

Multiple Myeloma Backgrounder

What is multiple myeloma?

Multiple myeloma is an incurable cancer of plasma cells, a type of white blood cell in the bone marrow that produces antibodies and helps fight infection. When plasma cells become cancerous and multiply, they are known as myeloma cells.¹

Normal bone marrow produces stem cells that develop into healthy blood cells, including red blood cells, white blood cells and platelets. When a buildup of myeloma cells occurs, it can overwhelm the production of healthy cells, causing damage to the bone as well as low blood counts. When myeloma cells collect in several sites, it is called multiple myeloma.¹

Myeloma cells also make antibodies called M proteins that accumulate in the blood, urine and organs,² leading to problems with kidney function, kidney damage and hyperviscosity syndrome (interference with blood flow and delivery of oxygen to tissues).³ Additional disease complications include anemia, infections and bone problems, such as erosion of bone mass, fractures and spinal cord compression.²

What causes multiple myeloma?

The exact causes of multiple myeloma are unknown. The following risk factors have been identified, which may affect the chance of developing the disease:^{2,3,4}

Age: The median age of diagnosis for multiple myeloma is 70 years old.

Gender: Women are slightly less likely to develop multiple myeloma than men.

Environment: Researchers are investigating whether being exposed to certain chemicals or radiation can increase the risk of developing multiple myeloma.

Family history: Studies have demonstrated that a person may be at a higher risk of developing multiple myeloma if his/her relative had the disease.

How many people have multiple myeloma?

Multiple myeloma is the second most common blood cancer, but is a rare cancer.⁵

In 2015 it is estimated that in the United States there will be 26,850 new cases of multiple myeloma diagnosed and approximately 11,240 deaths due to the disease.⁶

Nearly 230,000 people around the world are living with multiple myeloma,⁷ and after initial diagnosis, the five year survival-rate for patients with the disease is 44%.⁸

Multiple myeloma symptoms and diagnosis?

Multiple myeloma can be detected during a routine blood test however, it is most likely to be discovered only after an X-ray for a broken bone or because patients are experiencing other symptoms.²

Symptoms may vary from person to person. Some people also experience no signs or symptoms during the early stages of multiple myeloma.³ Common symptoms include:²

- Bone pain, often in the back or ribs
- Bone damage, including broken and/or thinning bones
- Fatigue
- Frequent infections and fevers
- Weight loss
- Nausea or constipation
- Frequent urination

Diagnosis of multiple myeloma is determined by the following tests:²

- Blood tests to evaluate the number of white blood cells, red blood cells and platelets and total protein, including monoclonal immunoglobulin (M protein), creatinine and calcium levels
- Urine tests to check for a certain type of protein in the urine
- Magnetic resonance imaging (MRI) or X-rays to check for broken or thinning bones
- Bone marrow aspiration or biopsy to determine the percentage of myeloma cells in the marrow as well as any genetic abnormalities

How is multiple myeloma treated?

There are currently no curative therapies available for multiple myeloma. Some patients have minimal disease and are asymptomatic, and therefore do not require immediate treatment. In most cases, though, therapy will eventually be needed. Patients with active multiple myeloma require immediate therapy³.

Available treatment options for multiple myeloma include:^{1,9}

- Chemotherapy and corticosteroids
- Bisphosphonates
- High-dose chemotherapy with stem cell transplantation
- Radiation
- Surgery
- Targeted Therapy

Most people who are treated for multiple myeloma eventually experience a relapse of the disease. Some patients also become refractory, which means they stop responding to treatment and still have myeloma cells in their bone marrow. When patients become refractory, they require new treatment options or therapies to help them re-sensitize to past treatments.³ Some of these patients also stop responding to these types of treatments, known as salvage therapy, or their disease continues to progress often within as little as 2 months of their last treatment.¹⁰ Therefore, there is an urgent, unmet need in this treatment population.

References

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