

Multiple myeloma

Multiple (plasma cell) myeloma is cancer of the plasma cells in bone marrow. Bone marrow is the soft tissue inside bones where blood cells are made. Widespread growth of the malignant (cancerous) plasma cells in the bone marrow may leave little room for normal blood cells. This causes a range of problems including weak bones, anaemia and reduced immunity.

Multiple myeloma is rarely seen in people under 40 years of age. About 300 Victorians are diagnosed with multiple myeloma each year. There is no cure, but the condition can usually be managed successfully for several years. Many new drugs and treatment strategies have been approved for the treatment of multiple myeloma and this has improved the outlook for many people with this condition.

Blood is made up of plasma

Blood is mostly made up of plasma. Within the plasma are:

- **Red blood cells** – that carry oxygen around the body
- **White blood cells** – that fight disease and infection
- **Platelets** – that help to stop bleeding when it starts (assist with blood clotting).

The plasma cells in healthy people are an important part of the immune system and develop from white blood cells called lymphocytes. These cells make antibodies that help fight infections.

Effects on the immune system

When a person has multiple myeloma, there is a large increase in the malignant (cancerous) plasma cells and a reduction in the normal cells. The malignant plasma cells are inside the bone marrow. This means that there is no longer the space necessary to make normal white cells, red cells and platelets.

As a result, the person has fewer red and white cells. The low red cell count causes anaemia (with symptoms such as tiredness, lethargy and shortness of breath on exertion). The low white cell count may mean the person is less able to fight infections.

Effects on bones and kidneys

The malignant plasma cells also produce different substances that cause the bone to become thin, weak and more likely to break. This may be associated with an increase in the level of calcium in the blood. Abnormal proteins produced by the malignant cells may affect the kidneys so that they cannot filter and clean the blood properly.

Symptoms of multiple myeloma

In its early stages, myeloma may not cause symptoms. When they do occur, symptoms include:

- Bone pain, particularly in the back and ribs
- Easily broken bones (fractures)
- Tiredness, lethargy or shortness of breath on exertion – usually caused by too few red blood cells in the body (anaemia)
- Easy bruising or bleeding – due to low platelet numbers
- Bleeding from the nose or gums
- Repeated infections or infections that are hard to get rid of
- Thirst, nausea, vomiting or constipation due to high calcium levels in the body.

Diagnosis of multiple myeloma

Multiple myeloma is diagnosed using a number of tests including:

- **Blood tests** – to check the levels of normal blood cells, calcium levels and for the presence of M-protein (made by myeloma cells)
- **Urine tests** – to detect the presence of M-protein
- **Bone x-rays** – to test for any bone damage or fractures
- **Sestamibi scans** – to look for bone changes
- **Bone marrow tests (aspirate and biopsy)** – to look at the cells in the bone marrow and count the number of plasma cells. The biopsy involves a small amount of fluid and a small core of bone marrow being removed. The presence of abnormal chromosomes may also be determined.

If these tests show that you have multiple myeloma, you will need further tests to find out how the myeloma is affecting your body. This usually means having further blood tests, and possibly a CT scan and an MRI scan.

Test results can take a few days to come back. It is very natural to feel anxious while waiting to get your results. It can help to talk to a close friend or relative about how you are feeling. You could also contact your local cancer information and support service.

Treatment for multiple myeloma

If treatment is recommended, it may include:

- **Chemotherapy** – cancer-killing drugs are given, either as injections or tablets.
- **Radiotherapy** – x-rays are used to target and destroy cancer cells. Radiotherapy also helps to relieve pain and reduce the risk of further bone fractures.
- **Steroids** – commonly given by injection or as tablets with chemotherapy, help make the treatment more successful.
- **Thalidomide** – is thought to work by slowing blood vessel growth around the abnormal plasma cells. It is taken as tablets.
- **Lenalidamide** – is thought to work by killing myeloma cells and altering the immune system. It is taken as tablets.
- **Bortezomib** – is thought to work by killing myeloma cells. It is taken as an injection.
- **Stem cell transplantation** – all blood cells come from stem cells in the bone marrow. High doses of chemotherapy can damage these cells, so stem cells are removed from the bone marrow before higher doses of chemotherapy are given. The stem cells are transplanted back after the chemotherapy has finished.
- **Bisphosphonates** – are given to treat the high calcium levels, strengthen bones and reduce pain. They can be given as injections or taken as tablets.
- **Surgery** – weak or thin bones may need to be strengthened with plates, pins or screws.
- **Plasma exchange (plasmapheresis)** – can be used to remove the abnormal protein produced by the myeloma cells. This stops the blood clogging small blood vessels, which can cause confusion, dizziness and stroke-like symptoms. This is not a common treatment but the procedure may be recommended if the level of the abnormal protein made by the plasma cells is dangerously high.
- **Clinical trials** – aim to explore new and improved treatments for multiple myeloma. Ask your doctor what trials are available and if you may be eligible.

You may also have other types of treatment to help control your symptoms, such as:

- Blood transfusions to help with anaemia
- Pain-relieving drugs
- Antibiotics to help control infections
- Antibodies to help prevent infections.

Where to get help

- Your doctor

- Cancer Council Helpline Tel. 13 11 20
- Myeloma Foundation.

Things to remember

- Multiple myeloma is cancer of plasma cells in the bone marrow.
- The abnormal cells reduce the levels of healthy blood cells.
- Multiple myeloma causes weakening of the bones, anaemia, blood-clotting problems, kidney problems and an increased risk of infection.
- There is no cure, but the condition can generally be successfully managed.

This page has been produced in consultation with, and approved by:

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