

media fact sheet

NON-HODGKIN LYMPHOMA (NHL)

What is lymphoma? Lymphoma is a cancer that begins in cells of the immune system. There are two basic categories of lymphomas – Hodgkin lymphoma and non-Hodgkin lymphomas (NHLs) – which include a large, diverse group of cancers of immune system cells.

What is non-Hodgkin lymphoma (NHL)? Non-Hodgkin lymphoma (NHL) is a disease in which cancer cells form in the lymphatic tissue in the body. Because lymph tissue is found throughout the body, NHL can begin almost anywhere in the body and spread to almost any tissue or organ. There are approximately 30 different types of NHL, which have been divided into two categories - indolent and aggressive:

- **Indolent NHL** – Indolent lymphomas are slow-growing lymphomas. The median survival of patients with indolent lymphoma is approximately 10 years. Indolent lymphomas are often responsive to therapy but usually relapse.
- **Aggressive NHL** – Aggressive lymphomas grow faster and typically have a shorter natural history. Of patients with aggressive NHL, 30% to 60% can be cured.

How many people does NHL affect? In the United States, there are approximately 452,723 people living with, or in remission from, NHL, the seventh most common cancer.

The American Cancer Society estimates that in 2010, 65,540 new cases of NHL will be diagnosed, and 20,210 people will die of the disease in the United States. According to the Leukemia and Lymphoma Society, about 40% of NHL cases will be of the indolent (or slow growing) form.

What are the risk factors for NHL? While the reasons for developing NHL are still unknown, there are some risk factors associated with developing the disease:

- Being older (average age of 67), Caucasian or male
- Having one or more of the following medical conditions
 - An inherited autoimmune disorder
 - An autoimmune disease
 - HIV/AIDS
 - Human T-lymphotrophic virus type I or Epstein-Barr virus
 - A history of Helicobacter pylori infection
- Taking immunosuppressant drugs after an organ transplant
- Being exposed to certain pesticides
- A diet high in meats and fat
- Treated in the past for Hodgkin lymphoma

What are the signs and symptoms of NHL?

Signs and symptoms of NHL vary and may include fever, sweating, excessive fatigue and weight loss. Additional symptoms can include:

- Swelling in the lymph nodes in the neck, underarm, groin or stomach
- Night sweats
- Loss of appetite/indigestion
- Unexplained pain in the chest, abdomen or bones

How does a physician determine when to treat for NHL?

Recently, a good deal of progress has been made in the treatment of NHL. Treatment options for patients with NHL depend on the specific kind of lymphoma, its stage, and the patient's age and general health. Treatments are normally tailored to individual patient needs.

What treatment options are currently available for NHL patients?

There are several new investigational therapies being studied in clinical trials. The following are treatment approaches currently used to treat patients with NHL:

- **Chemotherapy** - Drugs used for treating lymphomas that are given as single agents or in combinations. Usually the drugs are given into a vein or by mouth in the form of pills. They can also be injected into the spinal fluid to treat lymphoma cells on the surface of the brain or spinal cord. Once the drugs enter the bloodstream, they spread throughout the body, making this treatment very useful for lymphoma. Chemotherapy may be used alone or along with radiation treatment.
- **Biological therapy** - Uses substances that are made in the laboratory and designed to be similar in nature to those naturally produced by the immune system to fight infection. These substances may kill lymphoma cells, slow their growth, or activate the patient's own immune system to more effectively fight the lymphoma. Commonly used biologics include Interferon and monoclonal antibodies. After years of research, several monoclonal antibodies are now being used as treatments for lymphoma, with more available to treat lymphoma than any other type of cancer. Generally they are used if chemotherapy has failed.
- **Radioimmunotherapy** – A newly approved treatment combining two types of therapies – radiation therapy and immune therapy – using monoclonal antibodies. This method of therapy can be completed quickly, usually in only one or two treatments, and may produce fewer side effects than most high dose chemotherapy regimens.

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CHRONIC LYMPHOCYTIC LEUKEMIA (CLL)

- What is leukemia?** Leukemia is a cancer that begins in the soft, inner part of the bones (bone marrow), and in most cases moves into the blood. It can spread to other parts of the body including the lymph nodes, liver, spleen, central nervous system and testes.
- “Chronic leukemia” refers to the slow progression of the disease, which when combined with little or no symptoms can cause the leukemia to go undetected until the advanced stages of the disease.
- What is chronic lymphocytic leukemia (CLL)?** Chronic lymphocytic leukemia (CLL) is one of four main types of leukemia. CLL begins with a change to a single white blood cell, or lymphocyte, of the bone marrow. Over time, the CLL cells multiply, replacing normal lymphocytes in the marrow and lymph nodes. As the amount of lymphocytes increases in the blood and bone marrow, there is less room for healthy white and red blood cells as well as platelets, which may result in infection, anemia and bleeding.
- How many people does CLL affect?** More people are living with CLL than any other type of leukemia. There are approximately 245,225 people living with, or in remission from, leukemia in the United States.
- The American Cancer Society (ACS) estimates that in 2010, there will be nearly 15,000 new CLL cases diagnosed and almost 4,400 deaths due to CLL.
- What are the risk factors for leukemia and CLL?** CLL has few known risk factors. There are no known lifestyle-related risk factors and very few environmental factors that have been linked to CLL. Some studies suggest a relationship to herbicides and insecticides. The only known inherited risk factors for CLL are having first-degree relatives (parents, siblings or children) who have had CLL or being of Russian or Eastern European Jewish descent. Being middle-aged or older, male or white are also risk factors.
- What are the signs and symptoms of CLL?** Usually CLL does not cause any symptoms in patients and is discovered during a routine blood test. In some cases, a person may notice an enlarged lymph node in the neck, armpit or groin and go to the doctor for a checkup. Symptoms that are directly caused by CLL include:
- Painless swelling of the lymph nodes in the neck, underarm, stomach or groin
 - Fatigue
 - Pain or fullness below the ribs
 - Fever and infection
 - Weight loss
- Who is affected by CLL?** CLL mainly affects older adults who are, on average, approximately 70 years old at the time of diagnosis. It is rarely seen in people under the age of 40 and is more common in men than in women.

How does a physician determine how to treat CLL?

A physical examination is needed to check for signs of disease while various tests that examine the blood, bone marrow and lymph nodes are used to detect and diagnose CLL. From there, the physician and patient will decide on a course of treatment dependent on:

- The stage of the disease
- Red blood cell, white blood cell and platelet blood counts
- Whether there are symptoms, such as fever chills or weight loss
- Whether the liver, spleen or lymph nodes are larger than usual
- The response to initial treatment
- Whether there has been a recurrence of CLL

What treatment options are currently available for CLL patients?

Early-stage disease often requires no specific treatment, but close observation is important. There are several new investigational therapies being studied in clinical trials. The following are treatment approaches currently used to treat patients with CLL:

- **Watchful waiting** – Monitoring a patient’s condition without treatment until symptoms appear or change.
- **Chemotherapy** – These drugs, which are intended to kill cancer cells, enter the bloodstream and reach all areas of the body. This treatment method is particularly useful for cancers such as leukemia that spread throughout the body. Treatment for leukemia often involves a combination of several drugs given over a period of time.
- **Monoclonal antibodies (MAb)** – Lab-created substances which are similar to the antibodies naturally produced by immune system cells to fight infections. MAbs are designed specifically to react with certain types of cancer cells, helping the patient’s immune system react and destroy the cells.
- **Radiation therapy** - A cancer treatment that uses high energy x-rays or other types of radiation to kill cancer cells. This therapy is not usually part of the main treatment for people with CLL, but may be used on patients with an enlarged organ such as the spleen, to shrink the swelling. It may also be used to treat bone pain caused by the overabundance of leukemia cells developing in the bone marrow.
- **Chemotherapy with stem cell transplant (mainly in clinical trials)** - Stem cell transplantation has the ability to restore the blood-producing bone marrow stem cells that are destroyed by high doses of chemotherapy used to treat CLL. The cells can come from either the patient or a donor whose tissue matches closely to that of the patient.

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