

Non-Hodgkin's Lymphoma Questions and Answers

What is Non-Hodgkin's Lymphoma?

Non-Hodgkin's Lymphoma (NHL) is a cancer of the lymphocytes, a type of white blood cell. When lymphocytes become cancerous, or malignant, they multiply and become tumors. Lymphocytes are normally found in the blood stream and lymph nodes. Lymph nodes are found throughout the body and are identified by their location. They are a part of the body's immune system, which includes the lymphatic system, spleen, and lymphocytes.

Some lymph nodes can be found just by feeling them in the neck, groin, or under the arms. Some cannot be felt, but they can be seen on x-rays.

Non-Hodgkin's Lymphoma is the fifth most common cancer in the United States. Men are at slightly higher risk than women. It is more common in adults than children. The average age at diagnosis is 45 to 55 years. The cause of non-Hodgkin's Lymphoma remains unknown.

What are the types and symptoms of Non-Hodgkin's Lymphoma?

There are more than 30 different types of NHL. The specific types of NHL are associated with different symptoms. **Low-grade, or indolent, NHL** is usually associated with painless swelling of lymph nodes (usually in the neck or over the collarbone), but patients are otherwise healthy. The swelling may go away for a while, but then return.

If the low-grade NHL has spread outside of the lymph nodes, such as to the stomach, there may be discomfort in the affected area. Low-grade Lymphomas grow slowly. Examples of low grade NHLs include:

- Marginal zone Lymphomas
- MALT Lymphomas
- Follicular Lymphomas
- Mantle cell Lymphomas

Aggressive NHL is associated with more symptoms than low-grade NHL and grows more rapidly. There may be pain or swelling in the legs, neck, arms, or abdomen. Fever, night sweats, and unexplained weight loss may also occur. Examples of aggressive NHLs include:

- Diffuse large cell Lymphomas

- Primary mediastinal large cell Lymphomas
- Anaplastic large cell Lymphomas

Very aggressive (High-grade) NHL is associated with many different symptoms, depending on the location of the cancer. Symptoms can include:

- Fatigue
- Shortness of breath
- Pain
- Weakness in the arms and/or legs
- Confusion

High-grade Lymphomas grow very rapidly. High grade NHLs include Burkitt's Lymphomas and lymphoblastic Lymphomas.

Each type of Lymphoma is considered a separate disease. How fast a Lymphoma tumor grows probably depends on the type of cells that make up the tumor.

What is cancer staging and what does it mean?

After the type of Lymphoma has been identified, your doctor will order special tests to determine if your cancer has spread in your body and if so, how much. This is known as a "staging".

Staging is important since it helps to predict outcome or prognosis and determines the treatment approach.

- **Stage I** (early stage): One lymph node region is involved. If the cancer is found in one organ outside the lymph node such as the skin, lung, brain, etc., this is called "extension," or "E" disease.
- **Stage II** (locally advanced disease): The cancer is found in two or more lymph regions on one side of the diaphragm. If the cancer is found in one lymph node region plus a nearby area or organ, the situation is considered "E" disease.
- **Stage III** (advanced disease): The disease involves lymph nodes both above and below the diaphragm or one node area and one organ on opposite sides of the diaphragm.
- **Stage IV** (widespread disease): The Lymphoma is outside the lymph nodes and spleen and has spread to one or more organs such as bone, bone marrow, skin, and other organs.

In addition, each stage is classified as "A" or "B". "A" means asymptomatic, which is used for patients who do not complain of fever, drenching sweat, or unexplained weight loss. When patients have any of these symptoms, "B" is assigned to their stage.

What are the common tests used to evaluate Non-Hodgkin's Lymphoma?

Patient information sheets about these tests are found in your Lymphoma & Myeloma Center Patient Resource Notebook. Your doctor or nurse will describe these tests in more detail and will talk to you about scheduling these tests. Below is a brief description of each test.

Biopsy

A piece of tissue from an area on the body where the cancer may be is removed and sent to a pathologist for examination under a microscope. Non-Hodgkin's Lymphoma is diagnosed by looking at the growth of cancer cells in the lymph nodes or other tissues. The information provided by this tissue sample is important to the diagnosis and treatment of NHL.

X-Ray

Radiation to take pictures of an area inside the body.

Computerized Axial Tomography (CT) scan

A CT Scan takes x-rays from different angles around the body. The pictures are then combined using a computer to give a detailed image. The most common CT scans taken are the neck, chest, abdomen, and/or pelvis.

Positron Emission Tomography (PET) scan

P.E.T. is a technology that combines the fields of medicine, computer science, chemistry, physics, and physiology to study the function of organs such as the heart, brain, and bone. It is different from conventional imaging methods such as X-rays, CTs, Ultrasounds, or MRIs, because P.E.T. images provide information about how tissue functions. The other imaging methods show what the tissues look like.

Magnetic Resonance Imaging (MRI)

MRI is similar to a CT scan but uses magnets and radio frequency waves instead of x-rays. MRIs can provide important information about tissues and organs that is not available from other imaging techniques. It is less used in NHL than are CT scans, but it can be useful in evaluation of the bones and brain.

Blood Tests

These are performed to determine if the different types of blood cells are normal in numbers and appearance and if blood chemistry is normal.

Bone Marrow Aspiration and Biopsy

Bone marrow, the spongy material found inside the bones, contains immature cells called stem cells. The stem cells develop into three types of cells: red blood cells, which deliver oxygen and take away the waste product, carbon dioxide; white blood cells, which protect the body from infection; and platelets, which help blood to clot. Bone marrow is obtained by numbing the skin, tissue and surface of the bone with a local anesthetic. A thin needle is inserted into the hip or another large bone and a small sample is collected.

Echocardiogram

This diagnostic test is ordered to evaluate the size and function of the heart.

MUGA Scan (Multiple Gated Acquisition Scan)

This scan is an extremely useful test for assessing the function of the heart. The MUGA scan produces a moving image of the beating heart, and from this image several important features can be determined about the health of the cardiac ventricles - the heart's major pumping chambers.

Chemotherapy

Chemotherapy is the use of drugs to treat cancer. There are many different types of drugs available to treat Lymphomas. Doctors may prescribe a single drug but more often combinations of drugs are used. Chemotherapy drugs have varying ways of killing cancer cells and different side effects. Giving several drugs at once may increase their effectiveness but also may increase the number of side effects.

Radiation Therapy

Radiation is a special kind of energy carried by waves or a stream of energy particles. It may be delivered by a radiation machine or by radioactive substances injected into the bloodstream. External beam radiation equipment is used to aim the radiation at tumors or areas of the body where cancer is found. Cells in the area where the radiation beam was aimed are killed.

Bone Marrow and Stem Cell Transplantation

Autologous or allogeneic bone marrow transplantation (BMT) and peripheral blood stem cell transplantation (PBSCT) are procedures that restore the supply of normal cells when these cells have been destroyed by high-dose chemotherapy and/or radiation therapy. In autologous transplantation, the bone marrow or blood stem cells are collected from the patient. In allogeneic transplantation, the bone marrow or blood stem cells are collected from a matched donor, who may be a related or unrelated (non-family) individual.

In bone marrow transplantation, stem cells are taken from the donor or patient's hip bone. In peripheral blood stem cell transplantation, the cells are collected from the blood using a procedure called pheresis, which is similar to donating blood. Before the transplant procedure, patients receive high doses of chemotherapy, alone or in combination with radiation, to destroy as many cancer cells as possible. They then receive the bone marrow or stem cell transplant. Bone marrow collection for transplants is very seldom done. Instead, peripheral stem cell collection is used most often to collect stem cells.

What are some common chemotherapy protocols used to treat Non-Hodgkin's Lymphoma?

Your doctor or nurse will talk to you about your specific treatment protocol and will provide you with patient information sheets describing each drug and a treatment calendar to put in your Lymphoma & Myeloma New Patient Education Manual.

Each protocol is called by a shortened name using the first letter of each drug in the combination chemotherapy. For example, a common combination used for NHL is the following:

CHOP

Cyclophosphamide
Doxorubicin
Oncovin (vincristine)
Prednisone
Retuximab

Once treated, can Non-Hodgkin's Lymphoma come back?

Although many patients with NHL go into remission after treatment, there is a chance that the disease may return later (**relapse**). When a patient has a relapse, another biopsy is often done. Additional chemotherapy or radiation therapy may be needed in order to control the cancer.

Sometimes, if the cancer is low grade NHL, it may return (**recur**) as a higher grade of Lymphoma. This is called **transformation**. In this case, the treatment may be different from what was given before.

Because there is always a chance that cancer may recur, it is very important to see a doctor regularly for follow up exams. If the cancer returns and it is found early, the chances of controlling it are better. Your doctor will tell you more about the chances of relapse and will explain your need for follow up visits.