

Alterations of tumor suppressor genes (Rb, p16, p27 and p53) and an increased FDG uptake in lung cancer

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Objective: The FDG uptake in lung cancer is considered to reflect the degree of malignancy, while alterations of some tumor suppressor genes are considered to be related to the malignant biological behavior of tumors. The aim of this study is to examine the relationship between FDG-PET and alterations in the tumor suppression genes of lung cancer. **Methods:** We examined 28 patients with primary lung cancer who underwent FDG-PET before surgery consisting of 17 patients with adenocarcinoma, 10 with squamous cell carcinoma and 1 with large cell carcinoma. The FDG-PET findings were evaluated based on the standardized uptake value (SUV). Alterations in the tumor suppressor genes, Rb, p16, p27 and p53, were evaluated immunohistochemically. **Results:** The FDG uptake in lung cancer with alteration in each tumor suppressor gene tended to be higher than in those genes without alterations, although the differences were not significant. In 15 tumors with alterations in either tumor suppressor genes, the FDG uptake was 6.83 ± 3.21 . On the other hand, the mean FDG uptake was 1.95 in 2 tumors without alterations in any genes. The difference in the FDG uptake between the 2 groups was statistically significant ($p < 0.001$). **Conclusions:** In conclusion, the presence of abnormalities in the tumor suppressor genes, which results in an accelerated cell proliferation, is thus considered to increase the FDG uptake in lung cancer.

Key words: lung cancer, FDG, PET, tumor suppressor gene