Understanding Non-Hodgkin Lymphoma

Allogene THERAPEUTICS

Non-Hodgkin lymphoma (NHL) is a type of cancer that affects the lymphatic system—a network of vessels, organs, and lymph nodes which helps fight infections and viruses. NHL develops in white blood cells called lymphocytes.[1,2]

In people with NHL, a cell undergoes a mutation in a lymphatic structure, such as a lymph node. The abnormal lymphocyte grows out of control and produces more abnormal cells like it that, in turn, accumulate and form tumors. Untreated, the cancerous cells crowd out normal white blood cells, and thereby the immune system guards against infection less effectively.[3]

One of the most common blood cancers in the US. [4]

NHL will cause an estimated 19,940 deaths in 2020.[4]

Accounts for about 4% of all new cancers in the US.[2,5]

Subtypes of Non-Hodgkin Lymphoma

NHL is not a single disease but rather a group of several closely related cancers, called lymphoid neoplasms. The most recent 2016 revision of the World Health Organization classification of lymphoid neoplasms estimates that there are at least 86 types of NHL.[1]

B-cell lymphomas, such as diffuse large B-cell lymphoma (often referred to as DLBCL) and follicular lymphoma (FL), are subtypes of NHL that arise from B-lymphocytes and develop when the body makes abnormal B-cells—the lymphoma cells.

85%

B-cell lymphomas make up approximately **85%** of NHL cases in the US[6,7]

22%

Diffuse large B-cell lymphoma makes up **22%** of NHL cases[1]

The most common aggressive (or fast-moving) type of NHL.[8]

11%

Follicular lymphoma makes up **11%** of NHL cases[1]

The most common type of indolent (or slow-growing) form of NHL, it typically has fewer signs and symptoms when first diagnosed.[9] Lymphoma cells usually build up in lymph nodes, but FL can start in other parts of the body[10]

Symptoms & Diagnosis

NHL can cause many different signs and symptoms, depending on the type of lymphoma and where it is located in the body.[11] Common symptoms of NHL include swelling of lymph nodes, fever, night sweats, fatigue, loss of appetite, weight loss, chest pain, abdominal pain, bloating, itchy skin, rashes, and the enlargement of the spleen or liver.[12]

While the disease can occur at any age, **more than half of patients are 65 or older** at the time of diagnosis.[14]

Staging helps doctors determine a prognosis and treatment options.[15]

A precise diagnosis is an important part of a patient's care and will help the doctor estimate the rate of disease progression and determine the appropriate treatment.[13]

Doctors use a combination of examination and testing to diagnose NHL, which can include blood tests as well as a biopsy of a lymph node or other tumor site to confirm the NHL diagnosis and subtype.[13]

Based on these tests, doctors assign a stage, which identifies **how much and where cancer is in the body**, including how many lymph nodes are affected.[15]

Treatment

Treatment for NHL depends on the subtype, including what type of lymphocyte is affected (B-cells or T-cells), how mature the cells are when they become cancerous, and other factors.[16] Depending on the type and stage of the lymphoma and other factors, treatment options for people with NHL might include chemotherapy, radiation therapy, and/or a stem cell transplant.[17]

While approximately half of patients respond to initial therapy, most patients eventually relapse.[18]

Relapsed or refractory NHL describes disease that has not been controlled by other treatment options.

NHL is considered **refractory** when it has not responded to initial treatment.

NHL is considered **relapsed** when the disease responds to treatment but then returns.[19]

FOLLICULAR LYMPHOMA

Relapse within **24 months** of first-line treatment occurs in approximately **20%** of patients.

Of those who relapsed, **34–50%** of patients are alive within **5 years**[20]

DIFFUSE LARGE B-CELL LYMPHOMA

Up to **50%** of patients become refractory to or relapse after first-line treatment.

Only **30–40%** among these patients will respond to or are eligible for 2nd- or 3rd-line treatment options.[21]

Innovative approaches such as autologous CAR T cell therapy have improved outcomes for these patients and the way relapsed/refractory NHL is treated. Despite these successes, autologous CAR T therapies have limitations and not all patients are able to receive therapy.[22] In clinical trials, approximately 10–30 percent of patients were not able to receive cells, resulting in a need for the development of alternative treatment options.[23,24]

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