



1. What is myelodysplastic syndrome (MDS)?

This condition represents a disease of the bone marrow and results in production of faulty blood cells. Once these blood cells are released into the blood stream they do not survive as long as healthy blood cells.

2. What are the laboratory abnormalities that raise the suspicion of myelodysplastic syndrome?

Low blood counts or abnormal appearing blood cells on a routine blood draw.

3. What is the cause of MDS?

In about four out of five patients with MDS, there is no known cause. But in about one out of five patients, MDS may be caused by treatment for another disease for example in a person that has been given chemotherapy. Also, exposure to certain chemicals such as benzene increases the risk of developing MDS.

4. A family member has MDS, do I have to be concerned about my own health?

MDS is a rarely passed down through families. It is not spread through human contact. It is not contagious.

5. What are the symptoms of MDS?

The symptoms are related to the low blood counts:

- low red blood cell count can cause feeling tired all the time, feeling weak or being short of breath,
- low platelet counts may cause easy bruising and bleeding for no reason (nosebleeds, bleeding gums)
- low white blood cell count may cause increased infections, or infections that do not go away

6. How is MDS diagnosed?

A blood test may raise the suspicion of MDS, but it usually requires a bone marrow biopsy to establish the diagnosis.

7. What kind of information does a bone marrow biopsy provide?

A bone marrow biopsy allows a look at the production site ("the factory") of blood cells. The appearance of the bone marrow cells under a microscope provides important information for the diagnosis of MDS. The bone marrow biopsy is also combined with cytogenetic testing (analysis of chromosomes). Certain chromosome changes are typical for MDS. The cytogenetic testing usually takes about three weeks.



8. What are the different types of MDS?

- Refractory anemia (RA)
- Refractory anemia with ringed sideroblasts (RARS)
- Refractory anemia with excess blasts (RAEB)
- Refractory anemia with excess blasts in transformation (RAEB-T)
- Chronic myelomonocytic leukemia CMMoL

9. How can one determine how serious MDS is?

Life-threatening complications and a shortening of the lifespan of the patient can occur as a result of bleeding (low platelet counts), infection (low white blood cell count), anemia (low red blood cell count) and as a result of the disease turning into acute leukemia. The prognosis depends on how low the blood counts are, the cytogenetic abnormalities found on bone marrow biopsy and the type of MDS (see above).

10. What are the treatment options for MDS?

The treatment options are as follows:

- a) supportive care: the treatment consists of blood transfusions and antibiotics as needed. Supportive care is not geared at a cure and can only help to ease the symptoms of MDS.
- b) growth factors: needs medications are designed to help healthy or normal bone marrow make more cells. The effect of these medications is usually temporary and not all patients respond with an increase in their blood cells. This treatment is not a cure.
- c) bone marrow transplant/stem cell transplant: this procedure is used to replace the unhealthy marrow with somebody else's healthy marrow. Bone marrow transplants are more often done in patients under 60 years old because the risks involved and the stress they can put on the body. This procedure offers a chance of cure, however.
- d) chemotherapy: certain new chemotherapy drugs are able to eliminate unhealthy bone marrow cells and give the healthy bone marrow cells a chance to regrow. Such drugs are: Vidaza, Revlimid, Dacogen.

11. How does someone decide among the different treatment options?

Which treatment option is right for the patient depends on a number of different factors. For example, somebody who is older and has a mild form of MDS will do just fine with transfusions of blood cells as needed or with weekly growth factor shots. On the other hand, someone with very low blood counts requiring frequent blood transfusions, or someone who is on the verge of developing acute leukemia, will require more aggressive treatment (chemotherapy). Somebody with a severe form of MDS who is young and has a bone marrow/stem cell donor, might consider a bone marrow transplant. Each treatment option has its own advantages and drawbacks and needs to be applied depending on the severity of the MDS type.