



Percutaneous Kidney Cryoablation

Cryoablation is minimally invasive and is a very effective treatment for kidney cancer.^{1,2}

There are two approaches for cryoablation used to treat kidney cancer; the type chosen will depend on your physician's judgment, along with the location and size of the tumor(s) to be treated. This leaflet provides you with more information about **percutaneous image-guided kidney cryoablation.**

Percutaneous image-guided kidney cryoablation can usually be carried out using local anesthetic. This means patients remain conscious during the procedure, but doctors ensure that they are not in any pain. Patients lie on their belly or on their side, so that the doctor has access to the kidney to be treated. CT (computerized tomography), MR (magnetic resonance) or, very occasionally, ultrasound imaging technology, is used to give the doctor a clear view of the area to be treated.

Harmless fluid or gas might be introduced into the abdomen to help to move structures (major blood vessels and other organs) away from the diseased kidney so that these are protected from the freezing process.



1. Atwell et al, J Urology, 2010
2. Rodriguez et al, Cardiovasc Intervent Radiol, 2011

From the images being received, doctors identify where they need to position the cryoablation probes, which are inserted directly through the skin into the kidney. Compressed gas is delivered into the probes. The gas circulates through the closed metal probes generating freezing temperatures and forming ice, which the doctor shapes around the kidney tumor. Throughout this process, the doctor watches the images on the screens to monitor and control the shape and size of the ice being created, ensuring that all of the cancerous tissue is thoroughly frozen and killed. Doctors usually also freeze a small margin (surgical margin) of normal kidney tissue around the tumor in case it contains any cancer cells which are not visible.

What are the benefits of percutaneous cryoablation?

- A **minimally invasive** treatment option – less invasive than standard or robotic laparoscopic partial nephrectomy (LPN)
- A treatment that demonstrated **95% effectiveness** in targeted tumors¹
- **Nephron-sparing treatment** (healthy, functioning kidney remains)²
- **Clinical data** supports safety and effectiveness^{1,3}
- **Decreased blood loss** versus surgery (including laparoscopic surgery)^{4,5}
- **Multiple tumors** can be treated in one session
- **Single treatment**, performed on outpatient basis or requiring just one overnight stay
- **Shorter recovery time** than partial nephrectomy permits rapid return to everyday life
- **Can be used when other treatments**, such as prior surgery, have failed
- May be suitable for **patients who cannot tolerate general anesthesia**^{6,7}
- **Less painful** than radiofrequency ablation⁶
- **Lower morbidity (side effects) than partial nephrectomy** (including laparoscopic)^{4,5}
- **Can be repeated**, should the cancer come back

1. Rodriguez et al, Cardiovasc Intervent Radiology, 2011

2. Lucas & Cadeddu, J Endourology, 2010

3. Atwell et al, J Urology, 2010

4. Mues & Landman, World J Urology, 2010

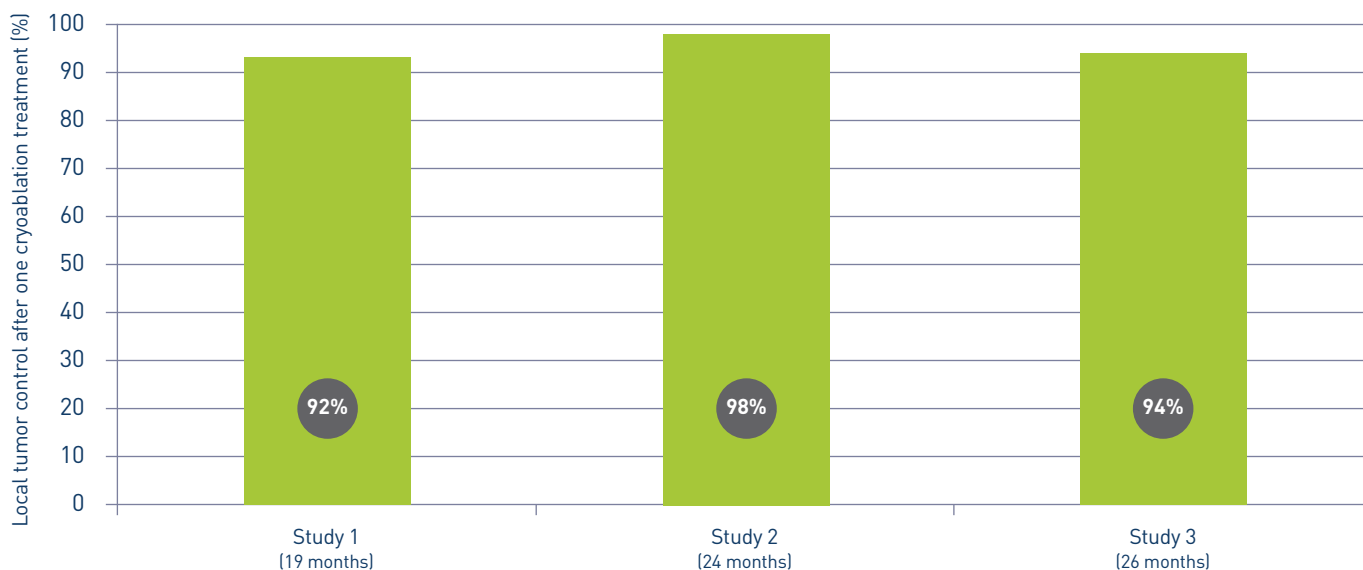
5. Haramis et al, Laparoendosc Adv Surg Tech, 2011

6. Gupta et al, J Urology, 2006

7. Allaf et al, Radiology, 2005

Effectiveness of Percutaneous Cryoablation for Kidney Cancer (% Successful Local Tumor Control)

Local tumor control is a measure of how well the **cancer has been destroyed or limited** in the target tissue. A **high number** means **more effective control** at time of follow up.



Study 1: Littrup et al, JVIR, 2007

Study 2: Rodriguez et al, Cardiovasc Intervent Radiology, 2011

Study 3: Atwell et al, J Urology, 2010

“The high resolution imaging technology enables visualization of the tumor and accurate placement of the cryoablation probes without the need for surgical incision.”

Professor Afshin Gangi, University of Strasbourg Hospital, France

How long does the procedure take?

The procedure length will vary according to the size and location of the tumor, but usually lasts about one hour.

How will I feel after the procedure?

Most patients experience very little discomfort or pain after percutaneous kidney cryoablation. You may feel a little bruised or sore, and you will be given pain medicine if this is a problem for you.

How long will I need to stay in the hospital?

Some hospitals carry out percutaneous kidney cryoablation as a day-case, meaning you do not need to stay in the hospital overnight. Other doctors prefer their patients to stay in overnight (depending on other associated conditions). Your doctor will want to make sure that you are eating, drinking and urinating comfortably before you leave the hospital.

“*It was an excellent treatment; I recovered quickly and had no pain. It was truly minimally invasive with less risks than the more traditional surgery.*”

Percutaneous kidney cryoablation patient

How long before I can return to work and other activities?

Your doctor will advise you on when it is sensible for you to return to work and resume other activities since this will depend on your general health and the work you do. Usually, patients are back to their normal day-to-day activities within two weeks of the procedure – often sooner.

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