

Non-Hodgkin Lymphoma

Non-Hodgkin lymphoma is a cancer within the cells of the immune system, specifically the lymphocyte cells (a type of white blood cell) in lymph nodes, spleen, tonsils, digestive tract, thymus (a small organ behind the breastbone), and bone marrow. There are two types of lymphoma: Hodgkin lymphoma and non-Hodgkin lymphoma. Non-Hodgkin lymphomas can be classified as aggressive (fast-growing) or indolent (slow-growing) cancers depending on the type. There are many different types of non-Hodgkin lymphoma, and researchers have yet to determine a direct cause for the disease. Individuals with severely suppressed immune systems have a higher risk. The survival rate depends on the type and stage of the lymphoma.

Statistics

- The survival rate has been increasing since 1997; non-Hodgkin lymphoma accounts for about 4 percent of all cancers in the U.S.
- In 2019, 74,200 Americans will be diagnosed with non-Hodgkin lymphoma, and 19,970 will die from the disease.
- In Texas in 2019, 5,152 diagnoses of non-Hodgkin lymphoma are expected, with 1,565 deaths.
- While non-Hodgkin lymphoma can occur in children, it is more common in adults, with about half of the cases occurring in individuals over 65 years of age.

Risk Factors

- **Weak Immune System:** People with a weakened immune system as a result of an inherited immune disorder like ataxia-telangiectasia (AT), hypogammaglobulinemia, or Wiskott-Aldrich syndrome; or autoimmune diseases such as rheumatoid arthritis, psoriasis, Sjögren syndrome, lupus, or celiac disease have an increased risk of developing non-Hodgkin lymphoma. Some drugs used to modulate the immune system in non-cancer diseases are associated with an increased lymphoma risk.
- **Some Long-Term Infections:** People who have had certain types of immune-depressing infections, such as HIV/AIDS, Helicobacter pylori, Hepatitis C, Human T-cell lymphotropic virus type 1, Chlamydia psittaci, human herpes virus 8, or Epstein-Barr virus are at a higher risk of developing the disease.
- **Organ Transplant Patients:** People who have had organ transplants are at risk, as anti-rejection medications often suppress the immune system.
- **Demographics:** Males and Caucasians are more likely to develop non-Hodgkin lymphoma.
- **Body Weight:** Being overweight or obese may increase risk for non-Hodgkin lymphoma.
- **Exposure to certain chemicals and radiation:** Exposure to chemicals in some chemotherapy drugs, pesticides, and benzene, as well as exposure to high levels of radiation, may increase risk of non-Hodgkin lymphoma.
- **Breast Implants:** Having breast implants can increase the risk of developing anaplastic large cell lymphoma (ALCL).

Symptoms

The following may be symptoms of non-Hodgkin lymphoma, but could be linked to other health conditions. If the following symptoms are present, individuals are encouraged to consult their physician:

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| • Swollen lymph nodes in the underarms, groin, stomach, or neck | • Fever | • Cough, shortness of breath |
| • Night sweats | • Swollen abdomen | • Chills |
| • Fatigue | • Unexplained pain or discomfort in the abdomen, chest, or bones | • Bruising or bleeding easily |
| • Unexplained weight loss | • Itchiness, skin rash or lumps | • Frequent or severe infections |
| | | • Feeling full easily |

Prevention

There is no known prevention for non-Hodgkin lymphoma. Prevention of a weakened immune system is the best way to reduce the risk for non-Hodgkin lymphoma, along with maintaining a healthy body weight.

Treatment Options

Treatment options may be tailored based on the type of lymphoma, stage, the patient's overall health, and potential side effects of therapy. Treatment can include watchful waiting, surgery, chemotherapy, radiation therapy, proton therapy, immunotherapy, targeted therapy, and stem cell transplants. Physicians including a hematologist, medical oncologist, and radiation oncologist may be part of the medical team, depending on the treatment.

Sources: American Cancer Society, American Society of Clinical Oncology, Leukemia and Lymphoma Society, National Cancer Institute, and Texas Cancer Registry



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