

## General Information Regarding MS

### 1. What is multiple sclerosis (MS)?

MS is a chronic disease of the central nervous system (CNS) which affects mostly young people between the ages of 15 and 45 years. The CNS includes the brain and the spinal cord. MS is not a disease of peripheral nerves or muscles.

### 2. Is MS an autoimmune disease?

MS is thought to be an autoimmune disease. In this type of disease, the body's immune system, which normally fights infections and protects itself, inappropriately attacks parts of the body; in the case of MS, myelin (the protective sheath around the nerves) and axons (a part of the nerve itself) are the immune systems targets.

### 3. Does MS affect survival?

In general, MS does not affect survival. With the current state of medical care and new treatments, the vast majority of MS patients are expected to live close to a normal life span.

### 4. What are the common symptoms associated with MS?

Some of the most commonly reported symptoms include numbness, tingling, pain, weakness, clumsiness, loss of vision, double or blurred vision, tremor, imbalance, urinary urgency and/or frequency, fatigue, depression and heat sensitivity. Each case must be carefully evaluated; the presence of any of these symptoms does not confirm the diagnosis of MS.

### 5. What is optic neuritis (ON)?

Optic neuritis (ON) causes decreased vision sometimes accompanied by eye pain that develops over a few hours to a few days. Patients usually recover vision within a few days to few weeks. The risk of developing MS after experiencing ON depends on the brain MRI scan among other factors. In the presence of brain MRI abnormalities, the risk of developing MS after an episode of ON is high, with several studies suggesting 80 to 90% of these patients will go on to develop MS. However, before confirming the diagnosis of MS, a thorough diagnostic evaluation is required. Optic neuritis can also be seen in many other diseases such as lupus or sarcoidosis.

### 6. Does heat sensitivity make MS worse and what is Uhthoff's symptom?

Exposure to hot ambient temperatures (a warm summer day, hot tub, etc) can make some MS *symptoms* worse, but does not worsen the *disease itself*. This phenomenon was first observed by Wilhem Uhthoff in 1890 and is referred to as Uhthoff's symptom. It

is estimated that 30-40% of MS patients are heat sensitive. In the 1950s, a hot water bath test was developed as a diagnostic test for MS. Patients with suspected MS and heat sensitivity would feel uncomfortable in a hot water tub and this would help the clinician in supporting the diagnosis of MS. For this reason fever, hot baths, sunbathing, and heavy exercise may have to be avoided by some MS symptoms. These symptoms usually improve after the patient cools down or returns to an air-conditioned environment.

### **7. What is transverse myelitis (TM)?**

Transverse myelitis (TM) means inflammation of the spinal cord. Symptoms are usually numbness and weakness of the legs, and difficulty urinating. Depending on where the inflammation is located in the spinal cord, TM can cause hand and arm numbness and weakness as well. TM is typically sudden in onset and reaches its peak within one or two days. The risk of developing MS after experiencing TM depends on MRI scan of the brain and spinal cord. The doctor may therefore order a brain and spinal cord MRI scan to evaluate this risk of developing MS in a person who experiences TM. Many other diseases such as lupus, infections, or vitamin B12 deficiency can cause spinal cord symptoms. Therefore, a careful diagnostic evaluation of TM is needed before confirming any diagnosis

### **8. How is pain associated with MS?**

Pain is commonly reported by MS patients. Various types of pain that have been described in MS include: burning pain, electric shock-like sensations, deep continuous aching pain, pain related to muscle spasms, and band-like sensation in the chest or abdomen. Pain could be acute (sudden onset), chronic (persistent over a period of time), or episodic (off and on). Because pain from MS can be hard to distinguish from pain seen in other common disorders, it should be carefully evaluated before any recommendation of treatment is made.

### **9. How is fatigue associated with MS?**

Fatigue is one of the most common symptoms of MS and can be challenging to treat. It can affect a patient's ability to work and interfere with day to day activities. MS fatigue can present as an overwhelming need to nap, as motor fatigue where a patient's legs get tired quickly during walking, or as cognitive fatigue where it becomes hard to concentrate on a task for a long period of time. The patient may experience severe fatigue and yet appear quite normal to others.

### **10. How are coordination, balance and tremors associated with MS?**

MS patients can develop clumsiness, poor balance and tremors in arms and/or legs. Some times these symptoms can be treated with medications. However, they can be very difficult to treat.

### **11. How are weakness and spasticity related to MS?**

Weakness is a common symptom of MS; it is due to a problem of the brain or the spinal cord, not from a problem with the nerves or muscles. It could involve one or both sides of the body and can be confused with a stroke. Spasticity, or limb stiffness, is commonly associated with MS weakness and can make moving a weak limb even more difficult. Spasticity can also cause severe tightness of the legs leading to pain and discomfort. Spasms can also occur episodically and sometimes every day. Fortunately, spasticity can be treated effectively with a number of different medications.

### **12. How are cognitive dysfunction and MS related?**

Short-term memory loss and mild difficulty with thought processing can be seen in up to 45-65% of MS patients. These symptoms rarely progress to severe difficulties with memory and thought processing, such as those seen in Alzheimer's disease.

### **13. What is the relationship between mood disorders and MS?**

Depression and mood swings are not unusual in MS. They can often be treated effectively with medications. Rarely, a patient may initially present with behavioral and emotional problems leading to further work up and MRI scans revealing abnormalities consistent with MS.

### **14. How is abnormal eye movement associated with MS?**

MS can cause many different kinds of eye movement abnormalities. These abnormal eye movements may result in double vision or blurry vision. Sometimes the neurologist may seek the opinion of another expert known as the "neuro-ophthalmologist" who may help manage these symptoms with either medications or special glasses.

### **15. What is Lhermitte's Sign?**

This symptom (although incorrectly referred to as a sign) is named after the French neurologist (Jean Lhermitte) who first described it in 1924. Lhermitte's sign is an electric shock-like sensation radiating down the back and into the arms or legs when the neck is bent. It is a common MS symptom, but can also be seen in other diseases affecting the upper spinal cord.

### **16. What are the Episodic symptoms of MS?**

Episodic symptoms (symptoms that come and go) are common in MS. They are typically abrupt in onset, last only a short time (few seconds to few minutes), and resolve on their own. They can occur several times a day and may include loss of balance, slurred speech, double vision, dizziness, painful tingling, electric shock-like sensations, or repeated muscle contractions. These episodic symptoms do not indicate the patient is having a seizure (See *Treatment*).

## **17. What urinary symptoms are associated with MS?**

Urinary dysfunction is also a commonly reported symptom of MS. Different types of urinary symptoms seen in MS patients are:

- Urgency (Inability to postpone urination once the need has been felt)
- Frequency (need to urinate more often)
- Incontinence (Loss of bladder control)
- Hesitancy (Trouble starting and maintaining urination)
- A combination of the above

Most of the times, the neurologist may be able to treat the urinary symptoms with medications. However, it is always useful to consider an opinion from a urologist who may do additional studies to determine how the urinary bladder is filling and emptying, and prescribe appropriate medications.

## **18. How is bowel dysfunction associated with MS?**

Bowel symptoms are common in MS, especially constipation. Bowel incontinence (loss of bowel control) may also occur, and may respond to treatments (*See Treatment*).

## **19. How is sexual dysfunction related to MS?**

Sexual dysfunction is common in MS. Common symptoms include erectile difficulties, impaired vaginal sensation and lubrication, decreased libido, and difficulty in achieving orgasm. Many of these symptoms may respond to medications.