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LETTER TO EDITOR OPEN ACCESS

FDG-PET/CT evaluation of breast cancer

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I wish to make a few important contributions from the point of diagnostic imaging of breast cancer (BC). Surgical treatment decisions for BC including modified radical mastectomy and breast conserving surgery depend on the exact data about the actual extent of BC, particularly on the presence of metastatic locoregional lymph nodes (LNs). Locoregional LNs primarily imply ipsilateral axillary LNs, but also refer to other local LNs including internal mamarian (IM), supraclavicular and infraclavicular LNs (1).

Though mammography, US and magnetic resonance imaging are standard methods in the initial imaging of BC,they were not thought to be the correct tools in precise demonstration of metastatic axillary LNs (2). 18-fluoro deoxyglucose (FDG)-positron emission tomography/computed tomography (PET/CT) was defined as a standard and essential method for initial staging of the BC patients because of its value in demonstration of metastatic locoregional LNs (3). FDG-PET/CT also gives critical information about the prognosis. As compared with other imaging methods, only FDG-PET/CT can maintain two irreplaceable quantitative parameters for the oncologist and the surgeon: Maximum standardized uptake value (SUVmax) of the tumour (SUVmax-T) and SUVmax of the metastatic LNs (SUVmax-LN), which are used to demonstrate the quantity of FDG uptake of the tumoural mass and LNs, respectively. SUVmax-T was found to be significantly higher in patients with recurrent BC (4) and poor prognosis (5). SUV max-T allows to assess prognosis in BC by quantifying the tumour aggressivity.

As another predictor of prognosis, SUVmax-LN prior to therapy can be used as a determinant of disease free survival (6). The presence of metastatic IM LNs is of particular significance in predicting the likelihood of

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distant metastases and decreased survival rates (7). FDG-PET/CT is also superior to conventional imaging tools in demonstration of metastases in IM LNs (8). However it should also be kept in mind that micrometastases can not be excluded by a negative FDG-PET/CT because of the limitations in the geometric resolution of PET, which was stated to be as low as 5–6 mm (9).

In conclusion, I strongly recommend FDG-PET/CT to be performed in BC patients prior to surgery for staging, for the assessment of prognosis and for having baseline images which will be used for comparison with the follow-up FDG-PET/CT images.

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