Myasthenia Gravis (MG)

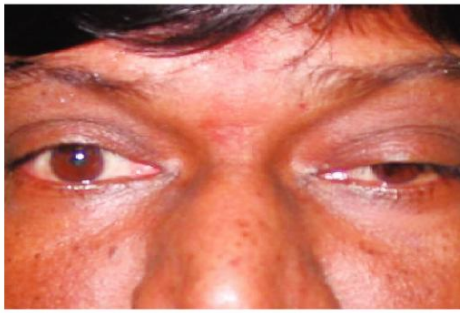
A Guide for patients & Caregivers

Myasthenia Gravis (MG)

Myasthenia gravis is a condition which causes fluctuating muscle weakness. It is a treatable condition and with effective treatment, most patients lead a normal life.

Who gets MG?

MG typically affects women under 40 years and men over 60 years. At any one time, there can be approximately 1 in 20,000 people with MG, MG is not an inherited condition.



What is the cause of MG?

MG is an “autoimmune” condition. This means that the body’s immune system, which we need to fight infections and other foreign bodies, mistakenly recognises its own muscle receptors [known as acetylcholine receptor] as foreign and attacks it. It does this by producing antibodies. These antibodies block the acetylcholine receptors causing problems with muscle contraction. The most common antibody associated with MG is acetylcholine receptor antibody. These antibodies are largely made in the thymus gland which lies beneath the breastbone. Sometimes when there is an enlargement or growth in the thymus glands, patients can develop MG.

What are the symptoms of MG?

The typical initial symptom is fatigable muscle weakness. This means that a specific muscle gets weaker the more it is being used. This weakness can improve when the muscle is rested. This is why patients sometimes recognise their symptoms to be worse as the day goes by. There are typical groups of muscles affected in MG which are as follows:

Eye muscles:

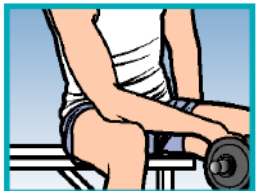
- Droopiness of eyelids (ptosis).
- Visual blurring or seeing double as the muscles involved in eye movements become affected.

Muscles of the face, neck and throat:

- Swallowing difficulties
- Difficulty speaking.
- Head drop

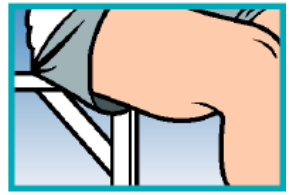
Muscles of the upper arms:

- Difficulty lifting arms over head.



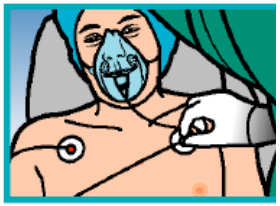
Thigh muscles:

- Difficulty getting up from seated position.
- Difficulty going up stairs



Weakness in the chest muscles:

- Shortness of breath on exertion
- Breathless when lying flat.
- When severe, breathing can stop altogether.



Each patient is different in terms of the severity of their weakness. In some patients, only the eye muscles are ever affected.

How is MG diagnosed?

In patients with symptoms described above, further investigations can help with diagnosis:

- A blood test to detect the abnormal antibody.
- Electrodiagnostic tests
- A scan of the upper chest to look at the thymus gland
- Breathing tests in patients with respiratory muscle weakness

How do you treat MG?

There are many treatments available now and the type of treatment is dependent on the pattern and severity of the disease.

1. Anticholinesterase medication (eg pyridostigmine)

This is usually the first medication given. The most commonly used is pyridostigmine [Mestinon]. The typical dose starts at 30mg three times daily and may be increased as required up to 60mg five times a day. The drug usually effective within 30 minutes and last around 4-5 hours. Patient notices an improvement in the strength of their muscles. Side effects of this drug include abdominal pain and diarrhea. If this occurs, there are other tablets to counteract these side effects such as probantheline.

2. Steroid medication

Often pyridostigmine alone is not enough. The immune system needs to be suppressed. This is when steroid such as prednisolone is used together with pyridostigmine. Steroids may take longer to act and sometimes a high dose is required to stabilise the situation before the dose is tapered down gradually. Long term high dose steroids have undesirable side effects such as diabetes and osteoporosis. This is why in some patients, a different immune suppressing agent is used to allow patients to reduce their steroid dose (see below).

3. Immunosuppressant medication

Like steroids, they also suppress the immune system. The most commonly used drug is azathioprine. Using an immunosuppressant like azathioprine allows a lower dose of steroid to be used and sometimes, it may permit the patients to be free of steroid use. The potential side effects include abnormal lover function test and abnormal blood count. To avoid this from happening, blood test may be used to monitor for such development.

4. Emergencies

In some patients the muscle weakness is severe and there is a need to improve muscle strength urgently. Patients are typically admitted to hospital where plasma exchange (This works by removing the abnormal antibodies from the bloodstream) or IV immunoglobulin therapy may be used.

What is the outlook of MG?

With the correct treatment, most people with myasthenia gravis can lead a normal life. It is important the patients with MG are managed by a specialist (neurologist) as well as their family doctor.

Are there any other precautions in MG?

It is important that you inform other medical practitioners (including dentists) of your diagnosis. There are certain drugs that can make MG worse:

Must never use:

- D-penicillamine

Use only if there are no other options

- Aminoglycosides (gentamycin, kanamycin, neomycin, strepmycin, tobramycin)
- Botulinum toxin
- Curare and related drugs
- Fluoroquinolones (ciprofloxacin, levofloxacin, norfloxacin)
- Interferon-alfa
- Macrolides (erythromycin, azithromycin)
- Magnesium salts (intravenous magnesium replacement)
- Quinine, quinidine, procainamide

Can worsen weakness so use with care:

- Beta-blockers
- Calcium channel blockers
- Iodinated contrast agents
- Lithium
- Statins

For further information regarding MG, please consult a neurologist.