

Cancer disease

[Science](#), [Biology](#)



Cancer is a disease that affects millions of people worldwide. Hodgkin's disease (Lymphoma) is one of its forms. Lymphoma is essentially a type of cancer that begins in the lymphocytes (infection-fighting cells). These cells proliferate uncontrollably and are found in the lymph nodes, thymus, bone marrow, spleen and other parts of the body. When first diagnosed, information from tests is used to estimate a prognosis.

This is often referred to as the extent of the lymphoma; staging is based on how much lymphoma there is in the body and where it is located. These tests are used to determine the size of the tumor, and if it has spread and where. After a proper diagnosis, a health team will then use the stage plan treatment. In order to diagnose, health team professionals look into the number of lymph node groups that have lymphoma; and if the lymphoma has spread to other areas of the body, including vital organs and tissue.

The most common staging system for Hodgkin lymphoma (HL) is the Ann Arbor staging system. Normally, the higher the stage number, the more the disease has progressed. The first four stages are written in Roman numerals I, II, III and IV. During stage 1, lymphoma is in one group of lymph nodes, 1E: lymphoma is found in only one area outside of the lymph nodes (Lymph nodes with lymphoma are either entirely below or above the diaphragm)

Stage 2: Lymphoma is in 2 or more groups of the lymph nodes, 2E: The lymphoma has also spread into tissue nearby, Stage 3: Lymphoma is found in both above and below the diaphragm, stage 4: The disease spreads completely and found in vital areas such as the bones, liver, lungs or cerebrospinal fluid. The Cerebrospinal fluid is a colorless, see through body

fluid found in the brain and spinal cord. At this point the disease is usually fatal.

This fluid serves a vital function in cerebral blood flow and autoregulation. The most common symptoms of this stage include confusion, other behavioral and personality changes, symptoms associated with pain and pressure within the brain (such as: Drowsiness, fatigue, nausea, vomiting, and headaches) losing eyesight and experiencing seizures may also occur. There is also an alphabetical category that divides HL.

These letters may be added to the stage number: A- including no excess of sweat, weight loss, or fever. B- Inexplicable long-lasting fever, night sweats and weight loss. E- The lymphoma is found in tissue nearby the lymph nodes, commonly referred to as the 'extranodal site' this is the involvement of the spleen, stomach, nervous system, lung, skin, bone, and Waldeyer's ring (which is the collection of lymphoid tissue surrounding the tonsils.

S-The Lymphoma has fully spread to the spleen. X- Bulky disease spreads; it is essentially a larger version of the disease. On a day by day basis, research looks for better ways to stage and diagnose HL. Researchers are also trying to find ways to help doctors predict a more accurate prognosis (which, as mentioned above, is the probability rate that the cancer can successfully be treated and will not come back after treatment). Lymphocytes are one of the many white blood cells. They all have a different function. Their purpose is to fight disease and illness.

The numerical ratio of lymphocytes to monocytes in the blood may contribute to the prediction of a prognosis for different types of HL in various age groups. The use of this ratio helped doctors predict both progressive-less survival and overall survival rates. This ratio has also found that higher ratios of lymphocytes than monocytes are linked with better overall survival, especially in people younger than 60 years of age. Additional study is needed before doctors can use this ratio as a common tumor marker for predicting prognosis.

Biomarkers are molecules found in body fluids and tissues. They determine whether there are molecules found in body fluids and tissues. They determine whether there are signs of a normal or abnormal process, or a disease. A biomarker is often used to see how well the body responds to treatment for a condition. Cells, tissue, genes, fluids, chromosomes and proteins are all biomarkers. Researchers study different biomarkers to try to find which ones are helpful at finding cancer or predicting prognosis and responses to treatment.

A person with cancer usually contains abnormal amounts. For example, a protein may be found in higher than normal amounts or a chromosome that should be there is missing. At the present time, more than twenty tumor markers are being used to make cancer treatment-based decisions. Most tumor markers are concrete to one type of cancer, whereas others are related to several ones simultaneously. However some types of cancer don't have any known tumor markers yet.

In order to better understand them, health specialists are looking at genes, proteins and other properties that could in prospect be used as tumor markers. This is formally known as tumor biobanking. Newly developing tumor marker tests can help doctors identify cancer earlier, improve prognosis and predict a more accurate diagnosis. By identifying targets for targeted therapy drugs, treatment can easily be chosen. They are part of the growing of medicine.

Microarray analysis is a gene-based test that allows researchers to look at many genes at once. Analyzing many genes at the same time to see which are turned on and which are turned off is called gene expression profiling. This test can find genes that are turned on or off because of gene mutations or other genetic changes that may be related to a certain type of cancer. Doctors sometimes look at an entire gene or many genes together, along with DNA to see if there are changes.

Gene-based tests differentiate healthy genes and genes that have been mutated into cancer cells. Genes are DNA pieces that tell each cell in your body what to do. Doctors can also use genes that are changed or mutated as tumor markers. Researchers have linked some genetic changes or mutations to cancer, but we are only beginning to uncover the full picture of which genes may or may not be involved. Researchers aspire to identify the best treatments and that more of them will be tailored to each person's cancer. A liquid biopsy, tests the blood or other body fluids for cancer. (called circulating tumor DNA)

It looks for any signs of tumor in the DNA and in the blood and can be done on a sample of blood removed during a blood test. In a standard biopsy, a doctor removes tissue from the body with a procedure that usually involves surgery or a needle. Doctors then recommend treatments based on what this sample of tissue tells them about the cancer. A liquid biopsy is an exciting alternative to a standard biopsy. Researchers want to find out if using a liquid biopsy can find cancer as well as a standard biopsy does.

Even if it can, a standard biopsy will probably be used for most people because it gives doctors a lot of useful information about the cancer. Although, having a liquid biopsy may be a good option for someone who isn't well enough to have a standard biopsy. A liquid biopsy may also be used if there isn't enough tissue to remove and test or if the tumor is in a place that makes a standard biopsy hard to do. A possible advantage of liquid biopsy may even be that it could provide information about the tumor that a standard biopsy can't.

During a standard biopsy, only a small piece of the tumour is removed and tested. Tumor DNA that is circulating in the blood may contain different information that isn't seen on the tissue sample. A liquid biopsy may be most useful in looking for cancer that has come back as part of follow-up care after treatment has ended. Since tumour DNA may not be found in the blood right after treatment, it's best to test for tumor DNA a while after treatment is done.

There's also a robotic biopsy that's supposed to remove cells or tissue to look at under a microscope. A robotic biopsy is often done by laparoscopy

through five to six small surgical incisions. During robotic surgery, the doctor sits at a computer station close to the operating table, watches a monitor with live video and uses controls to move about three robotic arms that are connected to surgical instruments that remove tissue.

Imaging is a way for doctors to find the exact location of cancer and to check for cancer that has spread. This information from is used to stage cancer and help plan treatment. Imaging tests and devices, such as x-ray, MRI, ultrasound and CT scans, are a common way to zero in and confirm any diseases, including cancer. Imaging uses specific machinery and techniques to create images of the body's insides to see everything going on in it.

Research has worked hard in developing new imaging tests and continues to study modern imaging tests to see if they can find better ways to diagnose cancer, predict prognosis and plan treatment. During virtual endoscopy (an imaging test that uses a CT scan to create images of the inside of an organ) A computer reflects a three dimensional picture of the organ from several images. Doctors can use this three dimensional view to look at the lining of an organ similar to the ways they would during a regular endoscopic procedure.

The only difference is that no endoscope is inserted. Researchers are looking at virtual endoscopy as one of the more practical ways to diagnose and stage most cancers. Radiation therapy treats most types of cancer quite effectively. But like other treatments, it often comes with its side effects very much different for each person. This varies depending on the cancer type, location and the radiation therapy dose, and your health, really.

This is the reason why it is always a goal to only use if essential. To lower radiation doses, many imaging tests, such as CT scans and x-ray, use radiation. Imaging machines that use high doses of radiation, such as CT and nuclear medicine imaging tests, are being used more often than they were in the past. So researchers are trying to develop better guidelines to protect people from medical radiation, such as using these tests only during dire circumstances, tailoring radiation doses to each person based on their height and weight so that as little radiation as possible is used, using other tests without radiation such as ultrasounds.

It's crucial to keep track of how much medical radiation you are being exposed to. After a successful treatment, if the cancer comes back in the same place that the lymphoma first started, local relapse took place. It may also come back in another part of the body though. When HL relapses, it usually comes back the same way it was before. This means that a low-grade HL relapses as a low-grade lymphoma. But it is plausible for a low-grade to relapse as a high-grade.

This is considered an aggressive type of HL and means the lymphoma has not responded well to treatment and is progressive. Widowed, sixty seven year old, Concepcion Salazar was a mother of seven and grandmother of ten. They were known to be a wholesome, united family that lived through most of their days in peace and harmony. It all changed for them during February of 2007 however. Suddenly life stopped and seemed like it would never be the same again.

They were just told it was likely that their mother had cancer. Concepcion was known to be an optimist. She was religious to heart and very much believed in having faith and hoping for the best. But she couldn't deny the weight she was rapidly losing and the lumps growing all around her upper body, so it didn't take much for her to attend the follow-up of the original doctor's appointment that would lead to the news.

The trouble was that she had been having problems for well over six months maybe a year, but all those problems could be put down to common ailments. No one ever believes something like cancer could happen to them. She had slightly swollen lymph nodes that weren't quite painful but uncomfortable. As for the weight, they figured she was still coping with her husband's passing from a few months before.

During the follow-up appointment right after being sent off to Mexicali, Mexico for a blood test, Xray scan, and CT scan, the doctor right away appeared to know something was wrong. The Salazar family says she was amazing and gave them all the information they needed warmly confirming the news, all while trying to put everyone's mind at ease. They were told it was Hodgkin's Lymphoma, but to their luck it was highly treatable.

The fact that they have been told the odds were in their favor was actually an amazing thing. This gave them a positive outlook on such an ugly situation which is really the best outlook and attitude anyone could have during cancer. She had a PET scan, to see where the exact location of cancer was and if it had spread and a biopsy to remove a couple of visible lymph nodes. This was accomplished by a small operation and a surgeon.

On the fifteenth of March, they were given a proper prognosis and told she had Stage 2 of Hodgkin's Lymphoma. Treatment would consist of 6 months of chemotherapy. This was a twelve session treatment, which is essentially six four hour sessions of ABVD chemo every fourteen days. Depending on how it went, they said she might need radiotherapy after. Patricia, Concepcion's oldest daughter, says the appointment with the final results of the first treatment plan was the worst off them all.

" It's a hit-or-miss, anticipated event where you're given all the facts and told all the things you never want to hear" She says it was when they first realized how much of a toll those six months had taken on all of the family. " You're overwhelmed by it all and just hoping that after this appointment, it will all be over" But of course, Concepcion never once showed any signs of distress or admitted the emotional turmoil amongst them, she realized she was sick but was quite stubborn!

She never once complained about the pain, lethargy, loss of hair, never once refused to eat. In her mind she wasn't a victim of cancer, cancer was a victim of her! She was put into a two week steroid course with the purpose of strengthening her before the chemotherapy sessions started. They said it was a drag of a process, but to Concepcion's luck she always had one of her many family members keeping her company.

The Salazar family happily look back and say they always tried to keep a positive ambience by trying to make hospital days, not just about the hospital. They'd go back home and have family gatherings and food, a solid family support system is one of the best medicines, they say. Concepcion

had an interesting philosophy, when people asked her how she managed to always seem rather healthy and high on energy her response was always "the chemo experience is my experience, if I convince myself that I'll feel ill, I will" to everyone's surprise, she had no sickness or pain at all during her chemo.

In fact, they hardly had to spend money on strong anti-sickness/pain medications. In the early days of the sickness everyone thought their lives had stopped, but they came to find out they still had their all-smiles mother that still interacted with her grandkids, prayed, made small-talk with random strangers. She was a beam of light to this world. Concepcion passed away on April 15th, 2008. About less than a month before, Mexicali experienced a 7.2 earthquake.

Because of this, machinery used for checkups weren't working properly, and they missed her next appointment that would detect the cancer rapidly spreading. It had spread to her spinal and cerebral fluid, and she passed away in her sleep. In spite of her passing, Concepcion's story will always be an inspirational one. A positive attitude and support system goes a long way. Remember, we aren't victims of cancer, it's the other way around.

Concepcion was lucky to have the people she cared about with her, but sometimes, even when you're with your loved ones, you might feel misunderstood and alone. People may miss the support they got from their health care team. This might be because many people have a sense that their safety net has been pulled away. It's important to actively look for

emotional support in different ways. It could help you to talk to other people have or have had cancer, or to join a support group.

Or, you may feel better talking to a counselor, church member, close friend, family member. There aren't a lot of support groups in my area, but there are in more prominent areas. There are also plenty online resources. Don't be afraid to seek for what it is you need.