your doctor is likely to start with a thorough medical history and examination. Your doctor may then recommend:

- Blood tests, to help rule out infectious or inflammatory diseases with symptoms similar to MS.

- Spinal tap (lumbar puncture), in which a small sample of fluid is removed from your spinal canal for laboratory analysis. This sample can show abnormalities in white blood cells or antibodies that are associated with MS. Spinal tap can also help rule out viral infections and other conditions with symptoms similar to MS.

- MRI, which can reveal areas of MS (lesions) on your brain and spinal cord. You may receive an intravenous dye to highlight lesions that indicate your disease is in an active phase.

- Evoked potential tests

- These tests record the electrical signals produced by your nervous system in response to stimuli. An evoked or short potential test may use visual stimuli or electrical stimuli, in which you watch a moving visual patter while electrical impulses are applied to nerves in your legs or arms. Electrodes measure how quickly the information travels down your nerve pathways.

Treatments and drugs

There is no cure for multiple sclerosis. Treatment typically focuses on speeding recovery from attacks, slowing the progression of the disease and managing symptoms. Some people have such mild symptoms that no treatment is necessary.

Treatments for attacks

- Corticosteroids, such as oral prednisone and intravenous methylprednisolone, are prescribed to reduce nerve inflammation. Side effects may include insomnia, increased blood pressure, mood swings and fluid retention.

- Plasma exchange (plasmapheresis). The liquid portion of part of your blood (plasma) is removed and separated from your blood cells. The blood cells are then mixed with a protein solution (albumin) and put back into your body. Plasma exchange may be used if your symptoms are severe and haven't responded to steroids.

Treatments to modify progression

No therapies have shown benefit for lowing the progression of primary-progressive MS. For relapsing-remitting

MS, certain medications can lower the relapse rate and reduce the rate of formation of new lesions, particularly early in the disease course.

- Treatments for signs and symptoms
- Physical therapy: A physical or occupational therapist can teach you stretching and strengthening exercises, and show you how to use devices that can make it easier to perform daily tasks.
- Muscle relaxants: You may experience painful or uncontrollable muscle stiffness or spasms, particularly in your legs. Muscle relaxants such as baclofen (Lioresal, Gablofen) and tizanidine (Zanaflex) may help.
- Medications to reduce fatigue.
- Other medications: Medications may also be prescribed for depression, pain, and bladder or bowel control problems that are associated with MS.

Lifestyle and home remedies

To help relieve the signs and symptoms of MS, try to:

- Get plenty of rest.
- Exercise: If you have mild to moderate MS, regular exercise can help improve your strength, muscle tone, balance and coordination. Swimming or other water exercises are good options if you're bothered by heat. Other types of mild to moderate exercise recommended for MS include walking, stretching, low-impact aerobics, stationary bicycling, yoga and tai chi.
- Cool down: MS symptoms often worsen when your body temperature rises. Avoiding exposure to heat and using devices such as cooling scarves or vests can be helpful.
- Eat a balanced diet: Results of small studies suggest that a diet low in saturated fat but high in omega-3 fatty acids, such as those found in olive and fish oils, may be beneficial. But further research is needed. Studies also suggest that vitamin D may have potential benefit for MS.
- Relieve stress: Stress may trigger or worsen your signs and symptoms. Yoga, tai chi, massage, meditation or deep breathing may help.

Coping and support

Living with any chronic illness can be difficult. To manage the stress of living with MS, consider these suggestions:

- Maintain normal daily activities as best you can.
- Stay connected to friends and family.
- Continue to pursue hobbies that you enjoy and are able to do.
- Contact a support group for yourself or for family members.
- Discuss your feelings and concerns about living with MS with your doctor or a counselor.

Source: The Mayo Clinic

Contact us

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