PET Shows Promise, Innovation in Detecting, Monitoring Cancers Specific to Women

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Imaging With FDG "Underutilized" in Studying Cervical, Ovarian, Endometrial, Vulvar and Vaginal Cancers, According to Article in Society of Nuclear Medicine Publication

RESTON, Va.—The use of positron emission tomography (PET) with the radiotracer fluorodeoxyglucose (FDG) is "underutilized" in diagnosing and treating cancer of the reproductive organs—the cervix, uterus, ovaries, fallopian tubes, vagina and vulva—according to an article in the November issue of the Journal of Nuclear Medicine. Doctors are beginning to see the potential of using PET to look inside a woman's body to find gynecologic disease and its progression—and to follow how a treatment works.

PET imaging with FDG is having a "great impact" in determining the extent of spread of cancers of the reproductive system, especially when doctors get ambiguous results from other conventional imaging tests such as ultrasound, magnetic resonance imaging (MRI) or computed tomography (CT), said Neeta Pandit-Taskar, M.D., a nuclear medicine physician at Memorial Sloan-Kettering Cancer Center in New York City. While a woman's reproductive organs are the potential source of life, they can be the starting point of deadly disease in which abnormal body cells grow and spread. Reports indicate that 80,000 women in the United States—or 10 women an hour—are diagnosed with a cancer of the reproductive organs.

Pandit-Taskar's JNM article reviews the role of PET imaging with FDG in current clinical practice, highlighting, for example, the imaging technique's high sensitivity in detecting nodal disease in cervical cancer. PET imaging with FDG "can detect tumor involvement in lymph nodes before they grow bigger and can be detected with other imaging methods. PET is particularly useful in identifying disease in patients in whom anatomy is altered because of surgery or radiation," she said. The imaging technique evaluates the whole body in a single exam, giving doctors a larger scanning area to examine possible metastases (spread) or tumor cells that have broken away from a primary tumor and have traveled to other parts of the body, said the author of "Oncologic Imaging in Gynecologic Malignancies."

Oncologists may not yet be convinced of PET's imaging capabilities, though a number of studies have shown its usefulness, said Pandit-Taskar. Some studies have also shown that PET imaging with FDG is "superior" to CT or MRI in detecting recurrent ovarian cancer. PET's detection abilities may continue to increase with the advance of newer cameras that have better resolution, she added. PET may also help to stratify—or separate a patient population into subgroups—for therapy.

PET already plays an integral role in managing lymphoma, colorectal and lung cancers and is developing as a major tool in managing other cancers as well, said Pandit-Taskar, a member of the Society of Nuclear Medicine, an international scientific and research association that publishes JNM. Perfecting this tool could improve the treatment and health of patients, said Pandit-Taskar, who researches the role of PET imaging and the development of new diagnostic methods that use radiolabelled antibodies to detect cancers.

Without ever cutting into the skin, PET's biological imaging allows physicians to diagnose, treat and follow patients. PET is a powerful medical imaging procedure that noninvasively demonstrates the function of organs and other tissues. When PET is used to image cancer, a radiopharmaceutical (such as FDG, which includes both a sugar and a radionuclide) is injected into a patient. Cancer cells metabolize sugar at higher rates than normal cells, and the radiopharmaceutical is drawn in higher concentrations to cancerous areas. PET scans show where FDG is by tracking gamma signals given off by the drug.