De RSNA News*

RSNA Presents New Image-guided Therapies to NY Media

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RSNA's Public Information Committee (PIC) has launched a new program to help educate patients about the critical role that radiology plays in their health care. Before an audience of New York City reporters in June, RSNA presented its first media briefing.

The theme of the media briefing was image guided therapies. Innovators and leaders in radiology offered information on topics ranging from uterine fibroid embolization (UFE), pelvic congestion syndrome and detachable coil embolization, to chemoembolization, gene therapy and new research published in Radiology about combination radiofrequency ablation (RFA) and chemotherapy.

"A few years ago, conventional surgery with a prolonged hospital stay was a main stay of surgical practice,"explained Hedvig Hricak, M.D., Ph.D.,RSNA Board Liaison designate for Publications and Communications."With the advancement of the technology, minimally invasive surgery has been introduced. Today, another development in the field of surgical practice is image guided therapy. It is performed on an out patient basis and, in many cases, is nothing short of a miracle."

These new therapies shorten hospital stays, ease pain, reduce recovery time and lower health care costs.

PIC Chairman Burton P. Drayer,M.D., added, "The radiologist is now in the fore front of patient care—not only in diagnosis, but also in therapy."

Women's Health

Robert L. Vogelzang, M.D., from Northwestern University Medical School and Northwestern Memorial Hospital in Chicago, stressed the importance of interventional radiology in modern health care, "It is without too much over statement to say that we are the first and we continue to be the leaders in image guided therapies for a wide variety of disorders."

His presentation centered on UFE for the treatment of symptomatic fibroids. "Of all the applications I've seen using embolization, this has the most potential impact on public health and will positively influence the lives of women," Dr. Vogelzang said. "We no longer consider it experimental or in the feasibility stage. It has close to 90 percent effectiveness."

In a second presentation on women's health, Anne C. Roberts, M.D., from the University of California, San Diego School of Medicine, offered information on what may be a grossly under diagnosed condition called pelvic congestion syndrome—abnormal blood flow into the pelvis causing engorgement of pelvic veins.

"The patients describe a dull, aching pain in their pelvis," explained Dr. Roberts. "The pain is there most of the time. It's better in the morning but gets worse during the day and gets particularly bad when they are standing for long periods of time."

The big problem with diagnosing chronic pelvic congestion is there are often no findings on physical examination. The condition is also difficult to diagnose with laparoscopy and other methods in which the patient is lying flat or tilted headdown and the blood egresses out of the pelvis. The difficulty in making the diagnosis may lead to referral for psychiatric treatment, according to Dr. Roberts, who performs venography to confirm chronic pelvic congestion and then embolization to treat it with a 95 percent success rate.

Vascular Disease

Detachable coil embolization is an important new treatment option that needs to be offered to patients with brain aneurysms, according to Jacques E. Dion, M.D., from Emory University Hospital and the Atlanta Veterans Affairs Center.

He pointed to the landmark International Subarachnoid Aneurysm Trial (ISAT) in which more than 2,100 patients were randomized to either craniotomy or coiling. "The bottom line of this study is that it had to be stopped short of the planned enrollment of 2,500 patients because the coil patients did so much better than the surgical patients," Dr. Dion explained. "There was a nearly 23 percent relative differen-

ce in death and significant disability causing dependence. It would have been unethical to continue this study."

Endovascular coiling is done in about one third of all brain aneurysm cases in the United States, but in Finland, Great Britain and France, close to 90 percent of aneurysms are treated with endovascular coiling, he said. He also pointed to future coiling procedures using hydrogel as a transporting vector for cells that will allow for healing from inside the aneurysm.

A second presentation on aneurysms focused on abdominal aortic aneurysms (AAAs) and how the image guided endograft is offering a promising treatment option. "Because patients experience less anesthesia and less blood loss with endovascular repair, they are able to recover and return to their customary activities more quickly," said David M. Williams, M.D., from the University of Michigan in Ann Arbor.

He cautioned, however, that endovascular repair is not an option in many cases. "It depends on the anatomy of the aneurysm, the anatomy of the arteries and the medical risks of the patient," he said.

Because as many as nine percent of Americans between the ages of 60 and 70 suffer from AAAs, and because 50 percent of ruptured AAAs result in death, Dr. Williams is advocating a nationwide screening campaign to screen for abdominal aortic aneurysms. "We estimate we can save 10,000 lives a year in the United States with a screening program," he said. "If you can treat AAA electively, we estimate we can save $50 million a year in healthcare costs."

The Society for Interventional Radiology plans to incorporate AAA screening into its Legs for Life Campaign this fall.

Treating Cancer

Jonathan B. Kruskal, M.D., Ph.D., from Harvard Medical School and Beth Israel Deaconess Medical Center in Boston, provided a glimpse into how research at the laboratory level is changing the way interventional radiology is involved in treating cancer.

"Radiologists are going to play a very important role in the entire field of gene therapy," he said. "The role we will be playing will be the actual delivery of genes into patients. Radiologists will also help to evaluate the effect of gene therapy."

In addition to a brief overview of molecular imaging and gene therapy, Dr. Kruskal also presented findings from a study in the July 2003 issue of Radiology in which he and colleagues used RFA combined with liposomal chemotherapy to treat breast tumors in rats. They found that the combination therapy increases the amount of tumor that is killed, slows tumor regrowth, leads to more drug delivered to the tumor and improves survival.

The combination technique has now been used successfully on 25 liver cancer patients at Beth Israel Hospital with future tests under way.

Chemoembolization is also improving treatment of liver cancer. Jeff Geschwind, M.D., from Johns Hopkins Hospital and Johns Hopkins University School of Medicine in Baltimore, explained that when surgery for liver cancer is not possible, chemoembolization is the treatment of choice for widespread or diffuse liver cancer.

"With chemoembolization, you keep the drugs within the tumor for longer periods of time and reduce systemic toxicity. That is a clear goal of therapy," said Dr. Geschwind.

Operating Room of the Future

After learning about the image-guided therapeutic techniques revolutionizing today's healthcare, reporters also saw a glimpse of the operating room of the future.

Bradford J. Wood, M.D., from the National Institutes of Health (NIH) Clinical Center in Bethesda, Md., showed photographs and illustrations of the tools currently being used and systems under development that will revolutionize patient care. These include robotics, global positioning systems and next generation image displays.

"Traditionally, imaging and surgery have been separate. In this case, what interventional radiology is moving towards in the coming years is bringing the operating room to imaging, rather than the converse," said Dr. Wood.

Currently the NIH Clinical Center is using magnetic tracking during tumor ablation. In late August or early September a robotic prototype will be used for most needle biopsies and tumor ablations. "For the first robot prototype, for the first one that we used with the first software, I walked into the clinic, clicked on a screen for the skinentry point and then clicked on a one millimeter target that was 20 centimeters deep in the liver at a double oblique angle," he explained. "This would be difficult for any human to hit in 20 tries, much less one. The robotic prototype hit the target precisely the first time. This is exquisite technology."

Expanded information on some of these presentations will be included in future editions of RSNA News.

The radiologist is now in the forefront of patient care— not only in diagnosis, but also in therapy.
—Burton P. Drayer, M.D.