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Guangli Wang

Shandong University, China

Correlation of the expression of vascular endothelial growth factor with spectral CT imaging in non-small cell lung cancer

Objective: To explore the correlation between the expression level of vascular endothelial growth factor (VEGF) in non-small cell lung cancer (NSCLC) tissue and quantitative parameters of spectral CT imaging.

Materials and Methods: Forty-eight patients with NSCLC were subjected to a spectral CT imaging protocol before a surgical operation. The concentrations of iodine concentration, water concentration, and CT values at 40 keV in the region of interest were measured. The slopes of spectral attenuation curves (λ HU) in the region were also calculated. The level of VEGF expression in the tumor tissue was measured using an immunohistochemical method (MaxVision method). The quantitative parameters of spectral CT imaging were compared among different levels of VEGF expression using one-way ANOVA and the SLD-t test. The correlation between VEGF

expression and spectral CT imaging was estimated through Spearman's rank correlation analysis.

Results: There were significant differences in iodine concentrations, λ HU and CT values at 40 KeV in NSCLC between the groups showing negative and moderately positive expression of VEGF ($P=0.001, 0.000, 0.001$, respectively) as well as between those showing mildly and moderately positive expression of VEGF ($P=0.047, 0.005, 0.002$, respectively). In addition, all of the iodine concentrations, λ HU values and CT values at 40 KeV displayed a significant and positive correlation with the level of VEGF expression ($r = 0.413, 0.458, 0.393$, respectively, $P < 0.05$).

Conclusions: Quantitative parameters of spectral CT imaging may helpful for evaluating the status of angiogenesis in NSCLC.

Biography

Guangli Wang the member of the Chinese medical association, the committee member of Molecular Imaging group in Shandong Radiological Society has involved with several research projects, including " Clinical study of molecular imaging in staging of non-small cell lung cancer", " Correlation of Spectral CT imaging with VEGF, MVD and Ki-67 expression in non-small cell lung cancer", " The value of Volume RAD in the diagnosis of thoracic lesions", and " Quantitative Emphysema Assessment of Pulmonary Function Impairment by Computed Tomography in Chronic Obstructive Pulmonary Disease."

13869181865@163.com

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