

# Pretreatment PET/CT imaging of lymph nodes predicts recurrence in breast cancer patients

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Disease-free survival for invasive ductal breast cancer (IDC) patients may be easier to predict with the help of F-18-fludeoxyglucose positron emission tomography (PET)/computed tomography (CT) scans, according to research published in the September issue of *The Journal of Nuclear Medicine*. New data show that high maximum standard uptake value (SUVmax) of F-18-FDG in the lymph nodes prior to treatment could be an independent indicator of disease recurrence.

"Many studies have revealed that [breast cancer patients](#) with axillary lymph node metastasis have a significantly poorer prognosis than those without nodal metastases," noted Sang-Woo Lee, MD, PhD, one of the authors of "F-18-FDG Uptake by Metastatic [Axillary Lymph Nodes](#) on Pretreatment PET/CT as a [Prognostic Factor](#) for Recurrence in Patients with Invasive Ductal Breast Cancer." "However, the [prognostic value](#) of F-18-FDG uptake in metastatic axillary lymph nodes with PET/CT has not been investigated in IDC patients," he added.

In the study, researchers followed 65 female patients with IDC who had undergone pretreatment F-18-FDG PET/CT and who had pathologically confirmed axillary lymph node involvement without distant metastases. Factors such as age, TNM (tumor, lymph node and metastases) stage, estrogen receptor status, progesterone receptor status, human epidermal growth factor receptor 2 status, and SUVmax for the primary-tumor and axillary lymph nodes were analyzed. Patients underwent treatment and

were followed for a range of 21-57 months (median of 36 months).

Among the patients, 53 were disease-free and 12 had [disease recurrence](#) during the follow-up period. While both the primary-tumor and nodal SUVmax were higher in patients with recurrence, the nodal SUVmax was significantly higher. In addition, compared to the other factors that were analyzed, only nodal SUVmax was found to be an independent determinant of disease-free survival. Using a receiver-operating-characteristic curve, the researchers demonstrated that a nodal SUVmax of 2.8 was the optimal cutoff for predicting disease-free survival.

"One of the important roles of molecular imaging in cancer research is to noninvasively predict precise prognosis. Our results showed significant improvement in the accuracy of risk prediction for disease-free survival rates when nodal SUVmax was added to well-known established risk factors," said Lee. "Our study suggests that 18F-FDG PET/CT could yield useful information for risk stratification and treatment strategies in IDC patients with axillary lymph node involvement."

An estimated one in eight women will develop breast cancer in her lifetime. According to the American Cancer Society, an estimated 280,000 new cases of [breast cancer](#) were diagnosed among women in 2011, and nearly 40,000 died from the disease.

**More information:** "F-18-FDG Uptake by Metastatic Axillary Lymph Nodes on Pretreatment PET/CT as a Prognostic Factor for Recurrence in Patients with Invasive Ductal Breast Cancer" *Journal of Nuclear Medicine*, 2012.

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