

Myasthenia Gravis

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What is Myasthenia Gravis?

- Myasthenia gravis (MG) is a neuromuscular disorder characterized by varying degrees of muscle weakness and muscle fatigue.
- Symptom onset may occur at any age.
- Certain muscles such as those that control eye and eyelid movement, facial expression, chewing, talking, and swallowing are often involved in the disorder.
- The muscles that control breathing and neck and limb movements may also be affected.
- MG is an autoimmune disease—a disease that occurs when the immune system attacks the body's own tissues.
- In MG, the attack interrupts the connection between nerve and muscle— the neuromuscular junction.

Who can have MG?

- MG affects two to seven out of every 10,000 people in Western countries.
- There are an estimated 70,000 patients with MG in the United States.
- MG commonly affects young adult women (under 40) and older men (over 60), but it can occur at any age.
- In neonatal myasthenia, the fetus may acquire immune proteins (antibodies) from an infected mother with MG. These cases generally are temporary and the child's symptoms usually disappear within two to three months after birth.
- MG begins in childhood (juvenile onset) in only about 10 percent of cases. In many children who have been given this diagnosis, they turned out to have had Congenital Myasthenic Syndrome (CMS).

Congenital Myasthenic Syndrome (CMS)

- Like MG, CMS produces weakness and fatigue caused by problems at the neuromuscular junction, but while MG is autoimmune, CMS is an inherited disease caused by defective genes.
- There are many types of CMS that are grouped into three main categories named for the part of the neuromuscular junction that's affected: presynaptic (nerve cell), postsynaptic (muscle cell), or synaptic (the space in between).
- Symptoms and treatment of CMS vary depending on the type of CMS.
- CMS usually has a congenital (at or near birth) onset, but it can manifest in children and even in adults with later-onset cases tending to be less severe.

Symptoms of MG

- MG weakens and fatigues the body's voluntary muscles.
- Partial paralysis of eye movements
- Double vision
- Droopy eyelids
- Weakness and fatigue in the neck and jaw resulting in difficulty talking, chewing, swallowing, and holding up the head.
- Difficulty lifting arms over head
- Difficulty standing from sitting position
- Difficulty walking long distances

Diagnosis of MG

- A special blood test can be performed designed to detect antibodies to the acetylcholine (Ach) receptor. A positive test result confirms a diagnosis of MG.
- Electrodiagnostic testing can be done, in which electrodes are used to measure the electrical signals in muscles.
- Intravenous injection of edrophonium, a fast-acting cholinesterase inhibitor can be performed. A temporary increase in strength after this test is consistent with either MG or CMS.
- If a diagnosis of MG is confirmed, a CT scan, X-ray, or MRI will be used to examine the thymus and look for evidence of thymoma (a thymic tumor).

Treatment

- Medications used to treat the disorder include anticholinesterase agents such as neostigmine and pyridostigmine, which help improve neuromuscular transmission and increase muscle strength.
- Immunosuppressive drugs such as prednisone, cyclosporine, and azathioprine may also be used to improve muscle strength by suppression of the production of abnormal antibodies.
- Thymectomy, the surgical removal of the thymus gland (which is abnormal in patients with MG) is sometimes performed.
- Plasmapheresis, a procedure in which abnormal antibodies are removed from the blood, is another type of treatment.
- High-dose intravenous immune globulin temporarily modifies the immune system and provides the body with normal antibodies from donated blood.

Resources and Organizations

- Muscular Dystrophy Association
3300 E. Sunrise Dr
Tucson AZ 85718
800#: 800-572-1717
e-mail: mda@mdausa.org
Home page: <http://www.mdausa.org>
- Myasthenia Gravis Foundation of America
1821 University Ave. W.
St. Paul MN 55104
800#: 800-541-5454
e-mail: mgfa@myasthenia.org
Home page: <http://www.myasthenia.org>
- NIH/NINDS Brain Resources and Information Network
PO Box 5801
Bethesda MD 20824
800#: 800-352-9424
Home page: <http://www.ninds.nih.gov/>
- New Horizons Un-Limited, Inc.
811 East Wisconsin Ave
Milwaukee WI 53202
Phone #: 414-299-0124
e-mail: horizons@new-horizons.org
Home page: <http://www.new-horizons.org>