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Oncologist-approved cancer information from the American Society of Clinical Oncology

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Neutropenia [1]

This section has been reviewed and approved by the Cancer.Net Editorial Board [2], 08/2015

Neutropenia is a low level of neutrophils, a type of white blood cell. All white blood cells help the body fight infection [3]. Neutrophils fight infection by destroying harmful bacteria and fungi or yeast that invade the body. Neutrophils are made in the bone marrow. Bone marrow is the spongy tissue found inside larger bones such as the pelvis, vertebrae, and ribs.

Some level of neutropenia occurs in about half of people with cancer who are receiving chemotherapy. It is a common side effect in people with leukemia. If you have neutropenia, pay close attention to personal hygiene, such as hand washing, to lower your risk of infection.

People who have neutropenia have a higher risk of developing serious infections. This is because they do not have enough neutrophils to destroy organisms that cause infection. People with severe or long-lasting neutropenia are more likely to develop an infection.

Signs and symptoms of neutropenia

Neutropenia itself may not cause any symptoms. Patients usually find out they have neutropenia from a blood test or when an infection develops. Some people will feel more fatigued when they have neutropenia. Your doctor will schedule regular blood tests to look for neutropenia and other blood-related side effects of chemotherapy.

For patients with neutropenia, even a minor infection can quickly become serious. Talk with your doctor right away if you experience any of the following signs of infection:

- A fever, which is a temperature of 100.5°F or higher
- Chills or sweating
- Sore throat, sores in the mouth, or a toothache

- Abdominal pain
- Pain near the anus
- Pain or burning when urinating, or urinating often
- Diarrhea or sores around the anus
- A cough or shortness of breath
- Any redness, swelling, or pain, particularly around a cut, wound, or where a catheter was placed
- Unusual vaginal discharge or itching

Causes of neutropenia

The following factors related to cancer and cancer treatment can cause a low level of neutrophils:

- Some types of chemotherapy
- Cancers that affect the bone marrow directly, such as leukemia, lymphoma, and myeloma
- Cancer that has spread
- Radiation therapy to several areas of the body or to bones in the pelvis, legs, chest, or abdomen

Some people with cancer are more likely to develop neutropenia, including:

- People who are age 70 or older
- People with a lowered immune system from other causes, such as HIV infection or organ transplantation

Managing and treating neutropenia

Relieving side effects is an important part of cancer care and treatment. This is called symptom management or palliative care [4]. Talk with your doctor about any symptoms you may experience, including any new symptoms or a change in symptoms.

When neutrophil levels begin to drop depends on the type or dose of chemotherapy. Neutrophil counts generally start to drop about a week after each round of chemotherapy begins. Neutrophil levels reach a low point called the nadir about 7 to 14 days after treatment. At this point, you are most likely to develop an infection. Your neutrophil count then starts to rise again as your bone marrow resumes normal production of neutrophils. However, it may take three to four weeks to reach a normal level again.

When your neutrophil level returns to normal, your body is ready for the next round of chemotherapy. Your doctor may delay the next round of chemotherapy or lower the dose for the following reasons:

- You develop neutropenia
- Your neutrophil level does not return to normal quickly enough

Your doctor may recommend antibiotics during periods of prolonged neutropenia to try to prevent infections from occurring.

If chemotherapy causes neutropenia with a fever, your doctor may prescribe medications called white blood cell growth factors. These drugs help the body make more white blood cells. Read more about ASCO's guideline on white blood cell growth factors [5].

More Information

Side Effects of Radiation Therapy [6]

Side Effects of Chemotherapy [7]

Side Effects [8]

Additional Resource

National Cancer Institute: Infection and Neutropenia [9]

Links
[1] http://www.cancer.net/navigating-cancer-care/side-effects/neutropenia
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/25256
[4] http://www.cancer.net/node/31921
[5] http://www.cancer.net/node/29816
[6] http://www.cancer.net/node/24677
[7] http://www.cancer.net/node/24676
[8] http://www.cancer.net/node/25238
[9] http://www.cancer.gov/about-cancer/treatment/side-effects/infection