Multiple Sclerosis

Objectives:

At the end of this class, you will be able to:

1. Discuss the types, causes and prevention of MS.
2. Describe the problems and the care of the person with MS.
3. Define some of the common terms associated with MS.

What is Multiple Sclerosis?

Multiple sclerosis (MS) is a disorder that affects the brain, spinal cord and optic nerves. Normal nerves have a fatty covering called myelin. This cover helps the nerves to send their electrical signals to other nerves. It also protects the nerves.

People with MS have lost their myelin. Their nerves have lesions and plaques. At times the nerves are broken and damaged. MS is a nerve disorder. It is not inherited. It is not caught from people with MS. MS has no cure, but some medicines can slow its course and help the signs and symptoms.

Who Has MS?

Anyone can get MS but it is first found mostly among:

- those between 20 and 40 or 50 years of age,
- women,
- those with some genes,
- those who live in temperate and not hot areas, and
- people with ancestors from northern European countries.

About 400,000 people in our country have MS. About 2.5 million people in the world have it. 200 people are diagnosed with MS every week. Only about 5% of people with MS are diagnosed before the age of 21. (Merck, 2005; National Multiple Sclerosis Society, 2005)

What Causes MS?

The real cause of MS is not known. It is believed, however, that the nerve damage happens because of an abnormal response to the body's immune system, which protects the body from infection. The body attacks itself when this system is not normal.

Some of the things that are or were thought to lead to MS are:

- several genes,
- gender,
- things in the world like a virus, trauma and heavy metals. (Merck, 2005; National Multiple Sclerosis Society, 2005)

Genes

Genes may play one part in how people get MS. MS tends to run in families because genes are passed from parent to child. In the United States 1 out of 750 people get MS. But, that number increases when a family member has MS. 1 out of 40 people with MS in their family
may get MS. The risk for MS gets greater when more than one person in the family has it. This risk does not, however, mean that the person will always get it. They may not. Also, genes may play only one part of the many things that may lead to MS. (National Multiple Sclerosis Society, 2005)

**Gender**

The chances of getting MS are 2 to 3 times greater for women than it is for men. The reason for this is still not known for sure. National Multiple Sclerosis Society, 2005)

**Viruses**

You cannot "catch" MS from other people but there may be a link between MS and one or more viruses. Again, we do not know for sure.

Over time, one of these viruses has been looked at for some clues about MS:

- measles,
- German measles,
- herpes and
- dog distemper.

In 2003, the Epstein-Barr virus was thought to add to the risk of MS. (Merck, 2005; National Multiple Sclerosis Society, 2005)

**Trauma**

In the past, trauma was thought to lead to MS. Now, research studies find no connection for this. Studies are now showing that people with MS may have more accidents because they have poor balance, gait and vision. Trauma, however, is not a cause. (Multiple Sclerosis Society, 2005)

**Heavy Metals**

Some think that MS may be caused by heavy metals like those found in dental fillings, mercury, lead and manganese. Others do not think that these metals are the cause. (National Multiple Sclerosis Society, 2005)

**The Forms of MS**

There are 4 forms of MS. They are:

1. Relapsing- Remitting
2. Primary- Progressive
3. Secondary-Progressive
4. Progressive-Relapsing

**Relapsing- Remitting**

This is the most common form of MS. 85% of the people diagnosed with MS have this form of MS at the time that they are diagnosed. Later, they may get the Secondary-Progressive form.

Patients with this form of MS have periods of time when they are fine and nearly normal. They also have attacks when the symptoms worsen. (National Multiple Sclerosis Society, 2005)
Primary-Progressive

This form of MS is found in about 10% of people with MS. These people have a slow pattern of getting worse and worse. There are no periods of time when they feel fine and normal. (National Multiple Sclerosis Society, 2005)

Secondary-Progressive

People with this form had the relapsing-remitting form first. About 50% move into this form within 10 years after having the relapsing-remitting form if they have not gotten medicines to stop it. (National Multiple Sclerosis Society, 2005)

Progressive-Relapsing

This form is rare. Only 5% of people with MS have this form. This form gets worse and worse with or without recovery periods and/or attacks. (National Multiple Sclerosis Society, 2005)

How Is MS Diagnosed by The Doctor?

MS is diagnosed when the doctor sees the signs of MS and then does:

- an MRI,
- a CT scan, and
- looking at the fluid from the spine area. (Merck, 2005)

The Problems Seen With MS

MS can lead to:

- poor bladder function,
- poor bowel function,
- memory problems,
- thinking problems,
- poor attention span,
- depression and other mental problems,
- pain,
- tiredness,
- dizziness,
- poor balance,
- poor coordination,
- problems with walking,
- numbness and tingling,
- spastic muscles,
- stiffness,
- tremors,
- vision problems,
- poor sexual function and
- speech and swallowing problems.

These symptoms and problems are different from person to person. Also, at times they may be worse than they are at other times.

Bladder Problems
MS can lead to urinary bladder holding and emptying problems. The person may have incontinence, urgency, difficulty starting the flow, dribbling, the need to urinate several times during the night and a thin, slow stream of urine.

After the person has urine function tests, the doctor may give the patient medicines to correct their urine storage or emptying problem. At times the patient may have to insert a catheter several times a day to empty the bladder. Urinary infections and kidney problems can occur when urine is held in the bladder and not emptied out. (Holland, 2005).

**Bowel Problems**

Diarrhea occurs when the stool in the bowel moves too fast. Constipation occurs when the stool moves too slow.

Diarrhea may occur when the MS makes the muscles of the bowel hyperactive. This problem can be treated with medicine and bulk fiber without additional fluid.

Constipation is seen more often than diarrhea in MS patients. It can occur when the person does not move their bowels when they feel the urge to do so. They delay going to the bathroom. It can also happen when the person does not get enough exercise or they do not eat a good diet or drink enough fluids. Constipation can lead to incontinence.

Constipation can be treated with medicines like stool softeners, fiber, laxatives and enemas, when needed.

Good bowel habits for the MS patient include:

- drinking 8 to 12 cups of water, juice or another drink every day;
- eating fiber rich foods like fruits, vegetables, and whole grain bread and cereal. Some people may have to eat 30 grams of fiber each day;
- exercising every day;
- setting time aside each day to move the bowels. (National Multiple Sclerosis Society, 2004)

**Thinking Problems**

MS also hurts the brain and the person's thinking ability. The person may have trouble paying attention. They may have trouble when they try to think or remember things. These problems are even worse when the person is very tired, under a lot of stress or depressed. Many people find that a notebook or another tool, like a computer, will help them to remember important things. In the future, a drug may help with this loss. (National Multiple Sclerosis Society, 2004)

**Depression**

Some people with MS are depressed because of the physical changes in the body caused by the MS. Others may be depressed because they are not able to accept the ever worsening state of their own health and how they are limited with MS. Still more may get depressed because of the medicine(s) they are taking. Depression must be treated. It must be treated because it will ruin the person's happiness and the quality of their life. It can also lead to suicide and thoughts of it. (National Multiple Sclerosis Society, 2004)

People that are depressed can:
• be tired,
• be sad,
• sleep too much or not be able to sleep at all,
• feel hopeless,
• feel helpless,
• feel guilty,
• lose their appetite or increase their need to eat,
• lose happiness from everyday things,
• stay to themselves and not go out,
• have trouble thinking,
• become either hyperactive or slow, and/or
• think about suicide. (National Multiple Sclerosis Society, 2004)

It can be treated with:

• support groups,
• family treatment,
• individual treatment, and/or
• medicine.

Patients can contact their local National Multiple Sclerosis Society at (1-800-FIGHT-MS) to get more information about support groups and other resources for this mental disorder. (National Multiple Sclerosis Society, 2004)

Other emotional problems that can be seen in MS are:

• grief and sadness about the disease,
• anxiety,
• stress,
• mood swings,
• laughing and crying spells that cannot be controlled, and/or
• behavior that is not appropriate, such as sexual aggression. (National Multiple Sclerosis Society, 2004)

**Pain**

Pain is common among people with MS. About 50% of people with MS have pain all of the time. Women with MS tend to have more pain than men with MS. People with MS may have:

• face pain,
• electric like pain from the back of the head and down the spine,
• burning, prickling and aches around the body,
• muscle cramps,
• back pain, and/or
• pain in the joints.

Most of this pain can be treated with pain management help with things like:

• yoga,
• meditation,
• medicines,
• heat,
• cold, and/or
Fatigue and Tiredness

This is one of the most common problems found in MS. Nearly 80% of people with MS feel tired every day. It limits the person and their ability to work and to enjoy life. It may:

- follow a good night sleep,
- be worse than normal tiredness,
- get worse as the day moves on,
- get worse with hot and humid weather, and/or
- come on suddenly

The cause is not known but it can be helped with:

- occupational and physical therapy that helps the person save energy and get their activities of daily living done in a simpler, easier way,
- stress management,
- cooling the air so the patient does not get too hot, and/or
- medicines to help the person sleep, which are used for only a short period of time. (National Multiple Sclerosis Society, 2003)

Dizziness

Dizziness is a common symptom of MS. These patients may feel that the world around them is spinning and they feel light headed. This happens as the result of the damage of MS. The symptoms can be treated with medicines that people use for car or sea sickness. (National Multiple Sclerosis Society, 2003)

Problems With Balance, Coordination and Walking

The following things make walking a problem for some people with MS:

- Muscle weakness, tightness and spasticity
- A poor sense of balance
- Numb feet
- Tiredness

Most balance and walking problems can be helped somewhat with physical therapy. (National Multiple Sclerosis Society, 2003)

Numbness

People with MS may have numbness of the:

- legs,
- arms,
- face or the entire body.

It may be mild or so severe that the person has difficulty walking when their feet or numb or writing, feeding themselves and dressing when their fingers and hands are numb. A person's
safety may also be at stake. They may not feel heat and cold because of the numb area. We must, therefore, make sure that they are not near hot things, like hot water and heaters.

Some patients get medicine for it when it goes on and does not stop on its own. (National Multiple Sclerosis Society, 2003)

**Spasticity**

Muscles are stiff and there can also be sudden and involuntary movement and spasms with MS. It can be mild or very painful. The legs are more affected than the arms. The person can also have back pain. It often gets worse when it is hot and humid or when the person has an infection. Tight clothes can also bring it on.

There are two forms of spasticity:

- **Flexor.** The back of the leg is most often involved. The muscles bend to the point that the person is not able to straighten out their leg.
- **Extensor.** The front of the upper leg, the hip and the knees remain extended and straight and very close together. The ankles may be crossed. The arms can act in the same way, but the arms are not seen as often as the legs.

Spasticity may be aggravated by extremes of temperature, humidity, or infections, and can even be triggered by tight clothing.

It can be treated with:

- medicine,
- daily exercise, including stretching, and
- physical therapy. (National Multiple Sclerosis Society, 2003)

**Vision Problems**

The eye nerve, or optic nerve, is damaged with MS. It is rare that a person with MS gets blindness from it. They can, however, get temporary blindness in one eye when they are having a period of worse symptoms. This can also be treated with medicine.

More often the person with MS will get double vision and/or unusual eye movements that the person can not control. These problems may go away on their own or they can be treated with medicine. (National Multiple Sclerosis Society, 2003)

**Sexuality**

Sex problem are seen in people with MS as they are among people without MS. About 65% of people with MS say that their sex activity has lessened since their diagnosis. This problem may have physical as well as mental causes, such as depression. (National Multiple Sclerosis Society, 2003)

Women with MS may have:

- decreased feeling,
- dryness, and a
- loss of interest in sex.

Men with MS may have:
• trouble getting and keeping an erection,
• decrease feeling, and a
• loss of interest in sex.

Dryness can be cared for with a personal, water soluble jelly. Medicines and implants can help the man have an erection and the couple can also benefit from psychological support. (National Multiple Sclerosis Society, 2003)

Speech and Swallowing Problems

Many people with MS have a problem with speaking so other people can understand them. They may:

• slur words,
• speak with a nasal tone, and/or
• pause for along time between words and/or between syllables of one word.

Speech therapy helps many people. Also there are things like special computers, cards and talking boards that can help.

MS can also lead to problems with eating. People may have trouble swallowing food and fluids. Making fluids, like water, thicker by adding a special substance may help. Pureed foods may also be needed. The person may need a feeding tube so they do not choke when other things do not help. A speech therapist also works with those who have a swallowing problem. (National Multiple Sclerosis Society, 2003)

Assertive Devices

These devices help people with MS and other disabilities to be do their activities of daily living. Some examples are:

Walking:

• Braces, canes and walkers
• Wheelchairs and electric scooters

Cooking, eating and housekeeping:

• Special forks, knives and spoons
• Pots and pans that can be lifted and used with limited hand movement and strength
• Reachers to grab things and special brooms and dusting tools.

Dressing:

• Velcro closing on shoes, shirts, pants and dresses

Personal care and grooming:

• Toothbrushes, combs and hair brushes

Bathing:
Restorative and Rehabilitation Care

A doctor writes an order for this treatment and care. After this, the physical therapist, occupational therapist and/or speech therapist see the patient or resident so that they can:

- think about and find the best way to go about the care that the doctor has ordered
- decide on the goals of the care for the patient or resident.

The goals can include being able to:

- eat on their own using special plates and utensils if needed,
- get in and out of the bath tub or shower with a shower chair and grab rails if needed,
- climb up stairs safely,
- grab things,
- have increased muscle strength, and
- communicate with others with the spoken word.

Patients work with the healthcare team to decide on these goals. The person with MS must be work to reach these goals on a daily basis. How well the person is reaching these goals is documented on a flow sheet, progress note or another tool, as used at your place of work.

Where is This Care Given?

This care can be given to the patient in the hospital, in the nursing home, in a group home, in a rehabilitation hospital, in an outpatient center and in the person's own home.

The place of care is based on the patient, their needs and the choices that there are in the area where the person lives.

Who Gives This Care?

Most of this care is provided by physical therapists, occupational therapists and speech therapists. Some rehab centers also have assistants and aides to help with this care. These people are given special training so that they are able to help the person to reach their goals.

The Role of Physical Therapy

Physical therapists give the person:

- range of motion exercise,
- muscle strengthening,
- general conditioning exercises,
- coordination exercises,
- transfer training, and
- ambulation help.

Range of Motion Exercise
Physical therapy provides range of motion exercise to help the person to move their joints fully after a long period of bed rest, or immobility, and when the person has a disorder like MS. Pain and the lack of full movement occur when a joint does not have normal range of motion.

There are three (3) kinds of range of motion exercise. They are:

- **Active Range of Motion.** Active range of motion is used when the person is able to do full range of motion to one or more parts of their body without the help of another. Nursing assistants and other members of the team may simply have to remind the person to do these exercises and to watch the person to make sure that they are doing them in the right way.

- **Active Assistive Range of Motion.** This range of motion is used when a person needs some help doing full range of motion to one or more parts of the body because their muscles are too weak or stiff to do them on their own. The nursing assistant and other members of the team will have to help this person with their range of motion.

- **Passive Range of Motion.** Passive range of motion is used for people who cannot move one or more parts of their body at all. The nursing assistant and other members of the team will have to do full range of motion for the person without any help from the patient.

Weights are sometimes used with active range of motion and active assistive range of motion.

Active assistive and passive range of motion exercises are done in a gentle, slow way so you do not hurt or harm the joints and bones. If the person gets pain, stop. These exercises are NOT done to the point of pain. They should also NOT be done to an area that has a broken bone that has not been taken care of.

**Muscle Strengthening**

These exercises are used for patients and residents of all ages.

The goal of these exercises may be to get the person strong enough to perform some basic activities of daily living, such as combing one's hair. These exercises help to bring weak muscles to their best possible strength. These exercises are also done with weights for some people.

**General Conditioning Exercises**

General conditioning exercises are done in order to:

- increase the function of the heart and lungs,
- to maintain range of motion and
- to increase muscle strength.

Nursing assistants and other members of the team often help and/or remind the patient or resident to perform these exercises.

**Coordination Exercises**

These exercises are mostly used for patients that need help to use their hands or to walk with good balance and gait.
For example, a person that has MS may need these exercises in order for them to be able to pick up a spoon and place it in their mouth. Or, they may need these exercises so that they will be able to walk in a balanced and safe manner.

Transfer Training

This training helps people to be able to go safely from the bed to the chair, from the bed or chair to the toilet or from a sitting to a standing position. When a person is not able to do these transfers they must depend on others for help in this area.

The goal of this training is to help the person move about in a safe way without the help of others.

Ambulation Exercises

These exercises help the patient to walk safely without the help of another person. Some people may have to use a cane, splint, brace, crutches or a walker.

Some patients may have to have range of motion, balance, and muscle strengthening and/or coordination exercises before ambulation exercises can be started. At times a splint or brace may also be needed. Many people also practice with parallel bars, like the ones above, and/or a gait or ambulation belt.

Once the person is able to walk safely on a flat and level surface, they may then practice how to walk up and down stairs using a handrail. When a person walks up the stairs they should put their good leg up on the stair and then bring up the weak one.

Physical Therapy Treatments

Some of the treatments that physical therapist use are:

- heat therapy,
- cold therapy,
- water therapy,
- electrical nerve therapy,
- traction, and
- massage therapy.

Heat Therapy

Heat performs several roles. Heat:

- increases the flow of blood to a body part,
- helps to lower joint stiffness and pain,
- decreases spasms of the muscles, and
- stops swelling.

Heat therapy is often used for short term and chronic problems such as strains, sprains, spasms and neurological problems.

Heat can be given in one of two (2) ways:

- Superficial
• Deep

Superficial heat is given by using a heating pad, hot pack, a wax bath to a limb, like a hand, a warm water bath or whirlpool and with infrared heat using a lamp. Hot packs are used very often for heat therapy. When you apply a hot pack it must be wrapped in towels to protect the skin from a burn.

Deep heat is given with ultrasound and diathermy.

`Ultrasound` is done with sound waves. These sound waves go deep into the body’s tissues and it produces heat. This form of therapy is used when the patient has:

• poor range of motion,
• a muscle problem, like MS, and
• back pain.

It is NOT used on areas that have dead tissue, such as a pressure sore or an area that is infected. It is also NOT used on eyes, ears, spinal cord, heart, brain or broken bones.

All heat must be given with great care. Heat can burn the skin of the person, especially when the patient or resident does not feel heat because of poor nerves and when they are not mentally able to tell a person that they feel the burn.

Cold Therapy

Sometimes cold is used right after an injury occurs. For example, the doctor may order cold for 48 or 72 hours after a person strains or sprains their ankle.

Cold performs the following roles. It:

• decreases blood flow to the area and
• stops swelling just after an injury has occurred.

Cold must also be given with care. It, too, can cause tissue damage (frost bite) and a lowered body temperature. Cold may be applied locally using an ice bag, a cold pack, or some fluids like ethyl chloride. Cold is NOT placed over areas of the body that do NOT have a good blood supply.

Water Therapy

Water therapy uses moving water to:

• apply heat to an area,
• help wound healing,
• help with pain and to
• relax the muscles.

This therapy is often used just before range of motion exercises so that the muscles are relaxed and the patient can be free of pain while going through range of motion.

Some water therapy is given using a Hubbard tank that is a very large whirlpool bath. The water is usually heated to from 96° to 104° F. Some patients and residents may feel weak and
tired after water therapy so safety must be maintained. At times the person’s blood pressure may drop while in the whirlpool.

_Electrical Nerve Stimulation_

Muscles do NOT work in the correct way when nerves that contract muscles get damaged. _Electrical nerve stimulation_, using small electrodes, contracts these muscles to keep them from going into a spasm, something that often happens when a person has hemiplegia as the result of MS. It also prevents muscles from shrinking, or atrophy, when they are not being used for one reason or another.

Some patients are given _transcutaneous electrical nerve stimulation_ (TENS) by the physical therapist, according to the doctor’s orders. The patient in their own home can even use this small machine after they, or a family member, is taught about how to use it. They are often used for back pain, arthritis, sprains and other disorders.

_Traction_

_Traction_ is the use of a weight and pulley system to decrease muscle spasm and to keep bones in proper alignment. Traction can be used in all settings, including the home. Some traction is used on a continuous basis and other traction is used just for short periods of time.

_Massage_

_Massage_ is also done by physical therapists. Massage helps to reduce pain and swelling. It is used for patients and residents that have a fracture, sprain, strain or nerve injury. Many people with low back pain, arthritis, bursitis, neuritis, hemiplegia, paraplegia, multiple sclerosis, and cerebral palsy are helped with massage.

_The Role of Occupational Therapy_

Occupational therapists, like physical therapists, are part of the rehabilitation and restorative care team. A patient’s or resident’s doctor writes an order for occupational therapy when the person can be helped in terms of their functioning, particularly in terms of performing the activities of daily living.

Some of the activities of daily living that the occupational therapist helps the person do are:

- Dressing
- Grooming
- Mouth care
- Bathing and/or showering
- Feeding self
- Cooking meals
- Getting around and caring for the home

Some people need special _assistive devices_ to do the activities of daily living. For example, a person may need special gripping devices to pick items up off the floor. Others may need special forks and eating utensils to better pick up food from their plate. Some may need special plates with high sides to hold food on the plate when a person has trouble with a spoon or a fork. Still others may need to have their clothing made with larger buttons or Velcro strips when they cannot dress using small buttons and zippers on their clothes.
Occupational therapists teach residents, patients and their family members how to use these special assistive devices so the person can be as independent as possible with the activities of daily living.

Nursing assistants should help their patients and residents with their activities of daily living, as planned by the occupational therapist and other members of the rehab team. For example, nursing assistants should help their patients and residents with dressing, brushing their teeth and using any special devices that they have.

The Role of Speech Therapy

Speech therapists help their patients with communication. They also help patients with a swallowing disorder, something that often happens after a stroke.

These therapists also use assistive devices. For example, they may use a word board so that a patient who cannot speak can communicate their needs to others.

Doctors write orders for speech therapy when the person is not able to talk with and communicate with others. Some of these patients or residents are not even able to make their own basic needs known to those that care for them. For example, a patient or resident knows that they are hungry or have to use the bathroom but they are not able to say it.

Nursing assistants should encourage the patient or resident to speak whenever this is possible. When the person cannot speak, the nursing assistant and other team members should give the patient or resident the communication tool that they have been given by the speech therapist. For example, if a person has a word board, encourage them to use it.

Some of the Devices Used for Restorative and Rehabilitation Care

**Splints**

Splints are specially made items for a patient or resident to prevent a deformity, such as a contracture, and to promote function. Some examples of splints are hand splints, a wrist splint and a foot drop splint.

**Self-help Devices**

Self-help devices help the patient or resident to be able to function in a safe way and independent way even though they have a disorder or a physical problem.

Some self-help devices are:

- walkers,
- canes,
- shower chairs,
- grab bars on the side and the back of the bathtub or toilet,
- graspers or reachers to lift items up from the floor,
- special eating utensils with built-up handles to help the person feed themselves,
- special combs and brushes so that the person can groom themselves,
- shoehorns to help a person get dressed even though they do not have full range of motion,
- raised sitting chairs, raised toilet seats, and chair leg extenders help people safely transfer without the help of another person and
- cups with lids and special plates with deep centers and weight helps people eat their meal without spills.

Rehabilitation and restorative care play a very important part of healthcare.