HODGKIN LYMPHOMA

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Hodgkin Lymphoma is sometimes referred to as simply Lymphoma or Hodgkin's Disease. It's medical name is Hodgkin Lymphoma. In Hodgkin Lymphoma, abnormal cells crowd out healthy cells, like lymphocytes (a type of white blood cell), and stop the body from being able to use the lymphocytes.
Classical Hodgkin Lymphoma (cHL) is responsible for 95% of cases for Hodgkin Lymphoma. The cancerous cells involved in cHL are called Reed-Sternberg cells and there are 4 different subtypes for cHL.
SUBTYPE 1 – NODULAR SCLEROSIS HODGKIN LYMPHOMA

• Most common subtype of cHL
• Most common in young adults, especially women
• There are bands of connective tissue in lymph nodes, as well as Reed-Sternberg cells
• Most commonly affects the chest (mediastinum) lymph nodes
SUBTYPE 2 – LYMPHOCYTE-RICH CLASSICAL HODGKIN LYMPHOMA

• About 6% of cHL patients have Lymphocyte-rich Classical Hodgkin Lymphoma
• More common in men
• It generally affects areas other than the mediastinum
• Lymph node tissue has an abundance of normal cell as well as Reed-Sternberg cells
SUBTYPE 3 – MIXED CELLULARITY HODGKIN LYMPHOMA

• Generally affects older adults
• Develops in the abdomen, with a variety of cells, along with many Reed-Sternberg cells
SUBTYPE 4 – LYMPHOCYTE-DEPLETED HODGKIN LYMPHOMA

- Least common type of cHL
- Only approximately 1% of cHL patients have Lymphocyte-Depleted Hodgkin Lymphoma
- Generally infects older people or people that are immunocompromised (People infected with HIV/AIDS or that live in non-industrialized countries)
- Lymph nodes contain almost all Reed-Sternberg cells
TYPES – NODULAR LYMPHOCYTE-PREDOMINANT HODGKIN LYMPHOMA

• About 5% of people with Hodgkin Lymphoma have this type
• Generally affects younger patients, and lymph nodes in areas like the neck, armpit or groin
• Is sometimes treated differently, with a very good prognosis
• Alike to B-cell non-Hodgkin Lymphoma, with the same protein (CD20) on surface of cells. Also, it is alike genetically to B-cell non-Hodgkin Lymphoma
• May develop into aggressive type of non-Hodgkin Lymphoma called Diffuse Large B-cell lymphoma
Lymphoma targets the lymphatic system, which is where the body fights infection and disease. The lymphatic system carries a substance called lymph throughout the body via little tubes. Lymph contains lymphocytes, which are a type of white blood cell that fight pathogens in the body. There are two types of lymphocytes; T-Cells and B-Cells. B-Cells make antibodies to fight pathogens, whereas the T-Cells viruses and foreign cells. They also trigger the B-Cells. The lymphatic system is also made up of lymph nodes, which are bean-shaped organs placed throughout the body. They are mainly in the abdomen, groins, pelvis, underarms and neck. Other areas that are affected include the spleen, thymus and tonsils. The thymus is a gland between the lungs where T-Cells mature. After puberty, it starts shrinking and is replaced by fat.
SYMPTOMS (A SYMPTOMS)

- Painless swelling in lymph nodes in neck, underarm or groin that doesn't go away after several weeks
- Unexplained fever that doesn't go away
- Unexplained weight loss
- Night sweats
- Pruritus (General itching that can be severe)
- Fatigue
- Pain in lymph nodes after drinking alcohol
- May cause shortness of breath, chest discomfort or a cough if the lymph nodes in the chest are affected
MORE SEVERE SYMPTOMS (B SYMPTOMS)

- Weight loss of more than 10% of original weight that happened during the six months before diagnosis
- Fever with temperatures about 38°C (100.4°F)
- Completely drenching night sweats, and sometimes heavy sweating during the day
INCIDENCE RATE

- ~8,500 people in the USA are going to be diagnosed with Hodgkin Lymphoma by the end of 2016 (4,790 men and 3,710 women).
- ~1,120 deaths (640 men and 480 women) will have occurred from Hodgkin Lymphoma by the end of 2016.
- Generally affects people between the ages of fifteen and fourteen and people over the age of fifty-five.
- The 5-year survival rate, after diagnosis and with treatment, is 86.2%.
- The 10-year survival rate is 80%.
- 0.5% of all new cancer cases is Hodgkin Lymphoma.
- Hodgkin Lymphoma causes 0.2% of all cancer deaths.
- ~0.2% of men are diagnosed with Hodgkin Lymphoma at some point in their life.
STAGES

Stage I - Hodgkin Lymphoma is found in one lymph node region
Stage II – Two or more lymph node regions are affected, on the same side of the diaphragm
Stage III – Lymph node regions on different sides of the diaphragm are affected
Stage IV – Spreads to organs outside of the lymphatic system
# PROGNOSIS

<table>
<thead>
<tr>
<th>Stage</th>
<th>Percentage of 5-year survival rate</th>
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<tbody>
<tr>
<td>Stage I</td>
<td>~90%</td>
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<tr>
<td>Stage II</td>
<td>~90%</td>
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<tr>
<td>Stage III</td>
<td>~80%</td>
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<tr>
<td>Stage IV</td>
<td>~65%</td>
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Some factors may lead to a poorer prognosis:

- Low blood albumin (A protein), which is less than 4g/L
- Low hemoglobin (Red blood cells), which is less than 10.5g/dL
- Being male
- Being over forty-five
- Stage IV
- A white blood cell count that is greater than 15 000/mm3
- A lymphocyte count that is either greater than 600/mm3, or greater than 8% of your white blood cell count. It may also be both
RISK FACTORS

Unavoidable:

• If you are between the ages of 15 and 40, or if you are over 55
• If you are male (Although women are more likely to develop the Nodular Sclerosis subtype)
• If anyone in your immediate family has had Hodgkin Lymphoma
• If you are infected with Epstein-Barr Virus, which causes mononucleosis (mono), or HIV

Avoidable:

There aren't many avoidable risk factors, but you can lessen your chances of developing HIV by refraining from having sex with people that are infected with HIV
For early detection, you must simply pay attention to possible symptoms, and speak to a doctor as soon as something unusual occurs. Various screening tests are available, such as:

- Biopsy
- Complete Blood Count (CBC)
- Computed Tomography (CT or CAT scan)
- Positron Emission Tomography (PET scan)
- Magnetic Resonance Imaging (MRI)

Other tests, such as lung function tests and heart evaluations, may be used if treatment affects those organs.
Chemotherapy is a common treatment for various types of cancer, and it involves using medication that is put into the blood stream to stop the cell from growing and dividing. Side effects of chemotherapy include:

- Fatigue
- Increased risk of infection
- Nausea
- Vomiting
- Peripheral neuropathy (Weakness, numbness or pain in the hands or feet)
- Hair loss
- Lack of appetite
- Constipation
The use of radiation is also a common cancer treatment, and can also cure many different types of cancer. Radiation involves the use of high energy x-rays or other particles to destroy or damage the cancer cells. Some side effects include:

- Fatigue
- Skin reaction
- Upset stomach and/or loose bowel movements
- Sore mouth and/or throat (Only if radiation is used in those areas)

Radiation treatment may also cause a secondary cancer, but rarely leads to that.
Stem cell transplantation may be used as a treatment for Hodgkin Lymphoma. It is generally only used if there is lymphoma remaining after a chemotherapy or radiation treatment. A stem cell transplantation is when a patient's bone marrow is replaced by hematopoietic stem cells, which are cells that grow into healthy bone marrow.
CURRENT RESEARCH

Today, scientists continue to study various things about Hodgkin Lymphoma and treatment methods, like:

• Treatment effectiveness
• New chemotherapy methods
• Immunotherapy (Boosting body's defenses so it can fend off the cancer itself)
• Gene profiling (Studying genes that cause Lymphoma)
• Other treatment methods
• Less-intensive treatment methods
• Palliative care (Dealing with symptoms)
STATISTICS – PERCENTAGE OF CASES BY STAGE

Percentage of Cases of Hodgkin Lymphoma by Stage

- Localized: 16%
- Regional: 40%
- Distant: 39%
- Unknown: 4%
STATISTICS – PERCENTAGE OF CASES BY AGE

Percentage of Cases of Hodgkin Lymphoma by Age

- <20: 2%
- 20-34: 6%
- 35-44: 9%
- 45-54: 11%
- 55-64: 13%
- 65-74: 14%
- 75-84: 32%
- >84: 13%
STATISTICS – PERCENTAGE OF DEATHS BY AGE
THANKS FOR WATCHING!