



## Low White Blood Cell Counts (Neutropenia): Symptoms and Treatment

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### DESCRIPTION

Neutropenia is defined as a lower than normal number of neutrophils (a type of white blood cell). White blood cells are part of the immune system. There are several types of white blood cells, each of which plays an important role in the body's defense against bacteria such as neutrophils, lymphocytes (including T and B lymphocytes), monocytes, and macrophages. Neutropenia is a condition that means that the level of neutrophils, a type of white blood cell in the blood, is lower than normal. This can be caused by an infection, but it can also be caused by cancer treatment. Avoiding infection is very important. A weakened immune system is called immunosuppression. Certain illnesses, including cancer, and certain treatments, including chemotherapy and radiation therapy, can cause immunosuppression in some people. This is usually called a low white blood cell count, but you may hear other words used to describe it. Symptoms of neutropenia are fever, chills, mouth sores, cough, difficulty breathing and abdominal or rectal pain.

Neutrophils form a very important defense against most types of infections. Usually, most of our white blood cells are neutrophils. In cancer patients, neutropenia is usually caused by treatment. When considering the risk of infection, your doctor will look at your neutrophil count. If neutrophil count is low, doctor may say you have neutropenia. For most cancer patients,

low neutrophil counts are the greatest risk factor for serious infections. Chemotherapy, like cancer and other blood and bone marrow disorders is one of the most common causes of neutropenia, deficiency of vitamins or minerals such as vitamin B12, folic acid or copper and autoimmune diseases such as Crohn's disease, lupus and rheumatoid arthritis.

Problems that neutropenia can cause include an increased risk of infection in people with a healthy immune system. Common signs of infection include fever, pus, pain, swelling, and redness. When the ANC is low, many of these signs may not appear when the infection begins. This is because these signs are caused by neutrophils fighting bacteria and there are not enough neutrophils to bring about the signs. Cancer treatment teams may need to delay treatment or reduce doses to prevent further neutropenia. Treatment may include one or a combination of the following:

- Bone marrow growth factor is a protein that stimulates the bone marrow to produce more white blood cells, helping the body fight infections. They are also known as growth factors or Colony Stimulating Factors (CSF). Examples of drugs that increase growth factors include filgrastim (Neupogen), tbofilgrastim (Granix), and pegfilgrastim (Neulasta).
- In some cases, antibiotics may be given to prevent infection.
- You can delay cancer treatment and give your body enough time to increase white blood cells and recover ANC.

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