**PERCUTANEOUS CRYOABLATION GLOSSARY GUIDE**

**Ablation:** Destruction of living tissue within the body by means other than surgical removal. Ablation can occur by extreme heat or cold, chemicals, laser, etc. Most ablation can be done through minimally invasive, image-guided approaches.

**Benign:** Refers to a non-cancerous tumor or lesion. They are usually not life-threatening, but they sometimes require removal or ablation because of their size or location.

**Conscious Sedation:** The use of medication to reduce consciousness in a patient while allowing the patient to respond appropriately to verbal commands and/or gentle stimulation.

**Cryoablation or Cryotherapy:** Destruction (ablation) of cells using lethally cold ice. Tumors are frozen in the body as an alternative to surgical removal.

**Cancer:** An invasive growth or tumor that may spread (metastasize) to other sites in the body and become life-threatening if not treated.

**CT imaging or CT scan:** Computed Tomography (CT) uses special x-ray equipment to obtain images within the body from different angles and then uses computer processing of the information to show a cross-section of body tissues and organs. It can show several physical structures as well as the location of medical instruments inserted into the body.

**Lesion:** A benign or malignant localized area of abnormal tissue, usually well-defined.

**Malignant:** Refers to a cancerous tumor or lesion.

**Metastasis; metastatic disease:** Cancer spread from an original tumor to other locations or sites in the body.

**Palliation; palliative treatment:** Non-curative medical treatment administered to relieve pain.

**Percutaneous:** Insertion of very slender medical instruments directly through the skin, without requiring a large cut or incision, into a location within the body.

**Tumor:** An uncontrolled and abnormal growth of cells, which may be benign or malignant.

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ANSWERS TO YOUR QUESTIONS ABOUT PERCUTANEOUS CRYOABLATION

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TREATING TUMORS WITH PERCUTANEOUS CRYOABLATION

**1 American College of Radiology,**

**2 Society of Interventional Radiology,**
http://www.sirweb.org/patients/kidney-cancer

**3 Cancer, Vol. 119, Callstrom MR et al: Percutaneous Image-Guided Cryoablation of Painful Metastases Involving Bone, pp. 1033-1041, Copyright 2013.**


**6 http://www.sirtoday.org/cryoablation-therapy-effective-at-easing-phantom-limb-pain-in-amputees/**
Percutaneous cryoablation is a minimally invasive, image-guided treatment that destroys (ablates) tumors and other targeted tissue with extreme cold while sparing surrounding healthy tissue.

**How does percutaneous cryoablation mean?**

Percutaneous means inserted through the skin, as in placing a cryoprobe through the skin. Cryoablation comes from two ancient words: Cryo is the Greek word for cold and ablation is the Latin word for destroying tissue. In other words, percutaneous cryoablation means destroying tissue with extreme cold by inserting a probe through the skin.

**How does percutaneous cryoablation work?**

After anesthesia or conscious sedation is administered, one or more cryoprobes (slender needles) are inserted into or near the tumor. The doctor uses CT imaging scans to guide placement and verify that the cryoprobe tip is precisely positioned.

Once each cryoprobe is in place, a cryogen (freezing agent) is circulated inside the probe to create a very cold iceball at the tip. The iceball encompasses the entire tumor plus a safety margin beyond the tumor edges, which is verified by a CT scan. Once this is accomplished, the doctor will then warm and remove the cryoprobe(s).

**What does percutaneous cryoablation do?**

Lethal ice destroys tumors with a combination of effects. Basically, freezing dries out cells and damages them beyond repair. It ultimately cuts off the tumor’s blood supply. It leaves behind harmless tissue that is absorbed by the body over time.

**What are the advantages of percutaneous cryoablation?**

Freezing is a natural process that is typically well tolerated by the body. Typically, cryoablation causes less pain during and after the procedure compared to heat-based treatments such as radiofrequency ablation and recovery time is shorter than for surgery. While no treatment comes with a guarantee of success, a distinctive feature of cryo is its repeatability, if required.

**What kinds of conditions can be treated with percutaneous cryoablation?**

- **Kidney, lung & liver tumors:** Percutaneous cryoablation is often used to treat kidney, lung and liver tumors. In kidneys, clinical data shows nearly 100% efficacy for tumors up to 4 centimeters in diameter.
- **Painful bone metastases as part of palliative care:** Some bone metastases (cancer that spreads to other parts of the body) become painful because the tumor attacks the bone and creates holes that make the bone thin and weak. As the tumor overtakes the bones, surrounding nerve endings send pain signals to the brain. Cryoablation can be used as a palliative (non-curative) treatment to reduce this pain.

Twenty-four weeks after cryoablation for painful bone metastases, 69% of patients report at least a 2-point drop (out of 10) in average pain scores.

- **Nerve tissue in pain management:** Cryoablation freezes nerves to provide relief from chronic nerve pain. Cryoablation stops the pain signal by physically damaging the nerve. Nerves are coated by sheaths of basic proteins called myelin. Without this protective outer layer, the nerve can’t communicate with the brain. Freezing the nerve actually destroys that myelin coating.

Freezing painful nerves after chest surgery has shown to significantly reduce pain scores and maintain this effect for weeks to months.

When limbs have to be amputated, nerve endings at the amputation site can sometimes continue to send pain signals to the brain, making the person still feel pain as if the limb were still there (phantom limb pain). Image-guided percutaneous nerve cryoablation may also be a feasible treatment for this pain.

**Who is a candidate for percutaneous cryoablation?**

Almost any adult with an unresectable (non-operable) tumor that requires treatment may be a candidate for percutaneous cryoablation. Because many patients can be treated under conscious sedation, patients who cannot receive general anesthesia may also be excellent candidates for cryoablation. Patients with extensive metastatic disease may or may not be candidates for cryoablation. Your doctor will inform you if cryo is appropriate for you.

**How long does the procedure take?**

Your physician will best answer that question, but a typical percutaneous cryoablation procedure takes about 1 1/2 to 2 hours.

**How do I prepare for the procedure?**

Your physician will let you know how best to prepare for the procedure. Patients who are taking certain medications, such as blood thinners, may be required to stop several days prior to the procedure. Diet restrictions prior to the procedure and what to bring with you will vary for each person. Check with your doctor for any pre-procedure instructions.

**What will happen after the procedure?**

Typically, after the procedure you will be taken to a recovery area where you will be monitored for a certain period of time. If your procedure requires you to stay overnight, you will be taken to your room once you can be safely moved. Otherwise, you may be allowed to go home the same day. Most patients may resume their normal routine in a day or two dependent upon their doctor’s advice.

**How long is the recovery period?**

While each person is different, most patients recover quickly. Typically, patients spend only one night in the hospital or may even go home the same day. Most patients make a full recovery within a week or so. However, as with any medical procedure there are risks, and you should always closely follow your doctor’s advice.

**How will my results be monitored?**

Your physician will schedule a CT scan shortly after the procedure. Follow-up CT scans may also be used to monitor your progress over time.

**What are the risks of percutaneous cryoablation?**

As with any medical procedure, there are potential risks and complications to percutaneous cryoablation. Your physician will advise you of your specific risks before the procedure.

Remember: This brochure is not a substitute for medical advice. Be sure to ask your doctor any questions you have and always be sure to follow your doctor’s advice.

To obtain more information about percutaneous cryoablation, call this number.

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