Myelodysplastic Syndromes

Myelodysplastic Syndromes (MDS) are a group of hematologic malignancies in which mutations prevent the bone marrow from properly making blood stem cells that form healthy blood cells.

### What is MDS?

Three types of blood cells are needed for different functions in the body. All three are affected by MDS:

- **Red blood cells (RBCs)** work to bring oxygen from the lungs to the rest of the body.
- **White blood cells (WBCs)** help the body fight off infections.
- **Platelets** help the blood clot after an injury.

In healthy people, bone marrow is responsible for making blood stem cells, which eventually form into healthy blood cells. Low blood cell counts, known as cytopenias, are known as a defining feature of MDS.

### Global Incidence

Approximately 87,000 new cases of MDS are diagnosed every year.

Median age at diagnosis: approximately 70 years old.

Overall incidence of MDS is slightly higher in males than in females.

However, the incidence of MDS is considered to be underestimated due to lack of reporting and under-diagnosis.

### Symptoms

Many symptoms of MDS can be life-threatening:

- **Anemia** (low RBC count) can cause fatigue, weakness and shortness of breath.
- **Neutropenia** (low WBC count) can cause recurring infections, fevers and sore mouth.
- **Thrombocytopenia** (low platelet cell count) can cause easy bruising, bleeding from the nose and mouth and a rash of small red dots on the skin.

Due to this lack of mature RBCs, many patients with MDS experience severe chronic anemia, eventually requiring frequent red blood cell transfusions.

### Risk Factors

- Older age
- Prior cancer treatment
- Family history
- History of smoking
- Exposure to high dose radiation or workplace benzene

### Treatment

Treatment options depend on the needs of the individual patient. Some treatment options include:

- Supportive care such as blood transfusions and erythropoiesis-stimulating agent (ESA) therapy
- Chemotherapy
- Stem cell transplant

For >30% of patients with MDS, their disease may progress to a deadly blood cancer called Acute Myeloid Leukemia (AML).

It is important for people with MDS to understand the symptoms of their disease and to talk to a healthcare professional about appropriate treatment options.