
Multiple Myeloma Background

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 cells¹.

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 myeloma¹.

Myeloma cells also make antibodies called M proteins that accumulate in the blood, urine and organs², 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 compression².

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 disease³:

Age: Multiple myeloma typically occurs in individuals 50 years of age and older, with very few cases in individuals younger than 40.

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 disease².

How many people have multiple myeloma?

Multiple myeloma is the second most common blood cancer, but is a rare cancer⁴.

Annually, in the United States, there are an estimated 22,350 new cases of multiple myeloma diagnosed and approximately 10,710 deaths due to the disease². Approximately 81,089 people in the United States are living with, or in remission from, multiple myeloma³.

Globally, multiple myeloma affects approximately 1 to 5 in every 100,000 people each year and constitutes .8% of all cancer cases⁵. The five year survival-rate for patients with the disease is about 44%⁶.

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 symptoms².

Symptoms may vary from person to person. Some people also experience no signs or symptoms during the early stages of multiple myeloma³. Common symptoms include²:

- 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 tests²:

- Blood tests to evaluate the number of white blood cells, red blood cells and platelets and total 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 therefore do not require immediate treatment, but in most cases therapy will eventually be needed. Patients with active multiple myeloma require immediate therapy³.

Available treatments for multiple myeloma include¹:

- Chemotherapy and corticosteroids, used in combination or alone, to destroy myeloma cells
- Biological therapy using proteins that are found in the body to fight the disease
- Bisphosphonates to help prevent further bone damage
- High-dose chemotherapy with stem cell transplantation
- Radiation to treat bone damage caused by myeloma that has not responded to other treatment

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 treatments³. 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 treatment⁷.

Median survival for patients with relapsed or refractory multiple myeloma ranges from six to nine months and treatment response usually lasts for a short period of time. Therefore, there is an urgent, unmet need in this treatment population for therapies that improve overall survival and provide durable disease control and symptom relief⁷.

Recent advancements in multiple myeloma have provided patients with more treatment options. With continued research efforts, innovative therapies are currently in development for this incurable cancer.

References

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