

Radiofrequency Ablation (RFA)

As vascular experts, interventional radiologists are uniquely skilled in using the vascular system to deliver targeted treatments via catheter throughout the body. In treating cancer patients, interventional radiologists can attack the cancer tumor from inside the body without medicating or affecting other parts of the body.

Radiofrequency Ablation (RFA) is a minimally invasive treatment option, which implements localized treatment to kill tumor cells with heat while preserving the healthy surrounding tissue. Interventional radiologists use image guidance, which enables them to perform radiofrequency ablation **directly** into the cancerous tumor. Due to the localized nature of this treatment, RFA does not have any systemic side effects. Radiofrequency ablation can be performed without affecting the patient's overall health and most patients can resume normal daily activity within a few days.

During this procedure, a needle is inserted into the site of the tumor with the help of "real-time" image guidance. Once the exact location is confirmed, the tip of the special needle will begin to transmit energy causing the atoms in the cells to vibrate and create friction. This energy can generate up to 100 degrees Celsius and will kill these cells. Once the cells have been destroyed the dead tissue will shrink or vanish all together as it is slowly absorbed and excreted like the other waste products in the body. Multiple tumors may be treated in a procedure and can be repeated as needed to destroy any new tumors that may arise. Radiofrequency ablation can be used for liver, lung, kidney, bone and other soft tissue tumors.

Who is a candidate for Radiofrequency Ablation?

Radiofrequency ablation can be used for liver, lung, kidney, bone and other soft tissue tumors. Radiofrequency ablation is not intended to replace any of the current treatment regimens that the Oncologist has suggested. This treatment may be used alone or has been extremely successful in conjunction with traditional therapies. RFA has been used to reduce the size of tumors in many cases to enable chemotherapy or radiation treatment to be more effective. Radiofrequency ablation has also been effectively used pre-operatively to decrease blood loss during surgery.

Radiofrequency ablation is used in two varieties of **liver** cancer, including hepatocellular carcinoma, primary liver cancer, and colon cancer that has spread to the liver. A patient who may not have enough

liver tissue left to function properly or has multiple smaller tumors that would be difficult to remove surgically would be good candidates for RFA. If chemotherapy has failed or reoccurrence of tumors has taken place then the patient would also be a good candidate for RFA.

Early stage **lung** cancer can be treated with Radiofrequency ablation. Many inoperable patients have had successful RFA procedures. If a patient is severely ill and cannot withstand surgery they could be a candidate. A patient with a large, nonsurgical lung tumor may also be eligible.

Renal cell carcinomas, **kidney** tumors, are treated effectively by RFA. If a patient only has one kidney; isn't a good candidate for surgery; or elderly they may be a candidate for RFA. Furthermore, if there is a familial predisposition for multiple kidney tumors or the tumor is less than four centimeters in size, then the patient would also be a good candidate for RFA.

In bone tumors, RFA has been able to reduce pain significantly. Please consult with an Interventional radiologist for any further questions or to find out eligibility for radiofrequency ablation.

How Do I Prepare for Radiofrequency Ablation?

The day before the procedure you cannot have any food or drink after midnight unless you have pills that need to be taken the morning of the procedure. Please be sure to inform your doctor of any medications that you will be taking the morning of the procedure.

What Should I Expect During the Procedure?

Radiofrequency ablation is performed by an interventional radiologist using CT (Computed Tomography) or ultrasound for image guidance. Interventional radiologists are specially trained in minimally invasive procedures, such as Radiofrequency ablation.

Once all of the necessary paperwork is complete, a nurse from the Interventional Radiology suite will take you to prep for the procedure. For this procedure, you will be placed under general anesthesia

(totally asleep) by an anesthesiologist. In the procedure room, the nurse will help you lie onto the exam table. The anesthesia will be administered to help you relax and the treatment area will be cleaned and covered with sterile sheets.

The CT or ultrasound technologist will take images of the tumor in question to verify exact location for treatment. Once located the Interventional radiologist will insert the RFA probe (needle) through the skin to the tumor. Once the electrode is in position within the tumor, radiofrequency energy will be applied. This energy comes in the form of heat that will burn the tumor from the inside out. Once complete the RFA probe will be removed and the area will be cleaned and covered.

What Should I Expect After the Procedure?

When general anesthesia is used, the patient will be taken to the post anesthesia recovery unit for approximately 1-2 hours. A nurse will be present to monitor vital signs and the treatment area until the patient is discharged. Let the nurse know if you are experiencing pain or discomfort during this time. Following recovery, you will be discharged to go home. Please be sure to have a friend or relative with you to take you home.

In very rare circumstances, the patient will have to remain in the hospital overnight for additional monitoring.

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