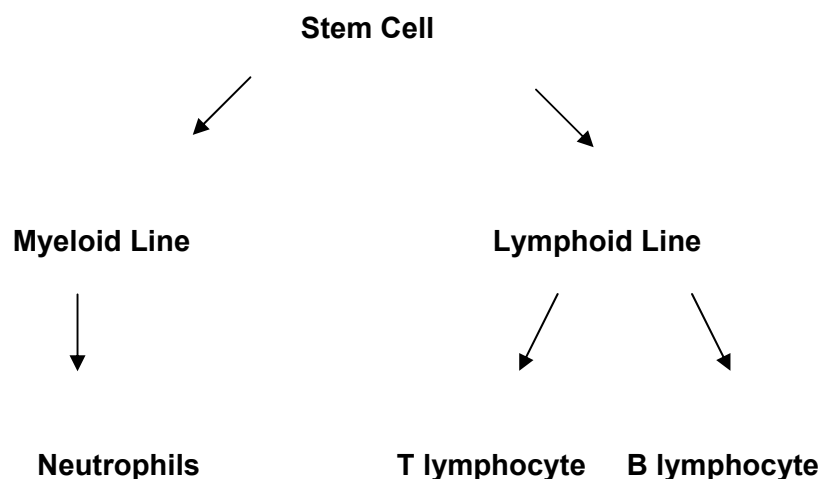


Acute Myeloid Leukaemia

What is Acute Myeloid Leukaemia?

Leukaemia is a disease of the white blood cells (WBC). All blood cells are produced in the bone marrow and originate from stem cells. The following is a simple diagram showing how stem cells develop into the two forms of white cells: the myeloid line and lymphoid line.



There are two main types of WBC, lymphocytes and Neutrophils. Neutrophils develop from immature cells of the myeloid line. If the myeloid cells become cancerous the type of leukaemia is called **Myeloid Leukaemia**. In leukaemia the bone marrow produces large numbers of these abnormal white blood cells. These abnormal, immature white blood cells are called blasts. They crowd out the normal white and red blood cells and platelets. The healthy bone marrow is replaced by these immature cells and eventually floods the blood stream and lymph system and may invade vital organs such as the brain, testes, ovaries and skin.

What causes AML?

We cannot say for sure what causes leukaemia but there are a few factors which appear to affect their development.

Radiation- there is a higher incidence of leukaemia in people exposed to intense radiation. Chemicals- workers exposed to Benzene and other solvents used in industry have increased risk of developing leukaemia. Some types of cytotoxic drugs can lead to an increased risk. Genetic Factors – Children with Downs

Syndrome have an increased risk of developing leukaemia, as do children with some rare genetic disorders.

AML is not contagious and cannot be passed onto other people and it is not caused by anything you have done.

What are the signs and symptoms?

- Weakness and fatigue
- Loss of appetite and or weight loss
- Bruise or bleed easily or tiny red spots under the skin (called petechiae)
- Sweating (especially at night)
- Bone or joint pain
- Recurring infections

How is it diagnosed?

AML is diagnosed by:

- Blood test
- Bone marrow biopsy
- Lumbar puncture – to determine if disease has spread

A blood test will usually show anaemia, variable changes in the white cell count (including the presence of immature myeloid cells, called blasts) and a low platelet count.

The doctor can determine what type of leukaemia it is by identifying the abnormal white cells.

In AML the bone marrow biopsy usually shows excessive numbers of *blast* (leukaemia) cells.

A lumbar puncture is carried out to see whether the spinal fluid contains any *blast* (leukaemia) cells.

A chest X-ray shows if there are any enlarged glands in the chest.

More information on tests and procedures is found in the procedure section of this folder.

What is the treatment?

Chemotherapy is the main treatment for AML. Prior to starting chemotherapy a central line (CVC) will be inserted to assist in the treatment (see CVC section for further information).

Your doctor will discuss your child's treatment protocol (plan) with you.

The aim of treatment is to eradicate all leukaemia cells and to allow resumption of normal blood production. This is referred to as remission. While the bone marrow appears normal this does not necessarily mean that all the blast cells are gone, as there may still be small numbers of leukaemia cells present. This is why further treatment is required after an initial remission is achieved.

Your child will receive six months of treatment made up of five courses of chemotherapy followed by a transplant (bone marrow or stem cells). You will receive information about the transplant and your treating doctor will discuss it with you.

The first three courses of treatment will require your child to be admitted to hospital for their chemotherapy and the other courses can be administered in Ronald Mc Donald Children's Clinic.

Supportive care:

May involve treatment for low red blood cells, low number of platelets and mucositis (swelling and inflammation of the mucous membrane in the mouth and the gastrointestinal tract).

These symptoms are caused by the disease itself and by the chemotherapy. Transfusions of red blood cells and platelets are usually necessary to replace the normal cells (more detailed information about transfusions is located in the treatment section of this folder). These transfusions can be given through your child's central line.

Your child will be at an increased risk of infections and will be treated promptly with intravenous antibiotics as necessary if temperatures occur.

Mucositis treatment will depend on how severe it is. If it is severe (child unable to eat or drink) it may require admission to hospital for pain relief (morphine infusion) and insertion of a naso-gastric tube for tube feeding while the mouth and the gut are sore. Refer to the nutrition section for further information.

Mouth-care is an important part of treatment at any stage when the white blood cells are low. This is fully explained in the treatment section in this folder.

What is the prognosis?

80% of children with AML will go into remission. Recurrence of the disease can still occur. With ongoing treatment, approximately 50-60% will achieve a sustained remission and cure.

Your child's chance of recovery usually depends on the type of AML and the extent of disease. Your doctor will discuss all these factors with you.

Where can I find more information?

Any member of the Haematology / Oncology team will be happy to help provide you with information and the following are sources of further information if you would like to refer to them.

- Leukaemia Foundation
- SA Cancer Council

Books:

"Childhood Leukaemia" – Nancy Keene

"The C- Word Teenagers and their families living with cancer" – Elena Dorfman

"Kathy's Hats- The story of hope" – Trudy Krisher

"What about me/ When brothers and sisters get sick" – Allan Peterkin

CD Rom:

"Kidz with leukaemia: A Space Adventure" – is available at the hospital ask one of the nursing staff.

Video's:

"Understanding Leukaemia and related bone marrow disorders for children"

"I'm still me"

"Making the grade – back to school after cancer for kids"

Other resources are available, please check the Parents library in RMCC and ask staff.

Web sites:

<http://www.cancer.gov>

<http://www.cancerbacup.org.uk>

<http://www.stjude.org>

<http://www.oncolink.upenn.edu/>