



RADIATION THERAPY for **LYMPHOMA**



**Facts to Help Patients Make an
Informed Decision**

ASTRO

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FACTS ABOUT LYMPHOMA

The **lymphatic system** is a network of tiny vessels extending throughout the body. They are often next to the veins and arteries but are even smaller than them. Scattered along these vessels are **lymph nodes**. The lymphatic vessels carry a clear fluid called **lymph** from the extremities and organs back to the blood circulation. The job of the lymphatic system is to fight infection and disease. Cancer of the lymphatic system is called **lymphoma**. The two main types are **Hodgkin's** and **non-Hodgkin's lymphomas**.

HODGKIN'S LYMPHOMA

- Hodgkin's lymphoma (or Hodgkin's disease) most often begins in the larger, more central lymph nodes of the body — those along the largest blood vessels of the neck, central chest, abdomen along the spine, and armpit and groin areas where the vessels return from the arms and legs.
- It is named for the British doctor Thomas Hodgkin, who first described the disease in 1832.
- According to the American Cancer Society, more than 8,000 people will be diagnosed with Hodgkin's in the United States each year.
- Hodgkin's is very treatable and often curable. More than 75 percent of patients with Hodgkin's live longer than 10 years after diagnosis.
- Hodgkin's is usually treated with radiation therapy and/or chemotherapy, either alone or together.

NON-HODGKIN'S LYMPHOMA (NHL)

- NHL is a cancerous growth of the cells that make up the lymph nodes.
- NHL is eight times more common than Hodgkin's lymphoma. The American Cancer Society expects that 63,000 people will be diagnosed with the disease annually.
- Since the 1970s, the number of people with NHL has increased significantly. Researchers are studying to see whether a gene makes people more likely to develop NHL.
- There are about 30 types of NHL, and the best treatment depends on the exact type. All types of NHL are treatable, and many are curable.
- NHL is usually treated with chemotherapy, radiation therapy, biologic therapy and/or a stem cell transplant. Depending on your cancer and overall health, you might receive only one of these treatments or several in combination.



STAGING OF LYMPHOMA

The stage of lymphoma is a term used to describe the extent of the disease.

- **Stage I:** Single lymph node or non-lymph node region is affected.
- **Stage II:** Two or more lymph nodes or non-lymph node regions are affected on the same side of the diaphragm (the muscle under the lungs).
- **Stage III:** Lymph node or non-lymph node regions above and below the diaphragm are affected.
- **Stage IV:** The cancer has spread outside the lymph nodes to organs such as the liver, bones or lungs. Stage IV can also refer to a tumor in another organ and/or tumors in distant lymph nodes.

Talk to your physician to find out exactly which stage you have. Determining the stage and exact type of lymphoma (by microscopic examination of tissue from a **biopsy**) are essential steps toward planning the best treatment to cure your disease.

TREATMENT OPTIONS FOR LYMPHOMA

Treatment options depend on the type of lymphoma, its stage and your overall health. Treatment may include chemotherapy or radiation therapy, either alone or in combination. It may help to talk to several specialists before deciding on the best course of treatment for you, your disease and your lifestyle.

- A **radiation oncologist** is a doctor who specializes in destroying diseased cells with high-energy X-rays or other types of radiation.
- A **medical oncologist** is a doctor who is an expert at prescribing special drugs (**chemotherapy**) to treat disease. Some medical oncologists are also **hematologists**, meaning they have experience treating blood disorders.

UNDERSTANDING RADIATION THERAPY

Radiation therapy, also called radiotherapy, is the careful use of radiation to kill diseased cells safely and effectively while avoiding nearby healthy tissue.

- Radiation oncologists use radiation therapy to cure disease, to control disease growth or to relieve symptoms, such as pain.
- Radiation therapy works within diseased cells by damaging their ability to grow. When these cells are destroyed by the radiation, the body naturally eliminates them.
- Healthy tissues can also be affected by radiation, but they are usually able to repair themselves in a way that cancer cells cannot.





EXTERNAL BEAM RADIATION THERAPY

External beam radiation therapy is a series of outpatient treatments to deliver radiation to the diseased cells accurately. Radiation therapy has been proven to be very successful at treating and curing lymphoma.

- Radiation oncologists deliver external beam radiation therapy to the lymphoma from a machine called a **linear accelerator**.
- Each treatment is painless and is similar to getting an X-ray. Treatments last less than 30 minutes each, every day but Saturday and Sunday, for several weeks.
- **Involved field radiation** is when your doctor delivers radiation only to the parts of your body known to have disease. It is often combined with chemotherapy. Radiation above the diaphragm to the neck, chest and/or underarms is called **mantle field radiation**. Treatment below the diaphragm to the abdomen, spleen and/or pelvis is called **inverted-Y field radiation**.
- Your radiation oncologist may deliver radiation to all the lymph nodes in the body to destroy cells that may have spread to other lymph nodes. This is called **total nodal irradiation**.
- Your radiation oncologist may also deliver radiation to the entire body. This is called **total body irradiation**. It is often done before chemotherapy and a stem cell or bone marrow transplant to eliminate any remaining diseased cells.

Radiation therapy may be used alone or in combination with chemotherapy or biologic therapy. You will work with your radiation oncologist to agree on a treatment plan that is best for you.

BIOLOGIC THERAPY

Also called immunotherapy, biologic therapy works with your immune system to fight disease. Biologic therapy is like chemotherapy. The difference is that chemotherapy attacks the diseased cells directly, and biologic therapy helps your immune system fight the disease.

- **Monoclonal antibodies** work by targeting certain molecules in the body and attaching themselves to those molecules. This causes some cells to die and makes others more likely to be destroyed by radiation and chemotherapy.
- **Radiolabeled antibodies** are monoclonal antibodies with radioactive particles attached. These antibodies are designed to attach themselves directly to the diseased cells and damage them with small amounts of radiation without injuring nearby healthy tissue.



POSSIBLE SIDE EFFECTS

The side effects you might experience will depend on the part of the body being treated, the dose of radiation given and whether you also receive chemotherapy. Before treatment begins, ask your doctor about possible side effects and how best to manage them.

- You may experience mild skin irritation like a sunburn, sore throat, upset stomach, loose bowel movements and/or fatigue. Most side effects will go away after treatment ends.
- Radiation to your head or mouth may cause mouth dryness that can lead to tooth decay. Fluoride treatments may help, so your radiation oncologist will ask you to see your dentist before treatment begins.
- You might lose your hair in the areas treated. Your hair will grow back, but it might not have the same texture or thickness.
- Tell your doctor or nurse if you experience any discomfort. They may be able to prescribe medication or change your diet to help.

These side effects are temporary and should go away after treatment ends. Your doctor will discuss any possible longer-term side effects with you before treatment begins.

CARING FOR YOURSELF DURING TREATMENT

Receiving treatments can be difficult both physically and mentally. Take care of yourself by:

- Getting plenty of rest.
- Following doctor's orders.
- Eating a diet high in protein and calories as directed by your radiation oncology team.
- Treating the skin exposed to radiation with extra care as directed by your radiation oncology team.
- Seeking support from friends, family and cancer support groups.

HELPFUL WEB SITES ON LYMPHOMA

American Cancer Society
www.cancer.org

Leukemia and Lymphoma Society
www.lls.org

Lymphoma Information Network
www.lymphomainfo.net

Lymphoma Research Foundation
www.lymphoma.org

LEARNING ABOUT CLINICAL TRIALS

The radiation oncology treatment team is constantly exploring new ways to treat lymphoma through studies called **clinical trials**. Today's standard treatments are the result of clinical trials proving that radiation therapy kills cancer cells and is safe long-term. For more information on clinical trials, visit:

Cancer and Leukemia Group B
www.calgb.org

National Institutes of Health
<http://clinicaltrials.gov>

Radiation Therapy Answers
www.rtanswers.org/treatment/clinical_trials.htm

ABOUT THE RADIATION ONCOLOGY TEAM

Radiation oncologists are the doctors who oversee the care of each person receiving radiation treatment. Other members of the radiation oncology treatment team include radiation therapists, radiation oncology nurses, medical physicists, dosimetrists, social workers and nutritionists. To find a radiation oncologist near you, visit www.rtanswers.org.

ABOUT ASTRO

The American Society for Therapeutic Radiology and Oncology is the largest radiation oncology organization in the world with more than 8,600 members who specialize in treating cancer with radiation therapies. ASTRO's mission is to advance the practice of radiation oncology by promoting excellence in patient care, promoting research and disseminating research results.