

# RELATIONSHIP BETWEEN 18F-FDG UPTAKE, BIOMARKERS AND HISTOLOGIC TYPES OF LUNG CANCER IN LYMPH NODES BY EBUS AND TUMORS

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Area and Category(at submission):

[WCBIP] Biomarker analysis using bronchoscopic samples

Presentation Preference: Either

Case Report: NO

## Background;

We performed this study to find the relationship between 18F-FDG uptake, bio-marker proteins related to PET uptake and histologic types of lung cancer in metastatic lymph nodes sampled by endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) and primary tumors.

## Methods;

We investigated 55 adenocarcinoma (ADC) and 53 squamous cell carcinoma (SQC) patients who were enrolled in a prospective study that evaluated roles of PET/CT and EBUS-TBNA in the mediastinal staging of operable lung cancer. Size and PET findings of primary tumors and EBUS-diagnosed metastatic nodes were evaluated. Expressions of glucose transporter 1 (glut-1) and hexokinase II in primary tumors (ADC n=38, SQC n=50) and metastatic mediastinal nodes (ADC n=11, SQC n=7) were assessed using immunohistochemical staining.

## Results;

Compared with SQC, primary tumors were smaller for ADC (mean±SD; 34.9±21.0mm vs. 42.4±18.2mm, p=0.048). Metastatic mediastinal nodes were smaller for ADC compared to SQC, but the difference did not reach statistical significance (9.7±3.6mm vs. 12.0±3.7mm, p=0.155). ADC had lower PET uptakes in primary tumors (6.32±4.27 vs. 10.39±4.45, p<0.001) and metastatic nodes (3.22±2.13 vs. 5.07±2.73, p=0.044). Staining intensity of positive cells of glut-1 was lower in ADC compared to SQC in primary tumors (P<0.0001) and in metastatic lymph nodes as well (p=0.048). The intensity of hexokinase II was also lower in ADC compared to SQC in primary tumors (p<0.0001) and in metastatic lymph nodes (p=0.013). Expressions of these biomarkers were correlated with the maximum standardized uptake value of primary tumors.

## Conclusion;

Lower FDG uptake and lower intensity of PET related bio-markers were observed in ADC compared with SQC in primary tumors and metastatic lymph nodes. Our results suggest that ADC should be carefully staged with EBUS-TBNA, even in cases with low PET uptakes in the mediastinum.