



GLOSSARY

The following are some terms you may hear at diagnosis and throughout your treatment journey.

General

Acquired Mutation. Acquired (or somatic) mutation occurs at some time during a person's life and is present only in certain cells in the body. It is not inherited from a parent. The mutation can be caused by environmental factors or may be caused by a mistake during cell division.

Blast Cell. A young (or immature) blood cell.

Bone Marrow. A spongy tissue in the hollow central cavity of the bones that is the site of blood cell formation.

Cardiovascular Risk Factors. Factors that raise a person's risk of coronary heart disease and heart attack. Some risk factors include family history, age, tobacco exposure, high blood pressure, high cholesterol, physical inactivity and diabetes.

Chromosome. Threadlike structures within cells that carry genes in a linear order. Human cells have 23 pairs of chromosomes: chromosome pairs 1 to 22 and one pair of sex chromosomes (XX for females and XY for males).

Chronic. A disease that persists or progresses over a long period of time.

Clinical Trial. Carefully planned and monitored research study that tests how well new medical approaches work in patients. The goal of clinical trials for blood cancers is to develop new treatments, improve quality of life and to increase survival.

Clonal disorder. A disorder that begins with one or more changes to the DNA of a single hematopoietic stem cell in the bone marrow.

Cytokine. A type of protein that affects the immune system. Some cytokines stimulate the immune system and others slow it down.

DNA. Deoxyribonucleic acid. The genetic matter found in all cells. DNA is passed to new cells during the process of cell division. A change or mutation in the DNA can lead to cell death, changes in the cell function, and in some cases, cancer.

Diagnosis. To detect a disease from a person's signs, symptoms and lab test results. The doctor diagnoses a patient.

Eosinophil. A type of white blood cell that participates in allergic reactions and helps fight certain parasitic infections.

Erythrocyte. See Red Blood Cell.

Erythropoietin (EPO). A hormone needed for normal production of red blood cells. It is made mainly by the kidneys and is released into the blood due to decreased blood oxygen levels. Synthetic EPO is available as erythropoiesis-stimulating agents (ESAs).

Hematologist. A doctor who specializes in the treatment of blood cell diseases.

Hematopathologist. A doctor who has special training in identifying diseases of the blood cells by examining blood, bone marrow and lymph and other tissues under a microscope.

Hematopoiesis. The formation and development of new blood cells in the bone marrow.

Hematopoietic Stem Cell. An immature cell that can develop into all types of blood cells including red blood cells, white blood cells and platelets. Also called a blood stem cell.

Hemoglobin. The iron-containing substance in red blood cells that carries oxygen around the body. Hemoglobin concentration decreases when there is a reduction in the number of red blood cells. This condition is called “anemia.”

Human Leukocyte Antigen (HLA). Protein on the surface of cells that help the body distinguish its own cells from foreign cells. HLAs make up an individual’s tissue type, which varies from person to person. HLA tests are done before an allogeneic stem cell transplant to determine if the tissues match between the donor and the person receiving the transplant

Hypercellularity. An abnormal excess of cells, as in bone marrow.

Karyotype. An organized profile of a person’s chromosomes. It exhibits the size, shape and number of chromosomes in a sample of cells.

JAK2 (Janus kinase) Gene. This gene provides instructions for making a protein that promotes the growth and division of cells. The JAK2 protein is important for controlling the production of blood cells.

Lactate Dehydrogenase (LDH). One of a group of enzymes found in the blood and other body tissues that is involved in cell energy production. An increased amount of LDH in the blood may be a sign of tissue damage and some types of cancer or other disorders.

Leukocyte. See White Blood Cell.

Mutation. A change in the DNA sequence of a cell. A mutation may be caused by a mistake in cell division, or it may be caused by contact with a DNA-damaging substances in the environment.

Neutrophil. The principal phagocyte (microbe-eating cell) in the blood. The neutrophil is the main cell that combats infections.

Oncologist. A doctor who has special training in diagnosing and treating cancer.

Pathologist. A doctor who identifies disease by studying tissues under a microscope.

Peripheral Blood. The blood that circulates throughout the body in the arteries, capillaries and veins.

Platelet. A small colorless piece of cell that helps control bleeding. Platelets are found in the blood and spleen. They help form blood clots to stop bleeding. Also known as “thrombocyte.”

Prognosis. The probable outcome or expected course of a disease. The likelihood of recovery or recurrence of disease.

Red Blood Cell. A type of blood cell that carries hemoglobin, which binds oxygen and carries it to the tissues of the body. Red blood cells make up about 40 to 45 percent of the volume of the blood in healthy individuals. Also called “erythrocyte.”

Refractory. A disease that does not respond to treatment.

Risk Factor. Something that increases a person’s chance of developing a disease. Risk factors can be genetic (inherited), lifestyle related, or environmental.

Somatic Cell Mutation. A mutation that occurs at some time during a person’s life and is present only in certain cells in the body. It is not inherited from a parent. The mutation may be caused by environmental factors or may be caused by a mistake during cell division.

Spleen. An organ in the left upper portion of the abdomen just under the left side of the diaphragm. The spleen filters blood, stores blood cells and destroys old blood cells.

Stem Cell. A primitive cell from which other types of cells develop. In the bone marrow, blood-forming stem cells mature into red blood cells, white blood cells and platelets. Stem cells are mostly found in the bone marrow, but some leave and circulate in the bloodstream. Stem cells can be collected, preserved and used for stem cell therapy.

General

Thrombocyte. See Platelet.

Thrombus. A blood clot that forms and remains on the wall of a blood vessel or in the heart. A thrombus is formed when platelets and other cells stick together. A thrombus may block the flow of blood in the blood vessel depriving tissues of normal blood flow and oxygen. An embolism is a blood clot that travels from the site where it formed to another location in the body.

Uric Acid. A waste product that is made and released into the blood when cells and other substances in the body break down. Most uric acid dissolves in blood and travels to the kidneys where it is released in the urine. Abnormal buildup of uric acid in the body may cause a condition called “gout.”

White Blood Cell. A type of blood cell that is part of the body’s immune system. There are five major types of infection-fighting white blood cells in the blood: neutrophils, eosinophils, basophils, monocytes and lymphocytes. White blood cells are also called “leukocytes.”

Tests and diagnostic treatments

Bone Marrow Aspiration. A test that examines liquid bone marrow cells for disease. A sample is usually taken from the patient’s hip bone. After medication is given to numb the skin, the liquid sample is removed using a special needle inserted through the bone into the bone marrow. Usually this test is done at the same time as a bone marrow biopsy.

Bone Marrow Biopsy. A test to examine marrow cells to detect cell abnormalities. This test differs from a bone marrow aspiration in that a small amount of bone filled with marrow is removed, usually from the hip (pelvic) bone. After medication is given to numb the skin, a special hollow biopsy needle is used to remove a core of bone containing marrow. Bone marrow aspiration and bone marrow biopsy may be done in the doctor’s office or in a hospital. The two tests are almost always done together.

Complete Blood Count (CBC). A lab test that measures the number of red blood cells, white blood cells and platelets in the blood. It also measures the amount of hemoglobin (substance in the blood that carries oxygen) and the hematocrit (the amount of whole blood that is made up of red blood cells).

Comprehensive Metabolic Panel. A group of blood tests that measure the levels of certain substances released into the blood by organs and tissues in the body. These substances include electrolytes (such as sodium, potassium and chloride), fats, proteins, glucose (sugar) and enzymes.

Magnetic Resonance Imaging (MRI). A test that uses magnetic fields and radio waves to create images of the body’s organs and tissues. It differs from the CT scan in that the patient is not exposed to x-rays. Healthcare professionals use MRI to measure the size, or a change in size, of organs such as the lymph nodes, liver and spleen or tumor masses.

Molecular Testing. A test that looks for mutations in genes. DNA sequencing is a type of molecular test that checks for specific mutations in cells.

Peripheral Blood Smear. A procedure in which a sample of blood is examined under a microscope to count different blood cells and to see whether the cells appear normal.

Ultrasound. A procedure that uses high-energy sound waves to examine tissues and organs inside the body. The sound waves make echoes that form pictures of the tissues and organs on a computer screen.

Treatments

Allogeneic Stem Cell Transplantation. A treatment that uses donor stem cells to restore a patient's marrow and blood cells. For more information, see the free LLS booklet *Blood and Marrow Stem Cell Transplantation* by visiting www.LLS.org/booklets.

Chemotherapy. Treatment that stops the growth of cancer cells, either by killing the cancer cells or by stopping them from dividing.

Cytoreductive Therapy. Treatment that reduces the number of cells in the body. In MPNs, cytoreductive therapy is prescribed to reduce the number of blood cells.

Phlebotomy. A procedure in which extra red blood cells are removed from the blood via a vein.

Plateletpheresis. A procedure during which blood is drawn and passed through a cell-separating machine that only collects the platelets. The remaining blood components are returned back to the body.

Reduced-Intensity Stem Cell Transplantation. A type of allogeneic transplantation. In reduced-intensity stem cell transplantation (also called “nonmyeloablative stem cell transplantation”), patients receive lower doses of chemotherapy drugs and/or radiation to prepare for the stem cell transplantation. This protocol may be safer than an allogeneic stem cell transplant—especially for older patients.

Splenectomy. A surgical procedure in which the spleen is removed.

Radiation Therapy. The use of high-powered beams, such as X-rays, to kill cells. Radiation may be useful for a small number of patients to treat an enlarged spleen, bone pain and tumors outside the marrow.

Transfusion. A procedure in which whole blood or parts of blood is placed into a patient's bloodstream.

Conditions

Acute Myeloid Leukemia (AML). A rapidly progressing blood cancer that produces too many myeloblasts (immature myeloid cells).

Chronic Myeloid Leukemia (CML). A slow-growing cancer in which too many myeloblasts are found in the blood and bone marrow. Myeloblasts are a type of immature white blood cell. Chronic myeloid leukemia may get worse over time as the number of myeloblasts increases in the blood and bone marrow. For more information, see the free LLS booklet *Chronic Myeloid Leukemia* by visiting www.LLS.org/booklets.

Essential Thrombocythemia (ET). A rare disorder which the bone marrow produces too many platelets.

Myelodysplastic Syndrome (MDS). A type of cancer in which the bone marrow does not make enough healthy blood cells. When there are fewer healthy blood cells, anemia, infection or bleeding may occur.

Myelofibrosis (MF). A serious disorder in which abnormal blood cells and fibers build up inside the bone marrow.

Myeloproliferative Neoplasm (MPN). A blood disorder in which too many of certain types of blood cells are made in the bone marrow. Myeloproliferative neoplasms usually become worse over time as the number of extra cells build up in the bone marrow and blood. Examples of MPNs include polycythemia vera, myelofibrosis and essential thrombocythemia.

Polycythemia Vera (PV). A disorder in which the bone marrow produces too many red blood cells, causing the blood to thicken. The number of white blood cells and platelets may also increase.

Anemia. A health condition in which the number of red blood cells is below normal. This results in a diminished ability of the blood to carry oxygen. Severe anemia can cause a pale complexion, weakness, fatigue and shortness of breath.

Constitutional Symptoms. Fatigue, weight loss, night sweats, and low-grade fever.

Deep Vein Thrombosis (DVT). The formation of a blood clot in a deep vein of the lower leg or pelvis.

Erythromelalgia. Burning or throbbing pain in the feet or hands, sometimes worsened by heat or exercise or when the legs are hanging down for long periods. The skin of the extremities may have a patchy reddish color. This is caused by diminished blood flow to the toes and fingers (microcirculation).

Extramedullary Hematopoiesis. The formation and development of blood cells outside the bone marrow. This may create clumps (tumors) of developing blood cells in other areas of the body. These tumors may cause such problems as bleeding in the gastrointestinal (GI) system, coughing or spitting up blood, compression of the spinal cord or seizures.

Gout. A condition caused by increased levels of uric acid in the blood, joints and tissues. The buildup of uric acid causes inflammation and arthritis.

Hematocrit. The percentage of whole blood that is made up of red blood cells.

Hemorrhage. Loss of blood from damaged blood vessels. A hemorrhage usually involves a lot of bleeding in a short period of time.

Hepatomegaly. An enlarged liver.

Leukocytosis. An increase in the total number of white blood cells.

Neutropenia. A condition in which there is a lower than expected number of neutrophils (a type of white blood cells).

Portal Hypertension. High blood pressure in the portal vein that carries blood to the liver from the stomach, small and large intestines, spleen, pancreas and gallbladder. Portal hypertension may be caused by increased blood flow from an enlarged spleen. It may also be caused by a blood clot that develops in the portal vein.

Pruritus. Severe itching.

Pulmonary Embolism. A condition in which one or more arteries in the lungs become blocked by a blood clot.

Splenomegaly. An enlarged spleen.

Stroke. A loss of blood flow to part of the brain, which damages brain cells. Strokes are caused by blood clots and broken blood vessels in the brain. Symptoms of a stroke include dizziness, numbness, weakness on one side of the body, and problems with talking, writing, or understanding language.

Thrombocythemia. A condition characterized by too many platelets in the blood.

Thrombocytopenia. A condition characterized by too few platelets in the blood.

Thrombosis. The formation or presence of a blood clot (thrombus) inside a blood vessel.

Transient Ischemic Attack (TIA). A temporary blockage of the blood flow to the brain. Symptoms of a TIA are like other stroke symptoms, but do not last as long.

Vertigo. A sensation of whirling and loss of balance. A more severe feeling of dizziness.

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