

Baylor Clinic Healthletter



Focus on Multiple Sclerosis

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Multiple sclerosis (MS) is a disease that affects the central nervous system, which includes your brain, spinal cord, and optic nerves. Today there are an estimated 400,000 Americans diagnosed with this chronic, unpredictable disease. There is currently no cure for MS. However, there continues to be a great deal of research evaluating new treatments.

Although the exact cause of MS is not known, we do know it is an autoimmune disease, meaning your own immune system is attacking part of your body. In this case, the attack is on the myelin, a fatty tissue that surrounds and protects the nerve fibers of the central nervous system and helps conduct electrical impulses. MS occurs when myelin is lost in multiple areas, leaving scar tissue called sclerosis. These damaged areas are also known as plaques or lesions. Sometimes the nerve fiber itself is damaged or broken.

It is not known what initiates this autoimmune attack. Some theories suggest infectious triggers, where the autoimmune attack is initiated by certain viruses or bacteria to which the individual is exposed. There is also evidence of a genetic component; MS and other autoimmune conditions are more common within certain families. Although no single gene defect has been found, family members of a person with MS are at a higher risk of developing multiple sclerosis.

Symptoms of Multiple Sclerosis

Symptoms of MS may include vision loss, double vision, weakness, numbness, poor coordination, unsteady walking, vertigo, and fatigue, among others. The symptoms occur when myelin or the nerve fiber is destroyed or damaged, disrupting the nerves' ability to conduct electrical impulses to and from the brain.

Such symptoms most commonly present as relapses, or attacks, which worsen over a period of hours to days and can last for weeks. These symptoms of relapse usually "remit" or improve, creating a course of illness known as relapsing-remitting MS (RRMS). This is the most common type of MS at onset. Many people with RRMS, particularly if untreated, will develop secondary progressive multiple sclerosis (SPMS). This is a steadily worsening disease course which most commonly includes impaired walking. A small percentage of patients have primary progressive multiple sclerosis, characterized by a slow but nearly continuous worsening of their disease from the onset, with no distinct relapses or remissions.

Multiple sclerosis is 2 to 3 times more common in women than men. While the age at onset is typically during young adulthood, children may also be affected by MS. A pediatric multiple sclerosis clinic was recently opened at Texas Children's Hospital to address the needs of these young patients

<http://www.texaschildrens.org/carecenters/Neuro/Neurology/MultipleSclerosis.aspx>.

Testing and Diagnosis

Multiple sclerosis is usually diagnosed by a neurologist, a specialist in diseases of the nervous system. If MS is suspected based on the patient's history and physical examination, a magnetic resonance image (MRI) of the brain and/or spine is typically performed. In MS, an MRI will usually show lesions in areas of the brain known as the white matter. In some cases further testing is required; these may include a spinal tap, electrical tests known as evoked potentials, and blood tests. While there is no blood test that will prove multiple sclerosis, blood tests are often done to eliminate the possibility of other diseases.

Treatment Options

Since 1993, a number of medications have been available to treat the underlying immune system abnormality in multiple sclerosis. These medications are an important aspect of MS treatment and have been helpful in decreasing the rate of relapse and the progression of disability in MS patients.

The most commonly used medications, referred to as the immunomodulatory agents, include three forms of beta interferon (Avonex, Betaseron, Rebif) and glatiramer acetate (Copaxone). Each of these medications is available only by self-injection, with frequencies varying from once a week to daily injections.

There are two other medications approved for treatment of MS which are generally reserved for patients who have not responded to the injectable medications. Natalizumab (Tysabri) is a drug which is infused by IV once per month in an infusion center. Although it is a very effective medication for relapsing forms of MS, its use is limited because of potentially serious side effects. Finally, mitoxantrone (Novantrone) is a medication which suppresses the immune system and has been used in aggressive forms of multiple sclerosis, including secondary progressive multiple sclerosis. It is infused by IV, typically once every three months.

Even with the best medications available, patients with MS will still have occasional relapses. High-dose steroids are often used to treat such relapses and have been shown to speed up the rate of recovery. Many patients also have a number of residual symptoms associated with their MS, such as fatigue, weakness, sensory symptoms, spasticity or depression. Various medications and non-medical interventions are available to address these residual symptoms, including physical therapy, stretching and exercise, counseling, and medication use.

A patient with multiple sclerosis is typically treated primarily by a neurologist. In a large MS specialty clinic like the Maxine Mesinger Multiple Sclerosis Comprehensive Care Center at Baylor College of Medicine, care is multidisciplinary and may include physiatrists (rehabilitation doctors), therapists, urologists, social workers, psychiatrists, and clinical research staff, ensuring that all aspects of the patient's needs are addressed in an efficient and appropriate manner.

Clinical Trials

There are numerous ongoing clinical trials investigating better and more conveniently dosed medications for treatment of multiple sclerosis, including pills or tablets which are given orally. Many of these clinical trials are enrolling patients at the Maxine Mesinger MS Comprehensive Care Center. To date, the medications currently available and many of those being tested in clinical trials attempt to treat the disease by having an impact on the immune system, which can be very useful. However, future trials will need to look at trying to repair the damage to the myelin and the underlying nerves to restore function of the central nervous system.

Living with MS

With the MS medications currently available and with multidisciplinary care, many patients are able to continue leading productive lives. The average life expectancy for someone with multiple sclerosis is not shortened compared to the general public. Our immediate goal, therefore, is to improve the quality of life for MS patients by decreasing relapses, preventing disability, and treating symptoms as they arise. Our future goal is to better understand the underlying causes and mechanisms of MS and ultimately find a cure.

Baylor College of Medicine sees MS patients in three main clinical settings. The Maxine Mesinger Multiple Sclerosis Comprehensive Care Center offers appointments Monday through Friday by calling 713.798.CARE. Ben Taub Hospital offers an MS clinic on the second and fifth Friday of each month. And the Center for Pediatric MS at Texas Children's Hospital evaluates children and adolescents with MS and related diseases of the central nervous system.

For more information or to schedule an appointment, contact the Baylor College of Medicine department of Neurology at 713.798.5975.

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