

Care & Recovery After an MS Relapse



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What is multiple sclerosis?

- Chronic inflammatory disease of the central nervous system
- A leading cause of long-term neurologic disability in young adults
- Onset of illness is typically age 30's, but can vary from teenage to late middle age
- Affects over 400,000 individuals in the US
- Affects women more than men (3 to 1)

What causes multiple sclerosis?

- Many factors contribute to developing multiple sclerosis:
 - Genetic
 - Environmental

How is MS diagnosed?

- Doctors look for objective evidence of central nervous system lesions separated in space and time
 - Objective evidence means clinical signs on exam, characteristic abnormalities on imaging (MRI) or other specialized tests
 - Central nervous system means brain and spinal cord
 - Lesion = "plaques"
 - Separated in space
 - Separated in time

How is MS diagnosed?

- Doctors look for objective evidence of central nervous system lesions separated in space and time
 - “separated in space”:

Magnetic Resonance Imaging (MRI) of brain and spine

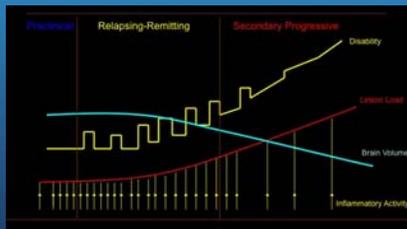


How is MS diagnosed?

- Doctors look for objective evidence of central nervous system lesions separated in space and time
 - “separated in time” means symptoms go through relapses and remissions

Multiple sclerosis is a relapsing remitting disease

- For the majority of patients with MS, the course is “relapsing remitting” - symptoms worsen and improve over time



What is an MS relapse?

- An episode of clinical worsening (new symptoms or recurrence of old symptoms) in patients with MS is called a relapse
- Many terms used to describe episodes of clinical worsening in patients with MS:
 - Relapse
 - Exacerbation
 - “Flare”

What is an MS relapse?

- During an MS relapse, patients may experience:
 - Blurred vision, numbness, weakness, clumsiness, slurred speech, imbalance, urinary symptoms and others
 - Typically lasts longer than 24 hours
 - May persists for days, weeks or sometimes months before improving
 - For patients in the relapsing-remitting phase of MS, symptoms improve on their own regardless of whether or not treatment is administered

What is an MS relapse?

- During an MS relapse, the following processes may be occurring in the central nervous system:
 - Inflammation
 - reversible
 - Swelling
 - reversible
 - Demyelination
 - Some remyelination can occur
 - Axonal damage?
 - More permanent damage

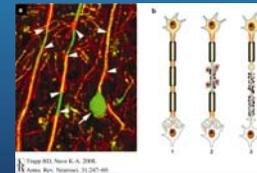
What is an MS relapse?

- A clinical relapse typically indicates active inflammation in the brain or spinal cord



What is an MS relapse?

- A clinical relapse typically indicates demyelination the brain or spinal cord
- A clinical relapse may or may not indicate axonal damage



What is a “pseudo-relapse”?

- Not all clinical worsening in MS is caused by active inflammation in the brain or spinal cord.
- Recurrence or worsening of old symptoms under certain circumstances are most likely “pseudo-relapses” which are not indicators of new disease activity:
 - Worsening of symptoms after spending time in a hot environment
 - Worsening of symptoms after intense exercise
 - Worsening of symptoms during peak of fever

What triggers an MS relapse?

- A number of factors are thought to influence the onset of an MS relapse
 - Infections: YES
 - Viral infections:
 - Common viral infections such as upper respiratory infections (“cold”) can trigger an MS relapse
 - Bacterial infections:
 - Common bacterial infections (e.g. urinary tract infections) can probably trigger an MS relapses
 - Fever during an infection can also cause a pseudo-relapse

What triggers an MS relapse?

- A number of factors are thought to influence the onset of an MS relapse
 - Stressful life events: MAYBE
 - There is evidence that in general individuals who experience more stressful-life events tend to have more relapses
 - But how much stress is too much is hard to define
 - Not clear that any one stressful life event can be blamed for a relapse

What triggers an MS relapse?

- A number of factors are thought to influence the onset of an MS relapse
 - Physical trauma: NO
 - Studies have shown no link between physical trauma and MS relapse

What triggers an MS relapse?

- A number of factors are thought to influence the onset of an MS relapse
 - Anesthesia: YES and NO?
 - Many doctors believe that general anesthesia is safer than spinal anesthesia with respect to MS relapses
 - Has not been well-studied

What triggers an MS relapse?

- Vaccines: NO
 - Most vaccinations do NOT increase the risk of a relapse
 - Routine vaccinations ARE recommended for patients with MS
 - Live attenuated virus vaccines are not recommended for patients with MS taking certain types of medications (consult with your doctor)

Special circumstances

- Relapses are more frequent during the post-partum period (within 3 months following delivery)
 - The rate of relapse nearly doubles during the post-partum period
 - Even so, majority of women do not relapse during the post-partum period
 - Relapses during post-partum period do not more adversely affect long-term outcomes

Special circumstances

- Tumor Necrosis Factor inhibitor medications
 - Talk to your doctors about the risk of specific medications
- Infertility medications
 - Talk to your doctors about the risk of specific medications

How are relapses treated?

- High-dose corticosteroids
 - Corticosteroids are hormones that are naturally made in the body and play a role in stress response, immune response, metabolism and other functions
 - High-dose corticosteroids are used in MS for their anti-inflammatory effects
 - High-dose is preferred because high-dose is less often associated with symptom “rebound” than low-dose corticosteroids

How are relapses treated?

- High-dose corticosteroids
 - Typical dose: 1 to 2 grams daily for 3 to 5 days
 - Typically given intravenously - can be as effective when given orally, but requires taking many pills
 - Oral taper is not typically required, but may be used in some circumstances

How are relapses treated?

- ACTH (Adrenocorticotrophic hormone)
 - ACTH is a hormone naturally produced by your pituitary gland
 - ACTH stimulates the production of corticosteroids in the adrenal glands
 - ACTH is used in MS to increase the body's production of corticosteroids, which have anti-inflammatory effects
 - ACTH (H.P. Acthar Gel) is given as subcutaneous injections over a 2 to 3 week period

What are the benefits of medical treatments for MS relapse?

- Shorten the duration of a relapse
- Lessen the severity of a relapse

What are the risks of medical treatments for MS relapse?

- Corticosteroids
 - Increased appetite & weight-gain
 - High blood sugar (in patients with glucose intolerance or diabetes mellitus)
 - High blood pressure
 - Decrease bone density (osteoporosis)
 - Avascular necrosis of the hips
 - Stomach ulcer
 - Cataracts and glaucoma
 - Increased risk of infections
 - Insomnia
 - Mood changes: irritability, anxiety, depression, euphoria

What are the risks of medical treatments for MS relapse?

- ACTH (H.P. Acthar Gel)
 - Expected to be similar to high-dose corticosteroids
 - But individuals often vary in their adverse response to high-dose corticosteroids and ACTH

How are relapses treated?

- Physical therapy/ Occupational therapy
 - Physical and occupational therapy may be helpful for relapses that last longer than several weeks.

Are medications always indicated for MS relapses?

- Not necessarily
 - MS relapses typically improve (remit) without medical treatment
 - You and your doctor may decide to “watch and wait” instead, especially if concerned about the side effects
 - The decision to treat or not treat an MS relapse often depends on how severe the symptoms are, how much they interfere with function and how well you can compensate for the symptoms of an MS relapse

Does treating MS relapse improve the long-term outcome of MS?

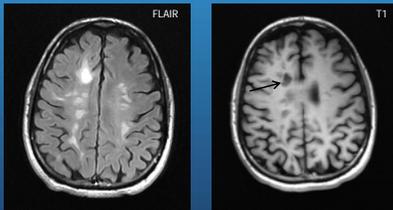
- No. Repeated use of high-dose corticosteroids does not improve long-term outcome in patients with MS
- Similarly, repeated use of ACTH is not expected to improve long-term outcome in patients with MS

Do relapses determine long-term outcome in MS?

- A high relapse rate does not necessarily predict more severe long-term disability in patients with MS
- The nature of injury (demyelination vs. axonal loss) and the location of injury (e.g. spinal cord) incurred during a relapse is more important than the number of relapses

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How are relapses prevented?

- FDA approved disease modifying therapies are medications proven to reduce the frequency of MS relapses
 - Interferon beta (Avonex, Rebif, Betaseron, Extavia, etc)
 - Glatiramer acetate (Copaxone)
 - Natalizumab (Tysabri)
 - Fingolimod (Gilenya)
 - Teriflunomide (Aubagio)
 - Dimethyl fumarate (Tecfidera)

How are relapses prevented?

- Diet:
 - Swank diet (low saturated fat diet):
 - No data on relapses; possible benefit on long-term disability
 - Polyunsaturated fatty acids (Omega-6-fatty acids):
 - Possibly reduces frequency of relapses; long-term benefit is uncertain
- Vitamin D:
 - Patients with higher vitamin D levels had less frequent relapses
 - In a clinical trial, patients who took 20,000 IU vitamin D3 once a week had less lesions on MRI but relapse rates were the same as placebo
- Exercise:
 - Impact on relapses unknown; studies have shown benefit of exercise on function and quality of life in patients with MS

Conclusions

- Relapses are common in patients with MS
- Symptoms of relapses typically improve without treatment in patients with relapsing remitting MS
- Disease modifying therapies are among the best ways to prevent relapses
- You and your doctor's decision to treat or not treat a relapse depends on many factors
- It's not the number of relapses, but the nature and location of the central nervous system inflammation associated with a relapse that is more important long-term

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