INFORMATION ABOUT CHILDHOOD HODGKIN LYMPHOMA

WHAT IS HODGKIN LYMPHOMA?
Hodgkin Lymphoma is a type of cancer that develops in the lymphoid tissue. Normally, cells grow and divide to form new cells as our body needs them. When cells grow old, they die and new ones take their place. However, there are times when this orderly process goes wrong. New cells form even when the body does not need them or old cells do not die when they should.

WHAT IS THE IMMUNE SYSTEM?
The lymphoid tissue is part of our immune system. The lymphoid system includes lymph (a clear fluid containing infection fighting white cells called lymphocytes), a network of vessels that carries this fluid throughout the body, organs such as lymph nodes (small bean like structures that store filter lymph and store white blood cells), the spleen; the thymus (an organ found behind the breastbone where lymphocytes are made), and other organs such as the tonsils and adenoids.

WHAT ARE THE TYPES OF HODGKIN LYMPHOMA AND WHAT CAUSES IT?
There are several types of Hodgkin Lymphoma based on its characteristic appearance under microscopic examination, but the defining feature is the presence of an abnormal cell called the Reed-Sternberg cell. Some of these types are associated with certain presenting characteristics. With modern treatment, the significance of these differences has diminished and the effect of stage is more important.

In the majority of cases, the cause of Hodgkin Lymphoma is unknown. In some cases there is an increased incidence among families with known Hodgkin Lymphoma. It has also been seen in association with some diseases such as systemic lupus erythematosus (SLE), rheumatoid arthritis (RA) and other diseases. It has also been associated with infection with Epstein Barr Virus.

WHAT ARE THE SYMPTOMS OF HODGKIN LYMPHOMA?
Children with Hodgkin’s lymphoma may experience a variety of symptoms which may include painless enlargement of one or more lymph nodes (usually in the neck, armpits or groin), fever, malaise, weight loss, night sweats, itchiness, loss of appetite, pain with alcohol consumption, or feeling of fullness in the abdomen. These may occur for several weeks and the child must be seen by a physician if a group of these symptoms occur so that a careful evaluation can be done, since many of the symptoms can be rather vague.

HOW IS THE DIAGNOSIS OF HODGKIN LYMPHOMA MADE?
A careful health history and physical examination with specific attention to enlarged lymph nodes (neck, above the collarbones, armpits, groin), and enlarged spleen will be done. Other tests include a complete blood count, red blood cell sedimentation rate, liver and kidney function tests, pulmonary function test, an echocardiogram to determine heart function, and X-rays and or CT scan of the chest and abdomen (to look for enlarged lymph nodes, liver or spleen). Tests to look for involvement of the bones (bone scan) or other areas of the body (Magnetic Resonance Imaging or MRI, Positron Emission Tomography or PET scan) may also be requested.

A biopsy or removal of a piece of the enlarged lymph node is done and examined under the microscope to confirm the diagnosis of Hodgkin Lymphoma and to identify the particular type. This tissue may also be sent for special tests.

In certain cases, a sample of bone marrow is taken to check for bone marrow involvement. This may include aspirating the fluid inside the hip bone (bone marrow aspirate) or getting a small part of the bone (bone marrow core biopsy).

Some of the tests may take a few days for to complete and may require consultation with more than one pathologist.
HOW DOES ONE STAGE Hodgkin Lymphoma?

Staging refers to the process used to follow to find out how far the Hodgkin Lymphoma has spread and its aggressiveness. Knowing disease stage is important for treatment planning as well as knowing the child’s chance of cure.

- **Stage I**: the disease is confined to one lymph node region, or is in an organ or site other than the lymph node.
- **Stage II**: two or more lymph node regions are involved on the same side of the diaphragm (above or below the muscle separating the chest from the abdomen).
- **Stage III**: lymph node regions both above and below the diaphragm is affected.
- **Stage IV**: the disease involves other organs such as the lungs, liver, bone marrow, bone or skin.

The presence of drenching night sweats, fever with temperature above 38oC, unexplained weight loss of more than 10% of body weight over a 6 month period are carefully noted and are referred to as “B” symptoms and is added to the staging. In patients without these symptoms, the letter “A” is added to the stage.

HOW IS THE TREATMENT PLANNED AND WHO ARE INVOLVED IN THE TREATMENT?

The pediatric oncologist or hematologist, physicians who are trained in the management of children with lymphomas are primarily involved in the management of these children. At the same time, the expertise of other specialty physicians is required for complete care of the child (also called multidisciplinary care) - for diagnosis, treatment and supportive care. These physicians include radiologists, radiation oncologists, pediatric surgeons, endocrinologists, neurologists, oncology nurses, pharmacists, psychologists, social workers, physical and occupational therapists, etc. The members of the multidisciplinary care team all contribute to the treatment and support of the child.

WHAT ARE THE AVAILABLE TREATMENT OPTIONS FOR Hodgkin Lymphoma?

The treatment of Hodgkin Lymphoma includes chemotherapy, radiotherapy or a combination of both. Treatment is based on stage of the disease. The multidisciplinary team will determine the specific treatment modalities to be employed on an individual basis.

Radiation therapy uses high-energy X-rays or other radiation energy to kill cancer cells. For Hodgkin Lymphoma, several methods of delivering radiation may be employed. The type of method will vary depending on the patient’s particular need. This includes intensity modulated radiation therapy (IMRT), stereotactic radiation therapy, proton beam radiotherapy and plaque radiotherapy. Radiation therapy is administered by a radiation oncologist.

Chemotherapy is the use of drugs to kill cancer cells. It may be given by mouth or injected through a vein or muscle (systemic therapy). It may be injected into the fluid surrounding the spine in certain cases (intrathecal chemotherapy). Combinations of drugs known to kill Hodgkin Lymphoma will be given.