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Non-Surgical Thermal Ablation Reduces Chronic Pain in 71 Percent of Patients with Chest Wall Tumors

Interventional Radiology Treatment Reduces Chronic Pain With Minimal Side Effects

Toronto, Ontario (April 3, 2006) – Data presented at the Society of Interventional Radiology's 31st Annual Scientific Meeting shows that the combination of non-surgical thermal ablation with radiation reduces severe chronic pain caused by chest wall tumors in 71.4 percent of patients and the benefit was maintained in 66.7 percent of the patients who survived to one year. The new non-surgical techniques studied — radiofrequency ablation, cryoablation and microwave ablation — heat or freeze the cancerous cells, killing the tumor and nerve endings in the vicinity that were causing pain. The new interventional radiology treatments offer patients improved quality of life and are easily tolerated. These non-surgical treatments are ideal for those who do not respond to narcotics or radiation, whose pain is worsening with the cancer's growth, or whose treatment options are exhausted. Thermal ablation treatments are a growing area in interventional oncology, a specialty area of medicine within interventional radiology.

"Pain affects more than 60 percent of patients with advanced cancer. Thermal ablation allows us to reduce a patient's chronic pain non-surgically, improve their quality of life and enable them to live with cancer, all without serious side effects," states study author Damian Dupuy, M.D., of Brown University Rhode Island Hospital. "This research shows these interventional treatments provide quick and lasting pain reduction. Since it is a local treatment that does not harm healthy tissue, the treatment can be repeated as often as needed to keep a patient comfortable."

While the tumors themselves may not be painful, when they press against nerves or interfere with vital organs, they can cause pain. Tumors in the thoracic wall (chest) are excruciatingly painful and cause patients feel as though their ribs are cracked, making it painful to even breathe. Currently, the pain these patients experience can only be treated with heavy narcotics which diminish quality of life, and may not provide adequate symptom relief.

About the Study

The patients in the study were terminal with a life expectancy of less than one year and were not surgical candidates. The median age of the 49 patients in the study was 65. Combined, they had a total of 56 symptomatic chest wall masses that were treated with thermal ablation, in conjunction with external-beam radiation therapy. Forty-nine radiofrequency ablations, five microwave ablations and two cryoablations were performed. Of the 42 cases available for follow-up, 71.4 percent reported a positive

benefit from the treatment and 19 percent reported no change in their pain. Most importantly, of the patients who survived to one year, 66.7 percent maintained a reduction in pain and benefit from thermal ablation treatment.

"These patients have been through so much fighting their cancer. As a physician, it's so gratifying to be able to provide a treatment that is so beneficial to patients and so easy for them to undergo," commented Dupuy. "These new interventional treatments offer cancer patients a chance to feel more normal."

Abstract 168 can be found at www.SIRmeeting.org.

About Thermal Ablation

Tumors need a blood supply, which they actively generate, to feed themselves and grow. As vascular experts, interventional radiologists are uniquely skilled in using the vascular system to deliver targeted treatments via catheter throughout the body or percutaneously through the skin. In treating cancer patients, interventional radiologists can attack the cancer tumor from inside the body without medicating or affecting other parts of the body. These minimally-invasive treatments are much easier on the patient than systemic therapy. Thermal ablation can be given without affecting the patient's overall health and most people can resume their usual activities in a few days.

During thermal ablation, an interventional radiologist uses imaging to guide a small needle through the skin into the tumor. Energy is then transmitted to the tip of the needle to "cook" the tumor with heat or "freeze" it with cold. The treatment usually does not require general anesthesia. By decreasing the size of a large mass, the pain and other debilitating symptoms caused by the tumors are relieved.

Radiofrequency ablation (RFA) offers a non-surgical, localized treatment that kills the tumor cells with heat, while sparing the healthy liver tissue. During the procedure, the interventional radiologist guides a small needle through the skin into the tumor. From the tip of the needle, radiofrequency (electrical) energy is transmitted to the tip of the needle, where it produces heat in the tissues. The dead tumor tissue shrinks and slowly forms a scar. In a small number of cases, RFA can extend patients' lives, but it is generally palliative. Depending on the size of the tumor, RFA can shrink or kill the tumor, extending the patient's survival time and greatly improving their quality of life while living with cancer.

Cryoablation is similar to RFA in that the energy is delivered directly into the tumor by a probe that is inserted through the skin using imaging. But rather than killing the tumor with heat, cryoablation uses an extremely cold gas to freeze it. This technique has been used for many years by surgeons in the operating room, but in the last few years, the needles have become small enough to be used by interventional radiologists through a small nick in the skin, without the need for an operation. The "ice ball" that is created around the needle grows in size and destroys the frozen tumor cells.

Microwave ablation utilizes electromagnetic microwaves to agitate the water molecules in the tumor and surrounding tissue, ultimately reversing the cells' polarity. This change in polarity causes the cells to rotate back and forth, causing friction and heat which kills the cell (coagulation necrosis).

About the Society of Interventional Radiology

Interventional radiologists are board-certified physicians who specialize in minimally invasive, targeted treatments. They use X-rays, MRI and other imaging to advance a catheter in the body, usually in an artery, to treat at the source of the disease non-surgically. They are certified in both Diagnostic Radiology and Vascular & Interventional Radiology. As the inventors of angioplasty and the catheter-delivered stent, interventional radiologists pioneered minimally invasive modern medicine, and provide treatments that offer less risk, less pain and less recovery time compared to open surgery**.** More information can be found at www.SIRweb.org.

Local interviews, medical illustrations and broadcast quality video footage are available by contacting SIR's Communications Department at Emily@SIRweb.org or (703) 691-1805.

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