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Simultaneous whole body 18F-FDG PET-MRI in primary staging of breast cancer

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Accurate initial staging in breast cancer is important for treatment planning and prognostication. The purpose of this study was to assess the utility of whole body simultaneous 18F-FDG PET-MRI in initial staging of breast carcinoma.

Methods: 36 patients of IDC of breast on histology underwent initial staging with whole body 18F-FDG PET-MRI on Biograph mMR (Siemens). Primary lesion, nodes and metastases were evaluated on PET, MRI and PET-MRI for lesion count and diagnostic confidence (DC). Kappa co relation analysis was done to assess agreement between PET and MRI. Histopathology, clinical/ imaging follow-up served as the reference standard.

Results: 25 of 36 patients (37 index lesions) underwent surgery and 11 received NACT. Highest diagnostic confidence (DC=5) for index lesions obtained with PET MRI compared to PET and MRI alone. 2/36 (5.5%) patients were found to have synchronous contralateral cancer. MRI detected multifocality/multicentricity in 21 patients & 47 satellite lesions of which 23 were FDG avid. Sensitivity for axillary node detection was 60% and 93.3% with false negative rate of 40% and 6.7 % on PET and MRI respectively, and specificity for both was 91%. Distant metastases were found in 8/36 (22%) patients with 91 metastatic lesions on PET (DC>=4) and 105 on MRI (DC>=4) and found statistically significant (P=0.001). Overall PET-MRI led to a change in management in 12 (33.3%) patients.

Conclusion: Simultaneous whole body 18F-FDG PET-MR, has been found to be comprehensive single session examination in the initial staging of breast cancer.

Biography

Sangeeta Taneja, completed her Masters in Radio-diagnosis in Jan 2003; a visiting fellow at Seattle Cancer care alliance (2008) & MSK, NY (2012), distinguished herself as a pioneering figure in MR Breast Imaging in India with largest cumulated experience & first to start MR guided breast interventions at Rajiv Gandhi Cancer Institute Delhi, has more than 25 scientific publications in reputed journal and reviewer to national and international journals, presently placed as Sr. consultant in Department of Molecular Imaging and Nuclear Medicine and an active member in the PET MRI project at Indraprastha Apollo Hospitals Delhi India.

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