

# MDS (Myelodysplastic Syndrome)

## Overview

The term '**Myelodysplastic Syndrome**' (or **MDS**) represents a group of bone marrow diseases characterised by an increase or (usually) decreased production of normal blood cells by the bone marrow.

The bone marrow stem cells normally give rise to healthy and mature red and white blood cells as well as platelets. In MDS these stem cells are abnormal and they produce increased numbers of immature blood cells which do not grow properly into mature red and white blood cells and platelets.

These immature cells are often of very poor quality, look different under the microscope, don't get released as well from the bone marrow and don't function in the way normal blood cells do. As a consequence, patients with MDS have very active bone marrows but reduced numbers of circulating blood cells and this leads to problems such as fatigue due to anaemia (low red blood cells), more susceptibility to infection (low white cells) and a tendency to bleed or bruise more easily (low platelets).

There are many different types of MDS that can involve either just one cell type or all three major cell types. Because of the 'build up' over time of immature cells in the bone marrow, there is an increased risk of developing acute myeloid leukaemia. MDS disorders are often termed 'pre-leukaemias' for this reason.

## What causes MDS?

Within the bone marrow stem cells are a number of genes that control the development and growth of normal blood cells. We believe these genes are 'altered' in MDS stem cells as a random event during normal stem cell growth and function. These 'alterations' or gene mutations are more likely to occur the longer we live which explains why these disorders are more commonly seen as we get older.

In addition to age, other risk factors for MDS include situations known to potentially damage or alter genes including exposure to some chemicals (benzene, petroleum products), previous chemotherapy and radiotherapy. Rarely, congenital bone marrow disorders may predispose to MDS.

It is important to emphasise however that despite the known role of altered genes in MDS, this is NOT an inherited disorder but rather an acquired disorder of the bone marrow.

## What are the symptoms of MDS?

In many cases people with MDS have no symptoms but due to incidental detection on a routine blood test, MDS is diagnosed at an early stage.

Most people with MDS develop symptoms that reflect the severity and type of blood cell involved. Tiredness, weakness, shortness of breath and looking pale are common if the red blood cells are low (anaemia). Recurrent infections, fevers and a sore mouth due to mouth ulcers may occur if the white cells are low or not working properly. In those people with low platelets or platelets that don't function properly, easy bruising and a tendency to bleed for no reason is relatively common.

## How is MDS diagnosed?

Often a diagnosis of MDS is suspected when your doctor does a full blood examination (FBE) and finds abnormal numbers of blood cells which may have an abnormal appearance when the blood is examined under the microscope. The diagnosis is usually confirmed by doing a bone marrow biopsy where a sample is taken from the back of the hip bone for examination under a microscope.

## How is MDS treated?

MDS is a very complex disorder and the approach to treatment is very much dependent on your age, other medical illnesses, your general health and the prognosis of your MDS.

Treatment approaches include 'supportive therapies' such as blood and platelet transfusions, blood cell hormone injections to boost the blood counts and antibiotics for infections.

Other treatments include more intensive approaches aiming to either improve bone marrow function or eradicate the abnormal bone marrow altogether including chemotherapy and stem cell transplantation.

New treatments are available that help the immature bone marrow cells 'mature' – so called novel therapies that target the abnormal genes that impair 'maturation'. There are lots of new and emerging treatments available in MDS that can be accessed through clinical trials. Your haematologist will go through all these treatment options shortly after the diagnosis has been established

## Where can I get further information?

You may find useful information on MDS through the Leukaemia Foundation:

**Freecall:** 1800 620420  
**Email:** [info@leukaemia.org.au](mailto:info@leukaemia.org.au)  
**Website:** [www.leukaemia.org.au](http://www.leukaemia.org.au)

Last Updated: June 2, 2014

### FURTHER QUESTIONS?

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

Patients should seek further advice and information about **Myelodysplastic Syndrome (MDS)** and their individual condition from their treating haematologist or doctor.

### APPOINTMENTS

To make an appointment with a Melbourne Haematology specialist, please phone **03 9386 1360**

For additional information about blood disorders and their treatment, or to find out more about our specialist haematologists, visit the Melbourne Haematology website: [www.melbournehaematology.com.au](http://www.melbournehaematology.com.au)