

Conclusions: The vascular surfaces of AMI and VMI were significant different on the side with breast cancer compared to the contra lateral side. This difference was not observed in healthy controls. Future research should proof whether the vascular surface could be a supplementary parameter in the assessment of MRM.

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POSTER

Role of [18F]FDG-PET/CT Imaging in the Management of Muscle Invasive Transitional Cell Carcinoma: a Single-institutional Experience Report

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Background: The management of muscle-invasive bladder cancer has evolved over the years with the introduction of perioperative chemotherapy; however, the appropriate selection of patients is still a limiting issue. Computed tomography (CT) or magnetic resonance imaging (MRI) have limited accuracy, particularly, in lymph node staging. In this setting, [18F]fluoro-2-deoxy-D-glucose ([18F] FDG) positron emission tomography (PET) has emerged as an useful alternative for adequate staging and decision making.

Materials and Methods: This study investigated the value of FDG-PET/CT imaging in the management of patients with advanced bladder cancer. Between January 2004 and May 2010, 26 patients with muscle-invasive bladder cancer underwent FDG-PET/CT after CT or MRI for staging purposes. The accuracy of FDG-PET/CT was assessed using both organ-based and patient-based analyses. FDG-PET/CT findings were validated by either biopsy or serial CT/MRI.

Results: Of the 26 patients available for analysis, PET/CT demonstrated different findings from CT or MRI in 38% of the cases, including evidence of lymph node involvement in 3 patients with originally uninvolved lymph nodes and distant metastases in one of these patients. Also, FDG-PET/CT findings were normal in two out of 15 patients with evidence of nodal involvement by CT or MRI. In both patients, there were no pathological evidences of metastatic involvement. However, FDG-PET/CT was associated with three false positive cases including renal tuberculosis, nodal chronic inflammatory process and chronic pancreatitis. Initial management modifications and changes in the treatment modality occurred in 34% and 23% of the patients, respectively, as a result of FDG-PET/CT re-staging.

Conclusion: FDG-PET/CT provides additional diagnostic information that enhances clinical management, when compared to CT or MRI alone. FDG-PET/CT scans may provide better accuracy in clinical information for directing treatment. However, the number of false positive findings are still a concern, particularly in areas such as South America, where the incidence and prevalence of some types of infectious and granulomatous diseases differ from the American and European populations.

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POSTER

Role of FDG-PET/CT in the Evaluation of Bone Marrow Involvement of Solid Tumours

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Background: Bone scintigraphy, magnetic resonance imaging, and FDG-PET/CT are used in the evaluation of bone metastasis in solid tumours. There is paucity of imaging modalities that predict bone marrow metastasis in adult solid tumours. We aimed to investigate the predictive value of FDG-PET/CT in solid tumours in which bone marrow metastasis was proven by biopsy.

Materials and Methods: We retrospectively analysed patients with proven bone marrow metastasis histopathologically. FDG-PET/CT was ordered in 10 patients. We quantitatively evaluated FDG uptake in iliac wing, corpus sterni, and lumbar vertebra with respect to liver and spleen involvement. We used standard uptake value (SUVmax) and involvement rate to depict bone marrow metastasis.

Results: We found bone and bone marrow involvement in all 10 patients with FDG-PET/CT imaging. Five patients showed only bone metastasis whereas 5 patients both bone and bone marrow metastasis. In 5 patients, bone marrow involvement was suspected by FDG-PET/CT although complete blood count was within normal limits.

Conclusion: FDG-PET/CT was highly accurate in predicting bone marrow metastasis in solid tumours in adults.

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POSTER

Positive Predictive Value of PET- CT in Evaluating Post Therapy Residues of Hodgkin Lymphoma and Diffuse Large B Cell Lymphoma

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Background: Patients with diffuse large B cell NHL (DLBCL) and Hodgkin lymphoma (HL) often exhibit a residual mass of which only 20% and still lesser numbers of NHL and HL respectively, have persistent disease at restaging laparotomy. Computerized tomography scan (CT scan) low specificity in response assessment following therapy [2,3]. So the necessity to identify cases with no viable disease in residues is increasing, but with lesser invasive techniques. Various studies have shown varying sensitivity and positive predictive value of Fluorine¹⁸ fluoro deoxy glucose positron emission tomography (FDG PET) which leads to either unnecessary biopsy of PET positive residues. Indian data addressing this issue is scarce, where PET positive post treatment residues have a high chance of being non malignant, chronic inflammatory conditions or reactive, with paucity of studies using fusion of FDG and CT scan that can improve diagnostic accuracy. This study has been specifically designed to address this issue and find the positive predictive value (PPV) of fusion of PET CT, in evaluating post treatment residues in HL and DLBCL. Further a trend of the Standard Uptake value (SUV) in predicting viable disease has also been analyzed as a secondary outcome of the study.

Materials and Methods: Between June 2008 and October 2009, patients diagnosed to have HL and DLBCL at Cancer Institute (WIA) Chennai, treated with standard chemotherapy protocols with or without radiotherapy & who underwent end of therapy ¹⁸FDG PET CT scan to assess post treatment residues, were included in the study. All cases with PET positive residues were biopsied wherever feasible. Correlation of the biopsy with PET positivity and its SUV was done. The PET negative residues were not biopsied and were kept under follow up. All the cases had a mean follow up of 11.69±4.45 months.

Results: Seventy eight patients were included in the study with a median age of 36 years (4–76 years), of which there were 55 males and 23 females with a male: female ratio of 2.3:1. Of 78 patients, there were 52 cases of HL and 26 cases of DLBCL. In DLBCL patients, PPV of PET CT was 75% (SUV max 2.03). The 4 PET CT positive cases (SUV max of 1.1) which could not be biopsied were disease free at a median follow up of 15.5 months (10–19 months). In the HL PPV of PET CT was 36.3%. The mean SUV of PET positive residue in DLBCL was 5.7±3.49 (SUV max 12.8), whereas the mean SUV of PET positive residue in HL was 10.8±3.63 (SUV max 15.06) (p value – 0.018).

Conclusions: The PPV of PET findings is somewhat limited, dictating necessity to biopsy any PET-positive node, before salvage treatment is contemplated. Even lower SUV values in DLBCL residues may reveal viable disease. On the other hand, larger the node, more were the chances of finding viable disease PET positive HL residues. Size of the node appeared to be predictive in HL. Radiotherapy did not seem to affect the false positive rates in either HL or DLBCL.

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POSTER

18F-FDG PET for Assessment of Therapy Response After Neoadjuvant Chemotherapy in Stage IIIa Non-small Cell Lung Cancer

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Background: The aim of this study was to evaluate FDG-PET for assessment of therapy response and prediction of patient outcome after neo-adjuvant chemotherapy (NACT) of IIIa non-small cell lung cancer (NSCLC).

Material and Methods: Twelve patients (11 men and 1 women, mean age: 64.33 years old (range:19–81)) with newly diagnosed and histologically proven IIIa NSCLC (5 adenocarcinoma and 7 squamous cell carcinoma) were included in a prospective study between September 2008 and January 2010. All patients underwent CT and 18F-FDG-PET-CT (Siemens Biograph. 16[®]) before and after NACT (cisplatin-based chemotherapy). The images data were collected, analyzed and correlated with outcome data. Maximum SUV (SUVmax) value and the NACT response (EORTC criteria) were correlated with clinical outcome. We also compared the assessment of treatment response between CT scan (RECIST criteria) and PET-CT scan (EORTC criteria).

Results: The mean average FDG uptake of the primary tumours was 13.26 compared with 7.72 after NACT. According to RECIST criteria, one patient developed a complete response (CR), 7 had partial response (PR), 3 stable disease (SD) and one had progressive disease (PD). On PET-CT scan