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Kidney Cancer - Overview [1]

This section has been reviewed and approved by the Cancer.Net Editorial Board [2], 06/2014

ON THIS PAGE: You will find some basic information about this disease and the parts of the body it may affect. This is the first page of Cancer.Net?s Guide to Kidney Cancer. To see other pages, use the menu on the side of your screen. Think of that menu as a roadmap to this full guide.

About the kidneys

The kidneys are a pair of reddish-brown, bean-shaped organs, each about the size of a small fist, that are located above the waist on either side of the spine. They are closer to the back of the body than to the front. The kidneys filter blood to remove impurities, excess minerals and salts, and extra water. Every day, the kidneys filter about 200 quarts of blood to generate two quarts of urine.

The kidneys also produce hormones that help control blood pressure, red blood cell production, and other functions. Although most people have two kidneys, each works independently, which means the body can function with less than one complete kidney. With dialysis, a mechanized filtering process, it is possible to live with no functioning kidneys.

Types of kidney cancer

Kidney cancer begins when normal cells in one or both kidneys change and grow uncontrollably, forming a mass called a tumor. A tumor can be cancerous or benign. A cancerous tumor is malignant, meaning it can spread to other parts of the body. A benign tumor means the tumor will not spread.

There are several types of kidney cancer:

Renal cell carcinoma. Renal cell carcinoma makes up about 85% of kidney cancers. This cancer develops within the kidney's microscopic filtering systems, the lining of the tiny tubes that lead to the bladder. The treatment options [3] for renal cell carcinoma are discussed later in this guide.

Transitional cell carcinoma. This is also called urothelial carcinoma and accounts for 10% to 15% of the kidney cancers diagnosed in adults. Transitional cell carcinoma begins in the area of

the kidney where urine collects before moving to the bladder. This type of kidney cancer is similar to bladder cancer [4] and is treated similarly as a result.

Sarcoma. Sarcoma [5] of the kidney is rare and is treated with surgery. For some patients, it may be beneficial to combine chemotherapy with surgery, as sarcoma can grow quite large before it is discovered. It does not spread to other parts of the body as often as other types of kidney cancer.

Wilms tumor. Wilms tumor [6] is most common in children and is treated differently than kidney cancer in adults. This type of tumor is more likely to be successfully treated with radiation therapy and chemotherapy than the other types of kidney cancer, and this has resulted in a different approach to treatment.

Types of kidney cancer cells

Knowing which type of cell makes up a kidney tumor helps doctors plan treatment. There are several types of kidney cancer cells. The most common are listed below. Pathologists have identified as many as 10 different types of these cells. Pathologists are doctors who specialize in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease.

- Clear cell is the type of cell that is found in about 70% of kidney cancers. Clear cells range from slow growing (grade 1) to fast growing (grade 4). This type of kidney cancer is particularly responsive to immunotherapy and targeted therapy (see the Treatment Options [3] section).
- Papillary kidney cancer, which develops in 10% to 15% of patients, is divided into two different subtypes, called type 1 and type 2. They are different from the clear cell type, although papillary kidney cancer is currently treated in the same way as clear cell kidney cancer. However, many doctors recommend treatment through a clinical trial [7] because treatment with targeted therapy is often not as successful for people with papillary kidney cancer as it is for people with clear cell kidney cancer.
- Sarcomatoid is the type of cell that grows the fastest. It may be found with the clear cell or papillary type. It is called sarcomatoid because it looks like sarcoma under a microscope.
- Collecting duct is a rare cancer that behaves in a similar way to transitional cell carcinoma. It is best treated with chemotherapy. Many doctors believe it is less responsive to chemotherapy than transitional cell carcinoma but more responsive than the clear cell or sarcomatoid types.
- Chromophobe is another rare cancer that is different from other types.
- Oncocytoma is a slow-growing type that rarely, if ever, spreads.
- Angiomyolipoma is a benign tumor that has a unique appearance on a computed tomography (CT or CAT) scan (see the Diagnosis [8] section) and when viewed under a microscope. It tends to be less likely to grow and spread and is best treated with surgery.

Looking for More of an Overview?

If you would like additional introductory information, explore these related items. Please note these links will take you to other sections on Cancer.Net:

- *ASCO Answers* Fact Sheet [9]: Read a one-page fact sheet (available as a PDF) that offers an easy-to-print introduction to this type of cancer.

- Cancer.Net En Español [10]: Read about kidney cancer in Spanish. Infórmase sobre el cáncer de riñón en español. [10]

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