

## Non-Hodgkin's Lymphoma

### Introduction:

Non-Hodgkin's lymphoma (NHL) is a cancerous condition that affects a type of white blood cell in the body known as lymphocytes. Lymphocytes play an important role in the defence mechanism (immune system) of the body. They are basically present in the lymph nodes and other lymphatic tissues (such as the spleen, thymus and bone marrow).

There are 2 types of lymphocytes namely T-lymphocytes and B-lymphocytes. Non-Hodgkin's lymphoma may involve one or both these types of lymphocytes. Lymph nodes are specialised oval or bean-shaped organ structures found in groups or chains in various regions of the body.

They are located in the neck, under the jaw and chin, behind the ears, chest, abdomen, groins and armpits. In individuals with Non-Hodgkin's lymphoma, there is an abnormal multiplication and deposition of lymphocytes within the lymphatic tissues resulting in the formation of tumour in the lymphatic system. Tumours of Non-Hodgkin's lymphoma may either grow gradually or rapidly invading the other organs

The disease can occur in all age groups. Men are more frequently affected than women. According to the Ann Arbor staging system, non-Hodgkin's lymphoma is divided into four stages based on the lymph nodes involved and the extent of involvement of other organs.

Stage I: the lymphoma is in only one lymph node area or lymphoid organ.

Stage II: the lymphoma is in the same side of the diaphragm occurring in two or more lymph nodes.

Stage III: the lymphoma occurs in the lymph nodes both above and below the diaphragm.

Stage IV: the lymphoma extends beyond the lymphatic system and involves other organs.

### Causes:

The exact cause of Non-Hodgkin's lymphoma is not known. But certain factors can increase the risk of developing this condition such as a weakened immune system due to radiation therapy and chemotherapy, individuals with HIV/AIDS, too much smoking and alcohol consumption, exposure to radiation, bacterial, viral or parasitic infections, organ transplantation, certain disease conditions such as rheumatoid arthritis.

### **Symptoms:**

Individuals with Non-Hodgkin's lymphoma may develop a variety of symptoms. Most individuals experience painless swelling in the lymph nodes of the neck, armpit or groin. The affected lymph nodes tend to feel rubbery and mobile to touch. They can also be firm and fixed to the underlying structures. Symptoms become obvious when the lymph node begin to grow in size. The symptoms differ depending on the lymph node affected. If a lymphoma starts in the chest, the affected individual may experience a feeling of tightness or pain in the chest, breathing difficulty and persistent cough. Lymphoma involving the lymph nodes in the brain may lead to constant headache, difficulty in concentrating, changes in personality and seizures. Lymphoma within the abdomen may cause loss of appetite, unexplained weight loss, diarrhoea, constipation or a painful abdomen. A lymphoma in the groin region can lead to swelling of the legs.

Other generalised symptoms of non-Hodgkin's lymphoma include fever with chills, constant tiredness, night sweats, itching all over the body, recurrent infections, etc.

### **Diagnosis:**

Diagnosis for non-Hodgkin's lymphoma is based on a comprehensive medical history and physical examination of the individual to detect the presence of the lymph nodes. Laboratory tests such as blood and urine tests are carried out to rule out other infections. Imaging techniques such as X-rays, CT scans

and MRI scans of the chest, abdomen and pelvic region are carried out to determine the presence of the tumour.

Lymphangiogram, an X-ray technique in which a special dye is injected into the lymph nodes and the X-ray is taken to identify the location and extent of the cancer.

Lymph node and bone marrow aspiration and biopsy, a procedure in which a sample of the bone marrow or lymph node is taken with the help of a syringe and sent to the laboratory for microscopic evaluation.

### **Treatment:**

Treatment for Non-Hodgkin's lymphoma mainly depends on the stage of the cancer, age and overall health of the affected individual and severity of the symptoms. Lymphomas that are slow-growing usually do not require any treatment other than regular check-ups every few months to monitor the condition and ensure that the cancer is not progressing. The affected individual is kept under observation without any medical treatment. Tumours that are rapidly growing may require treatment such as radiotherapy (to destroy the tumour cells using high radiation) and chemotherapy (medicines to kill tumour forming cells). For cancer that is relapsing and not responding to the above treatment measures, bone marrow transplantation or stem cell transplantation should be considered. Bone marrow transplantation or stem cell transplantation is a treatment procedure which involves replacing unhealthy or destroyed stem cells in the body with normal, healthy stem cells (cells which are capable of producing other cells in the body).

### **Complications:**

The weakened immune system is in itself a complication of non-Hodgkin's lymphoma due to which the individual becomes susceptible to other infections. Possible complications of non-Hodgkin's lymphoma include spread of the cancer to different organs in the body such as liver, spleen, lungs and

brain if the condition is left untreated. Infertility is also one of the possible complications. Side effects of chemotherapy and radiotherapy  
Chances of recurrence are there even after a successful treatment.

**More Information:**

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