

Multiple Case Study Analysis

Overview

Multiple myeloma is a cancer that forms in a type of white blood cell called a plasma cell. Healthy plasma cells help you fight infections by making antibodies that recognize and attack germs.

In multiple myeloma, cancerous plasma cells accumulate in the bone marrow and crowd out healthy blood cells. Rather than produce helpful antibodies, the cancer cells produce abnormal proteins that can cause complications.

Treatment for multiple myeloma isn't always necessary right away. If the multiple myeloma is slow growing and isn't causing signs and symptoms, your doctor may recommend close monitoring instead of immediate treatment. For people with multiple myeloma who require treatment, a number of options are available to help control the disease.

Symptoms

Signs and symptoms of multiple myeloma can vary and, early in the disease, there may be none.

When signs and symptoms do occur, they can include:

Bone pain, especially in your spine or chest

Nausea

Constipation

Loss of appetite

Mental foginess or confusion

Fatigue

Frequent infections

Weight loss

Weakness or numbness in your legs

Excessive thirst

When to see a doctor

Make an appointment with your doctor if you have any persistent signs and symptoms that worry you.

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Causes

It's not clear what causes myeloma.

Doctors know that myeloma begins with one abnormal plasma cell in your bone marrow — the soft, blood-producing tissue that fills in the center of most of your bones. The abnormal cell multiplies rapidly.

Because cancer cells don't mature and then die as normal cells do, they accumulate, eventually overwhelming the production of healthy cells. In the bone marrow, myeloma cells crowd out healthy blood cells, leading to fatigue and

an inability to fight infections.

The myeloma cells continue trying to produce antibodies, as healthy plasma cells do, but the myeloma cells produce abnormal antibodies that the body can't use. Instead, the abnormal antibodies (monoclonal proteins, or M proteins) build up in the body and cause problems such as damage to the kidneys. Cancer cells can also cause damage to the bones that increases the risk of broken bones.

A connection with MGUS

Multiple myeloma almost always starts out as a relatively benign condition called monoclonal gammopathy of undetermined significance (MGUS).

MGUS , like multiple myeloma, is marked by the presence of M proteins " produced by abnormal plasma cells " in your blood. However, in MGUS , the levels of M proteins are lower and no damage to the body occurs.

Risk factors

Factors that may increase your risk of multiple myeloma include:

Increasing age. Your risk of multiple myeloma increases as you age, with most people diagnosed in their mid-60s.

Your risk of multiple myeloma increases as you age, with most people diagnosed in their mid-60s. Male sex. Men are more likely to develop the disease than are women.

Men are more likely to develop the disease than are women. Black race. Black people are more likely to develop multiple myeloma than are people of other races.

Black people are more likely to develop multiple myeloma than are people of other races. Family history of multiple myeloma. If a brother, sister or parent has multiple myeloma, you have an increased risk of the disease.

If a brother, sister or parent has multiple myeloma, you have an increased risk of the disease. Personal history of a

monoclonal gammopathy of undetermined significance (MGUS). Multiple myeloma almost always starts out as MGUS , so having this condition increases your risk.

Complications

Complications of multiple myeloma include:

Reference

[Practical Program Evaluation: Theory-Driven Evaluation and the Integrated Evaluation Perspective](#)

[Reading and Understanding Research](#)