

Indolent Follicular Lymphoma

Expert review by:

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What is lymphoma?

Lymphoma is a cancer of the white blood cells, namely lymphocytes, that happen to constitute the lymphatic system. The two main types of lymphoma are Hodgkin lymphoma and non-Hodgkin lymphoma. Lymphoma is the most common blood cancer and the third most common cancer of childhood. Lymphoma occurs when lymphocytes, a type of white blood cell, grow abnormally. The body has two types of lymphocytes: B lymphocytes, or B-cells, and T lymphocytes, or T-cells. Although both cell types can develop into lymphomas, B-cell lymphomas are more common. Like normal lymphocytes, those that turn malignant can grow in many parts of the body, including the lymph nodes, spleen, bone marrow, blood or other organs.

What is non-Hodgkin lymphoma?

Of the more than 35 types of lymphoma, 30 are classified as non-Hodgkin lymphoma (NHL). Nearly all non-Hodgkin lymphoma cases occur in adults, with the average age of diagnosis in the 60's. While scientists do not know the exact causes of non-Hodgkin lymphoma, they do know that it is not caused by injury or by coming into contact with someone else with the disease. Most people diagnosed with non-Hodgkin lymphoma have no known risk factors, though increasingly many scientists believe infections may play an important role in causing select types of non-Hodgkin lymphoma.

What is follicular lymphoma?

Follicular lymphoma is typically a slow-growing, or indolent, form of non-Hodgkin lymphoma. This cancer, which accounts for roughly 20 to 30 percent of all non-

Hodgkin lymphoma, usually takes several years to develop. It usually appears in a lumpy, or nodular pattern, within lymph nodes throughout the body. Often, the first sign of follicular lymphoma is a painless swelling in the neck, armpit or groin caused by enlarged lymph nodes. Some people also report loss of appetite and fatigue.

How is follicular lymphoma diagnosed?

Doctors usually diagnose follicular lymphoma by taking a small sample of the tumor, called a biopsy, and looking at the cells under a microscope. In addition, follicular lymphoma cells often carry abundant amounts of a protein called bcl-2, which protects cells from dying. Additional tests, such as blood tests, x-rays and scans may be used to help determine how far the cancer has spread, indicating its "stage." In Stage I, lymphoma appears only in one group of lymph nodes in a particular body region, while in patients with Stage II, disease in more than one lymph node group is involved. Patients with Stage II disease have disease limited to one side of the diaphragm (midline of the chest or abdomen). In contrast, patients with Stage III or IV disease have lymphoma on both sides of the diaphragm or involving other organ systems including the bone marrow. Most patients with follicular lymphoma are diagnosed with Stage III or IV disease.

What treatments are available?

Treatment of lymphoma is based on the severity of associated symptoms and the rate of growth. Since follicular lymphoma grows very slowly, doctors may decide not to treat it right away, an approach often referred to as "watch and wait." Many studies have shown that patients treated

earlier in their disease course, compared to those followed with a “watch and wait” approach, exhibit similar overall survival. Radiation treatment is often used to treat early-stage (I and II) follicular lymphoma. High-energy x-rays targeted at specific groups of involved lymph nodes can provide cure in some patients with limited disease. In addition to radiation, doctors may use chemotherapy to control this disease. Unlike many cancers, the follicular lymphomas tend to be very sensitive to both radiation and chemotherapy. There are many drugs or combinations of drugs that can be used to manage this disease, including those listed in Table 1.

Table 1.

Treatments used in follicular lymphoma

- Cyclophosphamide, vincristine, prednisone (CVP)
- Cyclophosphamide, doxorubicin, vincristine, prednisone (CHOP)
- Fludarabine (+/- mitoxantrone, +/- cyclophosphamide)
- 2-chlorodeoxyadenosine (2-CdA)
- Chlorambucil (+/- prednisone)
- Rituxan
- Bexxar
- Zevalin

While there are many treatments available, the data to date have not shown that any one treatment is better than any other. For this reason, patients should consider participating in a clinical trial as part of their therapy whenever possible. Many of the improvements in managing these diseases have been made using investigational therapies aiming to improve on the conventional treatments. Some of the investigational therapies presently being tested include Velcade (a “protease inhibitor”), MyVax, BiovaxID, and FavId (therapeutic lymphoma vaccines), as well as new monoclonal antibodies. For patients with relapsed follicular lymphoma, high dose chemotherapy and an autologous stem cell transplant or an allogeneic (or “mini”-allogeneic) transplant may be an option that provides a prolonged disease-free interval in some patients.

What if the treatments stop working?

Although initial responses to treatment with chemotherapy are often quite good, over time lymphoma cells will learn how to become resistant to treatment, meaning the drugs no longer work. This is called drug resistant lymphoma. In these cases, drugs like Bexxar or Zevalin, which can target the tumor with a monoclonal antibody armed with a dose of radiation, have been found to be particularly useful. These drugs are approved for the treatment of follicular lymphoma that has relapsed after chemotherapy. Some physicians are also currently testing this approach in newly diagnosed follicular lymphoma patients in combination with chemotherapy.

What about side effects?

Some chemotherapy drugs can damage healthy cells and cause side effects such as nausea and vomiting, reduced appetite, hair loss and mouth sores. Damage to healthy immune cells may also put lymphoma patients undergoing treatment at risk for infection. Doctors can prescribe medicines to offset these effects. These include growth factors (G-CSF or GM-CSF, to protect against infection), erythropoietin (to prevent anemia) and anti-emetic drugs (for nausea).

Are complementary and alternative therapies safe and effective?

Complementary and alternative therapies are non-standard therapies that may help patients cope with their cancer and its treatment, but that should not be used as the only treatment. No alternative therapy has been proven effective against lymphoma. However, complementary therapies such as meditation, exercise, prayer, diet and relaxation techniques may provide comfort and emotional strength. It is very important for patients considering alternative or complementary treatments to discuss the matter openly with their healthcare team. Certain unproven treatments, including some herbal supplements, can interfere with standard lymphoma treatments or may cause serious side effects.

What about follow-up appointments?

During and after treatment, patients should play an active role in their healthcare, including keeping a master file of medical records, asking questions, reporting new symptoms, exercising and eating a balanced diet. In addition, patients who smoke should strongly consider stopping. Follow-up visits, usually scheduled every few months, typically include CT scans and a variety of blood tests. After treatment, it is very important to keep these appointments. Since follicular lymphoma symptoms may resemble those of less serious illnesses, or viral infection, regular medical care is very important. In addition to looking for signs of the cancer coming back, follow-up care can help identify and resolve unusual side effects of treatment.

What if my lymphoma comes back?

If lymphoma returns after a complete remission, it is called relapse or recurrence. Chemotherapy, monoclonal antibodies and radiation may be used alone or in combination to treat relapsed follicular lymphoma. The duration of remission from the last chemotherapy, along with the symptoms produced by the cancer, will often influence what treatments your doctor may recommend. High dose chemotherapy and either autologous stem cell or allogeneic stem cell transplantation may also be an option in selected patients at the time of relapse. These are often the most common settings for patients to discuss new drugs and the availability of clinical trials for the management of their disease.

What is transformation of follicular lymphoma?

About half of all patients with follicular lymphoma will eventually develop a transformed lymphoma, often referred to as histologic transformation. These lymphomas are often more aggressive in their behavior and are usually treated with combination chemotherapy.

How can I find support?

A lymphoma diagnosis may provoke a range of feelings and bring many concerns. In addition, cancer treatment can cause physical and emotional discomfort. Connecting with other people who have lymphoma, or have received treatment, can help a great deal. Support groups and online message boards are often useful. One-to-one peer support programs, such as the Lymphoma Research Foundation's *Lymphoma Support Network*, matches lymphoma survivors (or caregivers) with volunteers who have gone through similar experiences.

How can I stay informed?

The Lymphoma Research Foundation offers a wide range of resources that address treatment issues, the latest research advances, and coping with all aspects of lymphoma. For more information about any of these resources, contact LRF at 800-500-9976, e-mail: helpline@lymphoma.org or visit the website www.lymphoma.org.

Contact Us

For more information about *Getting the Facts* or information about the



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The Lymphoma Research Foundation (LRF) offers a comprehensive series of patient education and support programs including:

- *Lymphoma Helpline & Clinical Trials Information Service*
- *Lymphoma Support Network*
- Patient Aid Grant Program
- Publications and newsletters
- Informational teleconferences and webcasts
- In-person conferences
- National Chapter Network

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Glossary of Terms

Biopsy: Removal of a small piece of tissue (for example, a lymph node) for evaluation under a microscope

Indolent lymphoma: slow-growing lymphoma; sometimes called low-grade

Lymph nodes: Small bean-shaped glands located in the small vessels of the lymphatic system; hundreds are located throughout the body they are most easily felt in the neck, armpits and groin

Lymphatic system: The vessels, tissues, and organs that store and carry lymphocytes that fight infection and other diseases
Lymphocyte: A type of white blood cell

Monoclonal antibody: Targeted biologic therapy to help combat specific cancers, including lymphoma

Transformation: The process by which one form of lymphoma changes into another, usually more aggressive form
Radioimmunotherapy: A dual-action therapy that combines a monoclonal antibody with a radioactive isotope

Refractory disease: A cancer that is resistant to treatment

Relapse: The return of cancer after treatment, either in the area where it began or elsewhere in the body

About LRF

The mission of the Lymphoma Research Foundation (LRF) is to eradicate lymphoma and serve those touched by this disease. LRF is the nation's largest lymphoma-focused voluntary health organization devoted exclusively to funding lymphoma research and providing patients and healthcare professionals with critical information on the disease. Over 85 cents of every dollar spent goes to support research and education programming. People affected by lymphoma can receive free personalized information tailored to their diagnosis, help with finding a clinical trial, and easy-to-understand information on lymphoma, current treatments, and promising research. Please call 800-500-9976, email helpline@lymphoma.org, or visit the website www.lymphoma.org