

## Post-treatment PET scans can reassure cervical cancer patients

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Whole-body PET (positron emission tomography) scans done three months after completion of cervical cancer therapy can ensure that patients are disease-free or warn that further interventions are needed, according to a study at Washington University School of Medicine in St. Louis.

"This is the first time we can say that we have a reliable test to follow cervical cancer patients after therapy," says Julie K. Schwarz, M.D., Ph.D., a Barnes-Jewish Hospital resident in the Department of Radiation Oncology. "We ask them to come back for a follow-up visit about three months after treatment is finished, and we perform a PET scan. If the scan shows a complete response to treatment, we can say with confidence that they are going to do extremely well. That's really powerful."

Schwarz and colleagues published their study in the Nov. 21, 2007 issue of the *Journal of the American Medical Association* (JAMA).

Without a test like PET, it can be difficult to tell whether treatment has eliminated cervical tumors, Schwarz says. That's because small tumors are hard to detect with pelvic exams, and overt symptoms, such as leg swelling, don't occur until tumors grow quite large. Furthermore, CT and MRI scans often don't differentiate tumor tissue from surrounding tissues, Pap tests can be inaccurate because of tissue changes induced by radiation therapy, and no blood test exists to detect the presence of cervical cancer.

Cancerous tumors glow brightly in the PET scans used in the study, called FDG-PET scans, which detect emissions from radioactively tagged blood sugar, or glucose. Tumor tissue traps more of the glucose than does normal tissue, making tumors readily discernable.

Not only can post-treatment PET scans reassure those patients whose tumors respond well to therapy, they can also identify those patients whose tumors have not responded so that their physicians can explore other treatment options before the cancer advances further. These options can include surgery to remove tissue, standard chemotherapy or experimental therapies available through clinical trials.

"Follow-up PET scans can also be very useful tools for physicians conducting clinical trials of new therapies," Schwarz says. "Our study has shown that the scans are predictive of long-term survival. Using PET scans, clinical researchers can get an early readout of how effective experimental treatments might be."

Schwarz and colleagues also have a project to compare follow-up PET results with tumor biology to find out why some tumors don't respond well to therapy. In a study that won her a Resident Clinical Basic Science Research Award from the American Society for Therapeutic Radiation and Oncology, a global organization of medical professionals, Schwarz found differences in gene activity between tumors from patients that responded well and those that had persistent disease. Ongoing research will look for the significance of these differences.

The study's senior author, Perry Grigsby, M.D., professor of radiation oncology, of nuclear medicine and of obstetrics and gynecology and a radiation oncologist with the Siteman Cancer Center at Washington University School of Medicine and Barnes-Jewish Hospital, has overseen a patient database that now has PET images and tumor samples from hundreds of cervical cancer patients.

"We have a tremendous database of PET images collected from patients in the department since 1998," Schwarz says. "We want to combine these results with analyses of tumor biopsies so that we can more effectively choose additional therapies for patients who haven't responded to the initial treatment."

Source: Washington University in St. Louis

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