

Purpose:The prognosis for patients with esophageal squamous cell cancer depends on the complex interplay of TNM classifications as well as nonanatomic factors, including histopathologic cell type, histologic grade and cancer location. Few reports have discussed the relationships of both MTV and SUVmax measured by PET/CT and stage in esophageal cancer, especially which classified by the last edition staging system. We aimed to evaluate the relationships between primary tumour maximum standardized uptake value, metabolic tumour volume and 7th edition American Joint Committee on Cancer (AJCC) classification in esophageal squamous cell carcinoma (ESCC) patients.

Methods:Fluorine-18 fluorodeoxyglucose positron emission tomography-computed tomography (18F-FDG PET/CT) scans of 41 consecutive newly diagnosed ESCC patients were retrospectively reviewed. Maximum standard uptake value (SUVmax) and metabolic tumour volume (MTV) were recorded. Two-tailed spearman's correlation was used to analyse the relationships between the metabolic parameters and AJCC staging system.

Results:Positive correlations were observed between SUVmax, MTV and N stage stage ($P=0.002$, $R=0.477$; $P<0.001$, $R=0.563$) in addition to AJCC stage ($P=0.002$, $R=0.460$; $P<0.001$, $R=0.539$). Both metabolic parameters were independent variables that significantly affected N stage and AJCC stage by the multiple analysis ($P<0.001$, adjusted $R^2=0.348$; $P=0.002$, adjusted $R^2=0.238$), and only SUVmax was independent variables that significantly affected T stage ($P=0.003$, $R=0.459$; $P=0.004$, adjusted $R^2=0.464$).

Conclusions:The metabolic parameters derived from 18F-FDG PET/CT were positively correlated with T, N and AJCC stage in primary ESCC. Our findings may suggest a complementary role of these parameters to last 7th edition AJCC staging in prognostication of ESCC patients.