

Predictive Value of ^{18}F -Fdg Accumulation in Visceral Fat Activity to Detect Colorectal Cancer Metastases

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Abstract : Objective: To assess functional visceral fat (VAT) activity evaluated by ^{18}F -fluorodeoxyglucose (^{18}F -FDG) positron emission tomography/computed tomography (PET/CT) as a predictor of metastases in colorectal cancer (CRC). Materials and methods: We assessed 60 patients with histologically confirmed CRC who underwent ^{18}F -FDG PET/CT after a surgical treatment and courses of chemotherapy. Age, histology, stage, and tumor grade were recorded. Functional VAT activity was measured by maximum standardized uptake value (SUVmax) using ^{18}F -FDG PET/CT and tested as a predictor of later metastases in eight abdominal locations (RE - Epigastric Region, RLH - Left Hypochondriac Region, RRL - Right Lumbar Region, RU - Umbilical Region, RLL - Left Lumbar Region, RRI - Right Inguinal Region, RP - Hypogastric (Pubic) Region, RLI - Left Inguinal Region) and pelvic cavity (P) in the adjusted regression models. We also report the best areas under the curve (AUC) for SUVmax with the corresponding sensitivity (Se) and specificity (Sp). Results: In both adjusted for age regression models and ROC analysis, ^{18}F -FDG accumulation in RLH (cutoff SUVmax 0.74; Se 75%; Sp 61%; AUC 0.668; $p = 0.049$), RU (cutoff SUVmax 0.78; Se 69%; Sp 61%; AUC 0.679; $p = 0.035$), RRL (cutoff SUVmax 1.05; Se 69%; Sp 77%; AUC 0.682; $p = 0.032$) and RRI (cutoff SUVmax 0.85; Se 63%; Sp 61%; AUC 0.672; $p = 0.043$) could predict later metastases in CRC patients, as opposed to age, sex, primary tumor location, tumor grade and histology. Conclusions: VAT SUVmax is significantly associated with later metastases in CRC patients and can be used as their predictor.

Keywords : ^{18}F -FDG, PET/CT, colorectal cancer, predictive value

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