Non-Hodgkin Lymphoma: Symptoms, Diagnosis and Treatment

Non-Hodgkin lymphoma is a neoplastic (cancerous) transformation of both the B and T cell lineages of lymphatic cells. This causes the accumulation of malignant cells in both the lymph nodes as well as more often diffusely in extra lymphatic organs such as the brain, liver and bone and also the bloodstream.

Non-Hodgkin lymphoma (NHL) represents a monoclonal proliferation of lymphoid cells of B cell (70%) or T cell (30%) origin.

In Non-Hodgkin lymphoma Reed-Sternberg cell is absent.

In Non-Hodgkin lymphoma, the most important factor is grade reflecting the proliferation rate of the neoplastic cells.

This is to mean that High grade NHL has high proliferation rates. Therefore it rapidly produces symptoms, is fatal if untreated, but is potentially curable.

On the other hand, Lowgrade NHL has low proliferation rates, may be asymptomatic for many months before presentation, runs an indolent course, but is not curable by conventional therapy.

Causes of Non-Hodgkin Lymphoma

Several infectious and autoimmune disorders have been associated with the development of non-Hodgkin lymphoma. These include HIV, hepatitis C, Epstein-Barr virus, HTLV-I, and Helicobacter pylori.

Human Immunodeficiency Virus and Epstein-Barr virus are both more often associated with Burkitt lymphoma.

HIV can also be associated with immunoblastic lymphoma which is high-grade lymphoma with an aggressive progression of the disease.

Signs and symptoms of Non-Hodgkin Lymphoma

The hallmark of the disease is enlarged painless, rubbery, nonerythematous, nontender lymph nodes.

Patients may have “B” symptoms, which are drenching night sweats, 10% weight loss, and fevers.

Patients may also present with pruritus.

The difference between Hodgkin and non-Hodgkin lymphomas is that Hodgkin disease is localized

to cervical and supraclavicular nodes in about 80–90% o, whereas non-Hodgkin lymphoma is localized only 10–20% of the time.

Non-Hodgkin lymphoma mostly involves extra lymphatic sites as well as to have blood involvement similar to chronic lymphocytic leukemia. CNS involvement is also more common with NHL.

> Sites of extranodal involvement include the bone marrow, gut, thyroid, lung, skin, testis, brain and, bone.

HIV-positive patients often have CNS involvement.

Something of importance to note is that: Bone marrow involvement is more common in lowgrade (50–60%) than highgrade (10%) disease.

Due to the presence of numerous lumps in various organs, the patient is likely to present with compression syndromes such as gut obstruction, ascites, superior vena cava obstruction, and spinal cord compression.

The staging system for Non-Hodgkin Lymphoma uses the Anne Arbour Classification system just like Hodgkin Lymphoma. You can find this staging system here in the article on Hodgkin Lymphoma.

Diagnosis.

Basically, the diagnostic tests and investigations done are the same as the ones in Hodgkin lymphoma.

The diagnosis rests initially on an excisional lymph node biopsy.

After performing the biopsy the next step is to determine the stage of the disease to determine therapy.

Non-Hodgkin lymphoma is far more likely to be widespread at the initial presentation as compared to Hodgkin lymphoma.

Bone marrow biopsy is more central as an initial staging tool.

Because the presence of marrow involvement means the patient has Stage IV disease and therefore needs a combination
chemotherapy, further invasive testing such as laparotomy is not necessary.

As with Hodgkin disease, Full blood count will indicate

1. Anemia,
2. Leukopenia,

3. Eosinophilia,

High lactate dehydrogenase and elevated Erythrocyte sedimentation rate often accompany the disease.

PET scanning is highly sensitive and specific for nodal and extranodal sites but not for bone marrow disease.

HIV testing may be appropriate if risk factors for the same are present.

Treatment.

Local disease in stage IA and stage IIA are treated predominantly with radiation, and all those with “B” symptoms as well as stages III and IV receive combination chemotherapy.

Like we mentioned above, Non-Hodgkin lymphoma is mostly widespread at presentation therefore in most cases patients are treated with radiation alone.

Management can be given in accordance with if the lymphoma is High grade or Low grade.

In Low-grade NHL when the patients are asymptomatic they may not require therapy.

Indications for treatment include marked systemic symptoms, lymphadenopathy causing discomfort or, bone marrow failure or compression syndromes.

In follicular lymphoma, the options are: Radiotherapy and chemotherapy.

Humanized monoclonal antibodies can be used to target surface antigens on tumor cells, and induce tumor cell apoptosis directly.

The antiCD20 antibody rituximab acts synergistically when given with chemotherapy.

Hematopoietic stem cell transplantation(HSCT).

High-grade NHL where patients are having diffuse large Bcell NHL need treatment at initial presentation:
The majority are treated with intravenous combination chemotherapy, typically with the CHOP regimen (cyclophosphamide, doxorubicin, vincristine, and prednisolone).

RCHOP is currently recommended as firstline therapy for those with stage II or greater diffuse large B cell lymphoma.

Radiotherapy. A few stages I patients without bulky disease may be suitable for radiotherapy. It is also indicated for a residual localized site of bulk disease after chemotherapy, and for spinal cord and other compression syndromes.

HSCT. Autologous HSCT benefits patients with relapsed chemosensitive disease

Key point

The initial chemotherapeutic regimen is CHOP *(cyclophosphamide, hydroxy-adriamycin, vincristine, prednisone). in some literature it is written as (R-CVP)*

In the case of central nervous system involvement, the lymphoma is often treated with radiation in addition to CHOP.

Some patients with NHL express CD20 antigen in greater amounts. In this case, monoclonal antibody rituximab should be used.

Rituximab is an anti-CD20 antibody that has less toxic effects and adds survival benefit to the use of CHOP. Thus, R-CHOP or (R-CVP) would then become first-line therapy.

Before starting the therapy you need to test completely for hepatitis B and C, as rituximab can cause fulminant liver injury in those with active hepatitis B or hepatitis C disease.