

Glossary of Terms Relating to Kidney Cancer

Abdomen: The area of the body that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. The kidneys are located behind the abdominal cavity.

Active surveillance: Closely monitoring a patient's condition but withholding treatment until symptoms appear or change.

Acute: Symptoms or signs that begin and worsen quickly.

Adjuvant: the use of other therapies after performing surgery for cancer. Adjuvant therapies are given when there are no obvious cancer cells remaining but a patient is determined to have a higher risk of having a recurrence. It is given in order to reduce the risk of a cancer recurrence.

Adrenal gland: A small gland that makes steroid hormones and stress hormones, including adrenaline. These hormones help control heart rate, blood pressure, and other important body functions. There is one adrenal gland on top of each kidney.

Afinitor (RAD001, everolimus): A drug used to treat advanced kidney cancer. It is also being studied in the treatment of other types of cancer. Afinitor stops cancer cells from dividing and may block the growth of new blood vessels that tumours need to grow. It also decreases the body's immune responses. Afinitor is a drug that is taken orally.

Anemia: A condition in which the number of red blood cells in the body is below normal.

Angiogenesis: Blood vessel formation. Tumour angiogenesis is the formation of new blood vessels that grow into the tumour, giving it nutrients and oxygen to assist its growth.

Anti-angiogenesis: Prevention of the growth of new blood vessels required for cancer growth.

Anorexia: An abnormal loss of the appetite for food.

Arterial embolization: The blocking of an artery by a plug of foreign material. This can be done as treatment to block the flow of blood to a tumour and is sometimes done prior to kidney surgery.

Asymptomatic: Having no symptoms of disease.

Baseline: An initial measurement that is taken at an early time point or prior to the start of therapy to represent a beginning condition, and is used for comparison over time to

look for changes. For example, the size of a tumour will be measured before treatment (baseline) and then afterwards to see if the treatment had an effect.

Benign: Not cancerous. Benign tumours may grow larger but do not spread to other parts of the body. These tumours are also called non-malignant.

Bilateral: Affecting both sides of the body.

Biologic therapy (immunotherapy): Treatment to boost or restore the ability of the immune system to fight cancer, infections, and other diseases. Biologics get their name by their production from biologic (as opposed to chemical) processes. Agents used in biological therapy include monoclonal antibodies, growth factors, and vaccines. These agents may also have a direct anti-tumour effect.

Biopsy: The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue. There are many different types of biopsy procedures. The most common types include: (1) incisional biopsy, in which only a sample of tissue is removed; (2) excisional biopsy, in which an entire lump or suspicious area is removed; and (3) needle biopsy, in which a sample of tissue or fluid is removed with a needle. When a wide needle is used, the procedure is called a core biopsy. When a thin needle is used, the procedure is called a fine-needle aspiration biopsy.

Birt-Hogg-Dube Syndrome: An inherited condition in which benign tumours develop in hair follicles on the head, chest, back, and arms. People who have this disorder are at increased risk of developing kidney cancer and benign kidney tumours.

Bone scan: A technique used to create images of bones. A small amount of radioactive material is injected into the bloodstream and it collects in the bones at any site of increased metabolic activity. These sites can represent injury, infection, inflammation (arthritis) or cancer.

Cancer: A term for diseases in which an uncontrolled growth of abnormal cells happens which can invade and destroy nearby healthy tissues. Cancer cells can also spread to other parts of the body through the blood and lymph systems.

Carcinoma: Cancer that begins in the skin or in tissues that line or cover internal organs.

Cell: The individual unit that makes up the tissues of the body.

Chemotherapy: Treatment with drugs that kill cancer cells.

Chromophobe: A type of kidney cancer. This type accounts for only 5% of all kidney cancers. Chromophobe kidney cancer rarely spreads outside of the kidneys.

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

Clear cell: A type of cell that looks clear inside when viewed under a microscope. Clear cell renal cell carcinoma is the most common type of kidney cancer.

Clinical trial: A type of research study that tests how well new medical approaches work in people. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease.

Collecting duct (renal collecting tubule): The last part of a long, twisting tube that collects urine from the nephrons (cellular structures in the kidney that filter blood and form urine) and moves it into the renal pelvis and ureters.

Collecting duct carcinoma: A rare type of kidney cancer that arises in the collecting ducts of the kidneys.

Complete blood count (CBC): A test to check the number of red blood cells, white blood cells, and platelets in a sample of blood.

Complete remission (complete response): The disappearance of all signs of cancer in response to treatment. This does not always mean the cancer has been cured.

Concurrent treatment: A treatment that is given at the same time as another.

Contralateral: Having to do with the opposite side of the body.

Creatinine: A compound that is excreted from the body in urine. Creatinine levels are measured to monitor kidney function.

Cryoablation (cryosurgery, cryotherapy): A procedure in which tissue is frozen to destroy abnormal cells. This is usually done with a special instrument that contains liquid nitrogen or liquid carbon dioxide. A kidney tumour can be treated by positioning of the instrument by laparoscopy or sometimes with x-ray guidance.

CT scan (CAT scan, computed tomography scan, computerized axial tomography scan, computerized tomography): A series of detailed pictures of areas inside the body taken from different angles using x-rays.

Cytokine therapies: Cytokines are substances made by cells of the immune system in response to infection, injury or tumour. Some cytokines can boost the immune response and others can suppress it. Cytokines can also be made in the laboratory and used in the treatment of various diseases, including cancer. Interferon and interleukin-2 are types of cytokine therapies used in the treatment of kidney cancer.

Debulking: Surgical removal of as much of a tumour as possible. Debulking may increase the chance that chemotherapy or radiation therapy will kill all the tumour cells. It may also be done to relieve symptoms or help the patient live longer.

Dialysis: The process of filtering the blood using a machine when the kidneys are not able to cleanse it.

Disease progression: Cancer that continues to grow or spread.

Edema: Swelling caused by excess fluid in body tissues.

Fatigue: A condition marked by extreme tiredness and inability to function due to the lack of energy.

Gadolinium: A metal element that is used in magnetic resonance imaging (MRI) as a contrast agent, which helps show abnormal tissue in the body during imaging.

Gamma Knife therapy: A treatment using gamma rays, a type of high-energy radiation that can be tightly focused on small tumours or other lesions in the head or neck, so that very little normal tissue receives radiation. The gamma rays are aimed at the tumour from many different angles at once, and deliver a large dose of radiation exactly to the tumour in one treatment session. This procedure is a type of stereotactic radiosurgery. Gamma Knife therapy is not a knife and is not surgery. Gamma Knife is a registered trademark of Elekta Instruments, Inc.

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein.

Genetic: Inherited; having to do with information that is passed from parents to offspring through genes in sperm and egg cells.

Gerota's fascia (Gerota's capsule, renal fascia): A fibrous envelope of tissue that surrounds the kidney.

Grade: A description of a tumour based on how abnormal the cancer cells look under a microscope and how quickly the tumour is likely to grow and spread. Grading systems are different for each type of cancer. For kidney cancer, doctors use the Fuhrman nuclear grading system.

Grading: A system for classifying cancer cells in terms of how abnormal they appear when examined under a microscope. The grading system is used to provide information about the probable growth rate of the tumour and its tendency to spread.

Hand/foot syndrome (palmar-plantar erythrodysesthesia): A condition marked by pain, swelling, numbness, tingling, or redness of the hands or feet. It sometimes occurs as a side effect of certain anticancer drugs.

Hematogenous: Originating in the blood or spread through the bloodstream.

Hematuria: Blood in the urine. Sometimes the blood can only be seen by using a microscope.

Hemoglobin: The part of red blood cells that carries oxygen to the tissues of the body. Used as a blood test to measure a person's red blood cell content.

Hereditary: Transmitted from a parent to his/her child by information contained in the genes.

Immune system: The complex group of organs, tissues and cells that defends the body against infections and other diseases.

Immunotherapy: Treatment to boost or restore the ability of the immune system to fight cancer, infections, and other diseases. Agents used in immunotherapy include monoclonal antibodies, growth factors, and vaccines. These agents may also have a direct anti-tumour effect.

Inferior vena cava (IVC): A large vein that empties into the heart. It carries blood from the legs and from organs in the abdomen and pelvis.

Insomnia: Difficulty in going to sleep or getting enough sleep.

Interferon: A biological response modifier (a substance that can improve the body's natural response to infections and other diseases). Interferons interfere with the division of cancer cells and can slow tumour growth. The body normally produces these substances. They are also made in the laboratory to treat cancer and other diseases.

Interleukin: One of a group of related proteins made by leukocytes (white blood cells) and other cells in the body. Interleukins regulate immune responses. Interleukins made in the laboratory are used to boost the immune system in cancer therapy. An interleukin is a type of cytokine.

Kidney: One of a pair of organs located behind the abdominal cavity. Kidneys remove waste from the blood (as urine), produce erythropoietin (a substance that stimulates red blood cell production), and play a role in blood pressure regulation.

Laparoscope: A thin telescope that can be passed through the body wall and is used to look at tissues and organs inside the abdomen. A laparoscope has a light and a lens.

Laparoscopy: A procedure that uses a laparoscope to examine the organs inside the abdomen. Other tools are also passed through the abdominal wall to remove tissue (such as a kidney containing cancer).

Lesion: An area of abnormal tissue. A lesion may be benign (not cancer) or malignant (cancer).

Localized: Restricted to the primary (original) site, without evidence of spread. A localized kidney cancer is confined to the kidney.

Locally advanced cancer: Cancer that has spread from where it originally started to nearby tissue or lymph nodes.

Lymph (lymphatic fluid): The clear fluid that travels through the lymphatic system and carries cells that help fight infections and other diseases.

Lymph node (lymph gland): A rounded piece of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (a type white blood cell). They are located along lymphatic vessels.

Lymphatic system: The tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes, and lymphatic vessels (a network of thin tubes that carry lymph and white blood cells). Lymphatic vessels branch, like blood vessels, into all the tissues of the body.

Malignancy: A tumour made up of cancer cells.

Malignant: Cancerous. Malignant tumours can invade and destroy nearby tissue and also spread to other parts of the body.

Margin: The edge or border of the tissue removed in cancer surgery. The margin is described as negative or clean when the pathologist finds no cancer cells at the edge of the tissue, suggesting that all of the cancer has been removed. The margin is described as positive or involved when the pathologist finds cancer cells at the edge of the tissue, suggesting that all of the cancer may not have been removed.

Mass: a lump in the body. It may be caused by the abnormal growth of cells, a cyst, hormonal changes, or an immune reaction. A mass may be benign (not cancer) or malignant (cancer).

Measurable disease: A tumour that can be accurately measured in size. This information can be used to judge response to treatment.

Metastasis: The spread of cancer from its original (primary) site to other parts of the body. A tumour formed by cells that have spread is called a “metastatic tumour” or a “metastasis.” The metastatic tumour contains cells that are like those in the original (primary) tumour. The plural form of metastasis is metastases.

Metastasize: To spread from one part of the body to another. When cancer cells metastasize and form secondary tumours, the cells in the metastatic tumour are like those

in the original (primary) tumour. So if the original (primary) tumour is kidney cancer and it spreads to the lungs, the metastasis in the lungs is kidney cancer and not lung cancer.

Micrometastasis: Small numbers of cancer cells that have spread from the original (primary) tumour to other parts of the body but are too few to be picked up in a screening or diagnostic test.

Molecule: The smallest particle of a substance that has all of the physical and chemical properties of that substance. Molecules are made up of one or more atoms. Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms.

MRI: A type of scan that uses a magnet, radio waves and a computer to make detailed pictures of the inside of the body. These pictures can show the difference between normal and diseased tissue.

Mucositis: A complication of some cancer therapies in which the lining of the digestive system becomes inflamed: often seen as sores in the mouth.

Multifocal: Cancer in which there is more than one tumour, each of which has arisen from one original (primary) tumour.

Nausea: A feeling of sickness or discomfort in the stomach that may come with an urge to vomit. Nausea is a side effect of some types of cancer therapy.

NED (complete remission): no evidence of disease on radiological imaging.

Needle biopsy: The removal of tissue or fluid with a needle for examination under a microscope. When a wide needle is used, the procedure is called a core biopsy. When a thin needle is used, the procedure is called a fine-needle aspiration biopsy.

Neoadjuvant therapy: Treatment given as a first step to shrink a tumour before the main treatment (which is usually surgery) is given.

Neoplasm: An abnormal growth of cells. This term usually refers to a malignant tumour.

Nephrectomy: The removal of the kidney by surgery.

Radical nephrectomy: The surgical removal of the whole kidney and the fat surrounding the kidney.

Partial nephrectomy: The surgical removal of the portion of the kidney containing the tumour along with a small amount of normal (cancer-free) kidney that is surrounding the tumour.

Nephrons: Cellular structures in the kidney that filter blood and form urine.

Nexavar (BAY 43-9006, sorafenib, sorafenib tosylate): A drug used to treat advanced kidney cancer. It is also being studied in the treatment of other types of cancer. Nexavar stops cells from dividing and may prevent the growth of new blood vessels that tumours need to grow. It is a type of kinase inhibitor and a type of antiangiogenesis agent. Nexavar is a drug that is taken orally.

Non-malignant (benign): Not cancerous. Non-malignant tumours may grow larger but do not spread to other parts of the body.

Nuclear grade: An evaluation of the size and shape of the nucleus in tumour cells and the percentage of tumour cells that are in the process of dividing or growing. Cancers with low nuclear grade grow and spread less quickly than cancers with high nuclear grade. In kidney cancer, the Fuhrman nuclear grading system is used to grade the cancer.

Observation (active surveillance, expectant management, watchful waiting): Closely monitoring a patient's condition but withholding treatment until symptoms appear or change.

Oncogene: A gene that is a changed form of a gene involved in normal cell growth. Oncogenes may cause the growth of cancer cells. Changes in genes that become oncogenes can be inherited or caused by being exposed to substances in the environment that cause cancer.

Oncologist: A doctor who specializes in the diagnosis and treatment of cancer. Some oncologists specialize in a particular type of cancer treatment.

Medical Oncologist: A specialist in oncology who deals with the diagnosis and medical treatment of cancer.

Radiation Oncologist: A specialist in oncology who deals with the diagnosis and radiation treatment of cancer.

Surgical Oncologist: A specialist in oncology who deals with the diagnosis and surgical treatment of cancer.

Oncology: The type of medical practice that specializes in the diagnosis and treatment of cancer.

Oncology nurse: A nurse who specializes in treating and caring for people who have cancer.

Palliation: Relief of symptoms and suffering caused by cancer and other life-threatening diseases. Palliation helps a patient feel more comfortable and improves the quality of life, but does not cure the disease.

Palliative care (supportive care, symptom management): Care given to improve the quality of life of patients who have a serious or life-threatening disease. The goal of palliative care is to prevent or treat as early as possible the symptoms of a disease, side effects caused by treatment of a disease, and psychological, social, and spiritual problems related to a disease or its treatment.

Palliative therapy: Treatment given to relieve the symptoms and reduce the suffering caused by cancer and other life-threatening diseases. Palliative cancer therapies are given together with other cancer treatments, from the time of diagnosis, through treatment, survivorship, recurrent or advanced disease, and at the end of life.

Papillary: The second most common type of kidney cancer. Approximately 10-15% of kidney cancers are this subtype.

Partial response (partial remission): A decrease in the size of a tumour or in the extent of cancer in the body, in response to treatment.

Pathologist: A doctor who identifies diseases by studying cells and tissues under a microscope.

Pazopanib (GW786034, pazopanib hydrochloride): A substance being studied in the treatment of cancer. It is a type of protein tyrosine kinase inhibitor and angiogenesis inhibitor. Pazopanib is a drug that is taken orally.

Percutaneous: Passing through the skin.

Placebo: An inactive substance or treatment that looks the same as, and is given the same way as, an active drug or treatment being tested. The effects of the active drug or treatment are compared to the effects of the placebo during clinical trials.

Primary tumour: The originating site of tumour.

Prognosis: The likely outcome or course of a disease; the chance of recovery or recurrence. Some of the factors that affect a patient's prognosis are the type of cancer, its stage, its grade, and its response to treatment.

Progression: The course of a disease, such as cancer, as it becomes worse or spreads in the body.

Progressive disease: Cancer that is growing, spreading, or getting worse.

Proteins: A molecule made up of amino acids that are needed for the body to function properly. Proteins are the basis of body structures such as skin and hair and of substances such as enzymes, cytokines, and antibodies.

Proteinuria: A state when proteins are found in the urine.

Protocol: A detailed plan of a scientific or medical experiment, treatment, or procedure. In clinical trials, it states what the study will do, how it will be done, and why it is being done. It explains how many people will be in the study, who is eligible to take part in it, what study drugs or other interventions will be given, what tests will be done and how often, and what information will be collected.

Radiation Therapy (Radiotherapy): The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells and shrink tumours. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy). Systemic radiation therapy uses a radioactive substance, such as a radio-labelled monoclonal antibody, that travels in the blood to tissues throughout the body.

Radiofrequency Ablation (RFA): A procedure that uses radio waves to heat and destroy a tumour. The radio waves travel through electrodes (small devices that carry electricity). Radiofrequency ablation may be used by laparoscopy, by ultrasound or by x-ray guidance.

Radiologist: A doctor who specializes in diagnosing disease by using procedures such as x-rays, ultrasounds, CT scans and MRI.

Radiology: The use of radiation (such as x-rays) or other imaging technologies (such as ultrasound and magnetic resonance imaging) to diagnose or guide the treatment of disease.

Recurrence (Recurrent cancer): Cancer that has come back usually after a period of time during which the cancer could not be detected. The cancer may come back to the same place as the original (primary) tumour or to another place in the body.

Red blood cell (RBC, erythrocyte): A cell that carries oxygen to all parts of the body.

Regression: A decrease in the size of a tumour or in the extent of cancer in the body.

Relapse: The return of signs and symptoms of cancer after a period of improvement.

Remission: A period of time when the cancer is under control and the person does not have any signs and symptoms of the cancer. In partial remission, some, but not all, signs and symptoms of cancer have disappeared. In complete remission, all signs and symptoms of cancer have disappeared, although cancer still may be in the body.

Renal: Having to do with the kidneys.

Renal Cell Carcinoma: The most common kind of kidney cancer. It arises in the small tubes of the kidneys. In the majority of cases, this is the clear cell type.

Residual disease: Cancer cells that remain after attempts to remove the cancer have been made.

Response: In medicine, an improvement related to treatment.

Second primary cancer: Refers to a new primary cancer in a person with a history of cancer.

Secondary cancer: A term that is used to describe a cancer that has spread from the place in which it started to other parts of the body. This term is also used to describe a second primary that has been caused by the treatment of the first cancer.

Sequential treatment: One treatment given after the other.

Side effect: An unwanted or undesirable effect resulting from treatment. Some common side effects of cancer treatment are fatigue, pain, nausea, vomiting, decreased blood cell counts, hair loss, and mouth sores.

SRT: Stereotactic radiation therapy. One form of SRT is called "Gamma Knife". Not a knife, but a form of targeted radiation.

Stable disease: Cancer that is neither decreasing nor increasing in extent or severity.

Stage: The extent of a cancer in the body. Staging is usually based on the size of the tumour, whether lymph nodes contain cancer, and whether the cancer has spread from the original (primary) site to other parts of the body.

Staging: Performing exams and tests to learn the extent of the cancer within the body, especially whether the disease has spread from the original site to other parts of the body.

Surgery: A procedure to remove or repair a part of the body or to find out whether disease is present. An operation.

Survivor: One who remains alive and continues to function during and after overcoming a serious hardship or life-threatening disease. The term cancer survivor includes anyone who has been recently diagnosed with, is living with, or has recovered from cancer.

Survivorship: In cancer, survivorship covers the physical, psychosocial, and economic issues of cancer, from diagnosis until the end of life. It focuses on the health and life of a person with cancer beyond the diagnosis and treatment phases. Survivorship includes issues related to the ability to get health care and follow-up treatment, late effects of treatment, second cancers, and quality of life. Family members, friends, and caregivers are also part of the survivorship experience.

Sutent (SU011248, SU11248, sunitinib malate, sunitinib): A drug used to treat advanced kidney cancer and is being studied in the treatment of other types of cancer. It is a type of tyrosine kinase inhibitor, a type of vascular endothelial growth factor (VEGF) receptor inhibitor, and a type of angiogenesis inhibitor. Sutent is a drug that is taken orally.

Symptom: An indication that a person has a condition or disease. Some examples of symptoms are headache, fever, fatigue, nausea, vomiting, and pain.

Systemic: Affecting the entire body.

Systemic therapy: Any treatment that reaches cells all over the body. Chemotherapy and targeted therapy are types of systemic therapy.

Targeted therapy: A type of treatment that uses drugs or other substances, such as monoclonal antibodies, to identify and attack specific cancer cells.

Tissue: A group or layer of cells that work together to perform a specific function.

Torisel (CCI-779, temsirolimus): An intravenous drug used to treat advanced renal cell carcinoma (a type of kidney cancer). It is also being studied in the treatment of other types of cancer. Temsirolimus blocks a protein involved in cell division, and may kill cancer cells.

Toxicity: The degree to which a substance can have harmful effects.

Transitional cell carcinoma (TCC, urothelial cell carcinoma, UCC): A type of cancer that occurs in the urinary system arising from the transitional epithelium, a tissue that lines the inner surface of the bladder, the renal pelvis of the kidneys and the ureters. It is the second most common type of kidney cancer.

Treatment field: In radiation therapy, the area in the body where the radiation beam is aimed.

Tumour (neoplasm): An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumours may be benign (not cancer), or malignant (cancer).

Tyrosine kinase inhibitor (TKI): A drug that interferes with cell communication and growth and may prevent tumour growth. Some tyrosine kinase inhibitors are used to treat cancer.

Ultrasound (sonogram): A technology that uses high-energy sound waves to take pictures of internal organs and other structures like blood vessels.

Unilateral: Affecting only one side of the body.

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through a tube called the urethra.

Urologist: A doctor who specializes in diseases of the urinary organs in females and the urinary and sex organs in males.

Vascular endothelial growth factor (VEGF): A substance made by cells that stimulates new blood vessel formation.

Vascular Endothelial Growth Factor (VEGF) inhibitor: A substance that blocks a growth factor needed to form blood vessels.

Von Hippel Lindau (VHL) syndrome: A rare inherited disorder in which blood vessels grow abnormally in the eyes, brain, spinal cord, adrenal glands, or other parts of the body. People with VHL syndrome have a higher risk of developing kidney cancer as well as other cancers.

Watchful waiting (active surveillance, expectant management, observation): Closely monitoring a patient's condition but withholding treatment until symptoms appear or change.

WBR: Whole brain radiation (sometimes called FBR, full brain radiation)

White blood cell (WBC): A type of immune cell. Most white blood cells are made in the bone marrow and are found in the blood and lymph tissue. White blood cells (including leukocytes and lymphocytes) help the body fight infections and other diseases.

Wilm's tumour: A malignant tumour of the kidney occurring in young children.

X-ray: A type of high-energy radiation. In low doses, x-rays are used to diagnose diseases by making pictures of the inside of the body. In high doses, x-rays are used to treat cancer.