

## Fact sheet 2 – Renal cell cancer

### What is renal cell cancer?

The kidneys are a pair of bean-shaped organs located on either side of the backbone that filter blood and eliminate liquid waste from the body by making urine. From there, urine is held and passed through the ureter into the bladder until it is released from the body. Cancer that forms from the lining of the ureter is called renal cell cancer (RCC), which is also commonly referred to as kidney cancer. Renal cell is the most common form of kidney cancer.

RCC is a relatively rare and serious disease. Men are twice as likely to develop renal cell cancer than women. Renal cell cancer is rare in younger people. The majority of cases are diagnosed in adults between 50 and 70 years old.

Renal cell carcinoma accounts for more than 90 percent of malignant kidney tumors.

Other forms of kidney cancer include transitional cell cancer, which is more like bladder cancer and treated in a similar fashion, and Wilms' tumor, the most common form of childhood kidney cancer.

### What are the risk factors for renal cell cancer?

Very little is known about the causes of cancer of the kidney. Research has shown that cigarette smoking increases the risk of developing cancer of the kidney.

Key risk factors include:

- Diet and weight: Some studies show a link between being overweight or a diet high in fat and renal cell cancer.
- Long-term dialysis: People who have been on dialysis for a long time may develop cysts in their kidneys that can give rise to renal cell cancer.
- Age: Renal cell cancer is rare in children and younger adults; it is found mostly in adults between the ages of 50-70 years.
- Gender: Men are twice as likely to get renal cell cancer as are women.
- This cancer has also been linked to particular materials used in some industries, including cadmium, asbestos and lead (used in paints).
- Von Hippel-Lindau syndrome: This disease, caused by an inherited gene mutation, increases the chances of renal cell cancer and other types of cancer.
- Tuberous sclerosis: Patients who have this disease often have cysts in the kidneys, liver, and pancreas and are more likely to get renal cell cancer.

### What are the signs and symptoms of renal cell cancer?

The first symptom of cancer of the kidney is often blood in the urine. Sometimes blood clots may form and cause spasms in the ureters or the bladder, which can be painful. People may notice a lump or mass in the area of the kidney or a dull pain in their side. Weight loss and recurrent fevers can also be symptoms.

Most people with any of the above symptoms will not have cancer of the kidney but for example an infection or stones in the bladder or kidneys. However, it is important to have the symptoms checked by your doctor. Sometimes cancer of the kidney may not cause any symptoms and is diagnosed following a scan carried out for a different reason.

### How is renal cell cancer diagnosed?

The doctor will take a complete medical history to check for risk factors and symptoms. A physical exam can provide information about signs of kidney cancer and other health problems. The doctor may be able to feel a mass when he or she examines the abdomen.

Unlike most other cancers, kidney cancer can often be diagnosed without the need for a biopsy (removal of a sample of the tumor for examination under a microscope).

Computed tomography scans, magnetic resonance imaging, intravenous pyelograms, and ultrasonography (also known as ultrasound) can be very helpful in the diagnosis of most kinds of kidney tumors, although patients rarely need all of these tests. Other tests, such as chest x-rays and bone scans, are more often used to help determine if the cancer has spread (metastasized) to other parts of the body.

## Treatment Options

Renal cell cancer, also called renal adenocarcinoma, or hypernephroma, can often be cured if it is diagnosed and treated when still localized to the kidney and to the immediately surrounding tissue. The probability of cure is directly related to the stage or degree of tumour dissemination. Even when regional lymphatics or blood vessels are involved with tumour, a significant number of patients can achieve prolonged survival and probable cure. When distant metastases are present, disease-free survival is poor; however, occasional selected patients will survive after surgical resection of all known tumour. Because a majority of patients are diagnosed when the tumour is still relatively localized and amenable to surgical removal, approximately 40% of all patients with renal cancer survive for 5 years. Occasionally, patients with locally advanced or metastatic disease may exhibit indolent courses lasting several years. Late tumour recurrence many years after initial treatment also occasionally occurs.

Renal cell cancer is one of the few tumours in which well-documented cases of spontaneous tumour regression in the absence of therapy exist, but this occurs very rarely and may not lead to long-term survival. Surgical resection is the mainstay of treatment of this disease. Even in patients with disseminated tumour, locoregional forms of therapy may play an important role in palliating symptoms of the primary tumour or of ectopic hormone production. Systemic therapy has demonstrated only limited effectiveness.

- Surgery: The most common treatment for renal cell cancer.
- Radiation: High-energy x-rays kill cancerous cells in the affected areas.
- Chemotherapy: Drugs are injected directly into the bloodstream to kill cancerous cells that may remain after surgery.
- Biological therapy (sometimes called immunotherapy, biotherapy, or biological response modifier therapy) is a relatively new cancer treatment that also includes surgery, chemotherapy, and radiation therapy. Biological therapies use the body's immune system, either directly or indirectly, to fight cancer or to lessen the side effects that may be caused by some cancer treatments.
- Hormone therapy: The use of hormones to stop cancer cells from growing.
- Clinical trials.