What is Multiple Sclerosis?

GENERAL INFORMATION

National Multiple Sclerosis Society

Kim, diagnosed in 1986

What is MS?

Multiple sclerosis (or MS) is a chronic, often disabling disease that attacks the central nervous system (brain and spinal cord). Symptoms may be mild, such as numbness in the limbs, or severe, such as paralysis or loss of vision.

The progress, severity, and specific symptoms of MS vary among individuals and are unpredictable. Today, new treatments and advances in research are giving new hope to people who are affected by the disease.

MS is thought to be an immune-mediated disease in which the body's immune system attacks myelin, the fatty substance that surrounds and protects the nerve fibers of the central nervous system.

The damaged myelin forms scar tissue (sclerosis). Often the nerve fiber is also damaged. When any part of the myelin sheath or nerve fiber is damaged or destroyed, nerve impulses traveling to and from the brain and spinal cord are distorted or interrupted.

MS is not a fatal disease. Most individuals with MS have near-normal life expectancies, and most learn to cope with the disease and are able to live productive lives.

What are its symptoms?

The symptoms of MS may include tingling, numbness, painful sensations, slurred speech, and blurred or double vision. Some people experience muscle weakness, poor balance, poor coordination, muscle tightness or spasticity, tremors, or paralysis, which may be temporary or permanent. Problems with bladder, bowel, or sexual function are common. Fatigue is a major concern for many. MS can cause forgetfulness or difficulty concentrating. It can also cause mood changes and may make people more susceptible to depression. Symptoms may come and go, appear in any combination, and be mild, moderate, or severe.

Can MS be treated?

Yes. Today there are a number of disease-modifying medications approved by the Food and Drug Administration (FDA) to treat MS. Five of them — Avonex®, Betaseron®, Copaxone®, Extavia®, and Rebif® — are given by injection, and two are taken orally — Aubagio® and Gilenya™.

These seven medications have been shown to be effective in reducing disease activity in relapsing forms of MS. They are considered to be first-line options for people with

MS, meaning that the FDA does not recommend or require that a person try another medication before taking them.

The National MS Society recommends that treatment with one of these medications be considered as soon as possible following a confirmed diagnosis of MS with a relapsing course.

Treatment with a disease-modifying therapy may be recommended even before an individual is definitely diagnosed, if the person experienced one episode of neurologic symptoms (also called an attack, relapse or exacerbation) and has evidence of MS lesions as seen by MRI scanning.

Tysabri®, another disease-modifying medication, is delivered by infusion. It is recommended for patients who have an inadequate response to, or are unable to tolerate, other MS therapies.

Novantrone® is a powerful immune system suppressor shown to be effective in slowing down MS that is rapidly worsening or becoming progressive. Novantrone is delivered by infusion.

Steroids may be used to shorten acute attacks. As of the printing of this brochure, other medications are in various stages of clinical trials or are under review

by the FDA, and researchers are hopeful that more treatments for MS will be available in the near future. Please check **nationalMSsociety.org** for updates.

There are also many medications to relieve or moderate MS symptoms such as spasticity, bowel and urinary distress, pain, fatigue, or depression, including MS-specific symptom management medications FDA-approved to improve walking (Ampyra®), upper limb spasticity and bladder dysfunction (Botox®), and uncontrollable laughing and crying (Nuedexta®). Physical therapy, exercise, vocational and cognitive rehabilitation, attention to diet, adequate rest, and counseling are also valuable for managing symptoms and maintaining independence and quality of life. Prompt management of symptoms is vital and should be discussed with a knowledgeable physician.

Who gets MS?

More than 2.1 million people are affected by MS worldwide. Most are diagnosed between the ages of 20 and 50, and about two thirds are women. The disease is more frequently found among people raised in colder climates. Studies indicate that genetic factors make certain individuals susceptible to the disease, but there is no evidence that MS is directly inherited.

AJ, diagnosed in 2000

What happens in MS?

MS is an unpredictable disease. Symptoms vary greatly from person to person and vary over time in the same person.

Periods of active MS symptoms are called attacks, exacerbations, or relapses. These can be followed by quiet periods called remissions.

The disease ranges from very mild and intermittent to steadily progressive. Some people have few attacks and little, if any, accumulation of disability over time. At diagnosis, most people have relapsing-remitting disease. This means they have attacks followed by periods of

partial or total remission that may last months or even years. Others experience a progressive disease course with steadily worsening symptoms. The disease may worsen steadily from the onset (primary-progressive MS) or may become progressive after a relapsing-remitting course (secondary-progressive MS).

Because MS affects individuals so differently, it is difficult to make generalizations about disability. Statistics suggest that 2 out of 3 people with MS remain able to walk over their lifetime, though many of them will need a cane or other assistive device. Some will choose to use a scooter or wheelchair to conserve energy or manage balance problems. Others will require a wheelchair to maintain mobility.

The disease-modifying treatments, which have been in use only since the 1990s, may favorably alter this projection.

Is MS easily diagnosed?

MS is not always easy to diagnose because symptoms may come and go. In addition, other diseases of the central nervous system have some of the same symptoms. No single neurological or laboratory test can confirm or rule out MS.

Medical imaging, particularly MRI (magnetic resonance imaging), helps to clarify the diagnosis. A conclusive or definitive diagnosis requires evidence of multiple patches of scar tissue in different parts of the central nervous system and evidence of at least two separate attacks of the disease. A definitive diagnosis can take several months.

Do we know the cause of MS?

The answer is no — not yet. The cause of MS and how we can stop progression, restore function, and ultimately end MS forever, are the subjects of intensive worldwide research. Over 350 research grants and fellowships are funded by the National MS Society each year. Knowledge about MS is expanding and many clinical trials are in progress.

Join the Movement®

The National MS Society

Information, local referrals, publications, programs, and volunteer opportunities are available from the National Multiple Sclerosis Society and our 50-state network of chapters.

To reach the chapter nearest you, call 1-800-344-4867 or visit **nationalMSsociety.org.**

The Society helps bring together the MS movement, comprised of people who want to do something about MS now, including people with MS, their family members, concerned friends, neighbors, healthcare professionals, volunteers and staff.

As the world's largest private funder of MS research, the Society supports local, state, and national advocacy programs.

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