



# LYMPHOMA



All India Institute of Medical Sciences, New Delhi

A **CANCER** wherein our **own immune cells** grow uninhibitedly

**3<sup>rd</sup>**

most common cancer amongst **CHILDREN**

Two broad types : **Hodgkin's Lymphoma (HL)** and **Non Hodgkin's lymphoma (NHL)**

## SYMPTOMS OF LYMPHOMA

### ENLARGED



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**Unexplained fever**

**Night sweats**

**Weight loss**

### LESS COMMON SYMPTOMS

**Shortness of breath**

**Persistent cough**

**Repeated infections**

**Bone pains**

**Skin rash**

**Jaundice**

**Prolonged fever of unknown origin**



**Abdominal distension**



**Anemia, easy bleeding**



**Itchy skin**

WHAT  
TO  
DO?



### SUSPECT

- Visit a doctor if your child has any of the above symptoms



### DETECT

- Blood tests
- Chest X ray/ CT scan/PET scan
- Biopsy/Bone marrow



### CORRECT

- Chemotherapy
- Radiotherapy
- Stem cell transplantation

**KEY** : 6- 10 months of the therapy with *regular follow up*

**Believe**

**Fight**

**Win**

A Step towards

**LIFE...**

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## Hodgkin Lymphoma

### What is lymphoma?

Lymphoma is a kind of cancer that develops in lymphatic system. There are 2 main types of lymphoma: (a) Hodgkin lymphoma (HL) and (b) Non-Hodgkin lymphoma (NHL).

### What causes Hodgkin lymphoma?

Many possible causes include viruses and the environment. The Epstein-Barr virus and the HIV virus both seem to be involved in causing some cases of Hodgkin lymphoma.

### What are the symptoms of Hodgkin lymphoma?

Enlarged lymph nodes in neck, groin, or axilla, fever, fatigue, itchy skin, night sweats, unexplained weight loss

### How is Hodgkin lymphoma diagnosed ?

A biopsy from lymph node (most commonly) or other sites like bone marrow, spleen, liver is needed to make a diagnosis of Hodgkin lymphoma

### What are the stages of Hodgkin lymphoma

There are mainly 4 stages of Hodgkin lymphoma. This is based on extent of disease which is determined by investigations like computed tomography (CT) scans / PET CT scan and bone marrow biopsy

### How is Hodgkin lymphoma treated?

The treatment for HL is chemotherapy (most commonly) alone or in combination with radiation depending on stage and extent of disease.

### How long does chemotherapy take?

Chemotherapy is given in cycles. Chemotherapy is given over varying periods of time depending on the stage, varies from 2 months to 6 months.

### Can Hodgkin lymphoma be cured?

Many people with HL can be cured. If the disease is found in the early stages, it can almost always be cured. In later stages, most cases of Hodgkin lymphoma can still be cured.

### Relapsed and resistant lymphoma

If disease does relapse or is resistant to treatment, these cases are treated more intensive or high-dose chemotherapy alone or in combination with stem cell transplant

### Side-effects of chemotherapy

Nausea and vomiting, hair loss, effects on the blood, infections, sore mouth and throat, weight loss

### Side-effects of radiotherapy

Radiotherapy can cause nausea and vomiting, increased sun sensitivity, hair loss and fatigue.

### Potential late effects of treatment

Hypothyroidism (if received radiotherapy in neck region), pulmonary and cardiac toxicity, infertility, short stature, growth retardation

## Non Hodgkin Lymphoma

### What are the different types of NHL seen in children?

1. Burkitt lymphoma (BL) 2. Diffuse large B-cell lymphoma (DLBCL); 3. Lymphoblastic lymphoma (LBL); 4. Anaplastic large cell lymphoma (ALCL).

### Who gets NHL?

NHL is a relatively rare disease in children. NHL is rare in children under the age of 2 years.

### What are the symptoms of NHL in children?

General symptoms such as lump/swelling caused by enlarged lymph nodes, usually in the neck, axilla or groin, unexplained fever, fatigue, jaundice, bleeding, weight loss, abdominal pain, abdominal swelling, coughing or wheezing and shortness of breath.

### How is NHL diagnosed ?

A biopsy from lymph node (most commonly) or other sites like bone marrow, bowel, liver is needed to make a diagnosis of NHL

### What are the stages of NHL?

There are mainly 4 stages of NHL. This is based on extent of disease which is determined by investigations like computed tomography (CT) scans / PET CT scan and bone marrow biopsy

### How is NHL treated?

Most children and young people who have NHL have a high chance of going into complete remission with chemotherapy. Radiotherapy is rarely needed.

### What and how long does chemotherapy take?

The exact drug regimen and duration of the treatment depends on the type and stage of lymphoma. Chemotherapy is given in cycles. Chemotherapy is given over varying periods of time depending on the regimen and the type and stage of NHL. At the moment, the commonly used regimens take anything from a few months to 3 years.

### Burkitt lymphoma and diffuse large B-cell lymphoma (DLBCL), anaplastic large cell lymphoma (ALCL)

Children with these types of lymphoma usually have several courses of fairly intensive chemotherapy, including intrathecal chemotherapy. The exact number of courses of treatment depends on the stage of your child's lymphoma and how it responds to treatment.

### Lymphoblastic lymphoma (LBL)

Children and young people with LBL are usually treated in a similar way to those with acute lymphoblastic leukaemia (ALL). The course of treatment usually lasts for 2.5 to 3 years and is given in phases. Maintenance treatment is usually given as an outpatient and most children can return to school during this phase of treatment.

### What happens if NHL comes back or doesn't respond to treatment?

In most cases, intensive chemotherapy will cure NHL in children and young people. Sometimes NHL comes back and in a small number it doesn't respond well to the first treatment. Often a different chemotherapy regimen can be offered. A stem cell transplant may be needed.

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