MGUS (monoclonal gammopathy of unknown significance)

MGUS is a non-cancerous (benign) condition. Although most people with MGUS remain well, a small number of people may go on to develop more serious problems, so everyone with the condition must have regular tests.

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What is MGUS?

MGUS (monoclonal gammopathy of unknown significance) is a condition where the body makes an abnormal protein, called a paraprotein, that's found in the blood.

MGUS is linked to the immune system, which helps the body fight infection and disease. The immune system is made up of organs such as the bone marrow, the spleen, lymph nodes (or lymph glands) and a type of white blood cell called lymphocytes.

Lymphocytes are made in the bone marrow (inside the bones). The two main types of lymphocytes are B-cells and T-cells.

Some B-cell lymphocytes develop into plasma cells and make antibodies to help fight infections. Antibodies are made from a protein called immunoglobulin.

MGUS occurs when particular plasma cells produce abnormally large amounts of one type of antibody. This abnormal antibody or immunoglobulin is called a paraprotein (or M-protein). The paraprotein doesn't do anything useful, and it isn't harmful.

MGUS is not a cancer. Some cancers, such as myeloma (a cancer of the plasma cell) and lymphoma (cancer of the lymphatic system), also produce large amounts of paraproteins. Although the levels of paraprotein are raised in MGUS, they're not as high as the amount produced in people with cancer.

Most people with MGUS remain well and never have any problems related to it. A small number of people may go on to develop more serious problems, so everyone with MGUS has regular checks.

MGUS is much more common in older people over 70. The cause of MGUS is unknown. It's more common in people with conditions that affect the immune system, such as rheumatoid arthritis and certain infections.

Signs and symptoms of MGUS

MGUS is usually found by chance, often during a blood test carried out for some other reason. It doesn't
usually cause any symptoms.

Occasionally people with MGUS have numbness or tingling in their hands and feet, or problems with their balance. This may be due to damage to nerves caused by the paraprotein in the blood.

If these symptoms are troublesome or get worse you may be referred to a neurologist, who is a specialist in the nervous system.

**Diagnosis of MGUS**

You will be usually be seen by a haematologist, who is a specialist in blood disorders. Your specialist may do a physical examination and ask you questions about your general health.

You will usually have blood and urine tests. Your haematologist may also advise you to have other tests to rule out more serious conditions, such as myeloma or lymphoma. These tests may include x-rays, scans and occasionally a bone marrow test.

Not everyone will need to have these and your haematologist will advise you on what tests are appropriate for you.

**Blood tests**

A blood test known as serum protein electrophoresis is done to diagnose and monitor MGUS. This test measures the type and amount of paraprotein produced by the plasma cells.

You will also have a test to check the number of different types of blood cells (full blood count), to make sure your bone marrow is working well.

Blood tests may also be taken to check how well your liver and kidneys are working and the level of calcium in your bones. Calcium levels may be raised in conditions such as myeloma.

**Urine tests**

You will be asked to give samples of your urine, which will be checked for the paraprotein.

**X-rays**

Some people may have a number of x-rays taken of different bones in the body (called a skeletal survey). This is to rule out any damage to the bones, which may be linked with myeloma.

**CT (computerised tomography) scan**

This may be used to check if any lymph nodes, or the liver or spleen, are enlarged. A CT scan takes a series of x-rays that build up a three-dimensional picture of the inside of the body.

The scan involves lying still for up to an hour. It uses a small amount of radiation, which is very unlikely to harm you or anyone you come into contact with. The hospital will give you more information about this scan and how to prepare for it.

**Bone marrow sample**

In some situations the haematologist may recommend that a sample of bone marrow is taken (biopsy) to be examined under a microscope.

The sample is usually taken from the back of your hip bone (pelvis). You will be given an injection of local anaesthetic to numb the area. The doctor will then pass a needle through the skin into the bone and draw a small sample of liquid marrow into a syringe (bone marrow aspirate). After this, the doctor will take a small core of marrow from the bone (a trephine biopsy). Both samples will be looked at later under a microscope.

The test can be done on the ward or in the outpatients department. The whole procedure takes about 15-20 minutes.
You may feel bruised and have an ache for a few days after the test. This can be eased with mild painkillers.

**Treatment and follow-up for MGUS**

MGUS doesn't need treatment as it doesn't cause any symptoms. In most people MGUS remains stable and will never cause any problems. However, because of the very small risk of MGUS developing into a cancer, such as myeloma or lymphoma, regular check-ups are important. You should contact your doctor between check-ups if you develop any of the following symptoms:

- new bone pain in one area (such as in the back, ribs, hip or pelvis) that is constant and gets worse over time
- unexplained weight loss
- increasing breathlessness
- extreme tiredness (fatigue).

You will usually have your paraprotein levels checked every 3-4 months for the first year. This can be done by your own GP or your haematologist.

Your doctors will monitor the trend of the paraprotein levels - whether they're generally stable, or steadily rising. If the paraprotein level remains steady and there are no other problems, the interval between your appointments will become longer.

If the paraprotein levels are rising, or if you develop symptoms, tests may need to be repeated or new tests may be carried out.

**Your feelings**

Although MGUS isn't cancer and most people never develop problems, you may still feel anxious or uncertain at times. These are normal reactions.

These feelings usually get easier to cope with over time. Some people find it helpful to talk things over with their family or friends. You can also talk over your concerns with one of our cancer support specialists. You may also find it helpful to contact the below organisations for further information and support.

**Useful organisations**

**Myeloma UK**

Myeloma UK provides information and support to people affected by myeloma. Helps to improve treatments through research, education and awareness.

**Leukaemia CARE**

Leukaemia CARE is a national group promoting the welfare of people with leukaemia and other blood disorders. They can provide information on MGUS.

**References**

This information has been compiled using information from a number of reliable sources including:


**Thanks**

Thank you to Dr Shirley D’sa, Consultant Haematologist, and all of the people affected by cancer who reviewed this edition. Reviewing information is the just one of the ways you could help when you join our Cancer Voices network.
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