Treating Kidney Cancer

Making treatment decisions

After the cancer is found and staged, your cancer care team will discuss your treatment options with you. It is important to take time and think about your possible choices. In choosing a treatment plan, one of the most important factors is the stage of the cancer. Other factors to consider include your overall health, the likely side effects of the treatment, and the probability of curing the disease, extending life, or relieving symptoms.

If you have kidney cancer, your treatment options may include:

- Surgery
- Ablation and other local therapies
- Active surveillance
- Radiation therapy
- Targeted therapy
- Immunotherapy (biologic therapy)
- Chemotherapy

Sometimes, more than one type of treatment might be used. See Treatment choices by stage for kidney cancer to learn about common treatment plans.

You may have different types of doctors on your treatment team, depending on the stage of your cancer and your treatment options. These doctors could include:

- A urologist: a surgeon who specializes in treating diseases of the urinary system (and male reproductive system)
- A radiation oncologist: a doctor who treats cancer with radiation therapy
- A medical oncologist: a doctor who treats cancer with medicines such as chemotherapy
Many other specialists might be part of your treatment team as well, including physician assistants, nurse practitioners, nurses, physical therapists, social workers, and other health professionals. See Health Professionals Associated With Cancer Care for more on this.

It's important to discuss all of your treatment options as well as their possible side effects with your doctors to help make the decision that best fits your needs. (See What should you ask your doctor about kidney cancer? for some questions to ask.)

When time permits, getting a second opinion is often a good idea. It can give you more information and help you feel good about the treatment plan you choose.

**Thinking about taking part in a clinical trial**

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they are not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials. You can also call our clinical trials matching service at 1-800-303-5691 for a list of studies that meet your medical needs, or see the Clinical Trials section to learn more.

**Considering complementary and alternative methods**

You may hear about alternative or complementary methods that your doctor hasn’t mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor’s medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be dangerous.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision. See the Complementary and Alternative Medicine section to learn more.
Help getting through cancer treatment

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, support groups, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists on call 24 hours a day, every day.

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don’t hesitate to ask him or her questions about your treatment options.

Surgery for Kidney Cancer

Surgery is the main treatment for most kidney cancers. The chances of surviving kidney cancer without having surgery are small.

Even patients whose cancer has spread to other organs may benefit from surgery to take out the kidney tumor. Removing the kidney containing the cancer can help some patients live longer, so a doctor may suggest surgery even if the patient’s cancer has spread beyond the kidney. Kidney removal can also be used to ease symptoms such as pain and bleeding.

Depending on the stage and location of the cancer and other factors, surgery may remove either the cancer along with some of the surrounding kidney tissue (known as a partial nephrectomy), or the entire kidney (known as a radical nephrectomy). The adrenal gland (the small gland that sits on top of each kidney) and fatty tissue around the kidney may be removed as well.

Radical nephrectomy

In this operation, the surgeon removes your whole kidney, the attached adrenal gland, and the fatty tissue around the kidney. Most people do just fine with only one remaining
The surgeon can make the incision in several places. The most common sites are the middle of the abdomen (belly), under the ribs on the same side as the cancer, or in the back, just behind the kidney. Each approach has its advantages in treating cancers of different sizes and in different parts of the kidney. Although removing the adrenal gland is a part of a standard radical nephrectomy, the surgeon may be able to leave it behind in some cases where the cancer is in the lower part of the kidney and is far away from the adrenal gland.

If the tumor has grown from the kidney through the renal vein (the vein leading away from the kidney) and into the inferior vena cava (the large vein that empties into the heart), the heart may need to be stopped for a short time in order to remove the tumor. The patient is put on cardiopulmonary bypass (a heart-lung machine) that circulates the blood while bypassing the heart. If you need this, a heart surgeon will work with your urologist during your operation.

**Laparoscopic nephrectomy and robotic-assisted laparoscopic nephrectomy:**
These newer approaches to the operation are done through several small incisions instead of one large one. If a radical nephrectomy is needed, many doctors and patients now prefer these approaches when they can be used.

For a laparoscopic nephrectomy, special long instruments are inserted through the incisions, each of which is about 1/2-inch long, to remove the kidney. One of the instruments, the laparoscope, is a long tube with a small video camera on the end. This lets the surgeon see inside the abdomen. Usually, one of the incisions has to be made longer in order to remove the kidney (although it’s not as long as the incision for a standard nephrectomy).

A newer approach is to do the laparoscopic surgery remotely using a robotic interface (called the da Vinci system). The surgeon sits at a panel near the operating table and controls robotic arms to perform the operation. For the surgeon, the robotic system may provide more maneuverability and more precision when moving the instruments than standard laparoscopic surgery. But the most important factor in the success of either type of laparoscopic surgery is the surgeon’s experience and skill. This is a difficult approach to learn. If you are considering this type of operation, be sure to find a surgeon with a lot of experience.

The laparoscopic approach can be used to treat most renal tumors that cannot be treated with nephron-sparing surgery (see below). In experienced hands, the technique is as effective as a standard (open) radical nephrectomy and usually results in a shorter hospital stay, a faster recovery, and less pain after surgery. This approach may not be
an option for large tumors (those larger than about 10 cm [4 inches] across) and tumors that have grown into the renal vein or spread to lymph nodes around the kidney.

**Partial nephrectomy (nephron-sparing surgery)**

In this procedure, the surgeon removes only the part of the kidney that contains cancer, leaving the rest of the organ behind. As with a radical nephrectomy, the surgeon can make the incision in several places, depending on factors like the location of the tumor.

Partial nephrectomy is now the preferred treatment for many people with early stage kidney cancer. It is often done to remove single small tumors (those less than 4 cm across), and can be done in patients with larger tumors (up to 7 cm across). Studies have shown the long-term results to be about the same as those when the whole kidney is removed. The obvious benefit is that the patient keeps more of their kidney function.

A partial nephrectomy may not be an option if the tumor is in the middle of the kidney or is very large, if there is more than one tumor in the same kidney, or if the cancer has spread to the lymph nodes or distant organs. Not all doctors can do this type of surgery. It should only be done by someone with a lot of experience.

**Laparoscopic partial nephrectomy and robotic-assisted laparoscopic partial nephrectomy:** Many doctors now do partial nephrectomies laparoscopically or using a robot (as described above). But again, this is a difficult operation, and it should only be done by a surgeon with a great deal of experience.

**Regional lymphadenectomy (lymph node dissection)**

This procedure removes nearby lymph nodes to see if they contain cancer. Some doctors do this when doing a radical nephrectomy, although not all doctors agree that it is always needed.

Most doctors agree that the lymph nodes should be removed if they look enlarged on imaging tests or feel abnormal during the operation. Some doctors also remove these lymph nodes to check them for cancer spread even when they aren’t enlarged, in order to better stage the cancer. Before surgery, ask your doctor if he or she plans to remove the lymph nodes near the kidney.

**Removal of an adrenal gland (adrenalectomy)**

Although this is a standard part of a radical nephrectomy, if the cancer is in the lower
part of the kidney (away from the adrenal gland) and imaging tests show the adrenal
gland is not affected, it may not have to be removed. Just like with lymph node removal,
this is decided on an individual basis and should be discussed with the doctor before
surgery.

**Removal of metastases**

In about 1 in 4 people with kidney cancer, the cancer will already have spread
(metastasized) to other parts of the body when it is diagnosed. The lungs, bones, brain
and liver are the most common sites of spread. In some people, surgery may still be
helpful.

**Attempts at curative surgery:** In rare cases where there is only a single metastasis or
if there are only a few that can be removed easily without causing serious side effects,
surgery may lead to long-term survival in some people.

The metastasis may be removed at the same time as a radical nephrectomy or at a later
time if the cancer recurs (comes back).

**Surgery to relieve symptoms (palliative surgery):** When other treatments aren’t
helpful, surgically removing the metastases can sometimes relieve pain and other
symptoms, although this usually does not help people live longer.

**Risks and side effects of surgery**

The short-term risks of any type of surgery include reactions to anesthesia, excess
bleeding (which might require blood transfusions), blood clots, and infections. Most
people will have at least some pain after the operation, which can usually be helped
with pain medicines, if needed.

Other possible risks of surgery include:

- Damage to internal organs and blood vessels (such as the spleen, pancreas, aorta,
  vena cava, large or small bowel) during surgery
- Pneumothorax (unwanted air in the chest cavity)
- Incisional hernia (bulging of internal organs near the surgical incision due to
  problems with wound healing)
- Leakage of urine into the abdomen (after partial nephrectomy)
- Kidney failure (if the remaining kidney fails to function well)

For more general information about surgery as a treatment for cancer, see [Cancer](#)
Surgery.

- References
  See all references for Kidney Cancer

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Ablation and Other Local Therapy for Kidney Cancer

Whenever possible, surgery is the main treatment for kidney cancers that can be removed. But for people who are too sick to have surgery, other approaches can sometimes be used to destroy kidney tumors. They might be helpful for some people, but there is much less data on how well they work over the long run than there is for surgery, so they are not yet considered a standard treatment.

Cryotherapy (cryoablation)

This approach uses extreme cold to destroy the tumor. A hollow probe (needle) is inserted into the tumor either through the skin (percutaneously) or during laparoscopy (see “Surgery for kidney cancer”). Very cold gases are passed through the probe, creating an ice ball at its tip that destroys the tumor. To be sure the tumor is destroyed without too much damage to nearby tissues, the doctor carefully watches images of the tumor during the procedure (with ultrasound) or measures tissue temperature.

The type of anesthesia used for cryotherapy depends on how the procedure is being done. Possible side effects include bleeding and damage to the kidneys or other nearby organs.

Radiofrequency ablation (RFA)

This technique uses high-energy radio waves to heat the tumor. A thin, needle-like probe is placed through the skin and advanced until the end is in the tumor. Placement
of the probe is guided by ultrasound or CT scans. Once it is in place, an electric current is passed through the tip of the probe, which heats the tumor and destroys the cancer cells.

RFA is usually done as an outpatient procedure, using local anesthesia (numbing medicine) where the probe is inserted. You may be given medicine to help you relax as well.

Major complications are uncommon, but they can include bleeding and damage to the kidneys or other nearby organs.

**Arterial embolization**

This technique is used to block the artery that feeds the kidney that has the tumor. A small catheter (tube) is placed in an artery in the inner thigh and is moved up until it reaches the artery going from the aorta to the kidney (renal artery). Material is then injected into the artery to block it, cutting off the kidney’s blood supply. This will cause the kidney (and the tumor in it) to die.

Although this procedure is not used very often, it is sometimes done before a radical nephrectomy to reduce bleeding during the operation or in patients who have persistent bleeding from the kidney tumor.

- References
  See all references for Kidney Cancer

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**Active Surveillance for Kidney Cancer**

One option for some patients with small kidney tumors (those less than 4 cm, which is about 1½ inches), may be to give no treatment at first and watch the tumor carefully to see if it grows. The tumor is removed (or treated another way) if it grows quickly or gets larger than 4 cm.
This approach is most often used in elderly or frail patients as it avoids the risks of treatment. Often, a biopsy is done before deciding to watch the tumor to see if the growth is really cancer. Some of these small tumors turn out to not be cancers at all. Watching them closely for a time helps doctors decide which tumors are more likely to be cancer based on their growth pattern.

- References
  See all references for Kidney Cancer

Radiation Therapy for Kidney Cancer

Radiation therapy uses high-energy radiation to kill cancer cells. The type of radiation sometimes used to treat kidney cancer, known as external beam therapy, focuses radiation from a source outside the body on the cancer.

Kidney cancers are not very sensitive to radiation. Radiation therapy can sometimes be used to treat kidney cancer if a person is not healthy enough to have surgery, although other treatments might be tried first instead.

Radiation therapy is more often used to palliate, or ease, symptoms of kidney cancer such as pain, bleeding, or problems caused by cancer spread (especially to the bones or brain).

The treatment is much like getting an x-ray, but the radiation is much stronger. The procedure itself is painless. Before your treatments start, the medical team will take careful measurements to determine the correct angles for aiming the radiation beams and the proper dose of radiation. Each treatment lasts only a few minutes, but the setup time – getting you into place for treatment – usually takes longer.

A special type of radiation therapy known as stereotactic radiosurgery can sometimes be used for single tumors in the brain. This does not actually involve surgery. There are 2 main techniques for stereotactic radiosurgery, but they both use the same principle of pinpoint radiation. In one technique, many thin beams of radiation are focused on the
tumor from different angles over a few minutes to hours. The second technique uses a movable linear accelerator (a machine that produces x-ray beams) that is controlled by a computer. Instead of delivering many beams at once, the linear accelerator moves around to deliver radiation to the tumor from different angles. In either approach, the patient’s head is kept in the same position by placing it in a rigid frame. This type of treatment can also be used for areas of cancer spread outside of the brain. When it is used to treat cancer elsewhere, it is called **stereotactic body radiotherapy**.

**Possible side effects**

Side effects of radiation therapy depend on where it is aimed and can include skin changes (similar to sunburn) and hair loss where the radiation passes through the skin, **nausea**, diarrhea, or **tiredness**. Often these go away after a short while. Radiation may also make side effects from some other treatments worse.

Radiation therapy to the chest area can damage the lungs and might lead to shortness of breath.

Side effects of radiation to the brain usually become most serious 1 or 2 years after treatment and can include headaches and trouble thinking.

For more general information, see the **Radiation Therapy** section of our website or [A Guide to Radiation Therapy](https://www.cancer.org).

- **References**
- [See all references for Kidney Cancer](https://www.cancer.org)

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**Targeted Therapies for Kidney Cancer**

As researchers have learned more about the molecular and genetic changes in cells that cause cancer, they have developed newer drugs that target some of these changes. These targeted drugs are different from standard **chemotherapy** drugs. They sometimes work when standard chemo drugs don’t, and they often have different (and
less severe) side effects. Targeted drugs are proving to be especially important in kidney cancer, where chemotherapy has not been shown to be very effective.

These drugs are often used as the first line of treatment against advanced kidney cancers. They can often shrink or slow the growth of the cancer for a time, but it doesn’t seem that any of these drugs can actually cure kidney cancer.

Several targeted drugs can be used to treat advanced kidney cancer. These drugs block angiogenesis (growth of the new blood vessels that nourish cancers) or important proteins in cancer cells (called tyrosine kinases) that help them grow and survive. Some targeted drugs affect both of these.

Doctors are still learning the best ways to use targeted drugs against advanced kidney cancers. As of now, they are most often used one at a time. If one doesn’t work, another can be tried. It’s not yet known if any one of these drugs is clearly better than the others, if combining them might be more helpful than giving them one at a time, or if one sequence is better than the other. Studies are being done to help answer these questions.

**Sorafenib (Nexavar)**

Sorafenib acts by blocking both angiogenesis and growth-stimulating molecules in the cancer cell itself. Sorafenib does this by blocking several tyrosine kinases that are important for cell growth and survival. It is taken as a pill twice a day.

The most common side effects seen with this drug include fatigue, rash, diarrhea, increases in blood pressure, and redness, pain, swelling, or blisters on the palms of the hands or soles of the feet (hand-foot syndrome).

**Sunitinib (Sutent)**

Sunitinib also blocks several tyrosine kinases, but not the same ones as sorafenib. It attacks both blood vessel growth and other targets that help cancer cells grow. This drug is taken as a pill.

The most common side effects are nausea, diarrhea, changes in skin or hair color, mouth sores, weakness, and low white and red blood cell counts. Other possible effects include tiredness, high blood pressure, congestive heart failure, bleeding, hand-foot syndrome, and low thyroid hormone levels.

**Temsirolimus (Torisel)**
Temsolimus works by blocking a cell protein known as mTOR, which normally helps cells grow and divide. This drug has been shown to be helpful against advanced kidney cancers that have a poorer prognosis because of certain factors. It is given as an intravenous (IV) infusion, typically once a week.

The most common side effects of this drug include skin rash, weakness, mouth sores, nausea, loss of appetite, fluid buildup in the face or legs, and increases in blood sugar and cholesterol levels. Rarely, more serious side effects have been reported.

**Everolimus (Afinitor)**

Everolimus also blocks the mTOR protein. It is used to treat advanced kidney cancers after other drugs such as sorafenib or sunitinib have been tried. Everolimus is taken as a pill once a day.

Common side effects of this drug include mouth sores, an increased risk of infections, nausea, loss of appetite, diarrhea, skin rash, feeling tired or weak, fluid buildup (usually in the legs), and increases in blood sugar and cholesterol levels. A less common but serious side effect is lung damage, which can cause shortness of breath or other problems.

**Bevacizumab (Avastin)**

Bevacizumab is an IV drug that works by slowing the growth of new blood vessels. It may help some people with kidney cancer when used with interferon-alfa.

More common side effects include high blood pressure, tiredness, and headaches. Less common but possibly serious side effects include bleeding, blood clots, holes forming in the intestines, heart problems, and slow wound healing.

**Pazopanib (Votrient)**

Pazopanib is another drug that blocks several tyrosine kinases involved in cancer cell growth and the formation of new blood vessels in the tumor. It is taken as a pill once a day.

Common side effects include high blood pressure, nausea, diarrhea, headaches, low blood cell counts, and liver problems. It can cause lab test results of liver function to become abnormal, but it rarely leads to severe liver damage that can be life threatening. Problems with bleeding, clotting, and wound healing can occur, as well. It also rarely
causes a problem with the heart rhythm or even a heart attack. If you are taking this drug, your doctor will monitor your heart with EKGs as well as check your blood tests to check for liver or other problems.

**Axitinib (Inlyta)**

Axitinib also inhibits several tyrosine kinases, including some that are involved in the formation of new blood vessels. It is typically used after at least one other treatment has been tried. Axitinib is taken as a pill twice a day.

Common side effects include high blood pressure, fatigue, nausea and vomiting, diarrhea, poor appetite and weight loss, voice changes, hand-foot syndrome, and constipation. High blood pressure requiring treatment is fairly common, but in a small number of patients it can get high enough to be life-threatening. It can also cause problems with bleeding, clotting, and wound healing. In some patients, lab test results of liver function can become abnormal. Axitinib may also cause the thyroid gland to become underactive, so your doctor will watch your blood levels of thyroid hormone while you are on this drug.

**Cabozantinib (Cabometyx)**

Cabozantinib is another drug that blocks several tyrosine kinases, including some that help form new blood vessels. It is typically used after at least one other treatment has been tried. Cabozantinib is taken as a pill once a day.

Common side effects include diarrhea, fatigue, nausea and vomiting, poor appetite and weight loss, high blood pressure, hand-foot syndrome, and constipation. Less common but more serious side effects can include serious bleeding, blood clots, very high blood pressure, severe diarrhea, and holes forming in the intestines.

**Lenvatinib (Lenvima)**

Lenvatinib (Lenvima) is another kinase inhibitor that helps block tumors from forming new blood vessels, as well as targeting some of the proteins in cancer cells that normally help them grow. It is typically used along with everolimus after at least one other treatment has been tried. Lenvatinib is taken as capsules once a day.

Common side effects include diarrhea, fatigue, joint or muscle pain, loss of appetite, nausea and vomiting, mouth sores, weight loss, high blood pressure, and swelling in the arms or legs. Less common but more serious side effects can include serious bleeding,
blood clots, very high blood pressure, severe diarrhea, holes forming in the intestines, and kidney, liver, or heart failure.

- References

See all references for Kidney Cancer

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Biologic Therapy (Immunotherapy) for Kidney Cancer

The goal of biologic therapy is to boost the body’s immune system to help fight off or destroy cancer cells.

Cytokines

Cytokines are man-made versions of natural proteins that activate the immune system. The cytokines used most often to treat kidney cancer are interleukin-2 (IL-2) and interferon-alpha. Both cytokines can cause kidney cancers to shrink in a small percentage of patients.

Interleukin-2 (IL-2)

In the past, IL-2 was commonly used as first-line therapy for advanced kidney cancer, and it may still be helpful for some people. But because it can be hard to give and can cause serious side effects, many doctors only use it in patients who are healthy enough to withstand the side effects, or for cancers that aren’t responding to targeted drugs.

Although only a small percentage of patients respond to IL-2, it is the only therapy that appears to result in long-lasting responses. Doctors are now looking to see if certain patient and cancer characteristics can help predict if IL-2 will be helpful.

Giving high doses of IL-2 seems to offer the best chance of shrinking the cancer, but this can cause serious side effects, so it is not used in people who are in poor overall
health to begin with. Special care is needed to recognize and treat these side effects. Because of this, high-dose IL-2 is only given in the hospital at certain centers that are experienced with giving this type of treatment.

The possible side effects of high-dose IL-2 include:

- Extreme fatigue
- Low blood pressure
- Fluid buildup in the lungs
- Trouble breathing
- Kidney damage
- Heart attacks
- Intestinal bleeding
- Diarrhea or abdominal pain
- High fever and chills
- Rapid heart beat
- Mental changes

These side effects are often severe and, rarely, can be fatal. Only doctors experienced in the use of these cytokines should give this treatment.

**Interferon-alfa**

Interferon has less serious side effects than IL-2, but it does not seem to be as effective when used by itself. It is more often used in combination with the targeted drug bevacizumab (Avastin).

Common side effects of interferon include flu-like symptoms (fever, chills, muscle aches), fatigue, and nausea.

**Immune checkpoint inhibitors**

An important part of the immune system is its ability to keep itself from attacking normal cells in the body. To do this, it uses “checkpoints,” which are molecules on immune cells that need to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system. But newer drugs that target these checkpoints hold a lot of promise as cancer treatments.

**Nivolumab (Opdivo)** is a drug that targets PD-1, a protein on immune system cells called *T cells* that normally helps keep these cells from attacking other cells in the body. By blocking PD-1, this drug boosts the immune response against cancer cells. This can
shrink some tumors or slow their growth.

This drug can be used in people whose kidney cancer starts growing again after other drug treatments.

This drug is given as an intravenous (IV) infusion, typically every 2 weeks.

**Possible side effects**

Side effects of immune checkpoint inhibitors can include fatigue, cough, nausea, itching, skin rash, loss of appetite, constipation, joint pain, and diarrhea.

Other, more serious side effects occur less often. These drugs work by basically removing the brakes on the body’s immune system. Sometimes the immune system starts attacking other parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys, or other organs.

It’s very important to report any new side effects to your health care team promptly. If serious side effects do occur, treatment may need to be stopped and you may get high doses of corticosteroids to suppress your immune system.

**Newer approaches to immunotherapy**

Cytokines can also be used as part of some experimental immunotherapy techniques. In one approach, immune system cells are removed from the blood and treated with cytokines in the lab to help activate them. These cells are then injected back into the patient in the hope that this will stimulate the immune system to fight the cancer.

In recent years, newer types of drugs that help boost the body’s immune response against cancer cells have shown early promise in kidney cancer. These and other newer forms of immunotherapy are described in [What’s new in kidney cancer research and treatment?](#)

- **References**

[See all references for Kidney Cancer](#)

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Chemotherapy for Kidney Cancer

Chemotherapy (chemo) uses anti-cancer drugs that are given into a vein or by mouth (in pill form). These drugs enter your blood and reach all areas of the body, which makes this treatment potentially useful for cancer that has spread (metastasized) to organs beyond the kidney.

Unfortunately, kidney cancer cells are usually resistant to chemo, so chemo is not a standard treatment for kidney cancer. Some chemo drugs, such as vinblastine, floxuridine, 5-fluorouracil (5-FU), capecitabine, and gemcitabine have been shown to help a small number of patients. Still, chemo is often only used for kidney cancer after targeted drugs and/or immunotherapy have already been tried.

Doctors give chemotherapy in cycles, with each period of treatment followed by a rest period to allow the body time to recover. Chemo cycles generally last a few weeks.

Possible side effects of chemotherapy

Chemo drugs attack cells that are dividing quickly, which is why they often work against cancer cells. But other cells in the body, such as those in the bone marrow (where new blood cells are made), the lining of the mouth and intestines, and the hair follicles, also divide quickly. These cells are also likely to be affected by chemo, which can lead to certain side effects.

The side effects of chemo depend on the type of drugs, the amount taken, and the length of treatment. Possible side effects can include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Diarrhea or constipation
- Increased chance of infections (due to low white blood cell counts)
- Easy bruising or bleeding (due to low blood platelet counts)
- Fatigue (due to low red blood cell counts)

These side effects usually go away after treatment is finished. There are often ways to
prevent or lessen them. For example, drugs can be given to help prevent or reduce nausea and vomiting. Specific chemo drugs may each cause specific side effects. Ask your health care team about the side effects your chemo drugs may cause.

For more general information about chemotherapy, see the Chemotherapy section of our website.

- References

See all references for Kidney Cancer

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**Pain Control for Kidney Cancer**

Pain is a concern for some patients with advanced kidney cancer. It is important to let your doctor know about any pain you might have so that it can be treated. Unless your doctor knows about your pain, they can’t help you.

There are many different forms of pain medicine, ranging from over-the-counter pain relievers to stronger drugs like morphine or other opioids. For treatment to be effective, the pain medicines need to be taken on a regular schedule, not just when the pain becomes severe. Several long-acting forms of morphine and other long-acting opioid drugs need only to be taken once or twice a day.

In some cases, palliative surgery or radiation therapy can help relieve pain caused by cancer spreading to certain areas. For example, drugs called bisphosphonates may be helpful in people whose cancers have spread to their bones. Sometimes pain specialists can do certain procedures such as a nerve block to lessen pain, depending on where the pain is.

To learn more about the options for managing cancer pain, see the Cancer Pain section of our website.

- References

See all references for Kidney Cancer
Treatment Choices by Stage for Kidney Cancer

The type of treatment(s) your doctor recommends will depend on the stage of the cancer and on your overall health. This section sums up the options usually considered for each stage of kidney cancer.

Stages I, II, or III

Stage I and II cancers are still contained within the kidney. Stage III cancers have either grown into nearby large veins or have spread to nearby lymph nodes.

These cancers are usually removed with surgery when possible. Either a partial nephrectomy (removing part of the kidney) or a radical nephrectomy (removing the entire kidney) may be done. Partial nephrectomy is often the treatment of choice in tumors up to 7 cm (a little less than 3 inches in size) if it can be done. The lymph nodes near the kidney may be removed as well, especially if they are enlarged.

If the cancer has grown into nearby veins (as with some stage III cancers), the surgeon may need to cut open these veins to remove all of the cancer. This may require putting you on bypass (a heart-lung machine), so that the heart can be stopped for a short time to remove the cancer from the large vein leading to the heart.

So far, giving other treatments after surgery (known as adjuvant therapy) such as targeted therapy, chemotherapy, radiation therapy, or immunotherapy has not been shown to help patients live longer if all of the cancer has been removed. There are, however, ongoing clinical trials that are looking at adjuvant treatment for kidney cancer. Ask your doctor if you are interested in learning more about adjuvant therapies being studied in clinical trials.

If you cannot have kidney surgery because of other serious medical problems, you may benefit from other local treatments such as cryotherapy, radiofrequency ablation, or
arterial embolization. Radiation therapy may be another option. These treatments are generally only given when surgery can’t be done. Although they haven’t been compared to surgery directly in studies, most doctors consider these treatments to be less effective than surgery.

Active surveillance is another option for some people with small kidney tumors. In this approach, the tumor is watched closely (with CTs or ultrasounds) and only treated if it grows.

Stage IV

Stage IV kidney cancer means that the cancer has grown outside of the kidney or it has spread to other parts of the body such as distant lymph nodes or other organs.

Treatment of stage IV kidney cancer depends on how extensive the cancer is and on the person’s general health. In some cases, surgery may still be a part of treatment.

In rare cases where the main tumor appears to be removable and the cancer has only spread to one other area (such as to one or a few spots in the lungs), surgery to remove both the kidney and the metastasis may be an option if a person is in good enough health. Otherwise, treatment with one of the targeted therapies would probably be the first option.

If the main tumor is removable but the cancer has spread extensively elsewhere, removing the kidney may still be helpful. This would likely be followed by systemic therapy, which might consist of one of the targeted therapies or immunotherapy (interleukin-2). More often targeted therapy is used first. It’s not clear if any one of the targeted therapies or any particular sequence is better than another, although temsirolimus appears to be most useful in people with kidney cancers that have a poorer prognosis (outlook).

For cancers that can’t be removed surgically (because of the extent of the tumor or a person’s health), first-line treatment is likely to be one of the targeted therapies or cytokine therapy.

Because advanced kidney cancer is very hard to cure, clinical trials of new combinations of targeted therapies, immunotherapy, or other new treatments are also options.

For some patients, palliative treatments such as embolization or radiation therapy may be the best option. A special form of radiation therapy called stereotactic radiosurgery
can be very effective in treating single brain metastases. Surgery or radiation therapy can also be used to help reduce pain or other symptoms of metastases in some other places, such as the bones. You can read more about palliative treatment for cancer in the Palliative Care section of our website or in Advanced Cancer.

Having your pain controlled can help you maintain your quality of life. It’s important to realize that medicines to relieve pain do not interfere with your other treatments and that controlling pain will often help you be more active and continue your daily activities.

Recurrent cancer

Cancer is called recurrent when it come backs after treatment. Recurrence can be local (in or near the same place it started) or distant (spread to organs such as the lungs or bone). Treatment of kidney cancer that comes back (recurs) after initial treatment depends on where it recurs and what treatments have been used, as well as a person’s health and wishes for further treatment.

For cancers that recur after initial surgery, further surgery might be an option. Otherwise, treatment with targeted therapies or immunotherapy will probably be recommended. Clinical trials of new treatments are an option as well.

For cancers that progress (continue to grow or spread) during treatment with targeted therapy or cytokine therapy, another type of targeted therapy or immunotherapy may be helpful. If these don’t work, chemotherapy may be tried, especially in people with non-clear cell types of renal cell cancer. Clinical trials may be a good option in this situation for those who want to continue treatment.

Again, for some patients, palliative treatments such as embolization or radiation therapy may be the best option. Controlling symptoms such as pain is an important part of treatment at any stage of the disease.

For more information see Understanding Recurrence.

- References
See all references for Kidney Cancer

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