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Predictive Value of ^{18}F-Fluorodeoxyglucose Accumulation in Visceral Fat Activity to Detect Epithelial Ovarian Cancer Metastases

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Abstract : Relevance: Epithelial ovarian cancer (EOC) is the most lethal gynecological malignancy, with relapse occurring in about 70% of advanced cases with poor prognoses. The aim of the study was to evaluate functional visceral fat activity (VAT) evaluated by ^{18}F-fluorodeoxyglucose (^{18}F-FDG) positron emission tomography/computed tomography (PET/CT) as a predictor of metastases in epithelial ovarian cancer (EOC). Materials and methods: We assessed 53 patients with histologically confirmed EOC 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 (SUV_{max}) 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 identified the best areas under the curve (AUC) for SUV_{max} with the corresponding sensitivity (Se) and specificity (Sp). Results: In both adjusted-for regression models and ROC analysis, ^{18}F-FDG accumulation in RE (cut-off SUV_{max} 1.18; Se 64%; Sp 64%; AUC 0.669; $p = 0.035$) could predict later metastases in EOC patients, as opposed to age, sex, primary tumor location, tumor grade, and histology. Conclusions: VAT SUV_{max} is significantly associated with later metastases in EOC patients and can be used as their predictor.

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