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ISET NEWS BRIEFS

Scientific Sessions, Clinical Reviews and Trial Updates

Embargoed for release until 1:50 p.m. E.T. Sunday, January 17, 2010

Medical GPS: The Needle is the “Car”

National Institutes of Health (NIH) research being presented at ISET focuses on a technology that works like a Global Positioning System (GPS) to help interventional physicians navigate inside the body, taking the guesswork out of minimally invasive biopsies and cancer treatment. Electromagnetic (EM) tracking helps doctors pinpoint tumors, enabling more accurate biopsies and targeting of therapies such as radiofrequency ablation. This is the first report using the technology to biopsy and treat kidney tumors.

Nadine Abi-Jaoudeh, M.D., attending physician at NIH, is presenting research at ISET on 18 patients with multiple kidney tumors: 10 undergoing biopsy and eight undergoing treatment with radiofrequency ablation (RFA), which involves placing a needle in the tumor and heating it until it is destroyed or “cooked.” These patients are difficult to treat because they have many benign and malignant tumors. It is challenging but important in these patients to biopsy or treat the exact tumor in question. Exact needle positioning is crucial, however these tumors may not be readily visible on non-contrast CT and ultrasound, which are the usual imaging techniques used in conventional minimally invasive biopsies and RFA. With EM tracking, existing imaging studies – including magnetic resonance imaging (MRI), positron emission tomography (PET)

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and computed tomography (CT) – can be superimposed and used in real time to guide physicians as they perform minimally invasive biopsies and RFA, much like a video game. Biopsy group: In 10 patients, EM tracking helped physicians differentiate suspicious tumors from others nearby. Three of the 10 patients had malignant tumors.

- RFA group: Six of eight patients (75 percent) had successful RFA confirmed by lack of enhancement on contrast-enhanced CT. One patient had a recurrence five months later that was successfully treated with repeat RFA and one patient had incomplete RFA due to the presence of a nearby vital structure that prevented treatment.

Currently, image-guided minimally invasive biopsies and ablations are less than ideal and can challenge the limits of conventional techniques. As a result, the procedure can require some educated guesswork on the part of physicians. Like turning the headlights on when driving at night, EM tracking helps doctors “see” clearly where they couldn’t before.

“Nephron-sparing procedures (those that preserve kidney tissue) are extremely important, especially in patients with hereditary kidney cancer. EM tracking improves localization of the tumors and needle during procedures which may improve outcome in these patients,” said Dr. Abi-Jaoudeh. “This technology isn’t widespread yet, but it’s becoming much more widely available, and has great promise.”

The research being presented at ISET by Dr. Abi-Jaoudeh is being conducted at NIH by Bradford Wood, M.D., Aradhana Venkatesan, M.D., Peter Pinto, M.D. and Dr. Abi-Jaoudeh.

The International Symposium on Endovascular Therapy (ISET) is attended by more than 1,200 physicians, scientists, allied professionals and industry professionals from around the

world. The meeting pioneered the use of live cases to promote the multidisciplinary treatment of cardiac and vascular disease by endovascular means. ISET is presented by the Baptist Cardiac & Vascular Institute, Miami. ISET 2010 is taking place Jan. 17-21 near Miami Beach, Fla. For more information, visit www.ISET.org.

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Editor's note: Study numbers are current as of January 12, 2010 and may change upon presentation at the ISET meeting.

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