About Multiple Myeloma

Get an overview of multiple myeloma and the latest key statistics in the US.

Overview

If you have been diagnosed with multiple myeloma or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- What Is Multiple Myeloma?

Research and Statistics

See the latest estimates for new cases of multiple myeloma and deaths in the US and what research is currently being done.

- Key Statistics About Multiple Myeloma
- What's New in Multiple Myeloma Research?

What Is Multiple Myeloma?

Multiple myeloma is a cancer of plasma cells. Normal plasma cells are found in the bone marrow (the soft, inner parts of certain bones where new blood cells are made) and are an important part of the immune system.

- Multiple myeloma features

- Other plasma cell disorders

What Is Cancer? [1]

Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer cells. Learn more here.

Your immune system is made up of several types of cells that work together to fight infections and other diseases. Lymphocytes are one of the main types of white blood cells in the immune system. They include T cells and B cells. Lymphocytes are in many areas of the body, such as lymph nodes, the bone marrow, the intestines, and the bloodstream.

When B cells respond to an infection, they mature and change into plasma cells. Plasma cells make the antibodies (also called **immunoglobulins**) that help the body attack and kill germs.

In general, when plasma cells become cancerous and grow out of control, this is called multiple myeloma. The plasma cells make an abnormal antibody (immunoglobulin) known by several different names, including monoclonal immunoglobulin, monoclonal protein (M-protein), M-spike, or paraprotein.

There are, however, other plasma cell disorders that have abnormal plasma cells but do not meet the criteria to be called active multiple myeloma. These other plasma cell disorders include:

- **Monoclonal gammopathy of uncertain significance (MGUS)**
- **Smoldering multiple myeloma (SMM)**
- **Solitary plasmacytoma**
- **Light chain amyloidosis**

These conditions are described below. To learn more about the criteria used to diagnose the different plasma cell disorders, see Tests for Multiple Myeloma[2].

Multiple myeloma features

Low blood counts

In multiple myeloma, the overgrowth of plasma cells in the bone marrow can crowd out normal blood-forming cells, leading to low blood counts[3].

- **Anemia** (a shortage of red blood cells) can cause a person to feel weak, fatigued (tired), or short of breath.
- A low level of platelets in the blood (called **thrombocytopenia**) can lead to increased bleeding and bruising.
- **Leukopenia** (a shortage of normal white blood cells) can lead to an increased risk of infections.

In monoclonal gammopathy of undetermined significance (MGUS), abnormal plasma
In mt.d___

- A large amount of plasma cells in the bone marrow
- A high level of monoclonal immunoglobulin (monoclonal protein) in the blood
- A high level of light chains (also called **Bence Jones protein**) in the urine

However, they have normal blood counts, normal calcium levels, normal kidney function, no bone or organ damage, and no signs of amyloidosis.

Most people with smoldering multiple myeloma do not need treatment right away, because the disease can take anywhere from many months to years to become active (symptomatic) myeloma. Some people may have very slow disease that never becomes active myeloma, but for others the risk is higher, so earlier treament might be helpful. To learn more, see Treatment Options for Multiple Myeloma and Other Plasma Cell Disorders[5].

Light chain amyloidosis

Light chain amyloidosis (also known as **AL amyloidosis** or **primary amyloidosis**) is also a disorder of abnormal plasma cell growth, but with lower amounts of abnormal plasma cells in the bone marrow compared to multiple myeloma.

Monoclonal proteins (antibodies) are made up of joined protein chains – 2 short light chains and 2 longer heavy chains. In light chain amyloidosis, abnormal plasma cells make too many light chains, which are shorter and weigh less than the heavy chains. The light chains build up in tissues as an abnormal protein known as **amyloid**.

The buildup of amyloid in certain organs can enlarge them and affect the way they work. For example:

- When amyloid builds up in the **heart**, it can cause an irregular heart beat and can make the heart larger and weaker. A weak heart can lead to a condition called congestive heart failure, with symptoms like shortness of breath and swelling in the legs.
- Amyloid in the **kidneys** can cause them to work poorly. This may not cause symptoms early on, but the poor kidney function may be found on blood tests. If it gets worse, it can lead to kidney failure.

To learn more, see Signs and Symptoms of Multiple Myeloma[6,7]

Light chain amyloidosis is only one of the diseases where amyloid builds up and causes problems. Amyloidosis can also be caused by a genetic (hereditary) disease called

familial amyloidosis. Long-standing (chronic) infection and/or inflammation can also cause amyloidosis. This is known as **secondary** or **AA amyloidosis**. These other kinds of amyloidosis are not covered here.

Waldenstrom macroglobulinemia (WM)

The cancer cells in people with WM are similar to those in multiple myeloma and non-Hodgkin lymphoma[8] (NHL). Multiple myeloma is considered a cancer of plasma cells, and non-Hodgkin lymphoma is a cancer of lymphocytes. WM cells have features of both plasma cells and lymphocytes.

Even though WM is sometimes grouped into other plasma cell disorders, it is considered a type of NHL.

To learn more, seeWaldenstrom Macroglobulinemia[9].

Hyperlinks

1. www.cancer.org/cancer/understanding-cancer/what-is-cancer.html
2. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/testing.html
3. www.cancer.org/cancer/managing-cancer/side-effects/low-blood-counts.html
4. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/signs-symptoms.html
5. www.cancer.org/cancer/types/multiple-myeloma/treating/by-stage.html
6. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/signs-symptoms.html
7. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/signs-symptoms.html
8. www.cancer.org/cancer/types/non-hodgkin-lymphoma.html
9. www.cancer.org/cancer/types/waldenstrom-macroglobulinemia.html

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https://www.uptodate.com/contents/clinical-presentation-laboratory-manifestations-and-diagnosis-of-immunoglobulin-light-chain-al-amyloidosis on August 9, 2024.

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Key Statistics About Multiple Myeloma

The American Cancer Society's estimates for multiple myeloma in the United States for 2024 are:

- About 35,780 new cases will be diagnosed (19,520 in men and 16,260 in women).
- About 12,540 deaths are expected to occur (7,020 in men and 5,520 in women).

In the United States, the average lifetime risk of getting multiple myeloma is less than 1% - about 1 in 103 for men and about 1 in 131 for women. But each person's risk might be higher or lower than this, based on their risk factors[1]

What’s New in Multiple Myeloma

Research?

Important research into multiple myeloma is being done in university hospitals, medical centers, and other institutions around the world. Each year, scientists find out more about what causes the disease, how to better diagnose and classify it, and how to improve treatment.

- Learning more about the changes inside multiple myeloma cells
- Learning more about smoldering multiple myeloma
- Treating multiple myeloma

Learning more about the changes inside multiple myeloma cells

While myeloma is still very hard to cure, many newer types of medicines[1] have become available, which have greatly extended the length of time most people live with this disease.

Doctors are now trying to determine how best to combine these medicines, which order to use them in, and which ones might be more helpful for people whose myeloma has certain features (such as certain gene or chromosome changes).

For example, newer treatments such as bispecific T-cell engagers (BiTEs)[2] and CAR T-cell therapy[3], which help the person's immune system find and attack the cancer cells, are now available. Most often, these are used later in the course of treatment, after other medicines have been tried. But doctors are now studying if using them earlier might be more helpful.

As researchers learn more about the gene and protein changes inside myeloma cells that help them grow, they are developing newer types of medicines to treat myeloma as well. Many of these are now being studied in clinical trials[4].

Hyperlinks

1. www.cancer.org/cancer/types/multiple-myeloma/treating/chemotherapy.html
2. www.cancer.org/cancer/types/multiple-myeloma/treating/chemotherapy.html
3. www.cancer.org/cancer/types/multiple-myeloma/treating/car-t-cell-therapy.html
4. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html

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