



About us

The Leukaemia Foundation is the only national not-for-profit organisation dedicated to the care and cure of patients and families living with leukaemia, lymphoma, myeloma and related blood disorders.

We invest millions of dollars in the work of Australia's leading researchers to develop better treatments and cures and provide free services to support patients and their families.

We receive no ongoing government funding. We rely on the generosity of the community and corporate sector to further our Vision to Cure and Mission to Care.

We can help you

Our range of free services supports thousands of Australians, from diagnosis, through treatment and beyond. To learn more, please call 1800 620 420 to speak with one of our Support Services team.

You can help us

There are many ways that you can help us to improve the quality of life for people with blood cancer. From making a donation, to signing up for an event; from volunteering, or joining us as a corporate sponsor - please call 1800 500 088 or go to www.leukaemia.org.au to learn more.

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CMML is a form of leukaemia that is characterised by high numbers of white blood cells, called 'monocytes', in the blood and bone marrow.

What is CMML?

CMML is an uncommon blood cancer with features of two other types of blood cancer. Even though it has leukaemia as part of its name, the World Health Organisation (WHO) classifies CMML as a 'mixed myelodysplastic (MDS)/myeloproliferative neoplasm (MPN)'. MPN is a group of disorders of the bone marrow stem cells that produce excess numbers of one or more types of blood cells (red cells, white cells, or platelets). MDS is a group of diseases that affects, to a greater or lesser extent, the production of normal blood cells in the bone marrow.

Around 50% of people diagnosed have a type of CMML with a high white cell count and resemble an MPN. The other 50% have a normal or reduced white cell count at diagnosis and the disease is more similar to a MDS. CMML is different to chronic myeloid leukaemia (CML). CML affects the myeloid cells in the blood and bone marrow, while CMML affects a specific myeloid cell called a monocyte, which helps to fight infections.

Incidence of CMML

CMML affects 2 in 100,000 people in Australia annually. CMML generally affects older adults who often go to their doctor with problems relating to anaemia (low red cell count), infection, bleeding, or an enlarged liver and/or spleen. Most people diagnosed are older than 70 years of age. CMML is more common in men than women. There have been cases reported in younger adults and older children, but this is a very small group.

Causes of CMML

We do not know the cause of CMML. We do know that some cases of CMML occur as a result of a gene mutation. Gene mutations known as TET 2 and RAS have been linked to CMML. Potentially, any incident that damages the genetic material of the body can cause a mutation that may lead to the development of CMML.

Examples of these incidents may include:

- ageing;
- cytotoxic chemotherapy; and
- radiation.

CMML is not infectious and cannot be transmitted from one person to another.

Diagnosing CMML

Many people are diagnosed after having a blood test for another problem. When abnormal monocytes are found, further tests are organised:

- further blood tests;
- bone marrow biopsy;
- cytogenetic tests.

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Types of CMML

There are two types of CMML. Type 1 has less than 5% blasts (immature blood cells) and type 2 has between 5-20% blasts in the blood. (Normal blood has less than 1%). Knowing the specific type of CMML helps doctors to determine the best treatment options. Approximately 20% of people with CMML may go on to develop acute myeloid leukaemia (AML) – more than 20% blast cells in the bone marrow.

How is CMML treated?

There is no one standard treatment regimen for CMML. Treatment depends on factors including: the stage of the disease; a person's age; the extent of symptoms; and general overall health. People with MDS-type CMML and MPN-type CMML usually are treated with the same or similar chemotherapy drugs to control the disease. CMML is often managed using the 'watch and wait' approach, with supportive care provided if and when required.

Watch and Wait involves regular monitoring of blood and general health. No intervention is needed unless the person begins developing signs and symptoms of the disease, indicating it is progressing.

Supportive care refers to the administration of therapies to alleviate symptoms of the disease or to manage the side-effects of the therapies. Supportive care is aimed at improving the person's quality of life and may even extend the person's life. This is often the *only* treatment suitable for older people, or those with other health problems, as they may be less able to tolerate stronger treatments. The aim of supportive care is not to treat the disease but can help to alleviate symptoms such as shortness of breath, and bruising or bleeding. Supportive care therapies may include:

- Blood and platelet transfusions. Transfusing blood products may be required to alleviate symptoms and to improve overall health.
- Antibiotics. People who have a reduced immune system from CMML may be at an increased risk of developing severe infection. Antibiotics can prevent a simple infection becoming life-threatening.

Chemotherapy involves the use of chemicals. Chemotherapy drugs are also known as cytotoxic (cell toxic) as they kill cells, especially those that multiply quickly, like cancer cells. Chemotherapy can be given as a tablet, as an infusion into the vein, or as an injection under the skin. Recently, azacitidine has been used to treat CMML.

Is there a cure?

For some people, a stem cell transplant is an option and is the only known cure for CMML. Unfortunately, due to the risks associated with a stem cell transplant, not everybody is eligible to have one. Your doctor will discuss treatment options with you and your loved ones and gain your consent prior to commencement.

How do clinical trials help?

Treatments are being revised regularly as new research becomes available. Research in the laboratory opens the possibility for clinical trials in the hospital setting. This may give a person access to new treatments before they are otherwise available and approved by the government. Clinical trials have specific criteria to ensure the safety of the person from the new treatment. This then helps to ensure credible results. Through clinical trials, people can help others by contributing to medical research and future treatments.

The Leukaemia Foundation publishes the guides: *Understanding Myelodysplastic Syndromes (MDS)* and *Understanding Myeloproliferative Neoplasms (MPN)*.

For more information, freecall 1800 620 420
email info@leukaemia.org.au or visit www.leukaemia.org.au