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Lack of association between KRAS mutations and 18F-FDG PET/CT in Caucasian metastatic colorectal cancer patients.

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Abstract

BACKGROUND:

Although Kirsten rat sarcoma (KRAS) gene mutational testing is essential for the optimal design of therapeutic strategies for colorectal cancer, it is not always feasible or reliable. In this retrospective study, we examined whether (18)F-Fluorodeoxyglucose positron-emission tomography/computed tomography ((18)F-FDG PET/CT) scans can serve as a surrogate examination for KRAS mutational testing.

PATIENTS AND METHODS:

KRAS codon 12 and 13 mutational status was tested in 44 colorectal primary tumors and was compared with the (18)F-FDG PET/CT maximum standardized uptake value (SUVmax) values of the respective metastatic lesions. Glucose transporter-1 (GLUT1) mRNA levels were also measured in colorectal primary tumors.

RESULTS:

No statistically significant correlation between (18)F-FDG PET/CT SUVmax values and KRAS mutation status was found (parametric t-test: p=0.4753; non-parametric Kruskal-Wallis test: p=0.51). This result cannot be attributed to the effect of differing GLUT1 mRNA levels, as shown by multivariate analysis.

CONCLUSION:

Our study failed to promote (18)F-FDG PET/CT uptake as a surrogate examination for KRAS mutation testing.