# Non-Hodgkin lymphoma - Public reporting of the Day Kimball Hospital experience

Non-Hodgkin's lymphomas are a group of malignancies that arise from lymphoid tissues with differing patterns of behavior and responses to treatment. Majority of the started the lymph nodes (nodal) although they can also be extranodal.

Estimated new cases and deaths from NHL in the United States in 2016:
•New cases: 72,580.
•Deaths: 20,150.

The NHLs can be divided into two prognostic groups: the indolent lymphomas and the aggressive lymphomas.

Indolent NHL have a relatively good prognosis with a median survival as long as 20 years, but they usually are not curable and tend to relapse although at the time of relapse they can often be successfully treated again. Most common indolent lymphoma is follicular lymphoma. Some other indolent lymphomas include small lymphocytic lymphoma and marginal zone lymphoma.

The aggressive types of non-Hodgkin's lymphomas have a short natural history, but a significant number of these patients can be cured with intensive combination chemotherapy regimens. Most common type of aggressive lymphoma is large cell lymphoma

Non-Hodgkin Lymphoma – CLL/SLL has been excluded

| | | 2015 | | |
|---|---|---|---|---|
| Nodal | | 7 | 3% | |
| Extranodal | | 4 | 1.5% | |
| Total | | | 4.5% of DKH analytic Cases | |

Non-Hodgkin lymphoma is in more often in men, in Caucasians and in rural populations.

Gender

| | DKH | National |
|---|---|---|
| Male | 54% | 55% |
| Female | 46% | 45% |

The risks factors for lymphomas include advancing age, exposure to pesticides and insecticides, immunosuppressed state, autoimmune disorders, and prolonged immune stimulation such as H. pylori infection. Certain infections also increase the risk of developing non-Hodgkin lymphoma such as HIV disease and HTLV.

Diagnosis: Diagnosis of non-Hodgkin lymphoma and requires a tissue biopsy. If possible, the entire lymph node is usually the removed and submitted for pathological analysis including immunohistochemical studies. In certain situations, where removal of lymph node may be difficult such as intra-abdominal lymph node, modern methods, CT-guided core biopsy of the lymph node oftentimes

can yield enough tissue that a definitive diagnosis can't be rendered by combining pathological analysis with more advanced acne such as flow cytometry and inguinal histochemical studies.

Various classification systems have been used over the previous few years for non-Hodgkin lymphoma. These include working formulation and the most recent WHO/REAL classification.

The non-Hodgkin lymphomas can also be subclassified into B-cell lymphomas, T-cell lymphomas and NK cells lymphomas depending on the cell of origin. The clinical importance is that most B-cell lymphomas express an antigen on the surface called CD20 and responded to treatment with anti-CD20 monoclonal antibody treatments such as rituximab.

Staging of non-Hodgkin's lymphoma: Once a diagnosis of non-Hodgkin lymphoma has been established, an exact staging is necessary. The staging workup includes physical exam, laboratory studies, imaging studies including CT scans of chest abdomen and pelvis, a PET scan and a bone marrow aspirate and biopsy.

Stage I - one group of lymph nodes

Stage II - more than one group of lymph nodes on the same side of diaphragm

Stage III - lymph nodes on both sides of the diaphragm

Stage IV - Bone marrow involvement

Each stage further subdivided into A or B depending on absence or presence of the following:

- Loss of more than 10% of body weight over the previous 6 months (without dieting)
- Unexplained fever of at least 101.5°F
- Drenching night sweats

Stage at Diagnosis

| | 1 | 2 | 3 | 4 | Unknown |
|---|---|---|---|---|---|
| DKH | 46% | 9% | 27% | 18% | 0% |
| National | 25% | 15% | 17% | 34% | 9% |

Age at Diagnosis

| | <20 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | 80-89 | >90 | |
|---|---|---|---|---|---|---|---|---|---|---|
| DKH | | | | | 18% | 27% | 18% | 27% | 9% | |
| National | 1% | 2% | 4% | 8% | 18% | 25% | 24% | 15% | 3% | |

-1% for DKH

Histology

| | | |
|---|---|---|
| Lymphoma, malig, large B-cell, diffuse, (DLBCL), NOS | 4 | |
| Lymphoma, splenic marginal zone B-cell | 1 | |
| Lymphoma, mantle cell | 2 | |

| | | |
|---|---|---|
| Lymphoma, marginal zone B-cell, NOS | 1 | |
| Lymphoma, follicular, grade 3 | 2 | |
| 95913 Lymphoma, malignant, non-Hodgkin, NOS | 1 | |
| | 11 | |

Treatment: The aggressive lymphomas require immediate treatment as because of their aggressive behavior, they are immediately life-threatening to the patient. On the other hand, the indolent lymphomas generally a slow moving and can be safely watched for a period of time ranging from months to years. These are usually treated when patients become symptomatic from the disease.

Therapeutic approaches

Therapeutic options include watchful waiting; rituximab, an anti-CD20 monoclonal antibody, alone or with combination chemotherapy, Radiation therapy, Radiolabeled monoclonal antibodies, and autologous or allogeneic bone marrow or peripheral stem cell transplantation.

In general, with modern treatment of patients with NHL, overall survival at 5 years is over 60%. Of patients with aggressive NHL, more than 50% can be cured. The vast majority of relapses in patients with aggressive lymphomas occur in the first 2 years after therapy. The risk of late relapse is higher in patients with indolent lymphomas, however, such relapses can be successfully treated with various salvage therapeutic options.

Because of a very small sample size, it is not possible to compare our survival data with the national survival.

Outcome of patients with non-Hodgkin lymphoma treated at DKH:

| | |
|---|---|
| Alive | 8 |
| Expired | 3 |

Conclusion: Non-Hodgkin lymphoma is a heterogeneous group of malignancies with a very variable natural history. With modern day treatment options, majority of patients can expect a very successful outcome.