What is APML?
APML is a rare sub-type of acute myeloid leukaemia (AML) and is sometimes referred to as AML M31. APML accounts for only 10% of all AML diagnoses.

In APML, immature abnormal neutrophils (a type of white blood cell) known as promyelocytes accumulate in the bone marrow. These immature cells are unable to mature and function like healthy mature white cells. The accumulation of these immature cells in the marrow inhibits normal cell production, which results in lower numbers of blood cells circulating the body.

How common is APML?
Age is not a significant factor as there is a fairly constant rate of diagnosis across all age groups after age 10. APML equally affects both men and women.

What causes APML?
In most cases the causes remain largely unknown but it is thought to result from damage to one or more of the genes that normally control blood cell development. Factors that may put some people at an increased risk include exposure to prior chemotherapy or radiotherapy, although the risk of developing APML following treatment for prior cancer is rare. When it does occur, it is referred to as treatment-related APML.

People with prior diseases of the bone marrow have an increased risk of developing secondary APML. There appears to be no increased risk of developing APML as a result of environmental or occupational hazards.

What are the symptoms of APML?
The main symptoms are caused by a lack of normal blood cells. Because APML develops quickly, people usually report feeling unwell for only a short period of time before they are diagnosed.

Common symptoms include:
» persistent tiredness, dizziness, paleness, or shortness of breath when physically active due to a lack of red blood cells or anaemia
» frequent or repeated infections and slow healing, due to a lack of normal white cells, especially neutrophils
» increased or unexplained bleeding or bruising, due to a very low platelet count, or problems with the clotting system.

Serious bleeding abnormalities due to the low platelet count and clotting factors are much more frequent in patients with APML compared with ‘standard’ AML.

Occasionally people have no symptoms at all and APML is diagnosed during a routine blood test. Some of the symptoms described may also be seen in other illnesses, including viral infections, so it is important to see your doctor so that you can be examined and treated properly.

How is APML diagnosed?
Full blood count
The first step in diagnosis is a full blood count (FBC) or complete blood count (CBC), which are simple blood tests. Many of the white blood cells may be abnormal promyelocytes or leukaemic blast cells and the presence of these abnormal cells suggest you have APML.

Bone marrow examination
If the results of your blood tests suggest that you might have APML, a bone marrow biopsy may be required to help confirm the diagnosis. The diagnosis of APML is confirmed by the presence of an excessive number of blast cells in the bone marrow.

Further testing
Once the APML diagnosis is made, blood and bone marrow cells are examined further using special laboratory tests. These include immunophenotyping and cytogenetic tests. These tests provide more information about the exact type of disease you have, the likely course of your disease and the best way to treat it.
ACUTE PROMYELOCYTIC LEUKAEMIA (APML)

Other tests
Tests may be conducted to provide information on your general health and how your vital organs are functioning. These include a combination of further blood tests and imaging tests such as x-rays, scans and ECGs. Blood tests that check clotting times within the blood will also be performed.

How is APML treated?
The treatment differs from the treatment of other types of acute leukaemia because it involves the use of a drug called all-trans retinoic acid (ATRA). ATRA is not a chemotherapy drug; it is actually a derivative of vitamin A, which works by making the immature promyelocytes (the identifiable leukaemic cells in APML) mature properly. This drug is now used in combination with standard chemotherapy to induce a remission, and has improved survival rates for people diagnosed with APML.

Chemotherapy agents and a medication called Arsenic Trioxide (ATO) are also used in treating APML. The first cycle of treatment a patient receives is called induction therapy. In most cases you will need to be admitted to hospital for induction chemotherapy.

At the time of diagnosis a patient is at high risk of side effects resulting from clotting and bleeding problems. In general, these risks are greatest during the first two to four weeks, and increase the need to commence treatment urgently if a diagnosis of APML is suspected.

Patients with APML have an increased risk of developing Disseminated Intravascular Coagulation. This is a serious condition in which clots form in blood vessels, causing a decrease in the production of clotting factors and thereby increasing the risk of bleeding. Blood tests monitoring clotting factors and platelet counts will be conducted frequently to ensure intervention can be undertaken if bleeding problems arise.

Further cycles of chemotherapy will be given after the initial induction treatment.

This is called consolidation therapy and can last for up to two years, and is an important part of minimising the chances of the APML returning.

Although not routinely used, stem cell transplants may sometimes be considered for patients who have relapsed after initial induction therapy.

Generally speaking the prognosis for APML is better than other types of acute leukaemia, however individual general health and history plays a role. Your specialist will discuss all treatment options and their side effects and benefits with you prior to commencing treatment.

Please note that the treatments described above are for patients who have the PML-RARA fusion gene present in their APML. Treatments for the less common subtype differ significantly.

What are the side effects of treatment?
All treatments can cause side effects. However, the type and severity will vary between individuals, depending on the type of treatment used and how an individual responds to it. In general, more intensive treatment is associated with more severe side effects. It is important to report any symptoms you are having to your doctor or nurse. In most cases they can be treated and are reversible.

Side effects of APML treatment include bruising and bleeding more easily; being at an increased risk of infection; nausea and vomiting; changes in taste and smell; bowel changes; hair loss; and fatigue. For more information on the possible side effects of your treatment, talk to your doctor.

For more information and support
The Leukaemia Foundation of Queensland offers a range of free Support Services to patients and their families affected by APML and other blood cancers and disorders.

Contact us on 1800 620 420, or visit www.leukaemiaqld.org.au.

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