



Patient Information

Neutropenia and the White Blood Cells

Neutropenia (noo-truh-**pee**-nee-uh) is a blood disorder that occurs when your body's neutrophils (noo-truh-fils) are produced at a lower rate than normal. The neutrophils account for 50% to 70% of your white blood cells (WBCs) and are formed in the bone marrow. These blood cells are important because they protect your body against infection. When the WBC count is too low, your body is lacking its defense system, leaving you more vulnerable to infections.

Neutropenia can be caused by a congenital or inherited disorder or it can be an adverse effect of an ingested medication or exposure to radiation therapy. People with neutropenia often are affected by infections occurring in the lungs, mouth and throat, sinuses, and skin. Infections, such as mouth ulcers, gum and ear infections, and periodontal disease also are common.

About half of all people with cancer who are receiving chemotherapy are affected by neutropenia. The chemotherapy treatment can cause the bone marrow—where the WBCs are made—to not work properly, ultimately lowering the production rate of neutrophils. Neutropenia also is very common in people who have leukemia.

How do I know if I'm at risk?

Neutropenia is most common in patients receiving chemotherapy.

What are the warning signs?

Neutropenia does not have any specific symptoms, but, rather, usually is diagnosed

at the onset of an infection. The development of fever and painful sores around the mouth and anus may be an indication that you have neutropenia. Bacterial pneumonia and other severe infections may become present soon after.

Some cases of neutropenia can lead to serious problems, requiring prompt care and treatment in order to prevent developing numerous infections at once. Bacterial or fungal infections, if persistently severe, should be brought to the attention of your doctor as soon as possible and treated with medications, such as antibiotics.

Other warning signs to look for are cough, sore throat, burning when urinating, and new onset of lower back pain. Blood in the urine or diarrhea are major red flags for neutropenia and you should contact your doctor immediately if you encounter these symptoms.

What tests do I need?

If you commonly experience unusual infections, your doctor may suspect the presence of neutropenia and order a complete blood cell count. A bone marrow examination also may be conducted, which includes taking a sample of bone marrow through a needle in order to examine it under a microscope. Your doctor will assess the appearance of the marrow, the number of neutrophil cells, and the development of neutrophils. If the neutrophil count is recorded at a low number, neutropenia will be diagnosed. This examination also will help the doctor determine if other diseases, such as leukemia or other can-



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cers or infections, are affecting the bone marrow.

If the cause is determined, such as chemotherapy or radiation therapy, doctors can take a step toward treatment. If the cause is undetermined, however, your doctor may require more testing to find the cause before treatment can be initiated.

How can I avoid the problem?

Neutropenia rarely is found unexpectedly or by chance. Discovery of the disorder is most commonly found on a WBC count that has been ordered to assist in the diagnosis of a condition you already are experiencing.

A group of medications called growth factors can be taken to help prevention or make the occurrence time shorter. There are a few growth factors available in the United States. These manmade versions of a naturally produced protein found in your body help to stimulate the production of neutrophils. Most patients who begin the chemotherapy process are given the medications no sooner than 24 hours after chemotherapy.

Because of the vulnerability of infection caused by neutropenia, you should take precautions, such as wearing a face mask, avoiding people who are sick, and regularly washing your hands, to rid yourself of germs. Hand washing is the number one way to prevent developing an infection. Avoiding large crowds (for example, the mall during the holiday season) also will lower your risk of an infection.

How is it treated?

Neutropenia treatment depends on each individual case. If the cause of the disorder is a medication, prescription of that drug may be stopped. If the cause is a toxin,

exposure to that toxin is avoided. On the other hand, some cases may exhibit bone marrow that can recover by itself without treatment.

Medication may be administered if chemotherapy is the cause of neutropenia and the patient has a fever. White blood growth factors, such as Neupogen or Prokine, may be prescribed during cycles of chemotherapy. These medications help the body produce more neutrophils and other types of WBCs.

Hospitalization may be needed for people who have severe neutropenia and can submit rapidly to infections. Strong antibiotics may be administered in the hospital, even before the cause and location of the infection is identified. Prompt treatment is key to survival. Stimulation of the production of WBCs using growth factors, called colony-stimulating factors, also is sometimes helpful.

Neutropenia that is caused by another disorder, such as leukemia or tuberculosis, can be treated by treating the underlying disorder first.

For more information on neutropenia, visit the Neutropenia Support Association's Web site at <http://www.neutropenia.ca/about/index.html>. ●

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