

Abstract P5

Characterisations and Scan Findings of Non-Small Cell Lung Cancer Seen on Staging FDG PET-CT: Contemporary Review and Institutional Experience

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Objective: Fluorodeoxyglucose (FDG) PET-CT scan is extensively being applied in oncology including lung cancer staging and treatment response assessment by depicting glucose consumption of malignant cells. Non-small cell lung cancer (NSCLC) cases such as adenocarcinoma and squamous cell carcinoma (SCC) are more prevalent. We aimed to determine the FDG uptake avidity based on semiquantitative maximum Standardised Uptake Value (SUVmax) observed on staging PET-CT of newly diagnosed NSCLC and associated contributing factors.

Methods: Retrospective review of 125 cases of biopsy proven lung cancer referred for FDG PET-CT in our institution over the past 2 years. Staging PET-CT scans (n=54) were included for analysis. Clinical parameters and PET-CT findings (SUVmax of primary lesion, presence of nodal and metastatic disease) were investigated. SUVmax of primary lesion for SCC and adenocarcinoma was compared. Association between SUVmax of primary lesion and extrapulmonary FDG-avid lesions presence was also determined.

Results: Males were predominant (60%). Average age was 62.5 years. Majority were adenocarcinoma (65%) followed by SCC (22%) and others (13%). Mean tumour size was 5.1 cm. Lung SCC demonstrated intensely increased FDG uptake that was significantly higher compared to adenocarcinoma (average SUVmax 24.4 vs SUVmax 15.6, $p<0.05$). FDG-avid ipsilateral hilar nodal involvement seen in 63%, mediastinal nodes in 70% while distant metastatic disease in 33%. Patients having primary lesion with SUVmax 20.0 and above were significantly associated with larger tumour size and FDG-avid ipsilateral hilar nodal uptake ($p<0.05$).

Conclusion: Lung SCC was intensely FDG-avid and had higher SUVmax compared to adenocarcinoma. Primary lesions with SUVmax 20.0 and above were associated with larger tumour size and presence of hypermetabolic ipsilateral hilar nodal spread. Information obtained from this review will provide valuable insight into PET-CT scan characteristics of newly diagnosed NSCLC cases in our institution that may influence not only scan reporting formulation but also patient management.

Keywords: Lung cancer, fluorodeoxyglucose, PET-CT

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