melbourne haematology

fact sheet 1

MGUS (monoclonal gammopathy of undetermined significance)

Overview

MGUS is a disorder where plasma cells (specialized bone marrow cells that secrete antibodies/immunoglobulins) begin to function abnormally, producing increased quantities of an immunoglobulin that does not work normally. When this immunoglobulin is produced from genetically identical (clonal) plasma cells, it is able to be identified on a blood test (serum protein electrophoresis). This abnormal protein is called a paraprotein (monoclonal gamma globulin, hence "monoclonal gammopathy").

MGUS commonly affects older people (more than 70 years old). Population studies show the risk of MGUS is approximately 3% (>50), 5% (>70) and 7.5% (>85).

What causes MGUS?

The cause of MGUS is not fully understood at this time. It is thought that genetic damage to a single plasma cell gives this cell a survival advantage, leading to proliferation of this plasma cell. It is known that there is an increased risk of MGUS in first-degree relatives of patients with MGUS and myeloma. This does not mean all first-degree relatives will get MGUS, only that the risk is increased compared to the general population. It is not known at this time if this is due to shared genetic factors, or shared environment (same upbringing).

What symptoms does MGUS cause?

By definition, MGUS does not cause symptoms. Presence of symptoms, such as bone pain or recurrent infections, blood test abnormalities such as anaemia, raised calcium level, raised bone marrow plasma cell numbers or kidney failure, or x-ray abnormalities within the bones, means the diagnosis is likely to be multiple myeloma, or other symptomatic disorder, rather than MGUS.

MGUS itself is not considered to be cancerous, but to lead to an increased risk of cancerous conditions. The risk of progression is estimated to be 1% per year (ie. 10% risk after 10 years of MGUS diagnosis).

How is MGUS diagnosed?

MGUS is usually diagnosed incidentally (accidentally) during blood testing for routine screening or other medical conditions.

The main test is the serum (and/or urine) protein electrophoresis. Other tests that are used to tell MGUS from more serious disorders are blood cell counts (FBE), kidney function, calcium level and serum free light chain level. In some patients, x-rays or a bone marrow biopsy may be required for complete diagnosis. Results of some of these tests can be used to improve the prediction of risk of progression, beyond the overall 1% risk for all patients with MGUS.

How is MGUS treated?

MGUS by definition does not require treatment. Regular clinic visits and blood tests can identify progression before significant symptoms occur.

Clinical trials are ongoing in some areas of the world studying the effects of early treatment for patients with MGUS where the risk of progression is very high. Results of these studies are not yet known.

Where can I get further information?

The following resources are recommended:

- Leukaemia foundation of Australia Myeloma booklet, particularly p24
- UK Myeloma Foundation MGUS information
- International Myeloma Foundation MGUS information
- Leukaemia foundation (Ph 1800 620 420)
- Myeloma Foundation of Australia (Ph 1800 693 566)
- Cancer Council Helpline (Ph 13 11 20)

References.

1. Vachon CM *Blood* 2009 114:785-790;
2. Kyle RA. *N Eng J Med* 2002, Feb 21;346(8):564-9.
3. Kyle RA. *N Eng J Med* 2006, Mar 30;354(13):1362-9.

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FURTHER QUESTIONS?

The information presented in this fact sheet is intended as a general guide only.

Patients should seek further advice and information about **MGUS** and their individual condition from their treating haematologist or doctor.

For additional information about blood disorders and their treatment, or to contact one of our specialist haematologists, visit the Melbourne Haematology website: **www.melbournehaematology.com.au**

