

# Correlation of SUV on 18F-FDG PET Uptake with polymorphonuclear in Non-small Cell Lung Cancer

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## AIM:

The aim of this study was to assess the correlation between SUV values on 18F-FDG PET/CT studies with histopathological findings as polymorphonuclear (PMN) in patients with suspected non-small cell lung cancer (NSCLC).

## MATERIAL AND METHODS:

58 patients with suspected NSCLC (43 male) were studied. All had complete surgical resection and were diagnosed based on the WHO classification of NSCLC.

PET imaging was performed with hybrid PET/CT scanner 60 min after 370 MBq 18F-FDG administrations. Tumour lesions were identified as areas of focally increased uptake in the lungs. For semi-quantitative analysis, the maximum standardized uptake value (SUV) was calculated.

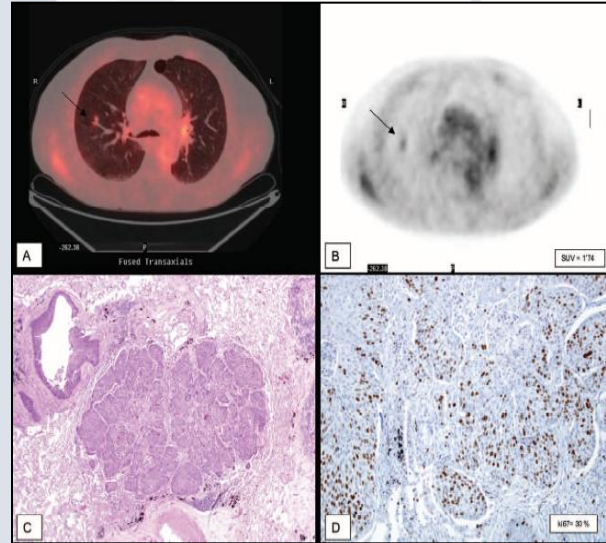
Histopathological findings as polymorphonuclear, tumour infiltrating lymphocytes, necrosis and vascular invasion examined in a section of surgically resected lung lesion. We compared SUV with these histopathological findings with two subgroups defined as the presence or not of every of these findings.

## RESULTS:

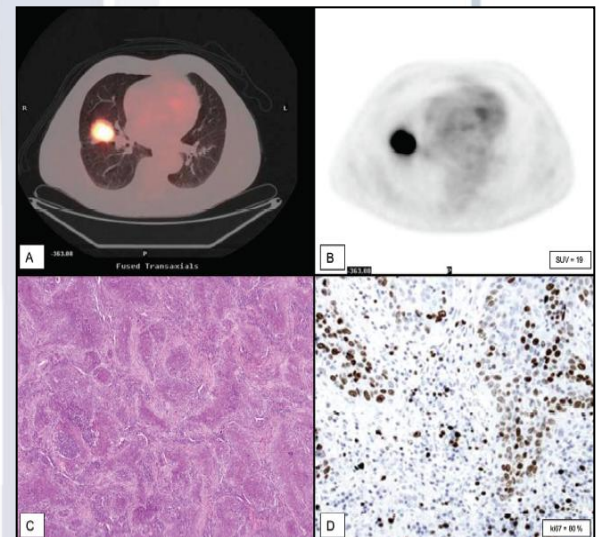
- PET/CT showed focal uptake in primary tumour in all cases.
  - \* Vascular invasion were observed in 21 patients (36,2%),
  - \* PMN in 14 patients (24,1 %),
  - \* Infiltrating lymphocytes in 51 patients (88 %)
  - \* Necrosis in 34 patients (58,6 %).
- Non significant correlation was observed with 18F-FDG PET SUV value with tumour infiltrating lymphocytes, necrosis or vascular invasion.
- On the other hand, significant correlation was observed between SUV values with polymorphonuclear analysis ( $p < 0,001$ ).
- PMN subgroup showed a higher SUV values (mean 14, standard error 6,3) than the non PMN subgroup (mean 9, standard error 6,7).

## CONCLUSION:

We observed significant differences between SUV values on 18F-FDG PET with the presence of PMN in NSCLC. Surgically resected lung lesion with PMN showed higher SUV in all the cases studied.



Patient with a Squamous cell carcinoma. A and B 18F-FDG PET images demonstrate low FDG uptake in the tumour (SUV: 1.74). C Squamous cell carcinoma (8 mm diameter tumour) D Proliferation rate (Ki-67) of 30 %.



Lymphoepithelioma-like carcinoma. A and B 18F-FDG PET images demonstrate high FDG uptake in the tumour (SUV: 19). C and D Lymphoepithelioma-like carcinoma with proliferation rate (Ki-67) of 80 %.