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Relationship between Glut-1, Glut-3 expression and fluorodeoxyglucose uptake in NSCLC and benign pulmonary lesion

Tao WU, Tiecheng PAN, Zhi ZHENG, Tao CHEN, Youmin PAN

摘要

Background and objective It has been known that facilitative glucose transporter (GLUT) is the main carrier which intervenes the glucose uptake of cell. The expression of Glut-1, Glut-3 has close relationship with the uptake of 18Fluoro-2-deoxyglucose (FDG). The aim of this study is to discuss the relationship between expression of glucose transporter-1, 3 (Glut-1, Glut-3) and FDG uptake in NSCLC and benign pulmonary lesion. Methods Eighty-four NSCLC patients and twenty-four benign pulmonary lesion patients received PET/CT scan before operation. The expression of Glut-1, Glut-3 was detected by immunohistochemistry. The relationship among these factors was investigated. Results The range of average SUV (SUVave) of the eighty-four patients was 3.6-13.2, and the average value was 7.8±3.0. The range of average SUV (SUVave) of the twenty-four patients was 1.2-9.2, and the average value was 3.2±1.9. In NSCLC tissues, the average immunohistochemical staining intensity of Glut-1, Glut-3 was 4.4±1.3 and 2.6±1.9, respectively. In benign pulmonary lesion, the average immunohistochemical staining intensity of Glut-1, Glut-3 was 0.9±0.9 and 1.2±1.4, respectively. Both of the Glut-1 and the Glut-3 expression levels were significantly higher in NSCLC than those in benign pulmonary lesion ($P<0.01$). Glut-1 expression was positively correlated to SUVave ($r=0.78$, $P<0.01$) in NSCLC patients. Glut-3 expression was positively correlated to SUVave ($r=0.45$, $P=0.03$) in benign pulmonary lesion patients. Conclusion The results show Glut-1 and Glut-3 express not only in NSCLC but also in benign pulmonary lesion. Glut-1 play an important role in FDG uptake in NSCLC. Glut-3 play an important role in FDG uptake in benign pulmonary lesion.

关键词

Lung neoplasms; Benign pulmonary lesion; Facilitative glucose transporter-1; Facilitative glucose transporter-3; Fluoro-2-deoxyglucose

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