Types of Cancer

Kidney Cancer

What is kidney cancer?

Cancer develops when cells grow out of control. There are several types of kidney cancer; renal cell carcinoma (RCC) accounts for about 90% of these cases, and clear cell carcinoma is the most common type of RCC. Cancer may also arise elsewhere in the body and spread to the kidneys, a process known as metastasis.

Who gets kidney cancer?

Kidney cancer is among the 10 most common cancers in both men and women. The rate of new kidney cancer has been going up since the 1990s, but this has leveled off in recent years.

Men are about twice as likely as women to get kidney cancer. African Americans and Native Americans have higher rates of renal cell carcinoma than other groups.

What are the risk factors for kidney cancer?

Risk factors for kidney cancer include smoking, obesity, high blood pressure, exposure to certain toxins, family history and genetic factors. Several hereditary conditions are linked to elevated kidney cancer risk.

What are the symptoms of kidney cancer?

The kidneys filter waste from the blood, help regulate blood pressure and produce a hormone that stimulates the production of red blood cells. Excess water, salt and other waste products are excreted in the urine.

In its early stages, kidney cancer may not cause any symptoms. This makes it challenging to detect early, and many people are first diagnosed after they have already developed advanced disease. If symptoms do occur, they may include:

- Blood in the urine
- Pain in the lower back or one side of the abdomen
- An unusual lump or mass in the abdomen
- Loss of appetite

- Unexplained weight loss
- Anemia

These symptoms are not specific to kidney cancer; more often they are caused by less serious conditions such as urinary tract infections or kidney stones.

How is kidney cancer diagnosed?

Early detection and treatment of cancer increases the likelihood of long-term survival.

Diagnosis starts with a physical exam and health history. Tests to diagnose kidney cancer include urine tests (urinalysis) and blood tests to measure chemicals that indicate whether the kidneys are functioning properly.

X-rays, CT, ultrasound or MRI scans may be performed to assess the kidneys and to see how much cancer has spread. Angiography may be done to get an image of the blood vessels in the kidney and the tumor. A biopsy, or small tissue sample, may be removed to examine in a laboratory.

How is kidney cancer treated?

Treatment for kidney cancer depends on how advanced it is when it is detected, including how many tumors there are, how large they are and whether the cancer has spread to nearby lymph nodes and other parts of the body. Several new medications for kidney cancer have been developed in recent years, and survival has improved.

Watchful waiting: Small tumors may be monitored to see whether they progress, an approach known as active surveillance.

Surgery: Some small and localized kidney tumors can be surgically removed; this is known as resection. This is the most common approach for kidney cancer.

Ablation: Kidney tumors may be ablated, or destroyed, using a variety of methods, including freezing (cryotherapy) and heating with radio waves (radiofrequency ablation).

Radiation: Radiation may be used to shrink tumors, which can help relieve pain and other symptoms if the cancer has spread. It is often used in conjunction with other forms of treatment.

Chemotherapy: Traditional chemotherapy generally does not work well against kidney cancer, and it is not considered standard therapy.

Targeted therapy: Targeted drugs work against cancers with specific characteristics. Typically, they interfere with signaling pathways that regulate cell growth or blood vessel formation. Anti-angiogensis drugs block with a protein (VEGF) that promotes the formation of blood vessels that feed tumors. Over time, cancer may develop resistance to targeted therapies and they can stop working.

Immunotherapy: The newest type of treatment helps the immune system fight cancer. For

example, some tumors can turn off immune responses against them, and drugs known as checkpoint inhibitors can restore T cells' ability to recognize and destroy cancer cells. However, current immunotherapy drugs work for only a subset of patients, and it is hard to predict who will benefit.

Click here for a list of approved medications used to treat kidney cancer.

For more information on kidney cancer, visit:

American Cancer Society

National Cancer Institute

Last Reviewed: April 17, 2021
