^{18}F-FDG PET/CT in Staging Patients with Locally Advanced or Inflammatory Breast Cancer: Comparison to Conventional Staging

Abstract

The prognosis of patients with locally advanced breast cancer (LABC) remains poor. We prospectively investigated the impact of ^{18}F-FDG PET/CT at initial staging in this clinical setting and compared PET/CT performance with that of conventional distant work-up.

Methods: During 60 mo, consecutive patients with LABC (clinical T4 or N2–N3 disease) underwent ^{18}F-FDG PET/CT. The yield was assessed in the whole group and separately for noninflammatory and inflammatory cancer. The performance of PET/CT was compared with that of a conventional staging approach including bone scanning, chest radiography, or dedicated CT and abdominopelvic sonography or contrast-enhanced CT.

Results: 117 patients with inflammatory ($n = 35$) or noninflammatory ($n = 82$) LABC were included. ^{18}F-FDG PET/CT confirmed N3 nodal involvement in stage IIIC patients and revealed unsuspected N3 nodes (infraclavicular, supraclavicular, or internal mammary) in 32 additional patients. Distant metastases were visualized on PET/CT in 43 patients (46% of patients with inflammatory carcinoma and 33% of those with noninflammatory LABC). Overall, ^{18}F-FDG PET/CT changed the clinical stage in 61 patients (52%). Unguided conventional imaging detected metastases in only 28 of the 43 patients classified M1 with PET/CT (65%). ^{18}F-FDG PET/CT outperformed conventional imaging for bone metastases, distant lymph nodes, and liver metastases, whereas CT was more sensitive for lung metastases. The accuracy in diagnosing bone lesions was 89.7% for planar bone scanning versus 98.3% for ^{18}F-FDG PET/CT. The accuracy in diagnosing lung metastases was 98.3% for dedicated CT versus 97.4% for ^{18}F-FDG PET/CT.

Conclusion: ^{18}F-FDG PET/CT had the advantage of allowing chest, abdomen and bone to be examined in a single session. Almost all distant lesions detected by conventional imaging were depicted with PET/CT, which also showed additional lesions.

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FDG-PET/CT aids advanced breast cancer patients

By AuntMinnie.com staff writers

January 3, 2013 -- FDG-PET/CT can provide "significant prognostic stratification information" at initial staging for patients with locally advanced breast cancer compared to conventional imaging, according to a study published in the January issue of the *Journal of Nuclear Medicine*.

French researchers found that FDG-PET/CT more accurately showed lesions in the chest, abdomen, and bones in a single imaging session, and it changed treatment management for more than 50% of the patients in the study.

A team led by Dr. David Groheux, PhD, from the department of nuclear medicine at Hôpital Saint-Louis in Paris, prospectively evaluated 117 patients with locally advanced breast cancer over five years.

Patients received conventional imaging, including bone scans, chest radiography, or dedicated CT and abdominopelvic examination by sonography or contrast-enhanced CT, and were staged. They then received an FDG-PET/CT scan, which was reviewed by nuclear medicine specialists who were blinded to the conventional imaging results.

FDG-PET/CT was able to locate all primary tumors, confirming lymph node involvement in stage IIIC patients and revealing unsuspected lymph node involvement in 32 additional patients.

In addition, distant metastases in bone, lymph nodes, liver, lung, and pleura were seen with FDG-PET/CT in 43 patients (37%). Conventional imaging, by comparison, identified 28 patients (24%) with distant metastases.

FDG-PET/CT changed the stage of 61 (52%) of the 117 patients, which affected their recommended treatment.

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