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HAS 18FDG PET/CT A ROLE IN BREAST CANCER STAGING?

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BACKGROUND-AIM

To investigate the impact of 18F-FDG PET/CT at initial staging in patients with breast cancer (clinical T1-T4).

METHODS

In the last two years 116 consecutive patients with confirmed breast cancer and 8 patients with suspected breast recurrences accepted to perform a staging/restaging with 18F-FDG PET/CT. The patients were divided into four groups according to the T parameter: T1group (43 patients, 35%), T2group (59 patients, 47%), T3group (18 patients,15%) and T4group (4 patients, 3%). All patients underwent an FDG total body scan in supine position at 1 hour, followed by a study of the breast in prone position at 2 hours. SUVmax and delta SUV were measured from both time points in each group. Positive PET findings were subsequently evaluated with other imaging procedures (CT, MRI, ultrasounds) and biopsies. Sentinel lymph node biopsy (SLNB) was performed in 26 patients.

RESULTS

Histology identified 90 IDC, 18 ILC and 16 other types. PET/CT properly recognized almost all breast tumors except three (2 ILC, 1IDC). There was a false positive result in a patient with suspected breast recurrence (fat necrosis). Lymph node metastases (axillary, internal mammary chain and supraclavicular) were found in 57 patients (46%): 9 in T1group (21%), 31 in T2group (53%), 14 in T3group (77%) and 3 in T4group (75%). In patients with negative lymph node at PET/CT who performed SLNB there were 4 cases with micrometastases and isolated tumor cells (9.6%) and 2 patients with macrometastases (2FN at PET/CT). PET/CT revealed distant true metastases (mainly bone involvement) in 14 patients (12%): one in the first group (3%), nine in the second group (17%), three in the third group (16%) and one in the fourth group (25%). The mean SUV max in each group increased with tumor dimension, respectively 3.5, 6.4, 9.5 and 10.8. PET/CT depicted six patients (5%) with synchronous malignancies (timoma, renal and lung cancer, three thyroid cancers). The sensitivity, specificity, PPV, NPV and accuracy of PET/CT for the detection of axillary lymph node metastases was 90%, 98%, 98%, 91%, 94% respectively; the accuracy for the evaluation of the breast tumors was 97%. Management of 40 patients (32%) was altered based on the FDG PET/CT findings.

CONCLUSION

FDG PET/CT has the advantage of allowing chest, abdomen and bone to be examined in a single session and may be used to modify staging and management in a substantial percentage of patients.