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THE ADDITIONAL VALUE OF 18F-FDG PET/CT IN PRE- AND POST-OPERATIVE SETTING IN PATIENTS WITH LOCALLY ADVANCED BREAST CANCER

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BACKGROUND-AIM

The primary end-point of the present study was to determine the additional value of FDG PET/CT in patients with breast cancer at high risk of recurrence, in pre and post-operative setting. The secondary purpose was to determine the impact of FDG PET/CT on treatment planning in these patient subsets.

METHODS

We prospectively collected data from 255 women (age: 53±12 years; range:23-85 years) with a diagnosed locally advanced breast cancer (LABC) who performed FDG PET/CT examination before (n=137, 53.7%) or after surgery (n=118; 46.3%). The mean period between surgery and PET/CT was 45±22 days. The images were visually and semiquantitatively analyzed and compared with other imaging modalities, biopsy or histology, as appropriate. The treatments were planned by a multidisciplinary team, according to the current recommendation. True positive rate (TPR) and false positive rate (FPR) were calculated by standard methods. The differences between categorical data were assessed using Yates-corrected chi-square test.

RESULTS

FDG PET/CT was positive in 36 (30.5%) and doubtful in 13 (11%) among post-operative subjects, while it resulted positive in all pre-operative patients. In this latter group, PET/CT showed an abnormal FDG-uptake in breast and breast with homolateral axillary lymph nodes in 30 (22.1%) and 55 (40.4%) patients, respectively. Moreover, additional sites of disease were depicted in 29 (21.3%) and 22 (16.2%) patients, respectively for extra-axillary lymph nodes and distant organs.

Conversely, 7 (16.3%) patients of post-operative subset showed a positive PET/CT at breast level, 10 (23.3%) in homolateral axillary lymph nodes, 14 (32.6%) in extra-axillary lymph nodes and 12 (27.9%) in distant organs. TPRs and FPRs in detecting distant metastases and/or residual disease, in pre and post-operative settings were 94% and 81% vs. 6% and 19%, respectively. Finally, the change in treatment was reported in 35 (13.7%) patients, 17 in pre-operative and 18 in post-operative group (12.4% vs. 15.3%, respectively; p=0.510).

CONCLUSION

FDG PET/CT scan in the evaluation of LABC appears necessary either before or after surgery, being associated with a high TPR in depicting extra-axillary lymph nodes and distant organ involvement. In particular, the treatment change results higher in post-operative than in pre-operative group, although not statistically significant. Anyway, a reduction in health costs could be obtained.