



WHAT IS KIDNEY CANCER?

Kidney cancer describes the rapid overgrowth of cells within the kidney. The unregulated cycle of cell growth and death causes a tumour. As with all cancers, kidney cancers begin small and grow larger over time. Kidney cancers usually grow as a single mass but more than one tumour may occur in one or both kidneys.

WHAT ARE THE RISK FACTORS FOR KIDNEY CANCER?

Some factors that may increase the risk of developing kidney cancer include:

- Smoking, which doubles your risk of developing Renal Cell Carcinoma.
- A family history of kidney cancer
- Being very overweight
- Being over 40 years of age
- Men are more likely to get kidney cancer than women.
- Being on dialysis treatment over a long period of time may cause kidney cysts. Kidney cancer may develop from the cells that line these cysts.
- Contact with certain chemicals or substances, eg. coke by oven workers in the iron and steel industry, asbestos, cadmium and petroleum by-products.

ARE THERE DIFFERENT TYPES OF KIDNEY CANCER?

There are several types of kidney cancer that are identified by looking at the cancer cells under a microscope. Most kidney cancers involve the outer layer or in the renal cortex of the kidney, although the most common kidney cancer is 'clear cell' or Renal Cell Carcinoma. These cancer cells are found in the lining of the tubules, which are inside the nephrons. Each kidney contains up to one million nephrons, the working units of the kidneys that help to filter the blood and make urine.

Other types of kidney cancers include:

- Transitional cell carcinomas – found inside the pelvis or the collecting system of the kidney.
- Wilms Tumour - a tumour occurring in children.
- Renal sarcoma - a rarer, more aggressive form of kidney cancer
- Oncocytomas and Angiomyolipomas - benign tumours of the kidney

WHAT ARE THE SYMPTOMS?

Many of the symptoms are general and may relate to a non-cancerous kidney or urinary tract problem. Always talk to your doctor if you are experiencing any of these signs or symptoms:

- Blood in the urine - called haematuria
- Changes in urine colour to dark, rusty or brown
- High blood pressure
- Lower back pain which is not linked with an injury
- Abdominal pain (belly area)
- A mass or lump in the belly or abdominal area
- Constant tiredness
- Rapid, unplanned weight loss
- Fever which is not linked with any other conditions
- Swelling of abdomen, outer body parts, eg ankles, legs and wrists and/or a testicle
- Anaemia - low red blood cell count

Additional complications can include:

- Pale appearance
- Cold intolerance
- Constipation
- Vision disturbance
- Excessive hair growth in females

Most kidney cancer does not cause pain until the advanced stages. Many people with the kidney cancer have no clue to the presence of a tumour until they have a test for another health problem.

HOW IS KIDNEY CANCER DETECTED?

Your kidneys lie deep in the body so cancer cannot be found during a routine physical examination. These tests may include:

- Ultrasound – often one of the first tests and uses sound waves to detect if a kidney irregularity is a fluid-filled cyst or a tumour.
- Urine test - the commonest symptom and sign of a kidney tumour is blood in the urine. This test can also detect other irregularities in the urine such as protein and cancer cells.
- Blood test - detect changes in the blood linked with kidney cancer
- Computer tomography (CT) scan - a modified x-ray that takes pictures of the body at different angles then combines them to produce a detailed cross-section of the body.
- Magnetic resonance imaging (MRI) - another way of making cross-sectional images of the body using magnets and radio waves.
- Chest X-ray of organs and bones within the chest.
- Intravenous pyelogram (IVP) - a dye is injected into a vein then x-rays are used to map its path through the kidney and into the urine.
- Tissue biopsy – the best way to confirm the type of cancer cells. A thin needle is used to take a small piece of tissue from the cancer cells. The tissue is then examined under a microscope.

- Cytoscopy - a test that checks the bladder and urethra for cancers. A telescope with a lens and a light is placed into the bladder through the urethra.
- Bone scan - a small amount of radioactive material is injected into a vein and travels through the bloodstream to the bones so the scanner can detect the tumour.

As with all cancers, early detection can improve success rates and increase treatment options. It is now rare for kidney cancers to be detected at a late stage.

HOW ARE KIDNEY CANCERS CLASSIFIED?

The classification used for kidney cancer is known as the TNM system where:

- **T** describes the size and extent of the primary cancer. A number from 0 - 4 follows the T, showing how far the cancer has spread into the kidney and nearby tissues. T0 represents a cancer that has not even started to invade the local tissues. This is called 'in situ'. A high number, eg. T3 or T4, means the cancer has spread from the kidney into the nearby tissues.
- **N** describes the affect on the lymph nodes that drain the area of the primary cancer. A lymph node is a small oval or round gland that makes up part of the immune system and removes bacteria, cancer cells and foreign particles from the body. N0 means no lymph node involvement while N4 means extensive involvement.
- **M** stands for metastasis. Some primary cancer cells can break off and travel elsewhere in the body where they grow into secondary cancers. The numbers 0 - 4 after the M describe how far the tumour has spread into other parts of the body such as organs and more distant lymph nodes.

The TNM values can be grouped together and given a 'stage'. 'Staging' describes at what point in the usual development of a tumour a person is diagnosed. Numbers 1 - 4 are used to describe the stages (written in roman numerals). For example, a cancer assessed as T1, N0, M0 would be in Stage I. This means the tumour is within the kidney, nearby lymph nodes are not affected and it has not spread other parts of the body. Treatment choices and the expected outcome are both influenced by this staging.

A kidney cancer may also be classified by its clinical or pathological stage. For example, before surgery the imaging of a particular group of lymph nodes may show that they are enlarged but a doctor may be uncertain as to whether the tumour is affecting them. The affected tissue may have to be removed during a biopsy or after surgical treatment for further testing under a microscope. When staging is based on clinical assessment alone, it is referred to as the clinical stage. Microscopic examination of the affected tissue decides the pathological stage.

HOW IS KIDNEY CANCER TREATED?

Currently surgery is the most effective treatment for Renal Cell Carcinoma. The whole kidney is often removed and this is called a radical nephrectomy. Sometimes nearby tissue is also removed if the cancer has spread. A partial nephrectomy removes only part of the kidney. This surgery is used if someone has cancer in both kidneys or has only one kidney that works. It is also used for treating small cancers. Sometimes telescopic or laparoscopic surgery is used which results in a shorter hospital stay and quicker recovery with less post operative pain than the standard open surgical approach. Surgery maybe followed by other treatment.

Chemotherapy, which uses high strength, anti-cancer drugs to kill cancer cells or to stop the cells from dividing, is not currently an effective treatment option for Renal Cell Carcinoma.

Radiation therapy, which uses of high-energy radiation to kill cancer cells, is not used to treat of primary renal cell carcinoma. However it is sometimes used if the cancer has spread into the bone, particularly for treatment of pain and prevention of broken bones.

Immunotherapy uses medication to help boost the immune system so that it can fight the cancer. The role of immune therapy is evolving but is currently only used in treatment trials for people with advanced kidney cancer. It has had variable results with very few long-term remissions.

Palliative treatment usually supports people who have advanced kidney cancer and need help to live without pain and distress. A palliative care team supports people to live as independently and comfortably as you can in the face of serious illness. Pain management is an important part of this treatment.

All treatment has benefits and side effects, which need to be discussed with your doctor.

WHAT HAPPENS AFTER TREATMENT FOR KIDNEY CANCER?

Recovery and choice of treatment is influenced by your age, health, personal choice and cancer stage. It is important to report any new symptoms to your doctor as soon as possible. If you are a smoker, quitting can reduce the chance of developing a new cancer as well as improving your general health.

**For more information about kidney health or this topic, please contact Kidney Health Australia:
Kidney Information Line (freecall) on 1800 682 531 or
visit website www.kidney.org.au**

This is intended as a general introduction to this topic and is not meant to substitute for your doctor's or Health Professional's advice. All care is taken to ensure that the information is relevant to the reader and applicable to each state in Australia. It should be noted that Kidney Health Australia recognises that each person's experience is individual and that variations do occur in treatment and management due to personal circumstances, the health professional and the state one lives in. Should you require further information always consult your doctor or health professional.

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