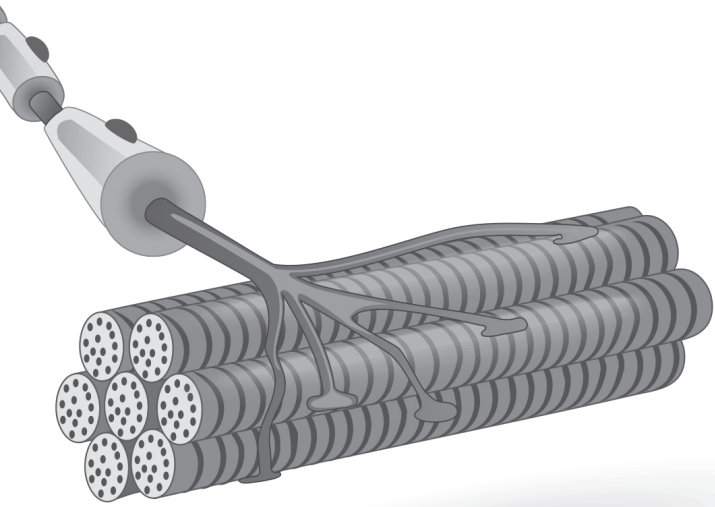
Neurology Department



Myasthenia Gravis

National Neuroscience Institute
SingHealth

Understanding Myasthenia Gravis (MG)?

Myasthenia Gravis (MG) is a chronic, autoimmune disorder caused by a breakdown in the communication between nerves and muscles in the neuromuscular junction. At the junction, nerve and muscle communicate via a neurotransmitter known as acetylcholine.

In MG, antibodies block or destroy receptors at the junction, affecting transmission. This results in fatigue and muscle weakness.

Signs of Myasthenia Gravis

MG affects voluntary muscles in the body. Weakness may come and go, become more prominent as the affected muscle is used repeatedly, and improves with rest.

Signs may be generalised or localised:

- Generalised MG often affects muscles that control the eyelids, eye movements, facial expression, chewing, swallowing, speech, respiration and limb strength.
- Localised MG, such as Ocular MG, often affects eyelid and eye movement muscles.

Common signs include:

- Intermittent drooping of eyelids (ptosis)
- Double vision (diplopia)
- Limb weakness which worsens with repeated use, commonly at the end of the day
- Difficulty keeping arms raised above the head or getting up from a chair
- Shortness of breath with exertion or when lying flat
- Speech (dysarthria) and/or swallowing (dysphagia) impairment

Not all signs occur at the same time or are always present. The signs usually occur slowly but may develop suddenly with generalised weakness and rapid weakening of swallowing and breathing muscles. This is termed myasthenic crisis and needs immediate medical attention.

Diagnosing Myasthenia Gravis

A consult with a neurologist is needed to confirm the diagnosis. Tests include:

- **Blood Test**
  To detect antibodies that are abnormally high in MG.
- **Repetitive Nerve Stimulation (RNS)**
  Small, safe and tolerable electric currents are delivered to nerves in quick succession to check nerve responses and function.
- **Single Fiber Electromyography (SFEMG)**
  A small needle electrode is inserted into the muscles to record differences in response time between muscle fibres.
- **Computed Tomography (CT) Scan**
  Approximately 10-15% of patients with MG have an associated thymoma, a tumour of the thymus. The thymus is a gland in the chest that is involved in the immune system. A CT scan may be needed to check for a thymoma. Most of these thymomas are not malignant.

Risk Factors

MG affects all ages, sex and ethnic groups. It is most common in young adult women under 40 and older men over 60. It may affect newborns when a mother with MG passes the abnormal antibodies to the foetus. In adults, it is usually not hereditary. MG is not contagious.

Living with Myasthenia Gravis

MG treatment includes:

- **Intravenous Immune Globulin (IVIG) Treatment**
  IVIG is derived from donated blood and contains normal antibodies that temporarily counteract the abnormal antibodies in the body.

- **Plasma Exchange (Plasmapheresis)**
  Abnormal antibodies are filtered out of the body by a machine, similar to the concept of dialysis.

  IVIG or plasmapheresis is used in acute cases.

- **Medications**
  Medication such as pyridostigmine is prescribed to improve muscle weakness. Common side effects include increased salivation, diarrhoea and abdominal discomfort.

  Immunosuppressant such as steroid is prescribed to suppress the immune system. Side effects include weight gain, water retention, acne, hypertension, diabetes, infections, gastric ulcers, osteoporosis and cataracts. These side effects can be minimised with diet modifications and medications.

  The above list is not exhaustive and you should discuss these treatment options further with your doctor.

- **Surgery**
  In certain instances (e.g. thymoma), removal of the thymus gland is necessary.

With proper treatment, signs and symptoms of MG can be relieved and normal daily function achieved.

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Brochure content serves as a guide only
Seek the advice of your doctor for more details

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