Treatment for kidney cancer

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Treatments for kidney cancer include surgery, radiofrequency ablation and drug treatment. Chemotherapy is not as effective at treating kidney cancer as some other treatments. In some cases your doctor may recommend active surveillance. Radiotherapy is not effective in treating primary kidney cancer. However it may be used for advanced cancer.

You need to talk to your doctor about the treatment options that are best for you. The page called Treatment decisions has information about weighing up your different options.

Surgery

Surgery is the main treatment for people with kidney cancer but it is not possible for all patients. You may not have an operation if the cancer has spread or if you are not fit for an anaesthetic.

If surgery is an option the operation your doctor recommends will depend on the type of kidney cancer you have, your general health and the stage and grade of the cancer.

Types of surgery

Radical nephrectomy

For large renal cell carcinoma tumours, a radical nephrectomy—the removal of the whole affected kidney—is the most common type of operation. The adrenal gland above the kidney, surrounding fatty tissue and nearby lymph nodes may also be removed during surgery. However sometimes it is not possible to remove all the tissue affected by the cancer.

Even if a whole kidney or part of your kidney is removed, the remaining kidney can usually carry out the work of two kidneys without any problems.

Partial nephrectomy

Removing the cancer along with a small part of the kidney is another type of surgery for renal cell carcinoma. This is commonly performed for small tumours (less than four centimetres) that are easily accessible. An advantage of this operation is more of the kidney is preserved but it is a more complex procedure. It is also used for people with cancer in both kidneys or only one working kidney.

Surgery for advanced cancer
In some cases surgery may be an option to remove secondary tumours that have spread to other parts of the body. Generally, however, surgery is not recommended if the cancer has spread to several places in the body. The surgeon may recommend that the kidney be removed to help with symptom control (cytoreductive nephrectomy).

**The procedure**

Surgery is usually carried out under a general anaesthetic. Usually a cut (incision) is made at the side of your abdomen where the affected kidney is located. In some cases the cut is made in the front of the abdomen or in another area of the body where the cancer has spread.

If you are having a radical nephrectomy the surgeon will clamp off the major blood vessels and tubes in the affected kidney before removing it.

For all types of surgery the surgeon will aim to remove all of the cancer.

You might be able to have keyhole surgery (laparoscopy). The surgeon will make several small incisions and insert a tiny telescope (laparoscope) into one of the incisions. The laparoscope takes pictures of your body and projects them onto a TV screen. The surgeon inserts tools into the other incisions and does the surgery using the images on the screen for guidance.

People who have laparoscopic surgery usually have a shorter hospital stay, less pain and a faster recovery time. However laparoscopic surgery is not the best approach for everyone. Talk to your doctor about your options.

A radical nephrectomy can usually be performed as keyhole surgery (laparoscopically). In most cases a partial nephrectomy is done by open incision but sometimes it can be done laparoscopically or laparoscopically using a robot.

**Radiofrequency ablation**

Radiofrequency ablation (RFA) is a minimally invasive treatment that is still being assessed in clinical trials. RFA uses a probe that generates heat to kill cancer cells in a specific area of the body and form internal scar tissue.

Although it is not as effective as surgery RFA is sometimes used for patients who have a renal cell carcinoma less than four centimetres located near the edge of the kidney. These patients are unable to have an operation.

You may be given an anaesthetic, then a specialist inserts a needle into the tumour under the guidance of a CT scan. An electrical current passes into the tumour from the needle.

Most people only need to have this treatment once. It takes about 15 minutes and you can usually go home a few hours afterwards. Side effects, including pain or fever, can be managed with medication.

**Immunotherapy**

Immunotherapy (also called biological therapy) has been used to treat advanced kidney cancer but it is not standard treatment for other types of kidney cancer.

Targeted therapies are used in place of immunotherapy. However immunotherapy is still a topic of research and clinical trials, and it is used in other countries without access to targeted therapies.

The aim of immunotherapy is to boost the body's immune system to help it fight off disease and shrink the tumour. The drugs that are used have been developed from cytokines which are proteins that naturally occur in the body and stimulate the immune system. Drugs may include interleukin-2 and interferon-alpha 2a. Treatment is given intravenously or orally.

Immunotherapy often works better if the kidney with the tumour is removed so your surgeon may first do an operation.

Although the drugs are made from natural substances, they can sometimes cause severe side effects. Tell your doctor if you experience side effects such as fever, chills, muscle aches, fatigue and soreness at the injection site.
Targeted therapies

Some newer types of treatment called targeted therapies attack specific cancer cells or blood vessels, to stop or slow down their growth or reduce the size of the tumour.

Two classes of drugs, called tyrosine kinase inhibitors (TKIs) and mTOR inhibitors, have recently been trialled in people with advanced kidney cancer. Both drugs block the message received by cancer cells to grow and divide, which is controlled by chemical messengers called enzymes. Treatment—given in tablet form—has been shown to make both primary and secondary cancers shrink or stop growing.

For renal cell carcinoma that has spread beyond the kidney TKIs (and sometimes mTOR inhibitors) are the most common treatment offered. These therapies are generally used instead of conventional chemotherapy and they typically have fewer side effects than chemotherapy or immunotherapy.

However the targeted therapy drug you are given may stop working after some time. In this case your doctor may prescribe another drug. It is common to change drugs as they stop working.

Active surveillance

When small tumours (less than four centimetres) are found in the kidney, they are unlikely to be aggressive. Sometimes a smaller tumour is benign (not cancer). Even if a small tumour is cancerous it may not grow during a person’s lifetime and poses little risk to health.

Doctors may suggest it is better to keep a watch on some small tumours (using regular ultrasounds or CT scans) than to treat them immediately. This is called active surveillance. If the tumour appears to grow at any time, based on the imaging tests, you will be given treatment (usually surgery).

Using the active surveillance method may help to avoid the loss of kidney function and other side effects associated with different types of treatment. This is particularly important if the tumour is unlikely to be cancerous.

You may feel anxious about not treating tumours in your body right away even if they are benign. However this is a common approach and will only be recommended if the doctor thinks it is the best thing to do. If you are worried discuss this with your urologist or a counsellor.

Other treatments

Cryotherapy

Cryotherapy (or cryosurgery) is a type of treatment that freezes and kills cancer cells. It is an emerging treatment that is still being evaluated. Trials have shown cryotherapy is not as effective as surgery and is not suitable for kidney tumours over four centimetres.

Few hospitals are equipped to perform cryotherapy, so if it is recommended, ask your doctor where it is administered and how much it costs.

You will be given an anaesthetic and a probe will be inserted into the tumour (either with surgery or under CT scan guidance). Liquid nitrogen is injected, which freezes the surrounding area and destroys the cancer cells. Afterwards the frozen tissue thaws and is absorbed by the body.

The procedure typically takes about an hour. You may have to stay in hospital overnight.

Arterial embolisation

Arterial embolisation is when the doctor blocks the artery providing blood to the kidney, to reduce the tumour size. You may have this procedure if you are unable to have surgery but it can not cure the cancer.

A risk of this treatment is the cancer cells breaking off and spreading to other parts of the body. Discuss this with your doctor.

During treatment a tube called a catheter is inserted into the artery using an x-ray for guidance. A substance is then injected into the catheter to block the blood flow.
Without blood flow the tissue can't get the food and oxygen it needs to survive, so the kidney and the tumour inside it shrink and die.

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